EAA 26

EXCAVATIONS IN NORWICH 1971-78 Part II

East Anglian Archaeology 26
Norwich Survey, 1985

EAST ANGLIAN ARCHAEOLOGY

Excavations in Norwich

1971-1978
Part II

by Malcolm Atkin, Alan Carter and D. H. Evans

with major contributions by
Susanne Atkin, Judith Cartledge, Andrew Davison, Mary Harman, Sarah Jennings, Andrew K. G. Jones, Geoffrey Kelly, Sue Margeson, Peter Murphy, the late Helen Sutermeister, Margot Tillyard

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Photo: Norfolk Museums Service.

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by Malcolm Atkin

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John Cherry and Peter Davey have given freely of their advice in discussing the copper alloy objects and clay pipes respectively. All photographs are by the Norwich Survey, except Pl. IX by Hallam Ashley; Pls XXI, XXII, XXXV-XXXVII by Malcolm Howard. Malcolm Howard is also to be thanked for his efforts in producing photographic prints suitable for publication from our own negatives. Pl. X is reproduced by kind permission of the Pierpont Morgan Library, New York.

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We gratefully acknowledge the customary courtesy and assistance of Bryan Wake and the staff of Witley Press in the final preparation of this volume.

Abbreviations

(Bibliographical abbreviations in standard form)

A	:	Archive (AS = archive section)
AML	:	Ancient Monuments Laboratory
AO	:	Atkinson and Oswald 1969
Cat.	:	Catalogue number of pots illustrated in Jennings 1981 (*Cat., see p.4)
E	:	Elevation
EB(F)	:	Early brick (fragments)
EBM	:	Early brick moulded
EMSS	:	Early Medieval sparse shelly ware
EMSW	:	Early Medieval Sandwich ware
EMW	:	Early Medieval ware
FT	:	Floor-tile
GFA	:	Ground-floor area
GHL	:	Great Hospital leases
GRE	:	Glazed red earthenware
LB(F)	:	Late brick (fragments)
LMMC	:	London Museum *Medieval Catalogue*, 1954
LMT	:	Late Medieval and Transitional (ware)
LMUW	:	Local medieval unglazed ware
LPM	:	Late post-medieval
MF	:	Microfiche
MFS/T	:	Microfiche section/table
MMS	:	Main Mammalian Species
MNI	:	Minimum Number of Individuals
NCC	:	Norwich Consistory Court
NCCR	:	NRO Norwich City Court Rolls
NCM	:	Norwich Castle Museum
NDCR	:	Norwich Dean and Chapter Records
NMR	:	National Monuments Record
NRO	:	Norfolk Record Office
PRO	:	Public Record Office
RT	:	Roof-tile
S	:	Section
SF	:	Small Find
TGE	:	Tin-glazed earthenware
WSGG	:	White slip, green glaze

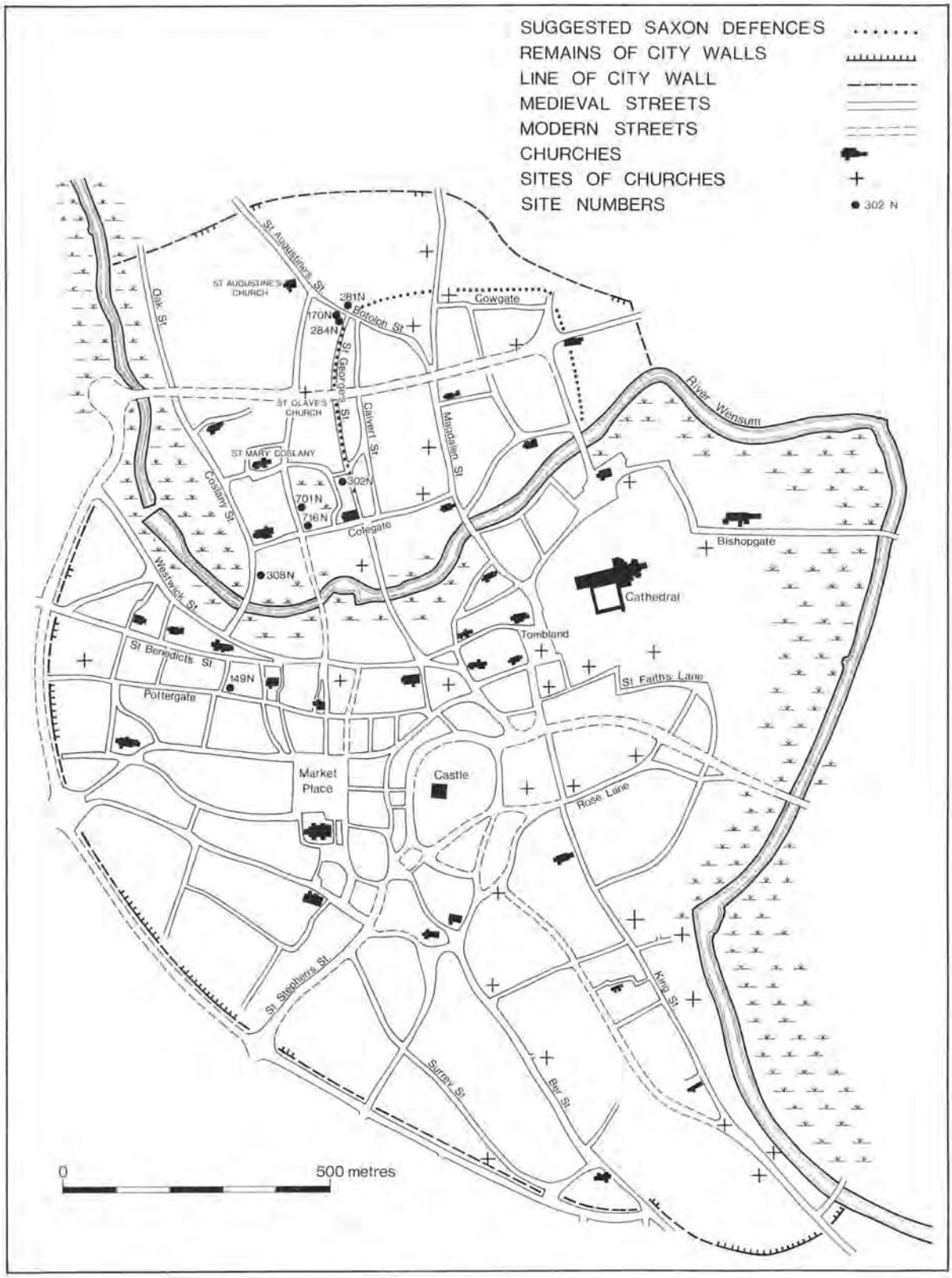

Fig.01 Location of sites referred to in text

General Introduction

by Malcolm Atkin and Alan Carter

The sites reported on in this volume were selected for excavation in the belief that they would illuminate the Norwich Survey's principal areas of archaeological concern: the origin and early growth of the city; and the development of late medieval housing. (The excavation strategy is outlined in Carter 1978 and commented on in Atkin 1982.) The first objective was only partially realised for, with the exception of the 10th-century ditch located on Alms Lane and Botolph Street (pp.147 and 115), the evidence was largely negative. On none of the sites, then, was either Middle or late Saxon occupation discovered. More surprisingly, though, for sites that lay well within the line of the late 13th-century defences (sites 149N, 170N/281N and 302N on Fig.01) there was evidence before *c.*1280 for only dumping, quarrying and limited industrial purposes. From this it would appear that ribbon development along the city's major roads had by-passed our sites, and that intensification of their exploitation in the 14th and 15th centuries came about in a process of internal colonisation. It seems that this must have been a common phenomenon in Norwich and one that adequately explains both the almost total lack of suburbs and the odd location of the friaries (Campbell 1975, map 2. Friaries are frequently located at the limit of mid 13th-century settlement).

The implications of this are twofold. First, and perhaps providing the most important lesson of these excavations, is that a simple model of linear progression (as from centre to suburb) is totally inapplicable to the development of towns. Second, our intention in investigating late medieval housing had been to choose a range of sites the location of which ranged from central to peripheral but our perception was faulty: the three multi-tenement sites published here are now seen to lie in equally non-central locations.

Two of the sites, Botolph/St George's Street (281N/284N) and Alms Lane (302N) lay immediately outside the Saxon defences postulated for the area north of the river in the 1973 interim report (Carter *et al.* 1974, 57 and fig. 1) and both clipped the edge of the ditch (Fig.02; p.240, and below). The latter was shown to lie immediately below St George's Street which suggests that the line of an intramural street may be indicated by Calvert Street and Cowgate (Fig.01: the two streets immediately within the dotted line indicating the defences). The ditch has been observed elsewhere along its west side during building operations (Norfolk SMR: sites 173N and 22N) but so far the only evidence for its course on the east comes from excavations on Cowgate (Atkin forthcoming (d)). The physical form of the defences are rather clearer than their date. The ditch, several times re-cut, was of shallow V-section, between 6 and 8m wide and 2m deep (Site 281N, Fig.27). Only slight indications remained of a possible internal bank (p.116). In form it was similar to the 10th-century ditch 141 from Thetford (Rogerson and Dallas 1984, fig.94). The evidence of pottery and of radiocarbon (p.116) suggests infilling of the re-cuts in the 10th century but does not resolve whether the defences might yet be associated with Edward's re-conquest of *c.*917 (Carter 1978, 199 n7 for the suggestion that they might be of *c.*991). Whether the northern defences are Danish or English remains an unanswered question, while south of the river recent excavations by the Norfolk Archaeological Unit (Ayers *et al.* forthcoming) have not yet resolved the nature of the suggested 10th-century settlement (Carter 1978, 191-3; Fig.02, this volume). Consideration of that problem will be revived in our final volume of excavation reports which includes sites in the critical area (Atkin and Evans forthcoming (b)). However, the outline of the northern defences, in relation to the pattern of pre-Conquest churches (Fig.02), suggests that they were thrown around a pre-existing linear development along the main route to the bridging-point of Fyebridge. It may therefore represent the defence of a bridgehead or suburb from the main settlement to the south.

The form of settlement outside the 10th-century defences is equally problematical. The sites on Botolph Street and Alms Lane clearly lay beyond them but it could be that beyond them again there may have been undefended settlement. On Botolph Street (and its continuation north-westwards, Fig.01, this volume, as St Augustine's Street) this is no more than a possibility, with the settlement focussed on the ?11th-century St Augustine's church; but on Oak Street (running northwards from site 308N, Fig.01) this is almost certainly the location of the Middle and Late Saxon settlement of *Coslany* (Carter 1978, 187, figs 4 and 8; Fig.02, this volume). The location of the churches of St Olaf (?11th-century) and of St Mary (an immediately post-Conquest building) suggest that 11th-century expansion spread as far east as Pitt Street but no further. Just as Pottergate (p.77) lay between 11th-century ribbon expansion along St Benedict's Street and the Norman borough on the heights above, so Alms Lane and Botolph Street lay stranded between linear zones of development to east and west. (Note here particularly the relationship of the excavated sites to the pattern of churches on Figs 01 and 02, this volume.)

The ownership of these open spaces is unknown before the late 13th century but it would be naive to assume that they were common. By *c.*1280 the enrolled deeds suggest an active market in small parcels of undeveloped land (p.88), but the descent of properties had proceeded so far that the original owners had been lost sight of. Somewhat surprisingly there is no suggestion that the plots were cultivated, and agricultural or gardening tools are virtually absent from the repertoire of small finds of this date. The archaeological evidence is, instead, for dumping and quarrying. On Pottergate the quarries may have been for chalk and flint, as is known to have been the case near by (Atkin 1983, 317-8), but on the other sites they were for sand and gravel. Some of this may have been used to provide road

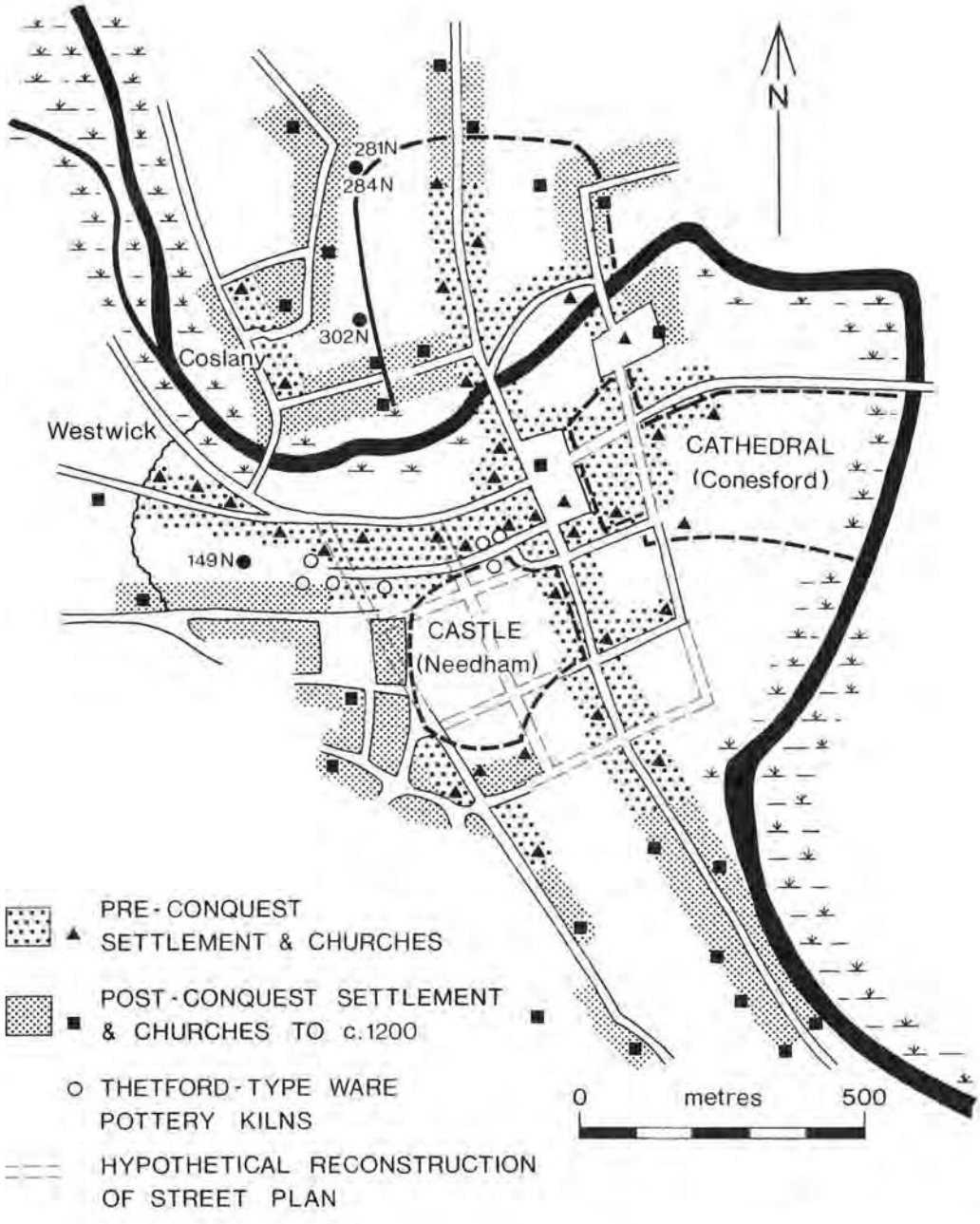

Fig.02 Provisional reconstruction of the plan of late Saxon and Norman Norwich. Whilst the extent of late Saxon occupation north of the river Wensum is well-defined by the defences, the shape of settlement to the south is less clear (principally because of the disruption of the plan by the Norman Castle, Cathedral and market). The suggestion of an extensive grid-plan of streets is speculative, but is supported by the available evidence (in particular the cluster of early medieval pottery kilns on the western approach to the grid, and the location of churches). This plan will be discussed further in *Excavations in Norwich 1971-1978: part III.*

metalling but the widespread distribution of evidence for iron-working north of the river would suggest that the extraction of ores from the iron-pan was an important function. By the 14th century many of the quarries had been infilled (p.94) and it is not surprising that the only specific reference to mining—'le Irinpittes'—comes from outside the walls, at Hellesdon (NRO Enrolled Deeds, Roll 9, m20). Documentary evidence of smelting is equally elusive and references to smithing are few. In the subleet within which the Alms Lane and Botolph Street sites lie, only three smiths are known before 1311 (Kelly 1983, table 2). Even thereafter it is only on the partially owner-occupied Botolph Street sites that there is a documented smithing interest (p.88); on Alms Lane the lessees' archaeologically-attested activities are not reflected in the owner's recorded transactions.

Analysis of samples of iron-pan taken from the sites of quarries on Alms Lane (p.219) show that this could produce easily extractable, low-grade ores. Before smithing, however, the ores had to be roasted and then smelted (p.243). These preparatory stages were labour-intensive and did not produce an efficient yield (Crossley 1981, 30). As elsewhere in the country in the late 13th and early 14th centuries this suggests a phase of high consumption and low resources—especially a shortage of more easily worked bloom—when iron production in local centres spread well outside traditional areas (Schubert 1957, 94). Smithing would continue as a major industry into the 15th century and beyond in Norwich but by *c.*1350 the need for local smelting had passed.

The smelting/smithing industry was a noxious one and as with pottery manufacture (Atkin *et al.* 1983, 96) seems always to have been located on the edge of the settlement. The 13th-century industry on Alms Lane, for instance (p.242), succeeded one further to the east, the waste from which had been tipped into the 10th-century ditch. Both here and on Botolph Street (p.117) the continuation of smithing was incompatible with the housing demands of an increased or relocated 15th-century population; and the industry probably migrated towards the city gates. A graphic description of early environmental pollution is given in a satire of *c.*1350:

Swart smoky smiths smirched with smoke
Drive me to death with the din of their dints
Such noise at nights heard no men never
Such crying of knaves and clattering of clops
The crooked codgers cry after 'Coal! Coal!'
And blow their bellows till their brains are all bursting.
(trans, Myers 1969, 1055)

This probably describes a local Norfolk industry as it was written on a blank folio of a 13th-century Norwich Cathedral Priory manuscript (BL Arundel MS. 292) and is considered by Myers to be in north-west Norfolk dialect.

Brewing is another industry that is only fitfully documented but again it is illuminated by these excavations. The evidence, however, is rather later and is intimately associated with the expansion of settlement onto the sites. On Alms Lane the activities of a 13th/14th-century brewery have been reconstructed (p.241), and an unusual survival of hops in the 1507 deposits on Pottergate has provoked discussion (p.83) of the transition from ale to beer-making. The evidence of other trades is largely contributed by the small finds, but on Alms Lane there is good, late documentation of the textile industry (p.239).

The variable correlation between archaeological and documentary evidence is very much a function of the written record. Use of the enrolled deeds, which provide the majority of the historical data employed in these reports, poses two major problems. The first concerns the reliability of the topographical reconstructions based on them. Enrollment was far from universal, and for those properties that *were* enrolled only very rarely are the dimensions as well as the abuttals given (Tillyard 1983, 5-10). Under such circumstances an element of informed guesswork is inevitable. The second problem is that, with rare exceptions, the record is solely concerned with the ownership of property and although owner-occupation may have been frequent (Priestley (ed.) 1983, 15-16, 64 and table 1) it was not universal. On all three sites there are strong suggestions of speculative development for investment purposes and a likelihood, therefore, that the documentary evidence of e.g. status and trade relates to the absentee owners not the residents. These ambiguities are discussed further below (p.255). Another area of ambiguity concerns the date and character of the first occupation occurring on the sites. References in the early 14th-century enrolled deeds to 'cottage' etc. (pp.89, 235) suggest domestic settlement but on Alms Lane, for instance (p.240), the only contemporary archaeological evidence seems to be of industrial activity. On none of the sites is there demonstrable proof of housing before *c.*1400. On Pottergate it could be argued that massive 15th-century cellarage had destroyed earlier evidence (p.19) but neither there nor on the other sites were sufficient quantities of residual material (pp.27, 105) found to substantiate the assertion. Quantitatively this leaves little doubt that the domestic sequences do, indeed, begin in the late medieval period.

Taken at face value this evidence would seem to provide support for the assertion (Campbell 1975, 16, quoting Russell) that by the end of the Middle Ages the population of Norwich at 10,000 'was probably higher than it had ever been before.' This conclusion had, however, been contested by the late Helen Sutermeister who, from a range of early 14th-century sources, had calculated a pre-Black Death population of between 9,500 and 11,000 falling to between 6,300 and 7,250 in 1377 (unpublished draft of PhD). In these circumstances the only way the archaeological evidence can satisfactorily be explained is if population density varied considerably and at random across the city. That this might have been the case is suggested by the abandonment of the Pottergate site (p.78) through most of the long and relatively well-documented period of population increase between *c.*1520 and 1730 (Campbell 1975, 17-18 and footnote 47). In contrast the record on Alms Lane and Botolph Street (pp. 252 and 122) speaks eloquently of population pressure and the way in which buildings were adapted to meet it. Between *c.*1570 and 1630 a large part of the population increase was caused by the arrival of 'Strangers' fleeing religious intolerance in the Low Countries. Although it was known in which parishes they were concentrated (Moens 1887/8, 189-93) their non-participation in the property market (from which they were banned) has made them difficult to locate. Their artefacts and perhaps their cooking methods make them discernible, however, in the arch-

aeological record (pp. 96 and 196) and again it can be seen how intensely local and variable the evidence is: in this case within, rather than between, the sites.

With housing the picture is rather different for it does seem that the evidence from the three sites is complementary. The longest sequence was that from Alms Lane (shown reconstructed on Figs 63-5) and it was there, too, that the most complete plans were recovered. Little evidence of post-built structures was seen and the earliest well-represented group were the one and two-roomed, single-storey, clay-walled cottages of the 14th and 15th centuries. In the late 15th and early 16th century, buildings, now largely two-storied, were characteristically reconstructed with ground-floor walls of mixed brick-and-flint rubble. By 1580 a phase of generally larger, sometimes three-roomed, ground-floor plans was over. Population pressure was met not by the construction of new houses (for which there was still plenty of space) but by sub-division to produce plans of a single room on two or more floors. As the 17th century wore on there is good documentary evidence for ever-increasing use of the attic spaces (Priestley and Corfield 1982, 117). In part, the conversion of existing housing may have been encouraged by a shortage of building materials (Atkin and Carter 1977, 302; below, p.251) but the primary reason was probably that of convenience to the landlords who owned the existing housing.

Occupation on all three sites was continuous from the 18th into the 20th centuries yet on none of them does much material dating from after *c.*1670 survive (pp.78 and 198). The reason for this is a change in rubbish disposal. In earlier periods although much muck was carried away from the sites, a considerable amount still accumulated on them. The material that remained was either deposited on the surface of the yards or in the pits that cut them. The larger pits are readily identifiable as quarries, but the smaller ones tend to be described, with an attempt at explanation, as 'rubbish pits'. Why should they have been dug? The most likely reason is that it was for the construction and repair of wattle and daub walls (NRO Great Hospital leases 1 f.141, 2 f.66) or for patching the poorly surfaced streets and lanes (Sachse 1967, 110-11). As streets increasingly were paved and houses built of brick the number of pits declined. Outdoor privies, the 17th-century replacement for 15th-century and later cesspits (Atkin and Evans forthcoming (a)) were disappearing too as night-soil collection became more regular. Less rubbish was 'trapped' on the site and as a consequence our perception of the material culture and environment of the the later 17th and 18th centuries is much diminished.

For the period between *c.*1470 and 1670, however, we have evidence that is remarkably complete. Part of the picture is derived from the unique 'snapshot' of the moment in time preserved by the fire of March 25th 1507 on Pottergate; part comes from the rich pit groups on Botolph Street; yet more comes from the detailed horizontal and vertical sub-division of the structural sequence on Alms Lane. Comparison between the three sites reveals the dangers of generalisation on the basis of limited information, for only on Alms Lane, for instance, do we obtain any idea of the pressures that a rapidly-rising population imposed on the urban environment. On Pottergate there is not a hint of this. Causal relationships are never that easily determined in anything as complex as a town and here they are clearly compounded by the effect of individual will or 'obstynacy' (p.78).

The layout of the reports is based on that established in Part I, with modifications where necessary due to the nature of the particular sites. These are fully explained for each site in the relevant sections. Detailed description of individual features and contexts has been kept to a minimum in the text, with a full record of stratigraphy and specialist tabular material contained in microfiche. This is referenced by the prefix MF to the site notation for plans (P), sections (S), elevations (E) or tables (T). The latter are numbered as part of a single sequence with those appearing in the text. The prefix A refers to unpublished sections or parts of sections that are retained in archive (at Norwich Castle Museum).

The finds reports are far more extensive than those in Part I, reflecting the nature of the large multi-tenement sites. The basis of the identification and description of the pottery is again based on Jennings 1981, with full description and illustration being given only to critical examples and groups that date site phases, indicate status or have particular importance in themselves (e.g. the Pottergate cellar groups). Other pottery is described by reference to similar, if not identical, material in the Jennings 1981 catalogue (in the form of e.g. Cat. 980). Where details of identification or site information have been altered or corrected since publication, the catalogue number is preceded by an asterisk. Unlike Part I, the pottery has been quantified using a minimum vessel estimate rather than a simple sherd count. A rim percentage count or a simple rim count would not have served the purpose as many vessels, particularly the imports, were represented by sherds only; weighing would not take into account the vast range of vessel sizes produced by the same wares; and counting sherds would have led to great distortions owing to the small size of many of the local medieval unglazed wares. The histograms for the phases of each site show all the pottery present in a layer, whether residual, contemporary or intrusive. The numbers are the minimum vessel count arrived at for each fabric in each deposit.

Summaries of the small finds are included in each report together with interpretations of the different assemblages. These summaries are followed by a catalogue of significant finds (selected on the same criteria as the pottery) arranged in the following categories: dress-fittings (jewellery, buckles, belt-fittings, pins); dress (textile remains); personal implements (toilet articles, seal matrices); domestic fittings and furnishings (including kitchen equipment); building ironwork and other related finds; tools and crafts (including manufacturing debris); trade and commerce; miscellaneous (leisure; horse equipment). (The categories are listed in more detail in the Small Finds fiche Introduction for each site.) The catalogue is supplemented by a listing of finds on microfiche in period order, with the 'significant' finds asterisked. For convenience, the headings for each category on the microfiche lists have been abbreviated to key words (dress, personal, domestic, buildings, tools, trade, and others where relevant).

The finds from each site have been given a unique combined site/small find number (e.g. SF149N/*341*) to facilitate ease of reference. A more detailed analysis and

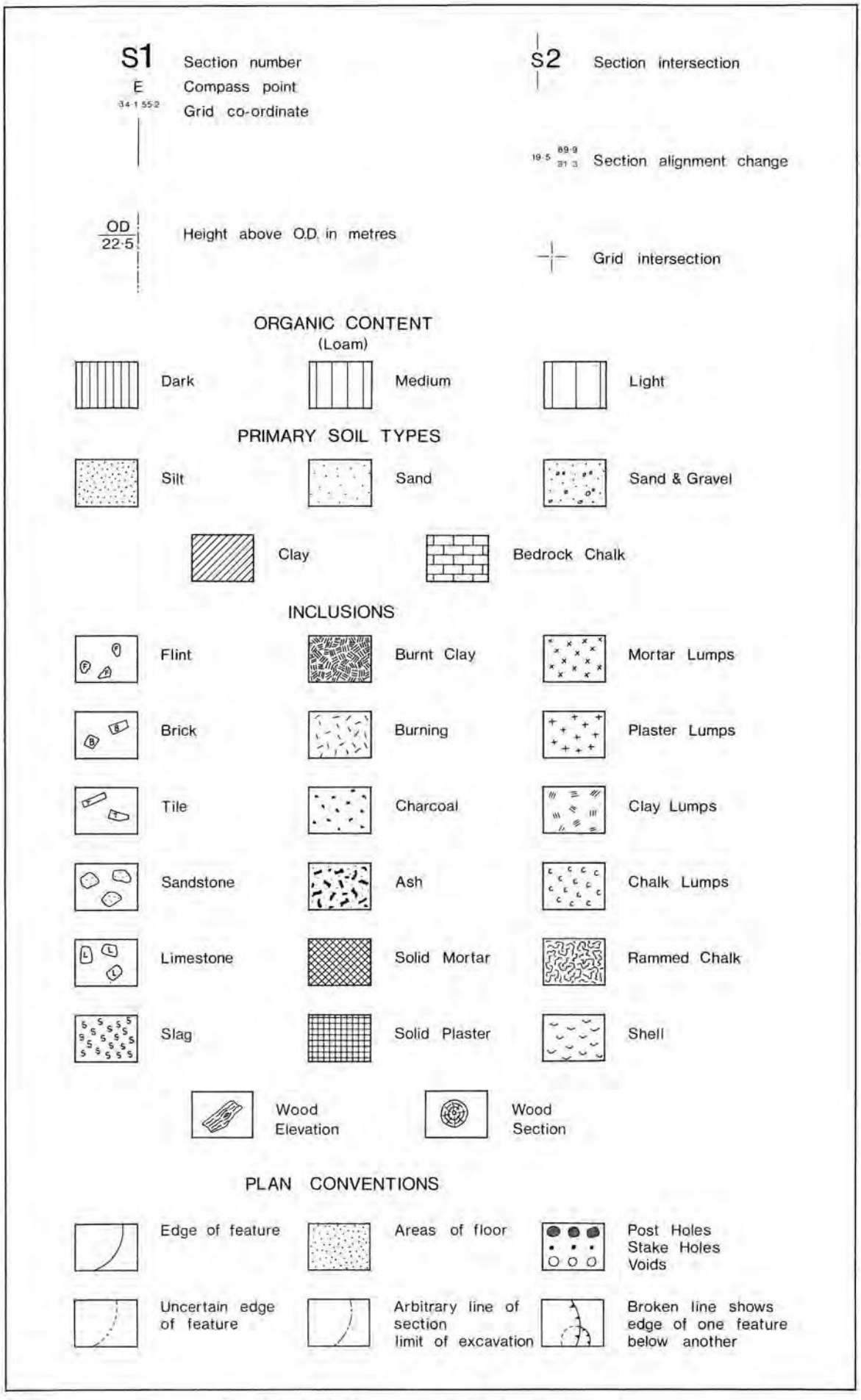

Fig.03 Standard conventions for plans and sections

typological discussion will be reserved for the projected Small Finds volume in this series of *EAA* reports.

A provisional classification for Norwich brick and tile was published by P.J. Drury in Part I (site 147N, MF1. A13 - B9), and is reproduced in the microfiche to this volume (MF Intro.). Reference to brick and tile contained in this volume is based on that classification. Discussion is confined to notes throughout the main text, with a separate note on the material from Alms Lane (site 302N) and Botolph Street (site 281N). A full listing of all samples retained in the field and subsequently identified is provided in microfiche. A synthesis of this material will appear in the projected Small Finds volume, when all the dating evidence from the excavations is available.

The dating of the clay pipe material is based primarily on the London typology of Atkinson and Oswald (1969) (hereafter referred to as AO 1969). References to the probable makers of initialled pipes are based on Mary Karshner's work on the documentary sources (Karshner 1979). The date ranges serve only as a guide and the Norwich sequence may need to be revised. A full typology and assessment of the trading patterns and social significance of Norwich pipes will be published after the remainder of the excavation reports in a further volume in this series. The microfiche contains a full quantitative listing of pipe-containing contexts arranged by period/phase and building. Stem bore analysis (as described in Oswald 1975; Davey 1981) was carried out where feasible on the material, but did not prove to be very accurate. It added virtually no information that could not have been gleaned from a study of the bowl forms, and has therefore been omitted from the reports.

Detailed information on the environment and plant economy of the early city is most easily gained at waterlogged sites: at dry sites in Norwich a very restricted range of biological material is preserved (Ayers and Murphy 1983). The limited results achieved in 1973-75 on Pottergate and Botolph Street (sites 149N and 170N/281N) led to the adoption of an extensive and systematic sampling strategy on Alms Lane (site 302N). The intention was to discover how many samples and of what size were needed to obtain statistically valid results, and the answer was that it was out of all proportion to the effort! The exercise did, however, produce superb results, not least because of the tight stratigraphic sequence within which it operated, and it is to this framework that the more limited results of the other sites have been pegged. Similarly the truncated stratigraphy of the Pottergate and Botolph Street sites vitiated any meaningful analysis of their faunal remains and effort was concentrated on the Alms Lane material. Whereas the botanical material had revealed differences between households of apparently different social position, the evidence of the faunal remains was of remarkable homogeneity: both across the site and through the whole span of its occupation. The data on which such conclusions are based is contained either in microfiche or in archive.

The location of all sites referred to in the text is shown on Fig.01, while Figs 03 and 04 show our standard drawing and colour conventions.

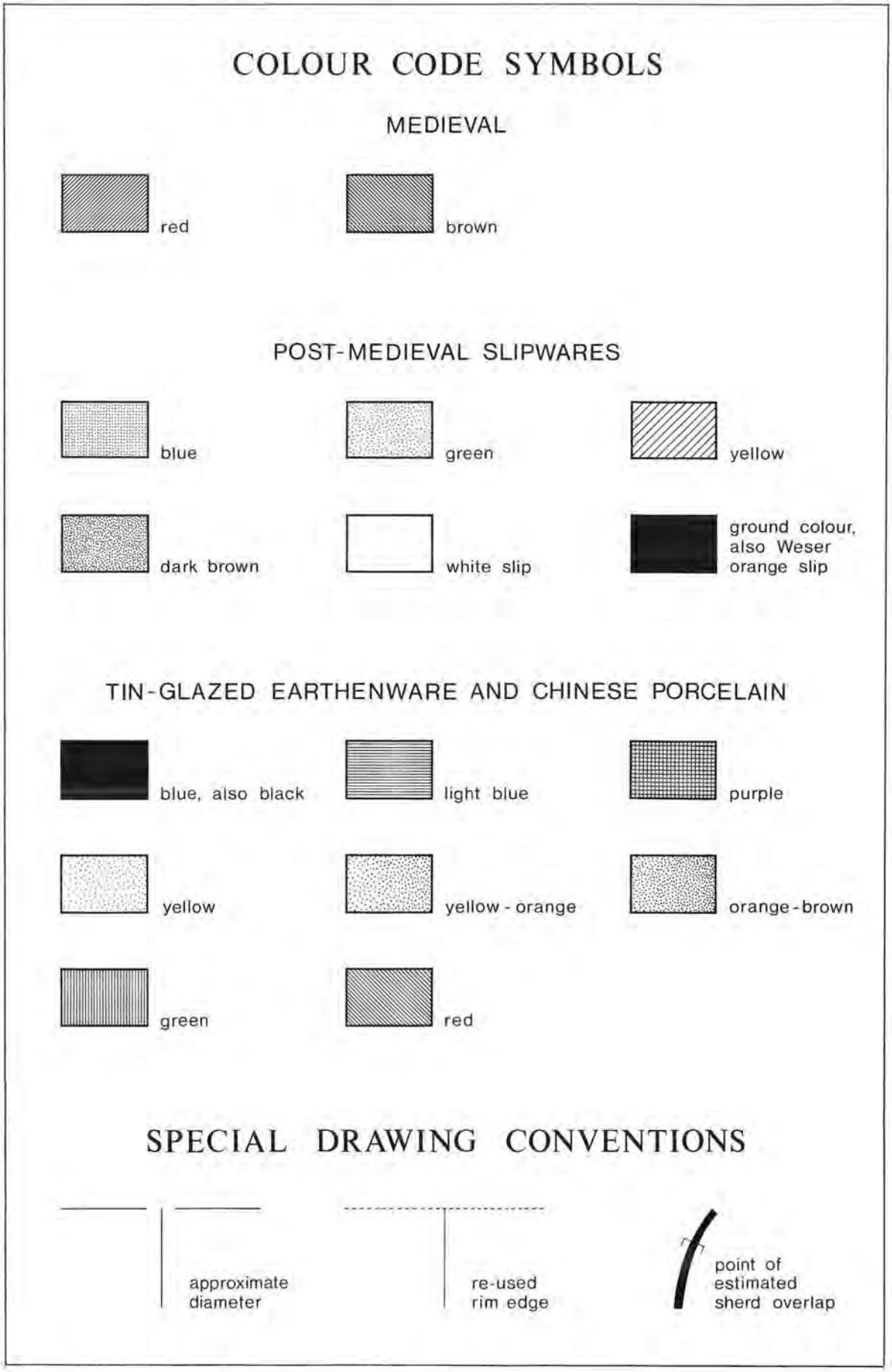

Fig.04 Colour codes and pottery drawing conventions

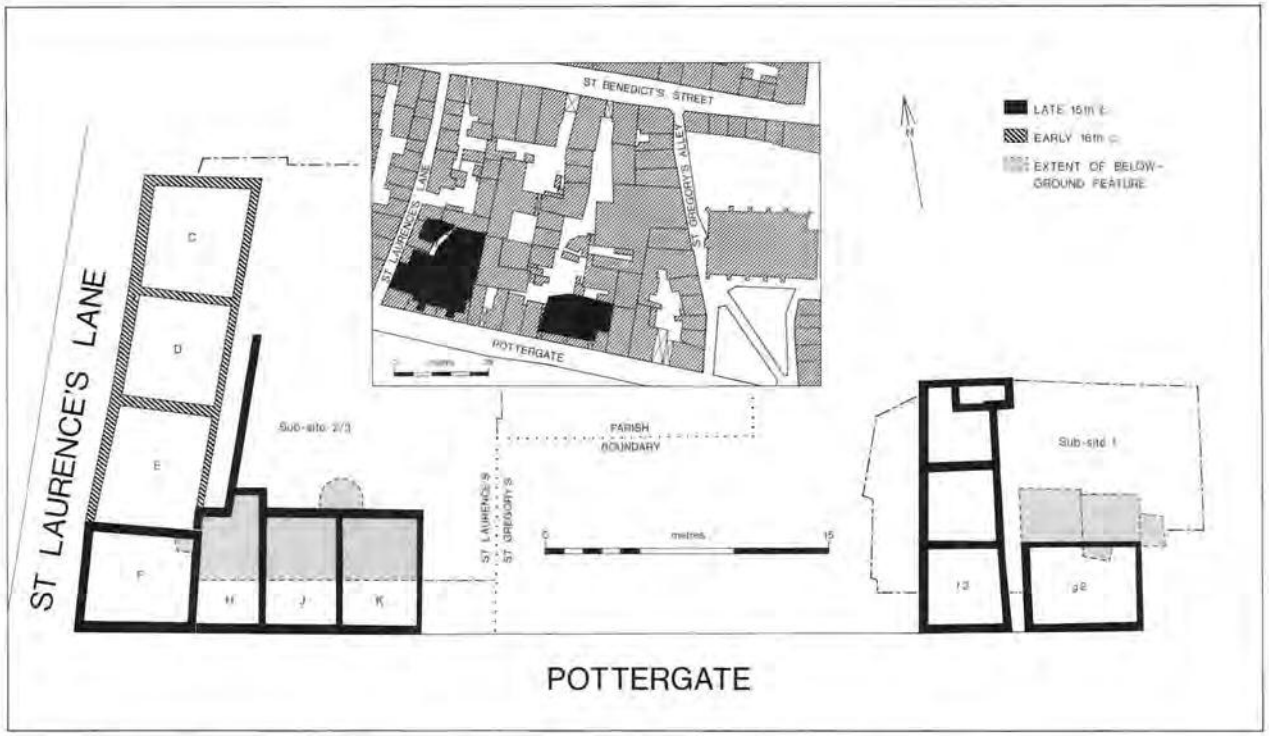

Fig.1 Site 149N. Simplified layout of the 15th and early 16th-century buildings. Scale 1:400. Inset, location plan of areas excavated (solid black). Scale 1:2000

Excavations on 31-51 Pottergate (Site 149N)

by D.H. Evans and A. Carter

I. Summary

Exploitation of the site seems to have begun with extensive gravel-quarrying during the 12th century. There is no sign of occupation at that period, nor does the documentary evidence of intensive land-use of this area by *c.*1300 square with the archaeological record. This suggests that there *was* settlement before the wide-scale building activities of the 1470s but that it was on a limited scale. For a thirty-year period before 1507 there is ample evidence of intense occupation, which is reflected in the foundations and cellars of five or more houses fronting Pottergate. These appear to have been of three different types, of which two were quintessentially urban: i.e. with a compact plan, fully storied, heated and glazed. The high standard of living of their occupants is illuminated by the rich assemblages of finds recovered from the debris which can be argued as resulting from the fire of 25th March 1507. Evidence for the post-fire occupation of the site is almost as sparse as that for the 13th and 14th centuries. A subsidiary frontage (on St Laurence's Lane) was built up for the first time in the 1520s or '30s but was abandoned before *c.*1650, when the west end of the Pottergate frontage was re-occupied. This apparently brick-built structure appears to have been a three-cell, lobby-entrance house which could equally well have been found in the country. At the east end of the site there is both documentary and archaeological evidence of partial rebuilding in the 1760s but it was not until *c.*1820 that the Pottergate frontage became totally built-up. It should be noted that a number of our conclusions now supercede those of the interim report (Carter *et al.* 1974).

II. Acknowledgements

Work on the site, between 20th July and 9th November 1973, was carried out with the permission and active encouragement of Marshall Securities Ltd. Subsequently they donated most of the finds to the Norfolk Museums Service (accession no. NCM 101.974) who display a selection of them in Norwich Castle Museum in a case also presented by the developer. Both excavation and post-excavation work were generously funded by the Department of the Environment and Norwich City Council, and none of this work would have been possible without the support of the University of East Anglia. An unusual debt of gratitude is owed to the demolition contractors, Fincham Bros. of Norwich, who went out of their way to facilitate work.

Although under the nominal direction of Alan Carter, a great deal of the responsibility for the excavation and publication was borne by others. Peter Donaldson not only took over effective direction of the site at a critical stage (devising, in the face of imminent development, a system of grab samples which answered many of the outstanding problems) but also undertook much of the preliminary phasing. A personal debt is owed by Alan Carter to Dave Evans, without whose unflagging effort this report would not have been completed. On site the work was assisted by a large number of volunteers who, although not named, are warmly remembered. The records and the finds were processed principally by: Mike Baxter, Stephen Bradley, Simon Esmonde Cleary, Simon Goodman, Catriona Hayward, Mary Karshner, Jill Quantrill, Mike Ribbans, Ann Rothberg, Jess Stern, John Thorp, Frances Wells-Thorpe, Claudia White and Ken Wilby. To these our thanks are due, as also to those who have assisted with the post-excavation work: Susanne Atkin (sub-editing); Mavis Bithray and Moira Coleman (typing); Martin Creasey (finds drawings); and Phillip Judge (site drawings). Finally, a word of thanks to our colleagues (in the Centre of East Anglian Studies, in the Norfolk and Suffolk Units, and particularly within the Norwich Survey) for their comments and criticisms, and their support.

III. The Site TG 2276 0871 (Fig. 1, Pl. III)

The site lay north of Pottergate and east of St Laurence's Lane on the superficial sand and gravel deposits covering a chalk hillside. The highest point on the site lay towards the centre of its Pottergate frontage, away from which there was a slight slope to the east and a much steeper one to west and north. Overall there was a drop of 6m from south to north-east across the site. Modern terracing had cut back the base of the slope on the west, removing up to 2m of archaeological deposits and producing a 'cliff' running east to west across the site. Unstable soil conditions, in proximity to heavily used roads, meant that a 2m-wide baulk had to be left largely unexcavated on the street frontage.

Initial exploration extended to the west of St Laurence's Lane but the deposits were disturbed to such a depth that excavation was abandoned. Thereafter excavation was limited to two blocks east of the lane (Fig. 1, inset). These were separated by a large area of modern cellarage which had removed all stratification.

To the east of the lane, where the boundaries of seven tenements had been extrapolated from the 1885 OS 1:500 map (Fig. 50, *a* - *g*), deep modern disturbance had removed all stratification on tenements *d* and *e*. To the east of this, on tenements *f* and *g*, an area of *c.*200sq.m was excavated (Figs 1 and 2). This was to be known as sub-site 1. West of the disturbed area, on tenements *a* and *b*, an area of *c.*475sq.m was excavated (Figs 1 and 6) which was originally divided into sub-sites 2 and 3; the division worked well during field recording but having only an administrative justification was abandoned for the purposes of this report. The amalgam 2/3 is used instead.

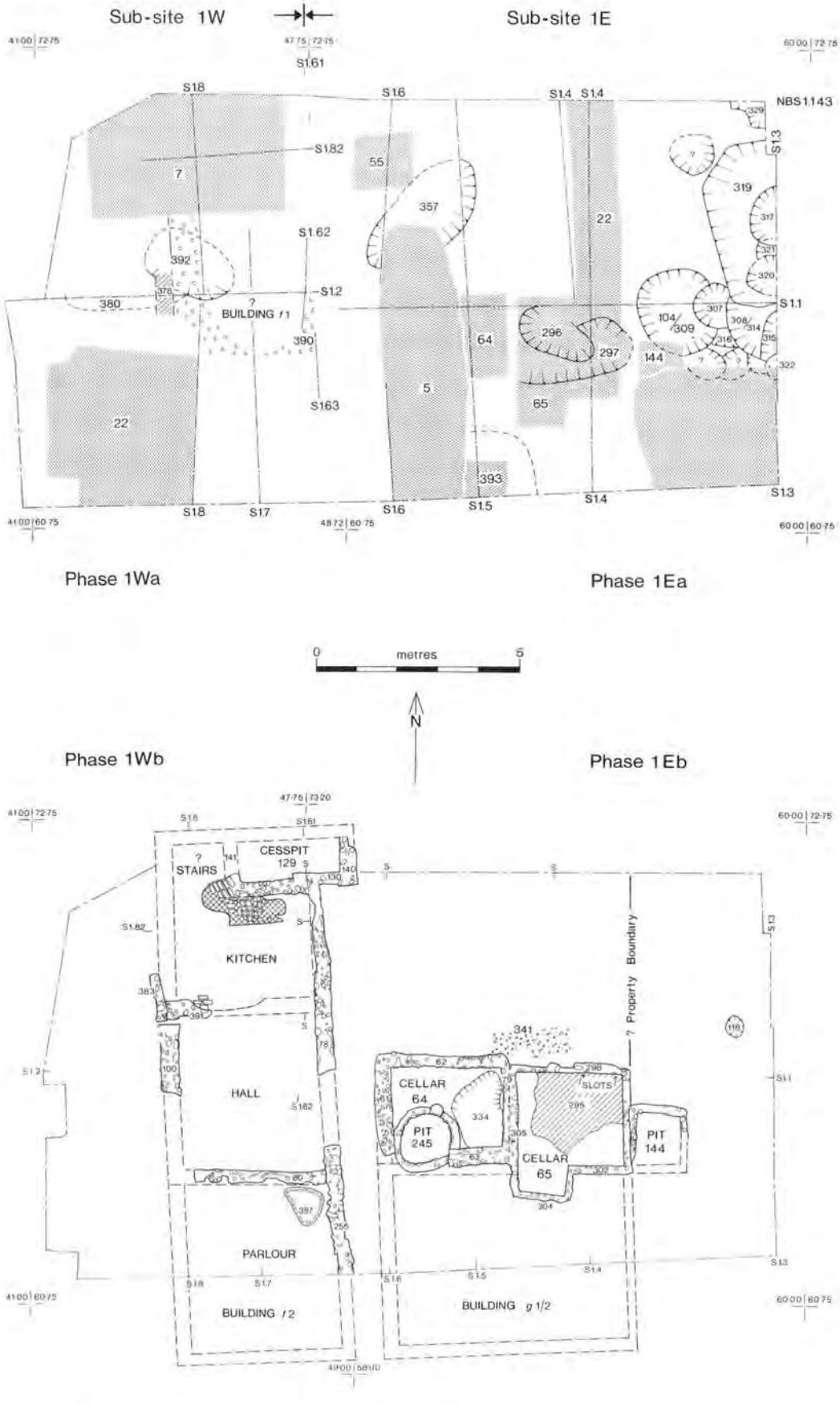

Fig.2 Site 149N, sub-site 1. Plans of Phases a and b. Extent of deep later disturbances indicated by tone on Phase a plan. Scale 1:150

IV. Excavation and Recording

The pattern of excavation was different on the two sub-sites. On 2/3 the latest walls encountered in machine clearance were largely of the 17th century or earlier and all subsequent clearance was by hand, whereas on 1 there were two phases of machining. In the first the 18th/19th-century walls were exposed, in the second they were removed. In places the consequence was an incomplete record (e.g. Fig. 4, S1.4, between contexts 11 and 40). Our intention over the whole site had been to excavate in large open areas but the complexity of the stratigraphy, and the speed with which the site had to be dug, dictated the retention of a series of semi-permanent baulks. Natural was *not* exposed over the whole area. As time began to run out trenches were pushed through areas remaining undug in an attempt both to establish their relationship with structures already excavated, and to determine whether further structures might exist. In no case was anything other than a pit encountered. The small areas excavated could have led to the misinterpretation of the lowest levels, but their apparently non-domestic character was also reflected in the small amount of pre-15th-century residual material. A general discussion of our system of recording and the conventions employed appears above (p.4). The only additional explanation that this report should require concerns nomenclature. Excavation areas or rooms were referred to initially by the upper case letters A-Z, a number of which are still used in the description of sub-site 2/3 (Fig. 7). Tenements were referred to by the lower-case letters *a-g* (p.71, Fig. 50) and it is these as prefixes that are used to distinguish the buildings of sub-site 1. The division of the sub-site into an east and a west half is reflected in the notation 1E and 1W.

It should be noted that *all* section lines are shown on the introductory plans to the two sub-sites (Figs 2 and 6) and this without distinction between illustrated, microfiched or archived elements. On subsequent plans only those section lines relevant to the features shown have been recorded.

V. The Excavation

Description of sub-site 1 precedes that of 2/3. The earliest features are described first on both, but the basis of periodisation was different and this is reflected in the text. On sub-site 2/3, where the finds-dated sequence could not satisfactorily be tied to an overall stratigraphic succession, broad chronological periods (I-IV) were adopted. The basis for their dating will be found in the finds catalogue. On sub-site 1, however, it was possible to establish separate structural sequences for the east and west halves of the area (hence phases 1Ea-f, and 1Wa-e). The finds from each half have been treated in separate chronological series (Section VI) but to make the structural similarities clearer the excavation text juxtaposes each pair of phases (e.g. 1Ea with 1Wa). Each is briefly defined and dated, and again the basis for dating will be found through reference to the finds catalogue. Note that the areas are only referred to as tenements in Section IX.

Sub-site 1 (Pl. VIII)

An approximate concordance of phases and buildings on the sub-site's two halves is as follows:

*c.*1100-1450	1Ea	— 1Wa (Building *f*1)	Fig. 2
*c.*1450-1507*	1Eb (Buildings *g*1 and 2)	— 1Wb (Building *f*2)	Fig. 2
1507-*c.*1650	1Ec	— 1Wc	Fig. 3
*c.*1650-1750	1Ed early	— 1Wd	Fig. 3
*c.*1750-1820	1Ed late	1Wc early (Building *f*3)	Fig. 3
*c.*1820-1885	1Ee (Buildings *g*3 and 4)	— 1We late	Fig. 3

*The justification for this date is argued in Section X.

Phase 1Ea (Fig. 1 for location; Figs 2 and 4)

This phase is defined as cutting, or lying above, natural sand and gravel and below the foundations, floors and yards of the first rubble-walled phase (1Eb). Datable on pottery evidence to between the 12th and mid 15th centuries, but with most of the material dating from after 1400. Brick (of types EB3, 4 and 9) turned up in a number of 15th-century pits.

Features probably of this phase were seen in section in the sides of various deep later disturbances over much of the area (Fig. 2). Excavation of these was largely limited to a sample dug along the east edge of the site, and it is this that might account for the bias apparent on plan. The earlier pits seem to have been quarries but those of the late 14th and early 15th centuries are more likely to have been for the disposal of domestic rubbish from buildings on the Pottergate frontage. Any evidence of these, however, had been removed by later disturbance, not least the digging of the Phase 1Eb cellars.

The surface of natural gravel rose from 16.7/16.9m OD on the east to 17.3/17.5m OD on the west and was dissected by medieval pits, the largest of them probably quarries. Only small areas of 1Ea surfaces survived, but their materials and nature (rammed chalk and gravel, e.g. MFS1.3, layers 327-8) suggested that they were surfaced yards. They were cut by what seemed to be rubbish pits (104, 307-8, 314, 317, 320-2 and 329; Fig. 2) and were apparently covered with upcast from the digging of the Phase 1Eb cellars (e.g. 337 and 354 on Fig. 4, S1.1 and S1.4). These upper levels might then more properly be ascribed to 1Eb but they were sealed not only by 390 (Phase 1Wa: Fig. 5, S1.8) but also by the Phase 1Wb wall 78/255. Their thickness varied considerably but, although in many cases representing little more than the levelling up of a pitted surface, the overall effect was to raise the general ground surface of the site's street frontage by up to 20cm. (The digging of cellar 65 alone would have produced over 8cu.m of soil.)

Phase 1Wa (Fig. 1 for location; Figs 2 and 5)

This phase is defined and dated in much the same way as 1Ea.

There was no obvious accumulation of a late Saxon or medieval soil on the surface of natural gravel (which, as seen on Fig. 5, S1.7, sloped gently southwards). Over a large part of the area it had been cut into by post-medieval or modern features (e.g. 7 and 22) and most of what remained was dissected by medieval pits (Fig. 5, S1.7 and S1.8). The upper fills of these were of clean or cleanish sand, suggesting an origin as quarry pits for gravel; excavation of the largest of them (380), which contained only a single pot sherd, no animal bone and no other cultural debris, seemed to confirm this. Only two

were excavated: 380 was of the 12th century or later and 392 was probably 14th century. The absence of any evidence of an early building in the undisturbed and fully excavated area towards the street frontage (between sections 1.6 and 1.8) reinforced the impression of a site being exploited simply for its mineral resources (the gravel presumably going to surface roads). It is not until the early to mid 15th century that there is archaeological evidence of occupation, and even that is equivocal. Indications of a structure (*f*1) pre-dating the rubble walls of Phase 1Wb (and badly damaged by Phase 1Wc pit digging) were seen over a limited area to north and south of the line of MFS1.2. Beneath wall 100 (Fig. 2, Phase 1Wb) was a 10cm-high and 40 to 50cm-wide band of clay (378) which in itself was suggestive of a slumped cob or clay-lump wall. The western 'tail' of this ran out over a thin layer of gravel (379) which overlay infilled, but unexcavated, pits, and seemed to represent a yard surface. East of 378 was a chalk lump surface (390), again overlying infilled medieval pits, which was cut on the east by the foundation trench of wall 78 (of Phase 1Wb). It did not re-appear to the east of the foundation trench (Fig.4, S1.1). If this was a building then its extent was extremely limited.

Phase 1Eb (Fig. 1 for location; Figs 2 and 4; Pl. VIII) The deposits overlying and cutting those of 1Ea are associated with the construction and use of the first rubble-walled building (*g*1, modified to form *g*2). A *terminus post quem* of *c.*1450-1475 for this building is provided by the Langerwehe/Raeren stonewares in the Phase 1Ea pits which it overlies. Its occupation was terminated by a fire.

The once-substantial building of this phase is represented by no more than its cellars and cesspits. The relationship between these and the levels with which they are believed to have been associated has largely to be inferred: for later robbing and pit digging had removed most direct stratigraphic links, and the conclusions that are reached are arguable. An outline of them, however, is necessary to the comprehension of the description that follows. It is thought that the first building (*g*1) was a small rectangular structure built parallel to the street, with a single external cellar (65) to its rear. Modification of this to form house *g*2 (Fig. 1) involved the addition of a second external cellar (64, with cesspit 245) and an external cesspit (144), although this probably belonged to an adjacent building.

Cellar 65 was the earliest feature of the phase, for its east and west walls were cut by west and east walls respectively of cellar 64 and pit 144. This relationship was clearest in plan (Fig. 2) but the 'raw' west face of wall 305 (Fig. 4, S1.1) showed that like the other walls of cellar 65 this had originally revetted the digging-pit. All the walls were roughly built of uncoursed, small flint rubble in a soft orangey brown or ginger mortar. The wall faces had been rendered thickly with mortar and finished with a thin coat of plaster. The only brick in construction (although plenty was found in its Phase 1Ec fill) was used to form a barrel-vaulted niche in its south wall, 304 (the line of the vault is pecked on Fig. 4, S1.1). What the niche was for cannot be suggested but its vaulting was clearly intended to carry a load: this could have been that of a rear-wall chimney stack. Two small slots at the base of the cellar's north wall (base of wall 298, Figs 2 and 4, S1.4) are interpreted as the seatings for the stays of a wooden ladder. The cellar was floored with a beaten clay surface (295) which sealed two large Phase 1Ea pits.

Cellar 64 and pit 144, although not linked stratigraphically, can be treated together, for both postdate the building of cellar 65 and are of similar construction. Their flint rubble walls contained an appreciable amount of brick (Fig. 4, S1.1) especially in the bonding of pit 245 into walls 61 and 63. The mortar used was creamy yellow in colour rather than gingery; and the wall faces although rendered had not been plastered. Cellar 64 was unfloored and pit 334, which cut into the natural gravel on which wall 63 sat (Fig. 4, S1.5), seems to have been dug as a soakaway for pit 245. Like 144 this is thought to have been a cesspit but the lowest fills in both consisted of Phase 1Ec fire debris. The displacement northwards of cellar 64 relative to cellar 65 (Fig. 2) and the massive nature of its south wall (63, Fig. 4, S1.5) should be noted. It is suggested that the rear wall of the original building, outside which cellar 64 was constructed, continued the line of wall 302 westwards and that wall 63 had therefore to resist its thrust.

South of the cellars, a series of Phase 1Ed and later pits (Figs 2, late disturbance, and 3) had removed all but a small area within the probable area of the building, and none of its walls were seen. On the line of S1.4 (Fig. 4) and sandwiched between deposits datable to Phases 1Ea and 1Ec, a beaten clay surface (336) probably represents its floor. As with the cellar floor 295 there was no build-up of material on this.

North of the cellars the yard deposits were equally dissected, but sufficient remained to enable two important suggestions about the plan of the building to be made. The first is based on the nature of the lowest of the three series to which the yard surfaces can be assigned. This 159 series comprised a group of soils flecked with or consisting of chalk lumps, mortar or gravel (352, Fig. 4, S1.1; 341-2, S1.4). All of them occurred in more or less the same plane (at *c.*17.4m OD) and although they survived only fragmentarily everything pointed to them having once formed a single continuous surface to the north of the building. (This would have been before the construction of cellar 64, for which see below.) Of critical importance here was a small patch of mortar-flecked flint and gravel (341, Figs 2 and 4, S1.4) which was seen across the whole of the area between sections S1.4 and S1.5. This suggested strongly that there had been no fence or wall continuing the line of wall 305 northwards, and, more arguably, that therefore there had been a single building on the frontage (cf. Carter *et al.* 1974, fig. 3, for an alternative interpretation). Above the 159 series surface and to the north, east and west of the cellars was a 10 to 20cm-thick layer of dirty sands and sand loams (the 119 series, few with any finds; 340 and 350 appear on section, Fig. 4, S1.1, .4 and .5). The only event that could be adduced to explain this rapid deposition was the digging of cellar 64, yet the foundation trench of its north wall (166, Fig. 4, S1.5) was overlain by the soils in question. It seems at least possible that this represents levelling-up from a spoil-heap once construction was finished, and the 119 series was certainly capped by a general resurfacing of the yard (with the 117 series of which only 348 appears on section, Fig. 4, S1.1). If this explanation is correct then it seems

reasonable to suppose that the cellar lay outside rather than inside the building, which would have been of the simple rectangular shape reconstructed on Fig. 1.

There was no direct evidence of the form of the cellars' superstructure. There is, however, a strong impression that they were roofed without any superstructure simply as lean-tos against the rear wall of the building. This is thought to have been at least in part of brick rubble, but the mixture of brick and daub in the cellar fills (see Phase 1Ec below) might suggest that there had been a timber-framed first floor. That there had been a first floor is suggested by the precautions taken with the foundations of the rear wall (i.e. the vaulting in wall 304 and the thickening of wall 63). The suggestion is strengthened by the absence of primary fire-deposits in cesspits 245 and, if it belonged to this building, 144 (Phase 1Ec, below) the shafts of which must have risen clear of the collapsed and burning building. The mixture of tile (type RT4) and ?thatch found in the two cellar fills might reflect a difference in their roofing, but it seems as likely that both cellars were thatched and that the tiles came from the house roof.

Phase 1Wb (Fig. 1 for location; Figs 2 and 5; Pl. VIII)
This phase is defined and dated in much the same way as 1Eb, but related to the construction of building *f*2. This is now interpreted (Section VIII, p. 69) as a three-roomed building, gable-end on to the street, comprising parlour, hall and kitchen. There seems to have been a first-floor room above the latter, served by a cesspit.

The building was poorly understood in excavation and the account that appears in the interim report (Carter *et al.* 1974, 46, 50) is largely mistaken. The major errors were to assume that two buildings occupied the street frontage, and to believe that what is now interpreted as the parlour was a single-cell building. These mistakes rose partly from a misunderstanding of the relationships between the cross-walls and the outer walls of the building, but largely because 17th-century and later disturbance had removed most of the direct relationships which might have been observed.

The house was apparently built in stages: construction of the outer walls preceding that of the internal partitions. Only the east and west outer walls (78/255 and 100/383, both of flint and brick rubble) were excavated. The east wall, extensively rebuilt in Phase 1Wc as 76, appears to have been rather more than a plinth for timber framing. It stood to at least 80cm above contemporary ground level and was built in a shallow foundation trench. In contrast the west wall was no more than a pad resting directly on the underlying Phase 1Wa surface. Its apparent narrowing north of wall 391, to which it was not bonded, and its bowing westwards (Fig. 2) was probably caused by collapse: a large lump of fallen masonry (probably the east face and core of 383) lay in the angle of the two walls. Beneath this rubble was fragmentary evidence of a brick-floored fireplace in wall 391. At the east end of this largely missing wall the smooth mortared face of 78 continued unbroken across its line. This need indicate no more than a door at the east end of 391, with wall 78 forming its jamb, but it seems more likely that the cross-walls were a secondary feature (as were those of the contemporary cellared building on sub-site 2/3, p.21). The suggestion is supported by the relationship of the trench-built south faces of these walls to dumps of soil which abutted the outer walls (e.g. wall 80 and layers 385-6, Fig. 5, S1.8). The cross-walls clearly revetted material which had been dumped inside the shell of the building to level up before flooring in a series of 'terraces'. It is this difference in level (cf. clay floors 382 and 384, Fig. 5, S1.8) which explains not only why there is no apparent door between 'parlour' and 'hall', but also why only the north face of wall 80 was plastered. The floor of the northern room, the 'kitchen' (believed in excavation to be a bakehouse) was, where it survived, of brick. Like all other examples of this phase it was reused material. West of the building a series of yard deposits seems to have accumulated during its lifetime (370-7, MFS1.2); but within it the construction of a hearth (387, a simple clay pad) seems to have been the only alteration before destruction by fire.

Phase 1Ec (Fig. 1 for location; Figs 3 and 4)
This phase is defined as being associated with the destruction by fire of the Phase 1Eb building (*g*2). The presence of very late 15th and possibly early 16th-century pottery in these deposits suggests that they can be equated with the 1507 fire. The site was abandoned and subsequently robbed; some of the later robbing pits post-date the introduction of Surrey white wares and Westerwald stonewares. On this basis, a terminal date of *c.*1650 is suggested for this phase. (The 17th/18th-century material in layers 260 and 334 seems small enough to have been carried down by worm or animal action; that from 123 seems to have been the result of a muddle in recording.)

Evidence of destruction by fire was restricted to surprisingly small areas, and consisted largely of debris in the two cellars. There was, for instance, evidence of burning neither on the yard surfaces to their north and west (the 117 series of 1Eb) nor on the admittedly small area of floor 336 to their south. In the yards such destruction debris as there was consisted of little more than accumulations of ash and charcoal which had collected in irregularities (86-8, 92, 105, 263-7) of the Phase 1Eb surface. In the cellars, however, the evidence was unequivocal, for in addition to layers of ash and burnt daub on their floors, their walls had clearly been scorched by heat. That this was so much more obvious in cellar 64 was to be explained by the differences in character between its deposits and those of cellar 65. In the latter (Fig. 4, S1.1 and S1.4) only a thin layer of ash and charcoal (211) underlay the other fills. Originally interpreted as a wooden floor it now seems more likely to have been the remains of a thatched roof. Above it a dirty yellow sand (212) was succeeded by a second, thicker, layer of ash and burnt daub (123, 203-6, 209-210, MFS1.1). This, it seems, must represent the deliberate tipping or pushing into the cellar of fire debris after it had become unroofed, and after wind and rain-washed deposits (212) had accumulated over the primary destruction level. Layers 203-6 consisted largely of heavily burnt and fragmented panels of daub. From the way in which it lay, tipping to the east and south, it appeared to represent the north and west walls of the cellar. Above 203-6 and tipping to west and north, dumps of brick and mortar fragments (122, 200-2, 207-8) seemed to represent the pushing or tipping in of post-fire debris, probably forming or derived from the east wall of the cellar and

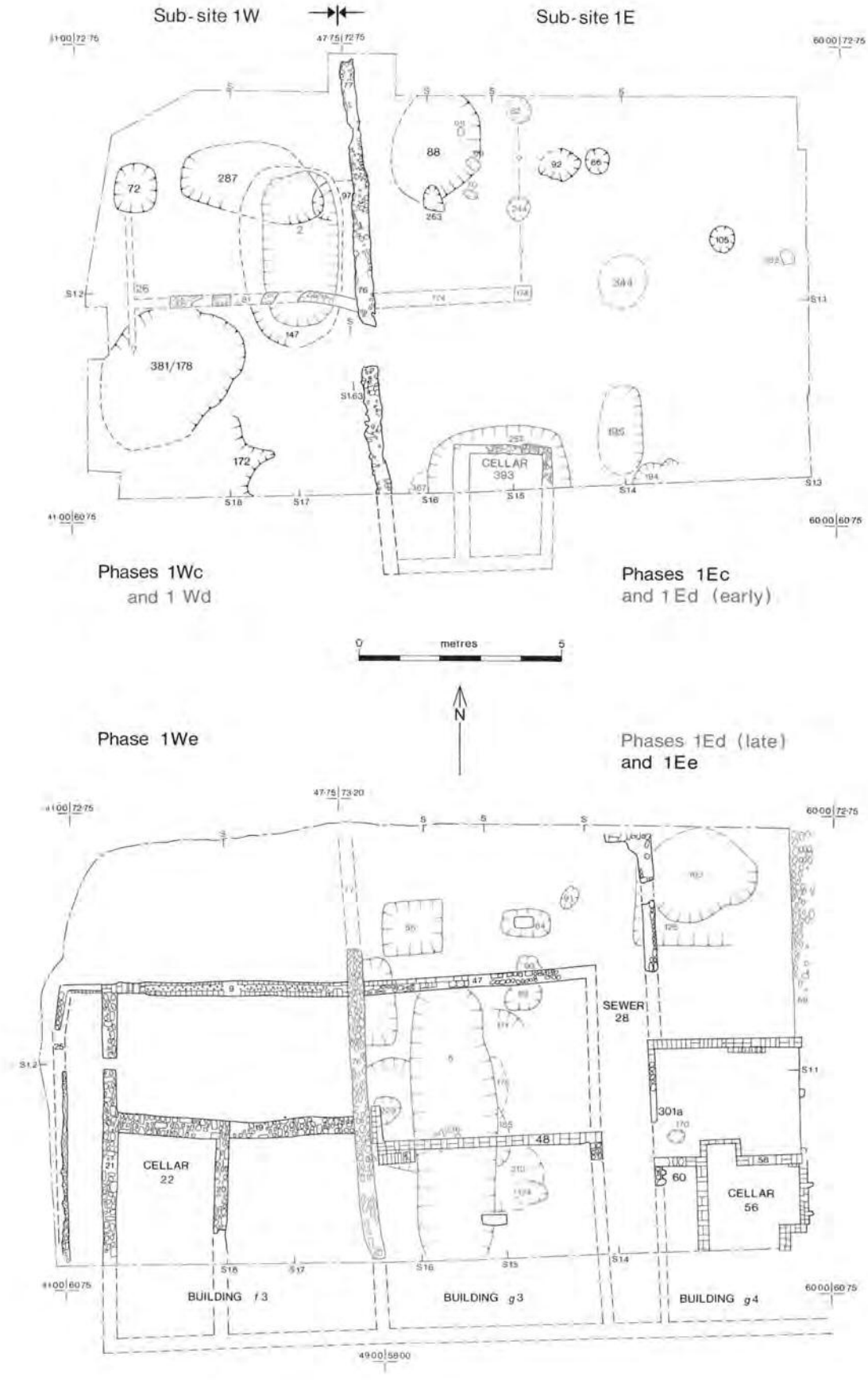

Fig.3 Site 149N, sub-site 1. Plans of Phases c-d (early); Phases d (late) and e. Scale 1:150

the rear wall of the main building, i.e. that above wall 302. Above these deposits the final infill of cellar 65 consisted of a series of tips of mortar and mortar lumps (196-9, Fig. 4, S1.4). These are perhaps best interpreted as the by-product of robbing such parts of house *g*2 as had survived the fire. Elements of the same sequence were seen in cellar 64 but there the primary destruction deposit (227, 260, Fig. 4, S1.5) was much more substantial (most of the cellar walls were scorched) and there was no deliberate infilling between a phase of soil accumulation (226, 247-8) and a phase of robbing (223-5, 259).

The sequence observed in the two cellars was not repeated in pits 144 and 245. There was evidence of neither *in situ* burning nor the accumulation of post-fire soil and their interpretation as cesspits with shafts rising to first-floor level seems the more certain as a consequence. Their lower fills, of mortar rubble (145-6, 246) would be consistent with a post-fire dismantling and robbing and their upper fills (144a, 245a) seem to belong more properly with the succeeding phase.

Phase 1Wc (Fig. 1 for location; Figs 3 and 5)
This phase is defined and dated in much the same way as 1Ec, to 1507 - *c.*1650, but is related to the destruction and abandonment of building *f*2.

The clearest signs of destruction by fire of the Phase 1Wb building occurred within the 'hall' (Fig. 2) where, away from the line of S1.8 (on which they do not occur), there were deposits of burnt clay, ash and charcoal up to 20cm thick. There was no sign of burning on the faces of the walls and it was assumed that only the upper parts of the building had burnt. The admixture of the burnt deposits with lenses of loam, or in some places continuous deposits of ash and mortar-flecked loam, suggested that the destruction debris might have fallen slowly into a ruined building. The amounts of burnt clay present suggested that the walls were in some part of daubed timber-framed construction. There were fewer signs of fire in the 'kitchen' and 'parlour' but the floor of the latter was extensively reddened in areas away from the hearth. In all three rooms there were clear indications of post-fire collapse or of demolition and robbing. Concentrations of mortar rubble (unnumbered in excavation but seen clearly in Fig. 5, S1.8, below 231) against the faces of walls 80 and 391 suggested that the internal walls might have been of rubble to their full height. Robbing rather than collapse is suggested by the absence of bricks and flints in these deposits, but part of the walls must have survived for 231 later to have been derived from them (see below).

Cutting these levels and backfilled with large quantities of ash and mortar rubble was a large pit, 287 (Fig. 3), which had destroyed the north-west angle of the building. Cutting this was pit 147 (Fig. 5, S1.7), the fills of which were characterised by roof-tile fragments (type RT4), brick and mortar flecking and lenses of ash. Pit 147 in turn was succeeded by pit 381/178, the fills of which again were predominantly brick and mortar-flecked and interleaved with ash. These three pits seem to have been dug in and around the ruins of the 1Wb building, for sufficient of its walls must have remained to produce the rubble which constituted layers 231 (Fig. 5, S1.7 and S1.8) and 237-9. Some of this mortar, which like all that of Phases 1Wa-c was creamy yellow in colour, may have come from the upper parts of wall 78/255, which was rebuilt at this time as 76, but this seems unlikely. The rebuilt wall was strengthened by continuing its line, as wall 77 (cf. Figs 2 and 3), through the abandoned and now robbed-out cesspit 129 (MFS1.61). This had been backfilled with ash and rubble deposits which included fragments of quernstone. The only other feature associated with this phase was a small pit (271) which appeared to have been dug (AS1.63) during the deposition of the 231/237-9 series.

Phase 1Ed (Fig. 1 for location; Figs 3 and 4)
This phase is defined as overlying the 1Ec debris and preceding the construction of buildings *g*3 and 4. Datable on the evidence of pottery and maps (Fig. 50) to between *c.*1650 and 1820 ('early' and 'late', Fig. 3, being defined as pre- and post-1750).

Minor sub-phases of deposition were identified but the distinction between the lower ones (those bracketed as 'early') was only clear where layers of chalk nodules such as 45 occurred above dirty loams 40, 46 and 67 (Fig. 4, S1.4). A number of small pits (194-5, 344, 360, 367, Fig. 3) were sealed below the chalk but only two post-holes (82 and 244) cut it. These would make some sort of structural sense if they were associated with the digging of cellar 393 and the building of wall 174 but neither of the latter could be tied satisfactorily to the depositional sequence. Wall 174, described in the notebook as 'garden wall running E-W', could have formed the end gable of an open-fronted shed built against the existing wall 76 (Fig. 3); but it is equally possible that cellar 393 (perhaps no more than an elaborate soakaway) lay within an extension to the south. The open-fronted nature of these buildings is suggested by the continued deposition within them of soils which extend further east, i.e. into what seem indubitably to have been yards. These early to mid 18th-century deposits (e.g. 11, Fig. 4, S1.4) were, with the exception of sand and rubble lenses, very similar to the underlying soils.

Above 11, however (but still within the 'early' bracket), the character of the deposits changed, and for a short period there is no doubt that the depositional history of this half of the site was linked to events occurring west of wall 76. The links are not straightforward, for the stratification is increasingly dissected by later pits, but joining potsherds of mid 18th-century date were found in the fill of cellar 393 and in pit 175 (of Phase 1Ed); and further joins occur between sherds from 175 (and from 1Ed garden soils) and earlier deposits on 1W. This suggests that the soil dumped into 175 and 393 was derived from the digging of the foundation trenches and cellar of building *f*3 (of 1We, below). This redeposition may have been facilitated by the ?partial rebuilding of wall 76 (which would have allowed access from one property to the other) but the only evidence for this was the extensive mortar flecking of soils such as 35-9 and 41-4.

Thereafter (Fig. 3, late 1Ed) the further accumulation of soil was interrupted by intermittent pit-digging (89-90, 103, 171, 175, 185 etc.) before a final phase of activity, characterised by the digging of further pits (5, 55, 83-4, 233) and the dumping of slate fragments in layers 33 (Fig. 4, S1.4) and 29-34 (MFS1.4), which might be associated with the refurbishing of building *f*3.

Undatable finds of iron-working slag and part of a bowl-furnace lining in the fill of cellar 393 are probably

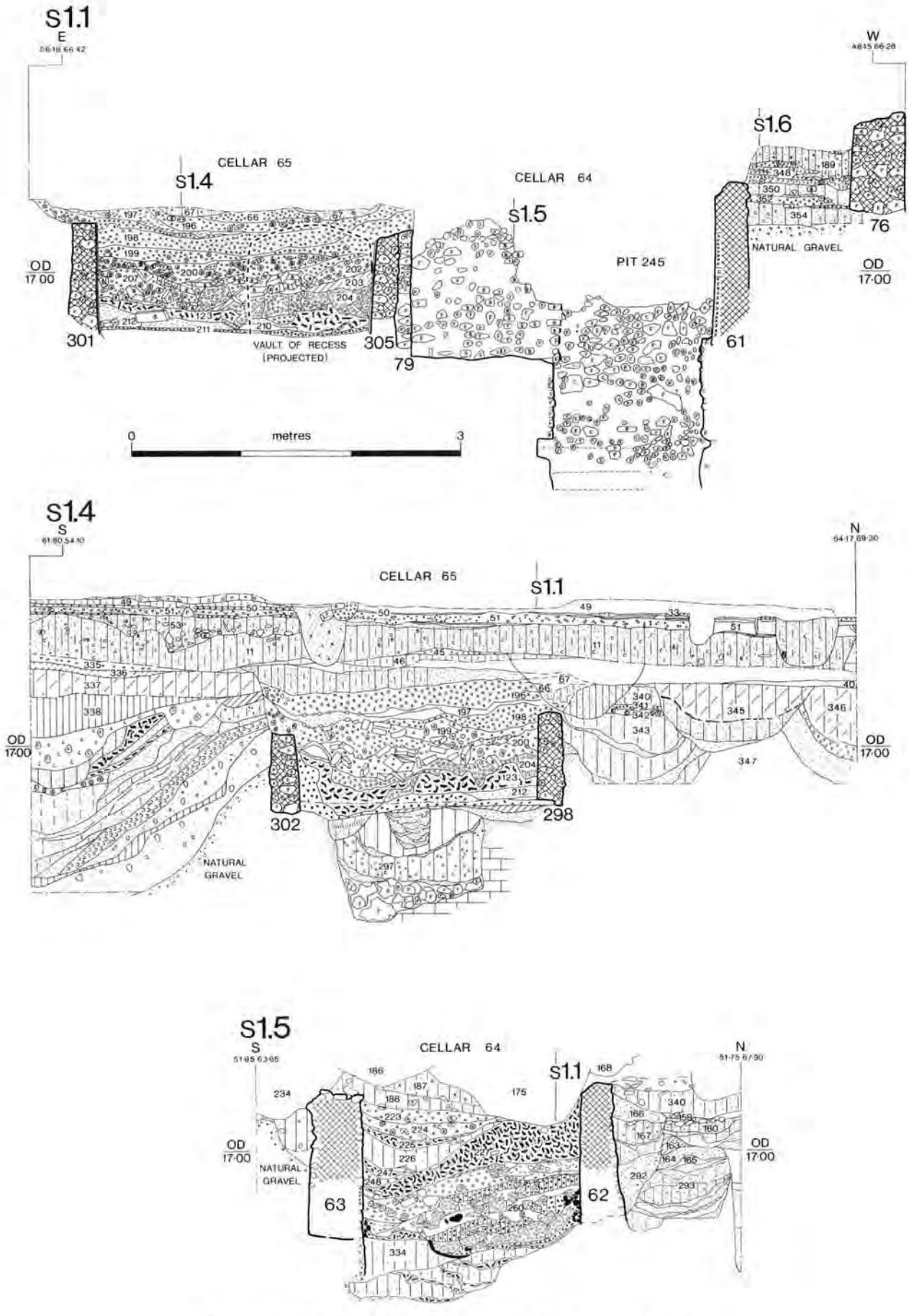

Fig.4 Site 149N, sub-site 1. Sections S1.1, S1.4 and S1.5. Scale 1:50

not to be associated with the material dumped from site 1W: no evidence was found there of iron-working and the material could have come from anywhere in the town. Debris from an early 19th-century clay-pipe kiln in pit 5 is again unlikely to have originated on the site but could have come from the neighbourhood (Section VI, p.52).

Phase 1Wd (Fig. 1 for location; Figs 3 and 5)
This phase is defined as overlying the 1Wc debris and preceding the construction of building *f*3. Known during excavation as 'the garden soils' but associated with limited structural activity. Datable to between *c.*1650 and 1730/60 on pottery evidence.

A series of brown loam soils, with occasional lenses of chalk nodules (e.g. 181, Fig. 5, S1.8), seem to have accumulated fairly slowly over the 1Wc deposits. Although deposition probably continued until at least 1700 most of the finds were 16th-century in date and seem to have been derived from underlying levels. The construction of a slight north-to-south wall (26, Fig. 3) and the laying of a tile-studded surface (12 etc.) to its east was preceded by the infilling (with 2 etc.) of the ?partially re-dug 1Wc pit 147. Although also containing some derived material this dump was clearly characterised by types of pottery not previously occurring, and datable to *c.*1670-1710. Above it a lapse of time without deposition would have been suggested by the erosion of the tile-studded surface but this was contradicted by the finds from the next deposits in the sequence (6 etc., Fig. 5, S1.7) which, in addition to derived 17th-century or earlier material, appeared to date from the period *c.*1710-1730/60. These levels were cut by an east-to-west ?garden wall (81, Fig. 3) with which no further deposition was associated.

Phase 1Ee (Fig. 1 for location; Figs 3 and 4)
This phase is defined as being associated with the construction of buildings *g*3 and 4 and is datable on pottery and map evidence. Hochstetter's map of 1789 (Fig. 50), although difficult to interpret because of errors of angle and scale, seems fairly certainly to show only one building immediately east of the entry to Brown's Yard,

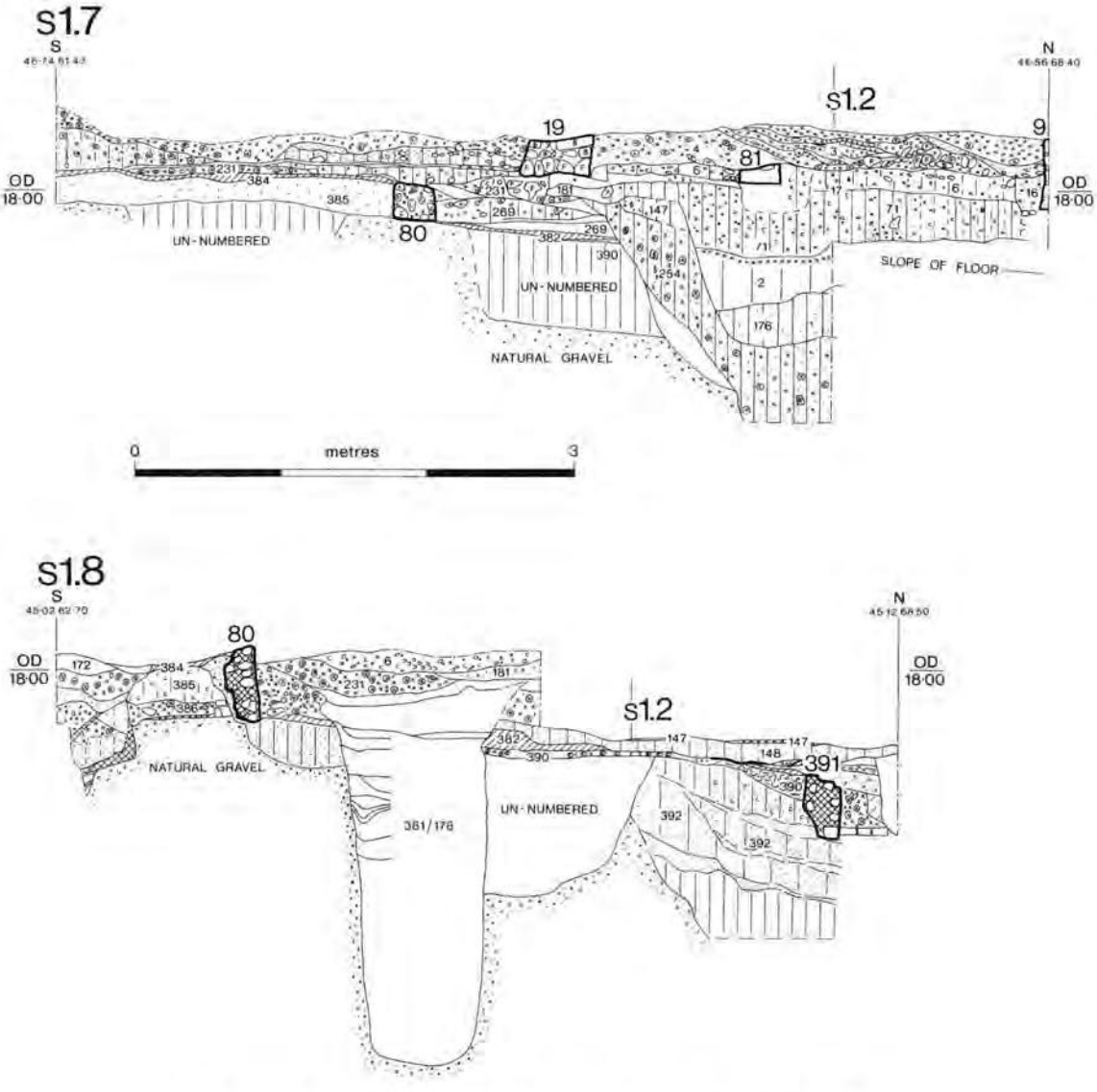

Fig.5 Site 149N, sub-site 1. Sections S1.7 and S1.8. Scale 1:50

and this must have been building *f*3 of 1We. Between 1789 and 1830, the date of Millard and Manning's map (Fig. 50), the street frontage became fully built-up: the material from pit 5 (of 1Ed) suggests that this was after *c.*1820.

House *g*3 (Fig. 3) was built up against the Phase 1Wc wall 76, which became its west gable wall. Its east wall was removed without having been fully recorded during the excavation of the modern sewer trench 28. (This ran in the tunnel-entry shown on the 1885 OS 1:500 map between buildings *g*3 and 4.) On plan, however, it is shown bonded with wall 48. Like wall 47 this was of brick and flint rubble set on a foundation trench which cut 1Ed levels. The house had no cellar. House *g*4, like *g*3 (and also brick-built), was constructed against an earlier wall (59). This formed the east edge of the excavation and, while not investigated, was thought to have had a history mirroring that of wall 76. It seems that *g*4's cellar was constructed first, and that during the removal of spoil from its digging-pit (60) the remains of the Phase 1Eb building were encountered. The basis for this assertion is that the building's ground-floor west wall (301a) was superimposed on the Phase 1Eb wall (301) at its north end and continued its line to the south; and that the north wall (58) of its cellar was aligned almost exactly with the underlying wall 302. The line of wall 301a was continued to the north by a planned but unnumbered wall which can be equated with the boundary and outbuilding shown on the 1885 OS 1:500 map (Fig. 50).

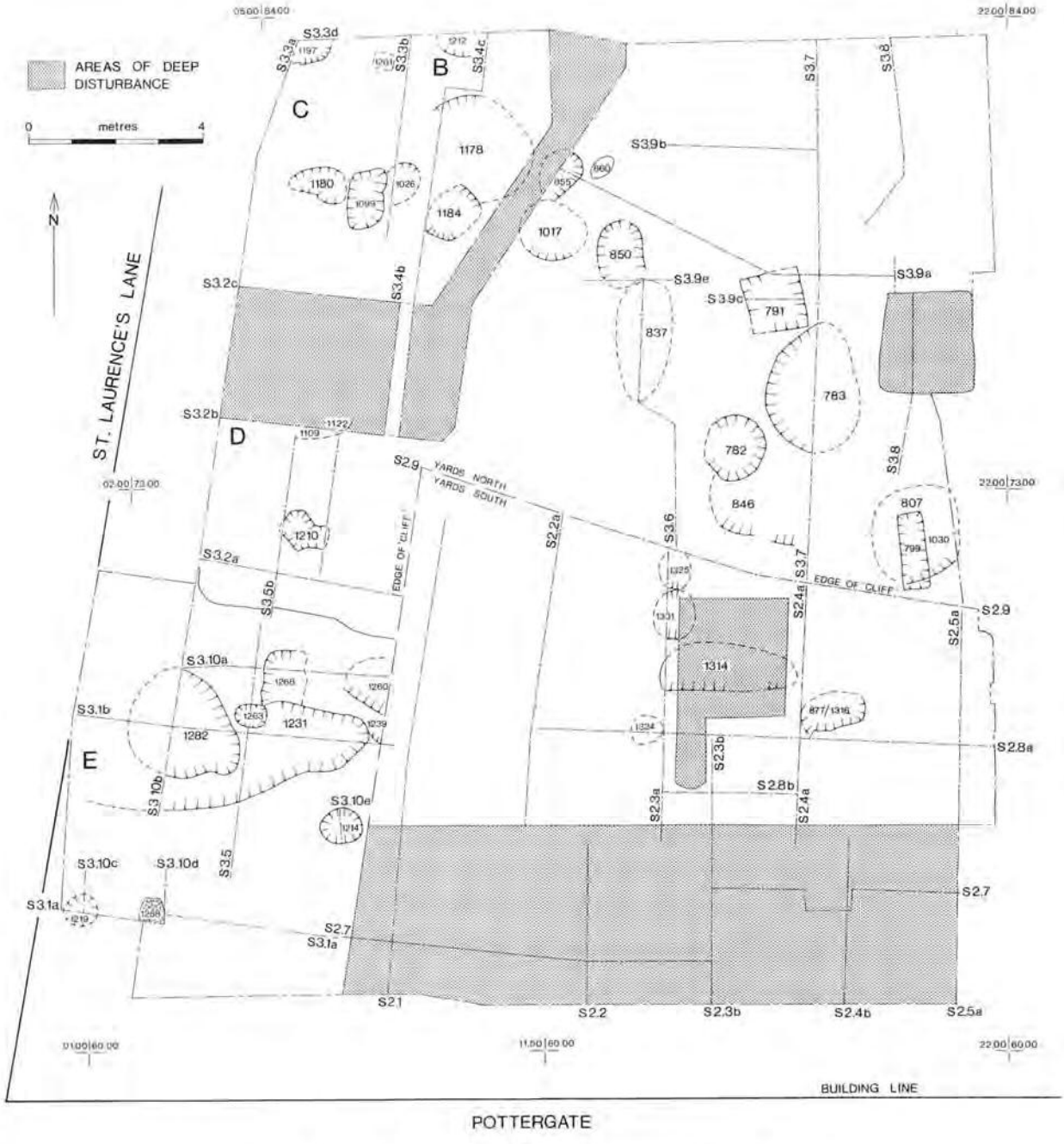

Fig.6 Site 149N, sub-site 2/3. Period I. Scale 1:150

Phase 1We (Fig. 1 for location; Figs 3 and 5)
This phase is defined as being associated with the construction and use of building *f*3; taken also to include the construction of wall 25, which formed the west edge of the excavation. Datable on pottery evidence to the period after *c.*1730/60.

The house shown occupying this end of the site on Hochstetter's map of 1789 was built against an existing Phase 1Wc wall. The possibility of this wall having been rebuilt, and the evidence of material derived from the building's construction (probably the digging of cellar 22) having been dumped on the adjacent plot have been discussed under 1Ed. The house foundations (of flint and brick rubble, including a distinctive type of early 18th-century coping brick — type M1 — also found in well 1011 on sub-site 2/3) were set for the most part in shallow foundation trenches which cut layers 6 and 23 of Phase 1Wd. Against the walls (9 and 19-21) set on these foundations, earth was then piled. The sequence was clearest (Fig. 5, S1.7 and MFS1.81) where layers 3 and 4 overlay the foundation trench (16) of wall 9. North of this (not shown on plan) ran an east-to-west tiled drain (15). None of the floors of the building survived, but its cellar (22) had been refloored with brick (106, MFS1.81) at a date in or after the 1760s. This was the earliest building on sub-site 1 to use pantiles (MFT.19, RT10 and 11) but they had occurred considerably earlier on sub-site 2.

Sub-site 2/3 (Pl. I)
The division of one large area between sub-sites 2 and 3 that was operated in excavation and recording was arbitrary (see Archive 1 for details). This report adopts instead a distinction between three structural blocks: the main frontages on Pottergate, the frontages along St Laurence's Lane, and the yards (divided into two areas north and south of the line of S2.9, for which see Fig. 6). References within these blocks are to the alphabetically designated areas shown on Figs 6 and 7. Excavation concentrated on the frontages and was never completed in the yards; this applies particularly to a wide strip extending across the centre of them where modern terracing had produced a cliff along the line of S2.9. In this area as elsewhere a number of pits were located but never excavated and have hence been omitted from the phase plans. The near impossibility of constructing coherent stratigraphical links across such a fragmented area led to the adoption for this section of the report of artefact-dated periods rather than structural phases.

Period 0 (pre-Conquest)
Two sherds of Roman pottery and a possibly Roman coin (SF149N/*475*) were recovered from post-medieval contexts. No Pagan or Middle Saxon pottery was found and with the exception of a few sherds from area F (context 1265) none of the Saxo-Norman wares found in later pits need be earlier than the 12th century. A silver penny of Edward the Confessor (SF149N/*2123*) was found, but in a 15th/16th-century context. None of these finds need have originated on the site.

Period I (*c.*1100-1400) (Fig. 6)
Other than at the extreme south end of the St Laurence's Lane frontage (1216-18 and 1258, AS3.1a), where they contained 12th or 13th-century material, none of the soils overlying natural could be dated. Pits of the 12th century and later, together with considerable quantities of pottery, were excavated over most of the site; many of the undug pits in the yards were probably also medieval. This activity apparently represents extractive industry (of gravel and chalk) in a sparsely-occupied area of the town. It might have been thought that the domestic rubbish derived from buildings on the Pottergate frontage, but it is as likely to have come from houses to the north, on St Benedict's Street. On St Laurence's Lane, where disturbance was not on the scale caused by the Period IIb Pottergate cellarage, and where traces of buildings might have been expected to survive, nothing structural (other than the ?hearth 1258 in area F) was found. Traces of occupation were much slighter than in the yards to the east, and few of the pits and scrapes contained much pottery. The earliest, probably 12th-century, pit (1109, recut as 1122) was, however, characterised by its ash and charcoal content, which distinguished it from normal quarry pits of this period. The fill of 1210, the only other possibly 12th-century pit, and also in area D, was not described. In area E, the clean sandy fills (AS3.1 and 3.5) of pits 1231, 1277 and 1282, all containing 13th-century pottery, suggested redeposition of spoil into gravel pits. (Two Late Medieval and Transitional ware sherds in 1231 seemed clearly intrusive.) The later pits on this frontage, mostly of 13th/14th or 14th-century date (1178 and 1184 contaminated with Late Medieval and Transitional ware from a Period II pit, 1174, which cut them), were clustered in two groups, in areas E/F, B and C. No obvious function could be suggested for these, but all of them contained domestic debris.

There is little to distinguish the sequence of pits in the yards (MFT.11 and 14) from those on the frontage, and a similar depositional regime would seem to be indicated. Much of the early material, however, was residual in later pits, a pattern that persisted into the 19th century, and it would seem that most of the early pits had been removed by later and deeper ones.

Period II (*c.*1400-1550) (Fig. 1 for location; Figs 7, 10 and 11; Pls I and V)
This is represented by three phases of construction: the first two on the Pottergate frontage, and the last on St Laurence's Lane.

Phase IIa—features cut or abutted by the Phase IIb cellars.
The possibility of an early building fronting on to Pottergate is suggested by the survival of a short length of wall (1435 on MFS2.4b) sealed beneath levels (985-6) associated with the late 15th-century construction of the cellars. West of this a ?well (979—probed but not excavated) was sealed beneath the cellar wall 641, but its upper fill consisted of fire debris dating to 1507 (see below). Further west, a building (Fig. 1, F) represented exiguously by a wall (1038) and a cesspit (1045), may also have pre-dated the cellars. Its heavily-burnt clay floor, however (1087 on AS3.1a), contained only one medieval sherd, while material in the backfill (1042) of its cesspit was indistinguishable from that of other 1507

deposits. That it might have pre-dated the cellared building is suggested as much as anything by the absence of a west wall for cellar H: its north and south walls might have butted against an existing, and rather flimsy, wall and this would help explain the complete collapse of the north-west angle of H in 1507 and its rebuilding (?in Period III) with wall 1040/1041.

Also attributable to Phase IIa, i.e. cut by the north wall of the cellars, are the yard soils 758, 764-5 and the pits that they seal (704, 709/1029 and 781/1325: S/MFS2.3b, 2.4a). Other pits in the yards also earlier than *c.*1470, but not tied directly to the cellar sequence, are 697, 698 (containing a coin of Edward IV, SF149N/*1880*), 710/842, 801 and 814. The north boundary of the yard was defined by ditch 804, the fill of which contained 15th/16th-century pottery.

Phase IIb (Fig. 7)—the construction of a cellared building on the Pottergate frontage.

Excavation of yard deposits associated with or cut by the cellared building (Fig. 1, H/J/K) was concentrated at the east end of the site and it is possible that many pits of this phase were not excavated. A number of north-to-south sections (S/MFS2.3a and b, 2.4a and b, 2.5) were recorded but the links between them, because of later dissection by pits, could not be traced in the east-to-west section MFS2.8a. It would appear, however, that there were no surfaced yards predating the construction of the cellars and that those associated with them (? 761 and 762) consisted of little more than trodden chalk and mortar spreads. It should be noted, though, that stratigraphical evidence shows no more than that these surfaces were cut by the foundation trenches (784 and 865/1309) for the Period III rebuilding of the cellar walls.

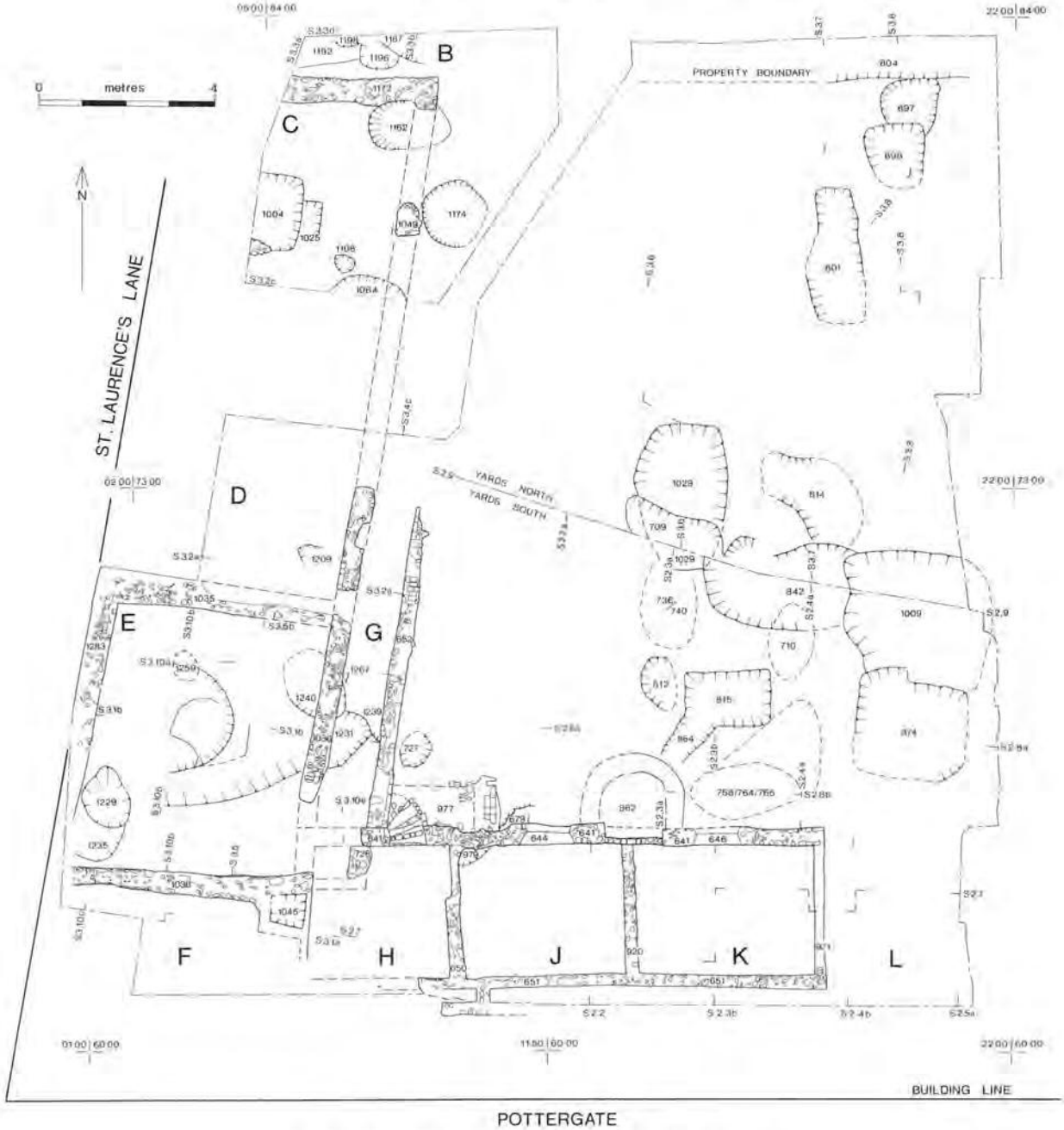

Fig.7 Site 149N, sub-site 2/3. Period II. Scale 1:150

Construction of the cellared building (which is thought to have been partitioned into three houses, see Section VIII) is unlikely to have occurred before *c.*1450-1475, for this is the earliest period from which the Raeren stonewares of Period IIa could date. The form of the building (reconstructed in Fig. 49) is problematical but its constructional details were, with the exception of its north-east and north-west corners, straightforward. A large digging-pit measuring 3.8 x *c.*11.7m was excavated through topsoil and into the sands and gravels below. When bedrock chalk was reached, at a depth of between 1.5 and 2m (Figs 10 and 11, E651), the pit was stepped-in by 30-40cm. On this ledge, or on the floor of the pit if chalk had not already been reached, a mortared flint and brick rubble wall was constructed; this once ran round the entire perimeter. It was largely built of roughly coursed, untrimmed flint in a pale yellowish sandy mortar. Brick was used only for random quoining at the angles (i.e. the junction of wall 921 with 641 and 651) and to form openings in the north and south faces (lamp-niches and deeply splayed windows respectively: Pls II and VII). The two north-to-south walls which divided the whole into cellars H, J and K were not original for they butted against the outer walls. They could, however, have been built as a second stage of initial construction, and this is suggested not only by their physical similarity to the outer walls but also by the initial provision and spacing of the windows and lamp-niches.

It is thought that there were originally three windows in the cellar's north wall. That in K (646) was blocked during the building's use (blocking 648), while in J the blocking (644) dated from the Period III modification of the building (Pl. VII). In H it could only be assumed that there had been a window, for the whole central part of the wall (Pl. IV; Fig. 10, E641) had been removed for the insertion of a staircase, 977, again blocked in the Period III rebuildings. The materials of the stair and its flank walls differed from those of the other cellar walls (including the inserted partitions) in three ways: the wall core was of mortar with brick fragments, rather than of flint rubble; the facing was largely of brick, not flint; and the mortar was both paler and harder. The general character of the staircase is clear from the photograph (Pl. IV) and drawings (Figs 7 and 10); what needs to be stressed is that the treads of the stairs had been of quartered tree trunks, their split surfaces laid uppermost. These had been laid during construction and their ends were lodged well back into the brickwork. There was no evidence that a door had been hung at the foot of the stairs, so that the recess in the cellar's east wall remains unexplained. It might, however, have provided the housing for an earlier wooden staircase. Evidence of something similar was seen in the north-east corner of cellar K where the north wall was recessed (Fig. 11, E641 and Pl. VI). Details of this had been obscured by a Period III rebuilding of the upper part of the wall and no certainty can be attached to the suggestion. Evidence for the nature of these cellar windows (whether shuttered or glazed) is similarly equivocal: the blocking of cellar K's window was not removed; while in J only the raw brick seating for a wooden frame survived.

Sanitation for the building was provided by two cesspits: one in the north-west internal angle of H, the other (862, draining into soakaway 815/864) external, and apparently serving both J and K. The relationship of cesspit 862 to the north wall of the cellar had been removed by Period III rebuilding of the cellar wall (blocking 642 on Fig. 11, E641) and the digging of pit 660, but it was clearly related to a chute within the surviving part of wall 641. The cesspit in H is known only from one fragment of wall, 726, which like the partitions was a secondary feature. To the rear of the building the boundary wall 652 was apparently associated with the construction of staircase 977 but the notebook (N 2.3/64) records only that the relationship was 'not clear'. Another feature not commented on in the notebook, but shown clearly on the plan, was the nature of the upper levels of the cellar's south wall (Fig. 7). The wall clearly had a central cavity but there is no indication that this was thought to be, for example, another cesspit. It was once thought that the building extended to the east of the cellars. In retrospect, a comparison of the stratigraphy on MFS2.4b/5a and MFS2.3b/4a shows that the eastward continuation (656/1435) of the cellar's north wall is later, and belongs to Period III. It is assumed that the building's front range mirrored the cellars but its area lay entirely out of that excavated.

The deposits in these cellars comprise their contents at the time of the fire, the household effects which overlay them, and the building's superstructure which collapsed into them. The more closely datable finds include Raeren stonewares of *c.*1500, a South Netherlands maiolica altar vase, Cistercian-type wares, a German stove tile, and a decorative terracotta plaque (SF149N/*1295*); these suggest an early 16th-century date for the fire.

The nature of these deposits (MFS2.2, 2.3b and 2.7) is exemplified clearly by the section through cellar II (Fig. 10, S2.1), where dumps of ash, and fragments of daub and mortar can be seen interspersed with layers of tumbled brick and panels of daub. The apparent homogeneity of these fills, and their massive nature, led to a regrettable lapse of recording, so that it is only in their lowest levels (phasing in fiche) that the fills of cellars J and K can be distinguished (those of H, containing some intrusive material, were always kept distinct). The implications of this in terms of interpreting the assemblages are dealt with in the finds reports. The nature of the debris suggests that the greater part of the building was of timber-framed construction; the presence of large numbers of tiles (types RT4 and RT7, many of them burnt) show that even if initially thatched, it was tiled by 1507; and the brick and flint in the fill are most likely to have come from the 'masonry' rear wall (see Section VIII, below).

Phase IIc (Fig. 1 for location; Fig. 7)

On the St Laurence's Lane frontage pit-digging continued into the early 16th century. Pits 1025, 1209, 1230 and 1269 date from the early to mid 15th century; pits 1004, 1174, 1187, 1192, 1196, 1235, 1240, 1259, 1267 and 1278 from the late 15th or early 16th century. Not all of them contained domestic debris and the relatively clean fills of the large ones, e.g. 1231/1278, again suggested backfilling of spoil into Period I quarry pits. That this may have been for chalk rather than gravel is indicated by tips such as 1095 (AS3.5a) within the 1094 series. Overlying them were a series of soils (1097 etc.) which had been laid to level-up the site once the rubble

walls of the new building (1035-6, 1049, 1173 and 1283; Fig. 1, D/E) had been constructed in shallow foundation trenches (e.g. 1151 on AS 3.2b). These contained not only early 16th-century pottery but also, in area E, material clearly derived from the 1507 destruction levels on the Pottergate frontage (e.g. 1244 on AS3.5a/3.10a which, like 1228, 1233-4 and 1254, contained burnt daub, crushed brick and mortar). Above this make-up were discontinuous patches of yellow clay floors: 1225, 1227, 1241 and 1261 in area E (AS3.10a and b); 1159 in area C (AS3.3b); and 1202 in area D (AS3.5b). No internal features survived and interpretation of the evidence is complicated by the incomplete nature of the excavation (Figs 6 and 7).

The structure probably dates from the bracket 1523-38 suggested by documentary evidence (Section IX) but need not necessarily have been domestic. The probability, however, is that despite apparently being of one build (this on the basis of similarities in construction, materials and flooring) it represents three separate units. A cottage of this size and form, i.e. with a single ground-floor room survived just north of the excavated area until 1973 (Carter *et al.* 1974, fig.2, building A). Its internal measurements were 6 × 4m.

To the east of the building, a 15th or 16th-century ditch (804) defined the north boundary of the yards.

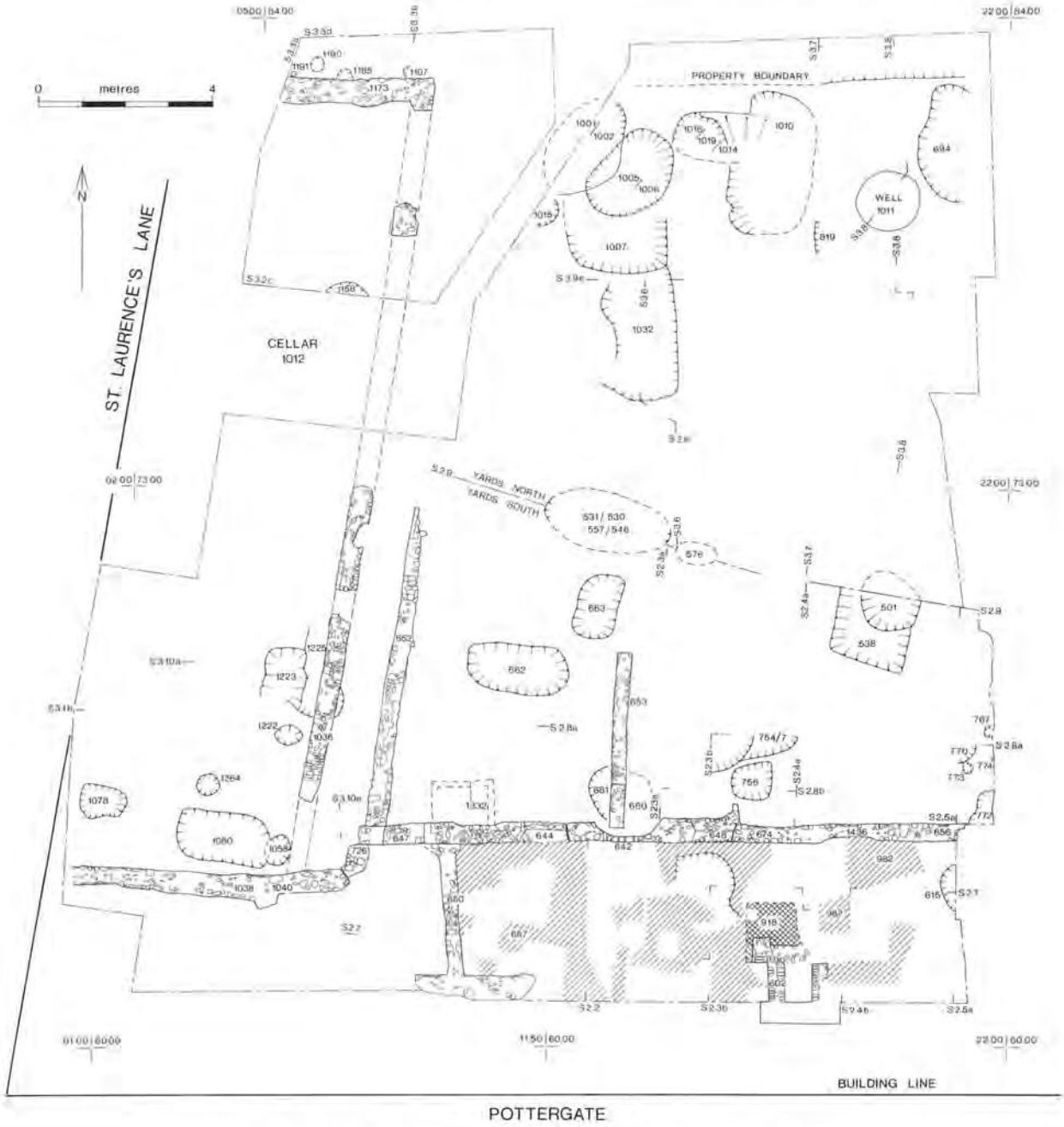

Fig.8 Site 149N, sub-site 2/3. Period III. Scale 1:150

Period III (*c.*1550-1700) (Fig. 8)

The Period II floors in the St Laurence's Lane building seem to have continued in use for some time, with mortar patching of their surfaces (e.g. 1242 and 1251 on AS3.10a). Rubbish from the building seems to have been disposed of by eastward encroachments onto the yards north of the derelict Pottergate frontage. By *c.*1610 the building seems to have been abandoned and demolished. A brick-lined cesspit (1332) which had been constructed east of it beyond boundary wall 652 was backfilled at this time and a number of early 17th-century pits cut the building's site (Fig. 8 and MFT.9-10; material recorded as '1012' probably from a 17th-century pit cut by the modern cellar of that number).

Re-occupation of the Pottergate frontage which involved digging down into the debris-filled cellars, is marked in the yards by the redeposition of much fire-distorted material of 1507 in pits such as 564, 664, 666 and 503. The latter, however, also contained a coin of 1625-34 (SF149N/*126*) and clay pipes of *c.*1640-80, their date range centering on *c.*1650-70. The initial stage of reconstructing the building involved blocking staircase 977 (with 647 also), window 644 and the collapse south of cesspit 862 (Figs 10 and 11, S2.1 and E641). With its foundations made good, and with cesspit 862 backfilled with 660/681, the upper parts of wall 641 were repaired and patched; a process seen most clearly where the wall was rebuilt as 674 in foundation trench 865 (Fig. 11,

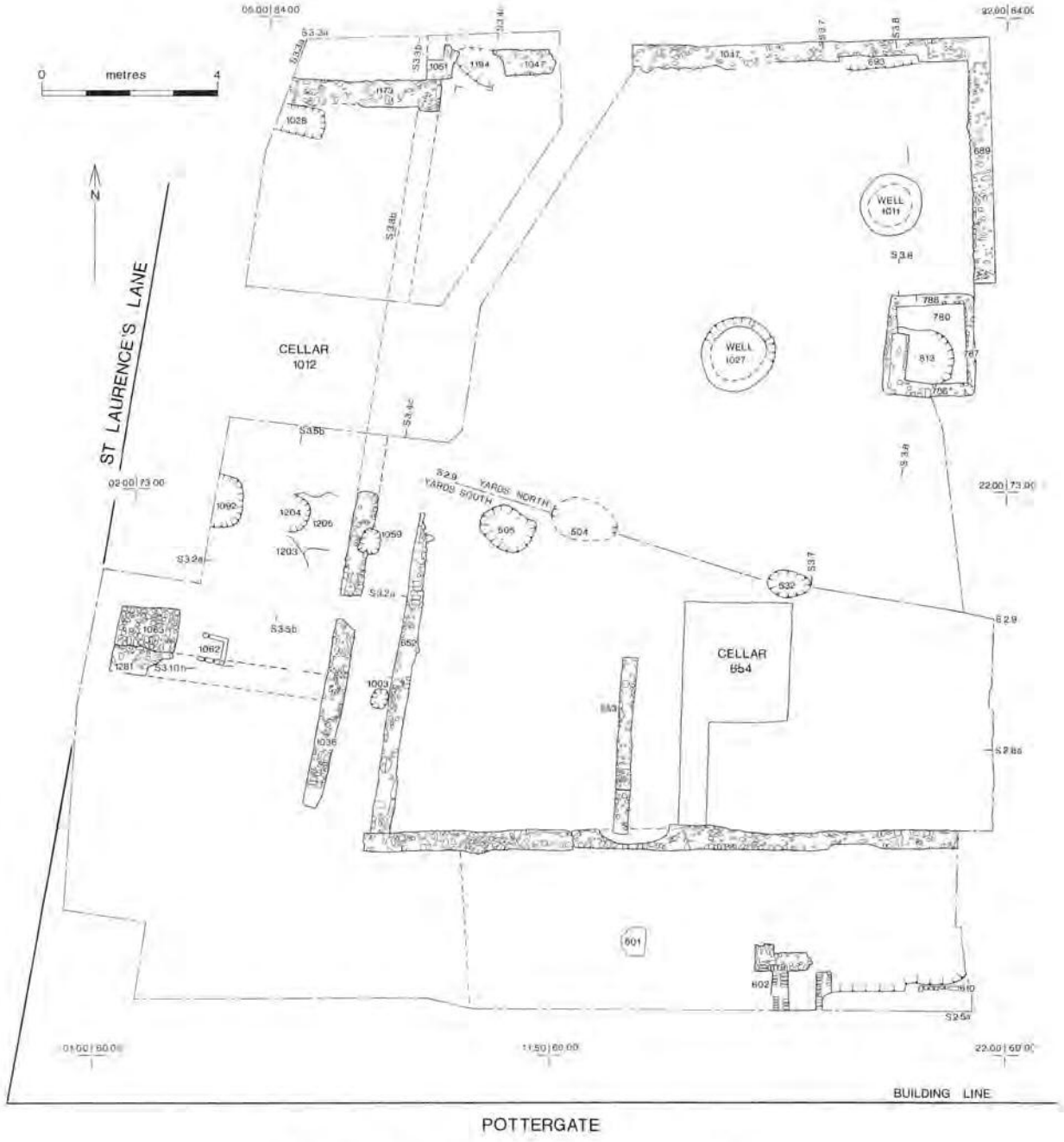

Fig.9 Site 149N, sub-site 2/3. Period IV. Scale: 1:150

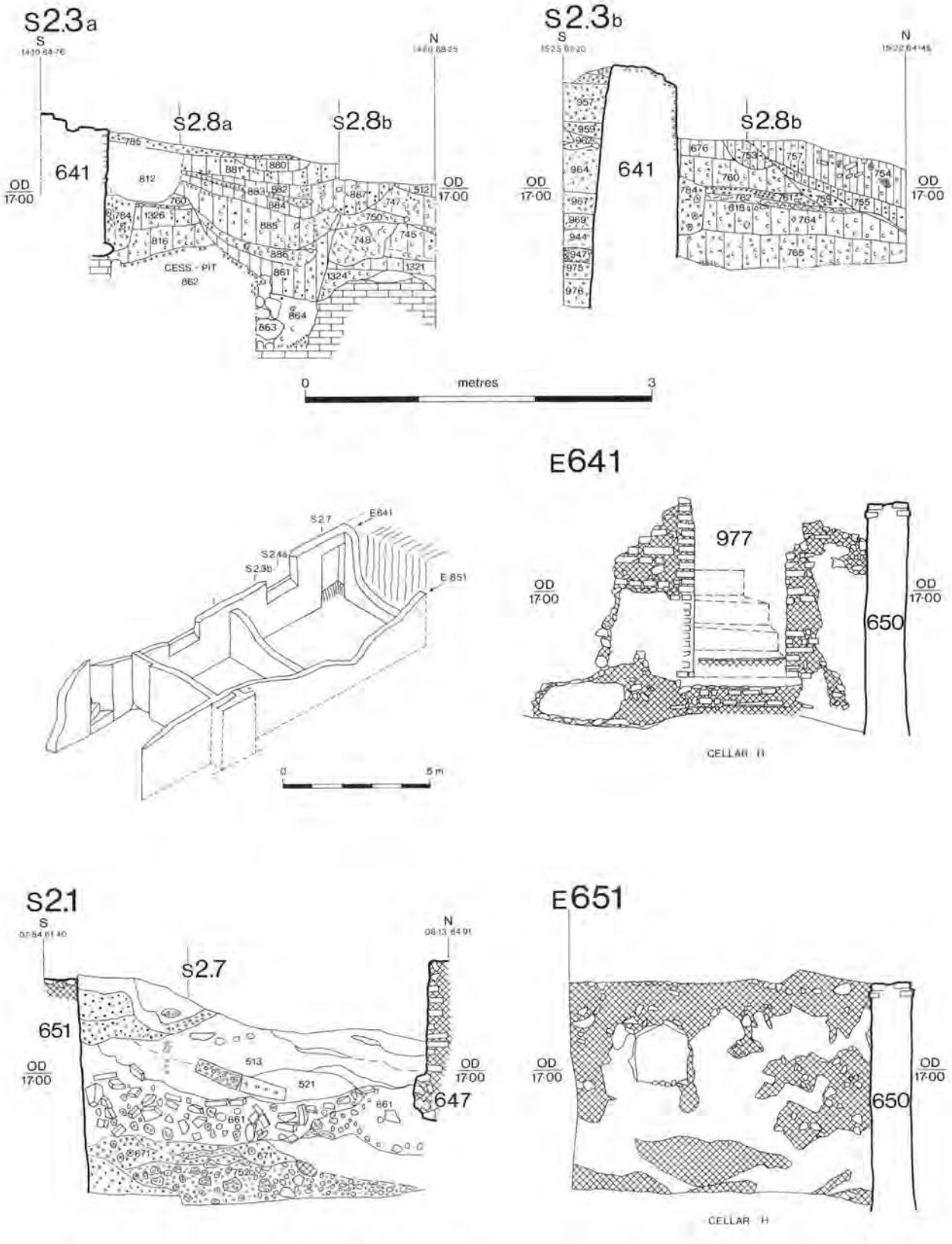

Fig.10 Site 149N, sub-site 2/3. Cellar H sections S2.1, S2.3a/b, and elevations (E641, E651). Scale 1:50

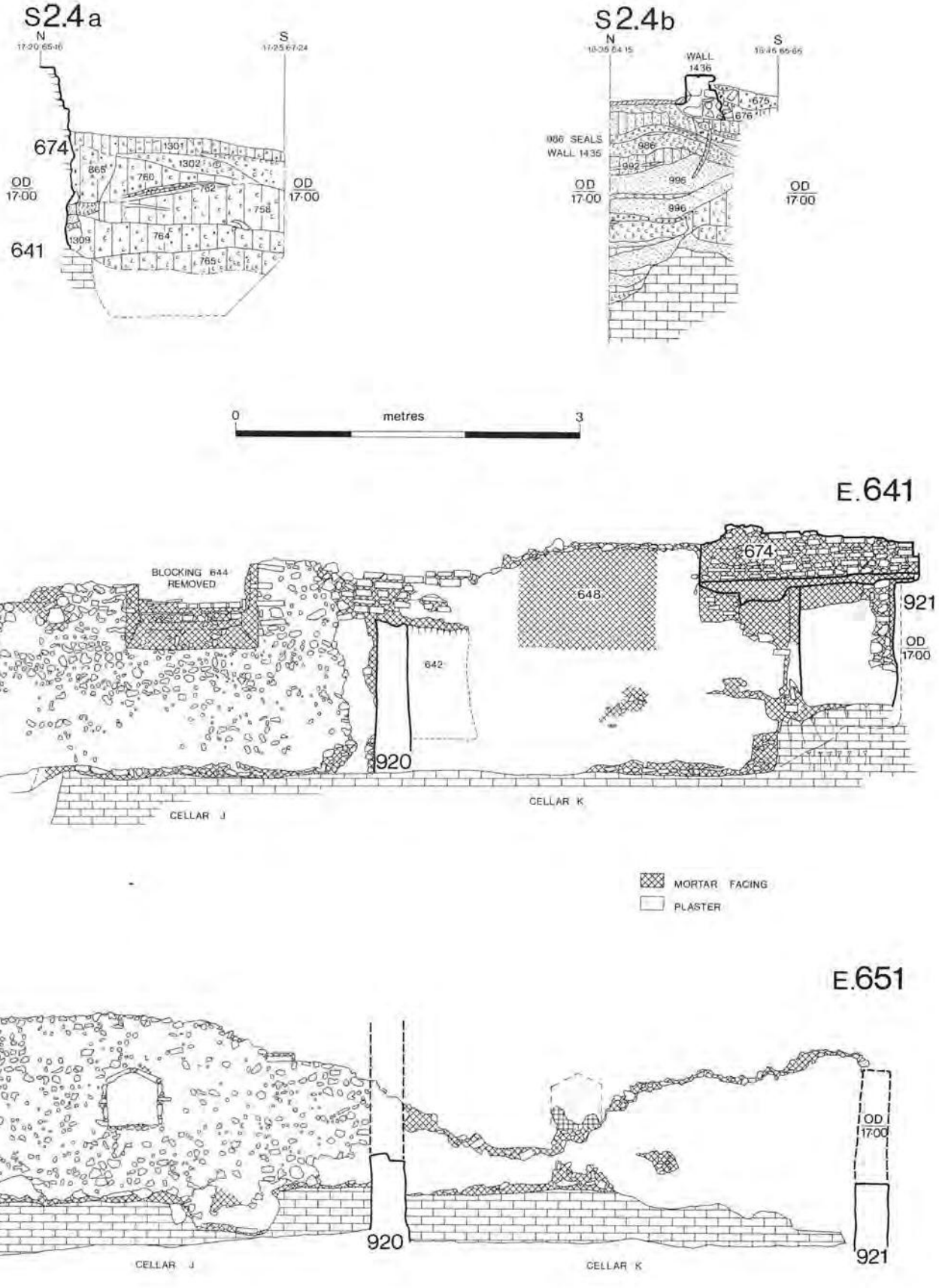

Fig.11 Site 149N, sub-site 2/3. Cellars J and K, sections S2.4a/b, and elevations (E641 and E651). Scale 1:50

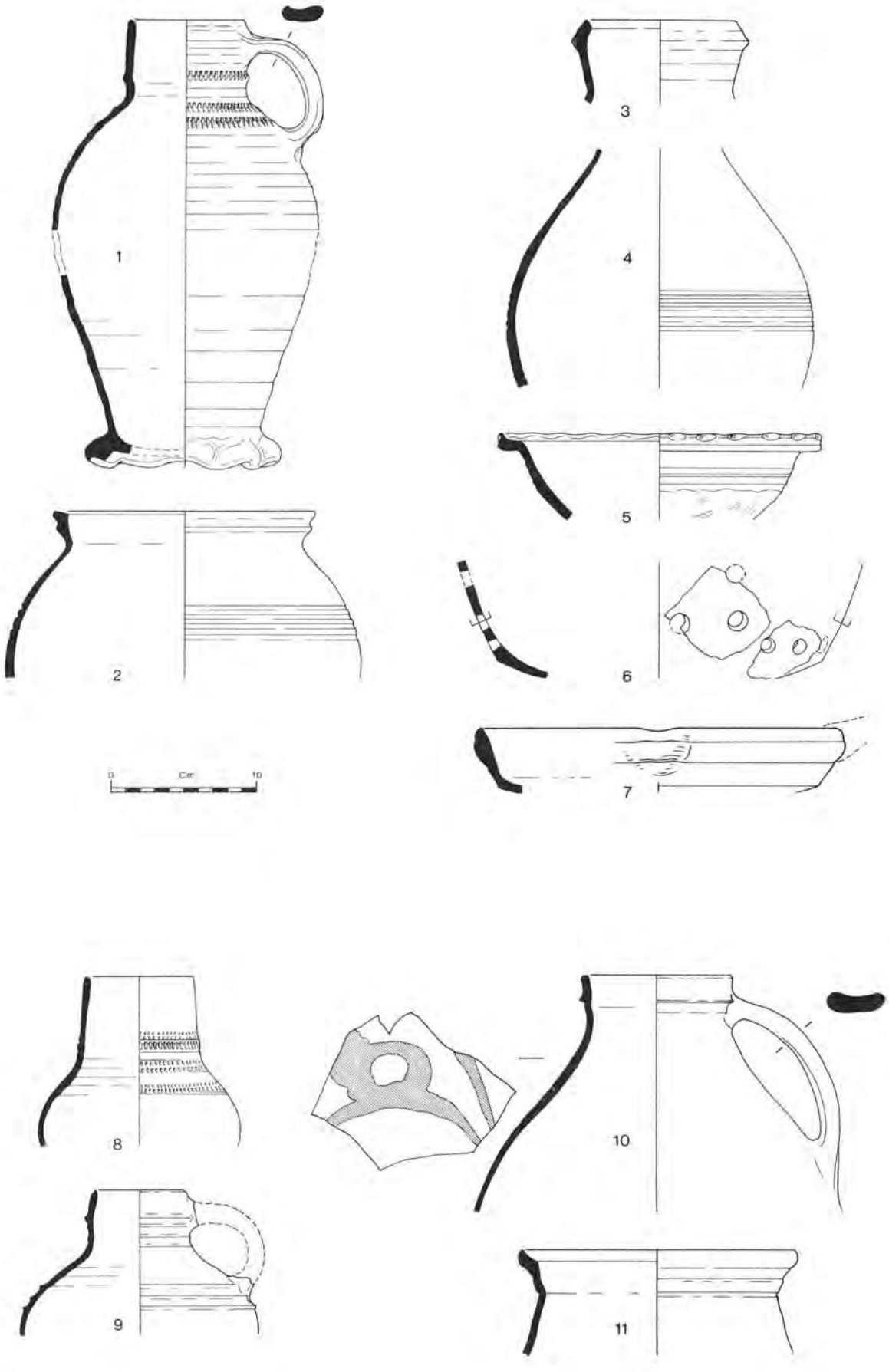

Fig.12 Site 149N, sub-site 1. Pottery. Phases 1Ea and 1Eb. Scale 1:4

S2.4a). The building was also extended to its east, where walls 656 and 1436 (Fig. 11, S2.4b; MFS2.5a) cut layers (e.g. 1319) deposited after the construction of wall 1641 (see phasing in fiche). Against wall 656, and dumped to bring the level up to that of the infilled cellars, were soils such as 906 (MFS2.5a) containing, in addition to Late Medieval and Transitional wares and Frechen stoneware, two wide-bored pipe stems characteristic of the early 17th century and a small, possibly mid 17th-century, Staffordshire yellow-glazed sherd. Above this make-up, was a beaten clay floor consisting of a number of distinct dumps (603-4, 612, 616, 638, 657, 909 and 982). No evidence of this was recorded west of the Period II wall 650 and it would have been supposed that the rebuilt structure ended on this line had it not been for the post-fire blocking of staircase 977. There was, however, nothing else to suggest this; and the post-fire bodging-up of walls 1038 and 726 (with link wall 1040) is unlikely to have been for anything other than the consolidation of the south-east, external, corner of the St Laurence's Lane building. There is, though, the possibility that a wall continuing the line of 652 southwards had disappeared in the modern disturbance that had truncated much of the stratigraphy in this area. At the east end of the building a large, brick, back-to-back fireplace (602) was constructed above the Period II wall 921; what may have been the base of a bread-oven (918) tucked under the stairs was seen to its north.

In the yards to the building's north, where wall 653 may have formed part of a lean-to structure, pit-digging continued throughout most of the period (Fig. 8 and MFT. 12). Re-occupation of the Pottergate frontage in the mid 17th century was, however, reflected by a burst of activity in an area previously quite free of pits: that just south of the yard's northern boundary (MFT. 14). By 1670 it would appear that far fewer pits were being dug, perhaps reflecting a shift to brick construction and a diminished need for daub (the building seems, too, to have been pantiled by this date), and only pit 819 and well 1011 were unequivocally late 17th-century in date. (Clay pipes of *c.*1700 in pits 1007 and 1032 were, like sherds of 18th and 19th-century pottery in other clearly 17th-century pits, obvious contaminations introduced by careless digging or recording.)

Period IV (*c.*1700-1885) (Fig. 9)

On the St Laurence's Lane frontage the few features of this period (Fig. 9) are probably to be associated with a rebuilding of the Period II structure. Concerning this, however, there is insufficient evidence to make even the most tentative of assumptions, although the Hochstetter map does show the lane fully built up by 1789 (Fig. 50).

The rebuilding of the northern and eastern boundaries of the yard as a wall (689/1047) had occurred not earlier than *c.*1730-1765. If towards the end of this bracket then it coincided with the infilling of the Period III well (1011) and its replacement by the brick-lined well 1027. Most of the few pits dug during this period were 19th-century in date (MFT. 13-14).

The only modification to the Period III building on Pottergate that survived modern disturbance was the insertion of what appeared to be a brick dwarf wall (610) to carry a planked floor. The event was undatable but is unlikely to have been as late as *c.*1800, when a pit (601) was dug through the Period III clay floors of the western room. The reason for this was probably the insertion of a prop to support a sagging joist.

Debris from a clay-pipe kiln found in pits 504, 505, 780 and 813 is probably of similar date and provenance to that found in pit 5 on sub-site 1. Similarly, finds of malting-house tiles in layer 3 on sub-site 1 and in the infill of well 1011 had probably been introduced on to the site with other building materials or rubble.

VI. The Artefacts

The reader is referred to the General Introduction for an explanation of the basis on which material has been selected for illustration and publication, and for a full list of the abbreviations used in these reports.

The Pottery

by D.H. Evans

Sub-site 1

The main differences between sub-site 1 and sub-site 2/3 are the relative lack of medieval features and the presence of a fairly substantial phase of 18th and 19th-century activity; this is reflected in the pottery (MFT. 1). Although there is a scatter of early material including English and Continental imports of the 11th to 14th centuries, this is mostly residual in later pits (MFT. 2 and 3), and need represent little more than garden soils. The first evidence of occupation on the frontages is suggested by a concentration of rubbish pits of the late 14th and early 15th centuries on the eastern edge of 1 East; these may have belonged to a Phase 1Ea building on the frontage, the remains of which would have been removed by the cellars of the later buildings.

The presence of Langerwehe/Raeren forms in these 1Ea pits suggests that the construction of the Phase 1Eb building *g*1 is unlikely to pre-date 1450, and may be substantially later—perhaps 1475; this could give an occupation of thirty years or less for buildings *f*2 and *g*2, before their destruction.

The main dating evidence for the fire on this subsite is provided by the total absence of Langerwehe and Langerwehe/Raeren stonewares from these deposits, whilst fully developed Raeren forms are present in some strength (cf. Figs 53-55). This certainly suggests a date after 1490, and taken with the far more extensive range of material from the cellar groups in sub-site 2/3 (see below), more probably in the early years of the 16th century. Support for the later date is provided by the presence of Cistercian-type ware cups (e.g. Fig. 13, No. 14), which in this region can be best paralleled at Denny Abbey (Christie and Coad 1980, 230-6); these are of particular interest, as very few have previously been noted in Norwich (Jennings 1981, nos 719 and 721). The local wares present in these fire deposits comprise a fairly broad range of Late Medieval and Transitional wares, including a few fine-ware jugs or tankards (e.g. Fig. 13, No. 15 and Fig. 15, No. 28), which had previously been considered to be early 16th-century forms. The presence of a few late Grimston-type vessels is of some interest, as it shows that certain of the Grimston-type products were still able to compete with the flourishing LMT industry at this date. The wider implications of these fire deposit groups are discussed at length elsewhere (Section X).

The later 17th century sees a new phase of deposition, pit digging and the formation of garden soils on both sites 1 East and 1 West (Phases 1Wd and 1Ed:

MFT. 4 and 5) which strongly suggests new building on the frontages; however, the only building which can be identified is represented by cellar 393 on 1 East. Although the property boundary between these two areas appears to exist throughout the post-medieval period, there are a number of instances of sherds from the same vessel being found in both 1 East and 1 West (MFT. 6) and for this reason the pottery from both areas has been presented together in the catalogue. There are two possible explanations for this phenomenon: either the plots were held under a single tenancy and rubbish was being spread on both, or material which was originally deposited on 1 West was disturbed during the construction of the Phase 1We building *f*3, and that the upcast was spread on the adjoining (and then vacant) plot; whilst the latter explanation may be preferred, it leaves unanswered the problem of the origin of the rubbish on site 1 West. Of particular interest amongst this material are the Werra dishes from pit 2 and layer 23, which were clearly of considerable antiquity when broken—the latter (dated 1588) was in a deposit which was probably post-1700. Probably in the mid 18th century, cellar 393 on site 1 East was backfilled, and a new house *f*3 was built on site 1 West (Phase 1We). The plot on 1 East appears to have continued in use as a garden (Phase 1Ed), and it is in these soils that most of the joins with site 1 West's pottery is found (MFT. 6) This pattern of usage continues into the final years of the 18th century, when a few more pits appear in site 1 East. Finally, in the 1820s the frontages were redeveloped with the construction of houses *g*3 and *g*4, and the deposition of rubbish on site effectively ceased.

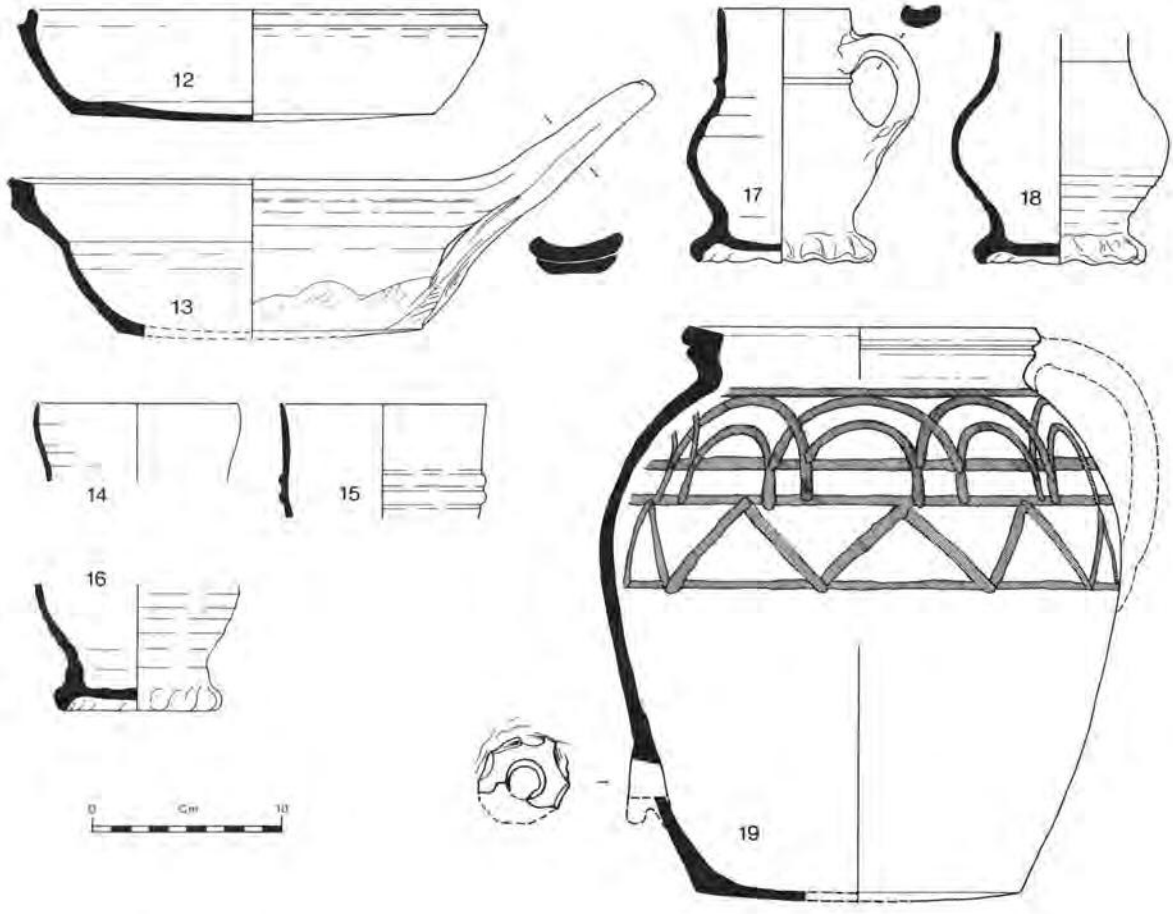

Fig.13 Site 149N, sub-site 1. Pottery. Phase 1Ec, cellars 64 and 65, fire deposits. Scale 1:4

Phase 1Ea (Fig. 12, MFT. 2)

1. Langerwehe jug, Hurst type III (Hurst 1977). Pit 104.
2. LMT. Pit 309.
3. Non-local medieval jug. Red fabric with white inclusions; greyish interior, red exterior with green lead glaze. Pit 293.
4. LMT. Pits 104 and 308.
5. LMT. Pit 314.
6. Grimston-type. Reused as a colander. Pits 291 and 296.
7. Low Countries late medieval frying-pan. Red hard-fired fabric with small white inclusions; red interior with clear orange-brown glaze on base; brown smoke-blackened exterior. A form found in late 14th and 15th-century contexts at Newcastle-upon-Tyne (Harbottle and Ellison 1981, 137, nos 194-202), and Sewer Lane, Hull (Armstrong 1977, fig. 16, no. 93). Pit 293.

Phase 1Eb *Occupation of buildings g1 and g2*
(Fig. 12, MFT. 2)

8. and 9. Raeren. Layer 334.
10. LMT. Layers 117 and 145.
11. Low Countries late medieval pipkin. Hard orange fabric with minute white inclusions; badly abraded orange surfaces with the remains of an orange-brown lead glaze. Probably would have had two handles. Layer 334.

Unillustrated:
Cat. 514. LMT lid. Layer 334.
Cat. 488. LMT base. Layer 345.

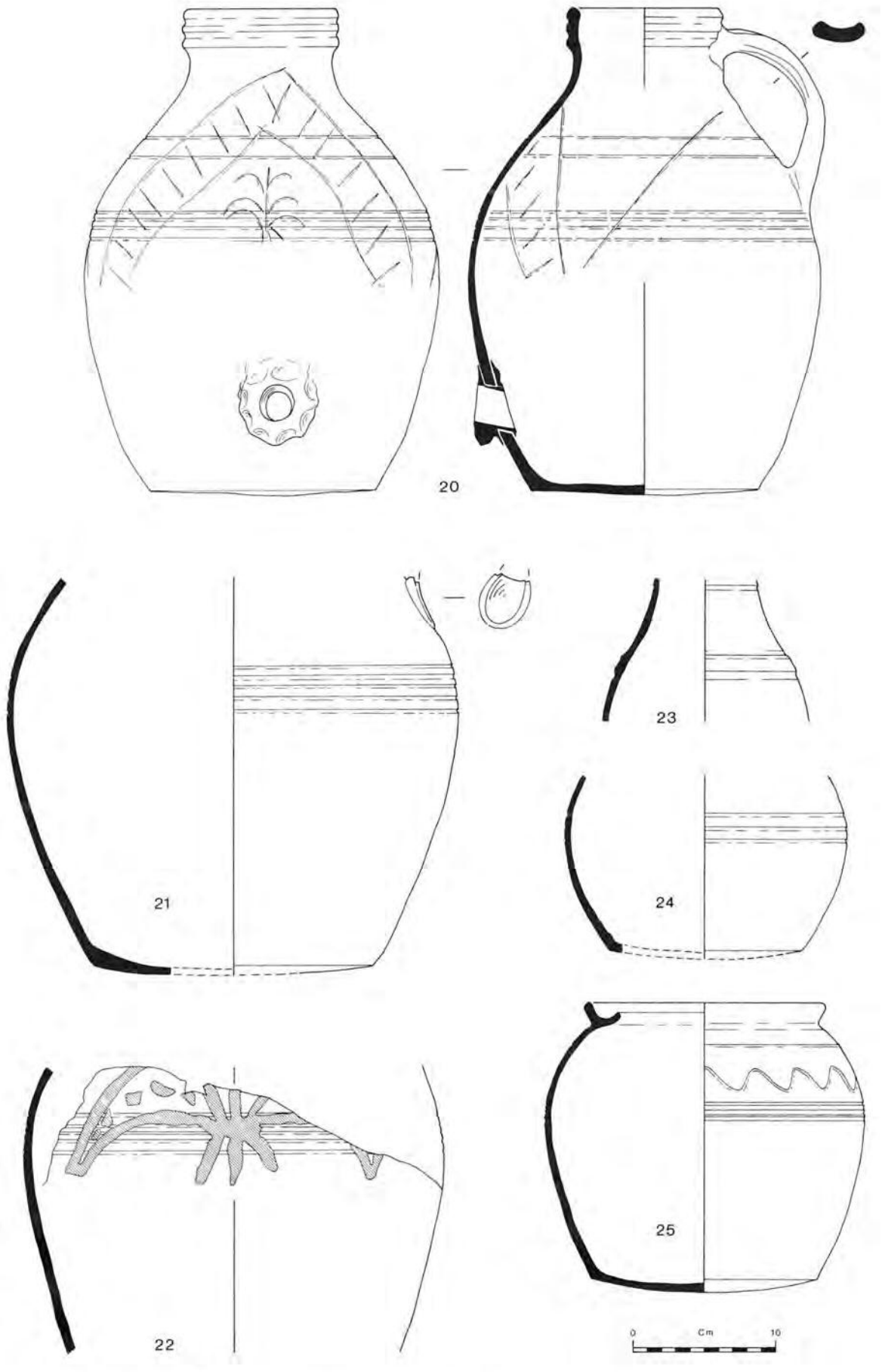

Fig.14 Site 149N, sub-site 1. Pottery. Phase 1Ec, cellars 64 and 65, fire deposits. Scale 1:4

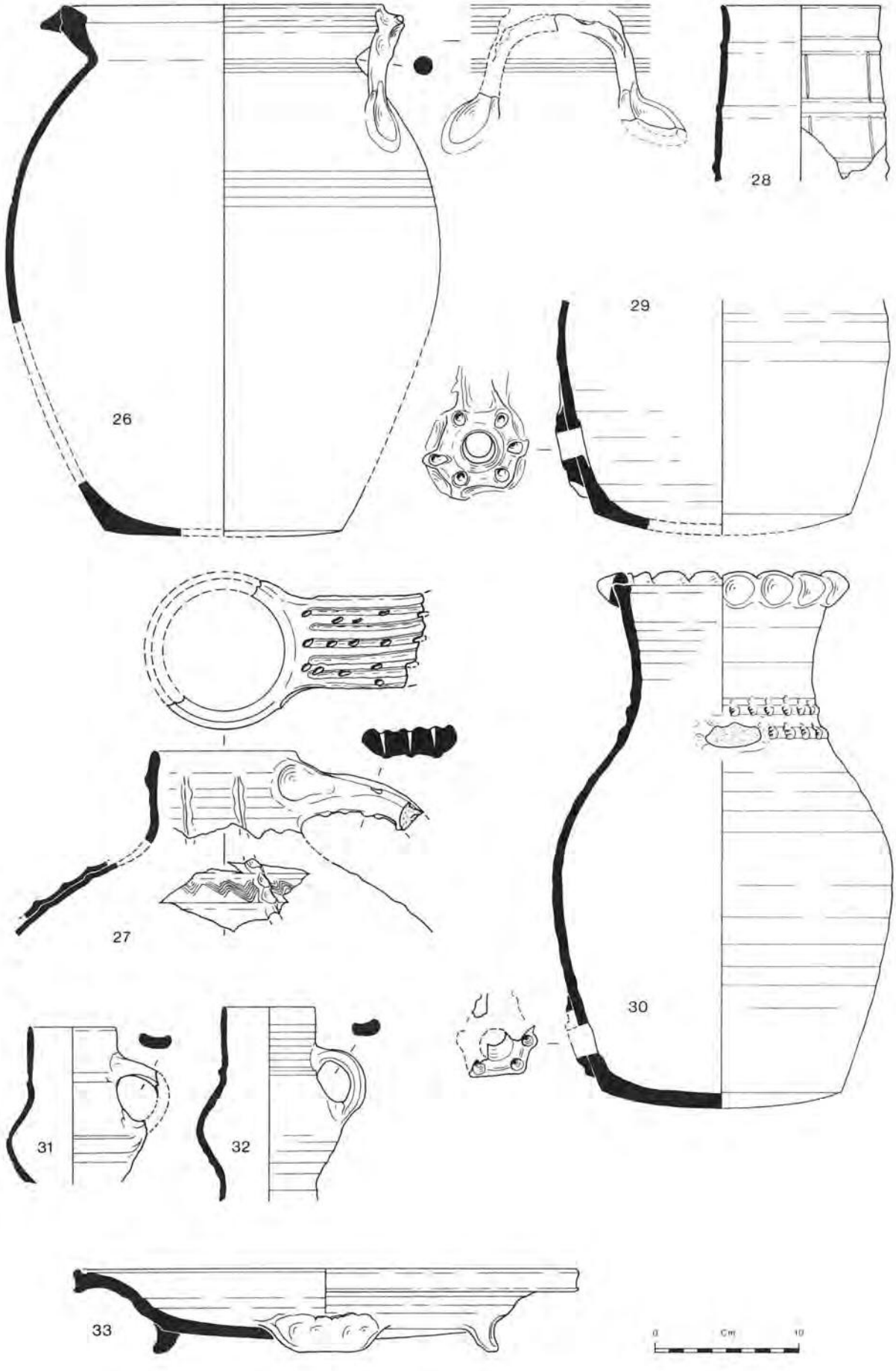

Fig.15 Site 149N, sub-site 1. Pottery. Phase 1Wc, building /2, fire deposits. Scale 1:4

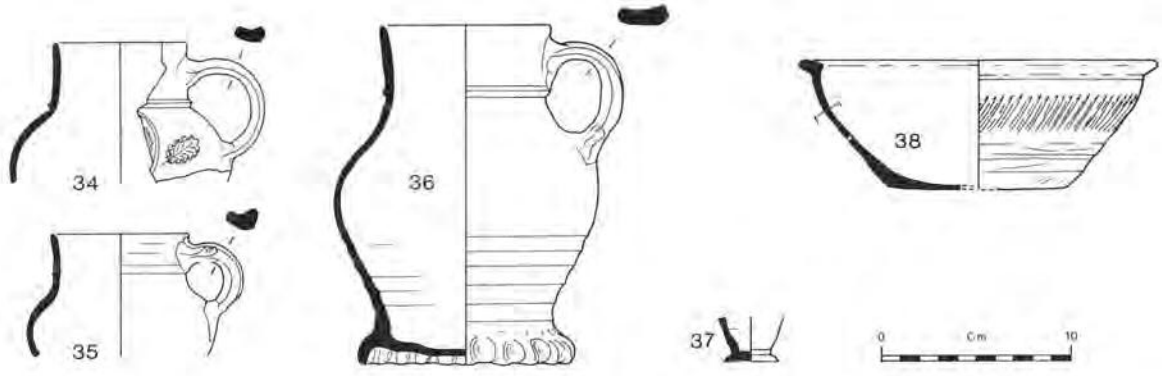

Fig.16 Site 149N, sub-site 1. Pottery. Phases 1Wc and 1Ed. Scale 1:4

Phase 1Ec *Fills of cellars 64 and 65*
(Figs 13-14 and 53-54, MFT. 2)

12. LMT. Layer 227.
13. LMT. Layer 260.
14. Cistercian-type ware cup. Reddish-orange fabric; dark brown lead-glazed surfaces. Layer 226.
15. LMT, mug. Layer 260.
16. Raeren. Layer 260.
17. Raeren. Layer 123.
18. Raeren. Layer 246.
19. LMT. Cat. 451. Layer 260.
20. LMT. Layer 122.
21. LMT. Layer 260.
22. LMT. Layer 226.
23. LMT. Layer 260.
24. LMT. Layer 246.
25. LMT. Layer 226.

Phases 1Wa and 1Wb. *Early pits and the occupation of building f2*
(MFT. 3)

There is very little pottery from contexts of these phases, and what there is presents a similar picture to that of 1Ea and 1Eb; although sherds of Fig. 15, No. 26 were found in a 1Wb context (275), they are so heavily burnt that they clearly belong to the 1Wc levels.

Phase 1Wc. *Building f2: the 1507 fire deposits*
(Figs 15 and 55, MFT. 3)

26. LMT. Layer 275 and pit 271.
27. Late Grimston-type. Layer 269.
28. LMT. Layer 261.
29. and 30. Late Grimston-type cisterns. These differ from the contemporary Late Medieval and Transitional ware cisterns (cf. Figs 2 and 3, Nos 19-20) in the singular style of finishing of the bung-holes. The more complete example would appear to have had two side handles – although only the stub of one survives (as the form of these is uncertain, they have not been restored on the drawing). Layers 148 and 269.
31. Raeren. Layer 261.
32. Raeren. Layer 269.
33. Low Countries undecorated slipware skillet. Hard red fabric with a grey core, with minute white inclusions; dark greyish-brown exterior; internal white slip covered with a badly abraded lead glaze which has fired a yellowish-green with patches of darker olive green. Heavily burnt. This is probably a precursor of the Low Countries undecorated slipwares which occur in 17th-century contexts (cf. Cat. 606-17). Layer 269.

Phase 1Wc. *Pit 285* (Fig. 16, MFT. 3)

34. and 35. Cologne.
36. Raeren.

Phases 1Ec and 1Wc. *Later robbing* (Fig. 16, MFT. 2-3)

37. GRE. Pit 147, layer 177.

Unillustrated:
Martincamp type II flask. Layer 148.
Martincamp type III flasks. Layers 177 and 178.

Phases 1Ed, 1Wd and 1We. *Garden soils and the construction of building f3* (Figs 16 and 17, MFT. 4 and MFT. 5)

38. Post-medieval Low Countries lead-glazed red earthenware bowl. Pale orange fabric with small white inclusions; clear orange lead glaze over reddish surfaces; diagonal incised hatching below rim; cheese-wire marks on base. Residual in pit 5.
39. GRE base – possibly of a chafing-dish. Layer 195.
40. Non-local GRE. Reddish-orange fabric; lustrous green and orange lead glaze over reddish surfaces (cf. non-local post-medieval wares, Jennings 1981, 148). Layer 175 and pit 213, layer 218.
41. TGE bowl. Cream fabric; white interior, pale green, manganese and medium blue decoration; pale green exterior. Layer 11.
42. TGE saucer dish. Cream fabric; bluish tinted interior, medium blue and manganese decoration; bluish-white exterior. Cf. Lipski Collection Catalogue 1981, 24, no. 20 for an example attributed to c.1690. Layer 11.
43. Werra dish (Jennings 1981, 79). Pit 2, layer 71.
44. GRE. Layer 258.
45. Speckle-glazed ware. Layers 175 and 258.
46. Decorated Raeren jug. Grey fabric; grey salt-glazed interior, brown iron-washed exterior; moulded frieze picked out in cobalt blue. Clearly an heirloom. Layer 23.
47. Westerwald mug. Decoration picked out in manganese and cobalt blue. Pit 213. Cf. a complete *Birnbauchkrug* dated 1672 in the Gewerbemuseum, Nürnberg.
48. TGE bowl. Cream fabric; white interior, medium blue decoration; buff unglazed exterior. Layer 3.

Unillustrated:
Cat. 565. Weser bowl. Pit 2 and layer 6.
Cat. 610. Low Countries undecorated slipware bowl. Layer 6.
Cat. 537. Werra dish, dated (15)88. Layer 23.
Cat. 710. Staffordshire-type slipware chamber-pot. Cellar 393, layers 241 and 258.
*Cat. 1667. Bow porcelain coffee-cup, c.1753. Pit 5.

Sub-site 2/3

This area produced much larger quantities of medieval pottery than sub-site 1 (MFT. 7); also most of the post-medieval activity was concentrated in the 17th rather than the 18th century.

The small quantity of Roman material has probably little significance, and there are no other indications of pre-Conquest activity. The earliest pits in the yards are probably of 12th-century date (MFT. 11 and MFT. 14), and occupation appears to continue throughout the medieval period, even though the earliest building which can be identified appears to be of late 15th-century date. The principal dating evidence for the construction of the cellared building on the Pottergate frontage is the presence of Raeren stoneware in the yard soils 764 and 765, and in one of the pits (709/1029) which they seal.

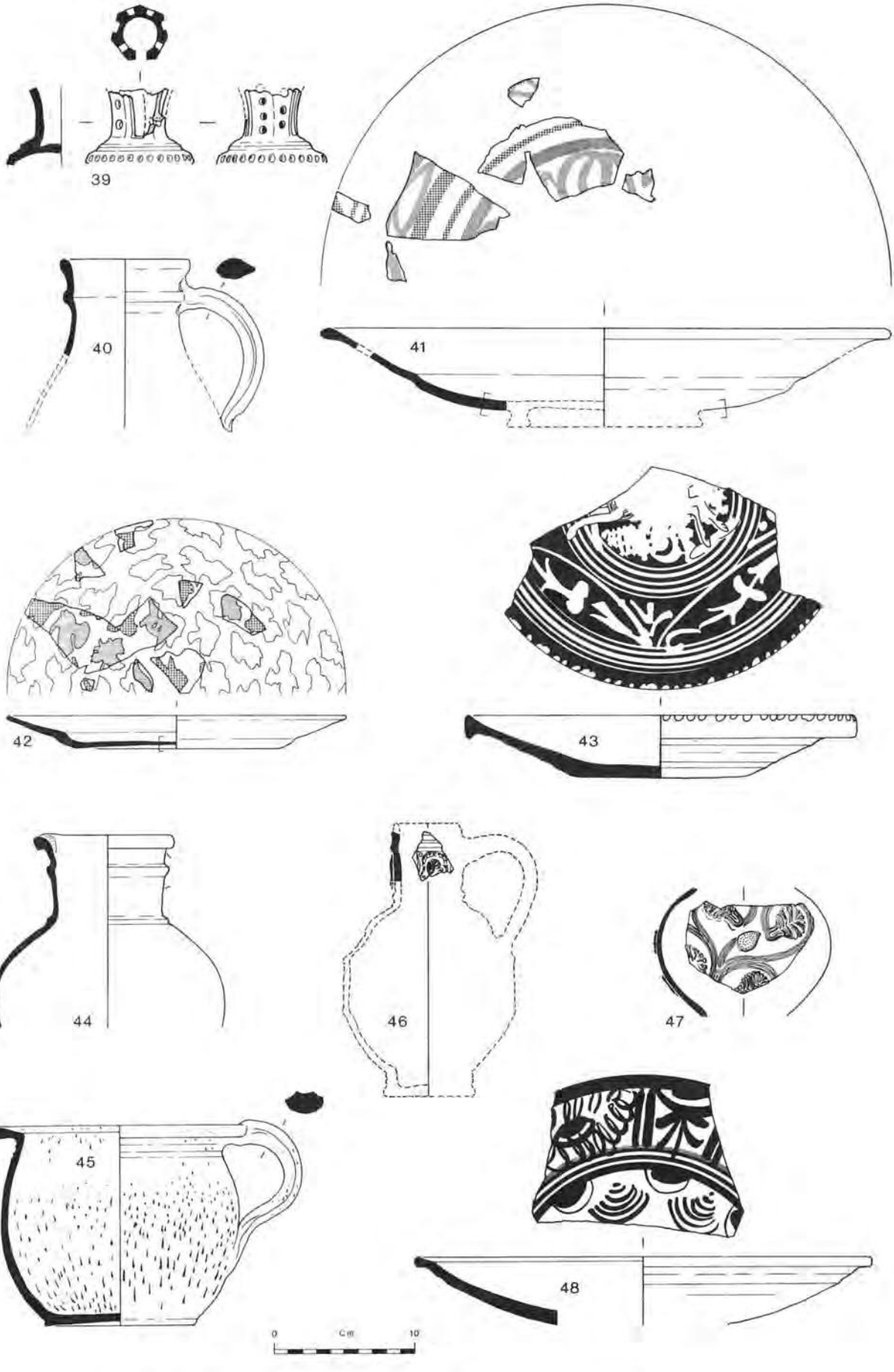

Fig.17 Site 149N, sub-site 1. Pottery. Phases 1Wd and 1Ee/1We. Scale 1:4

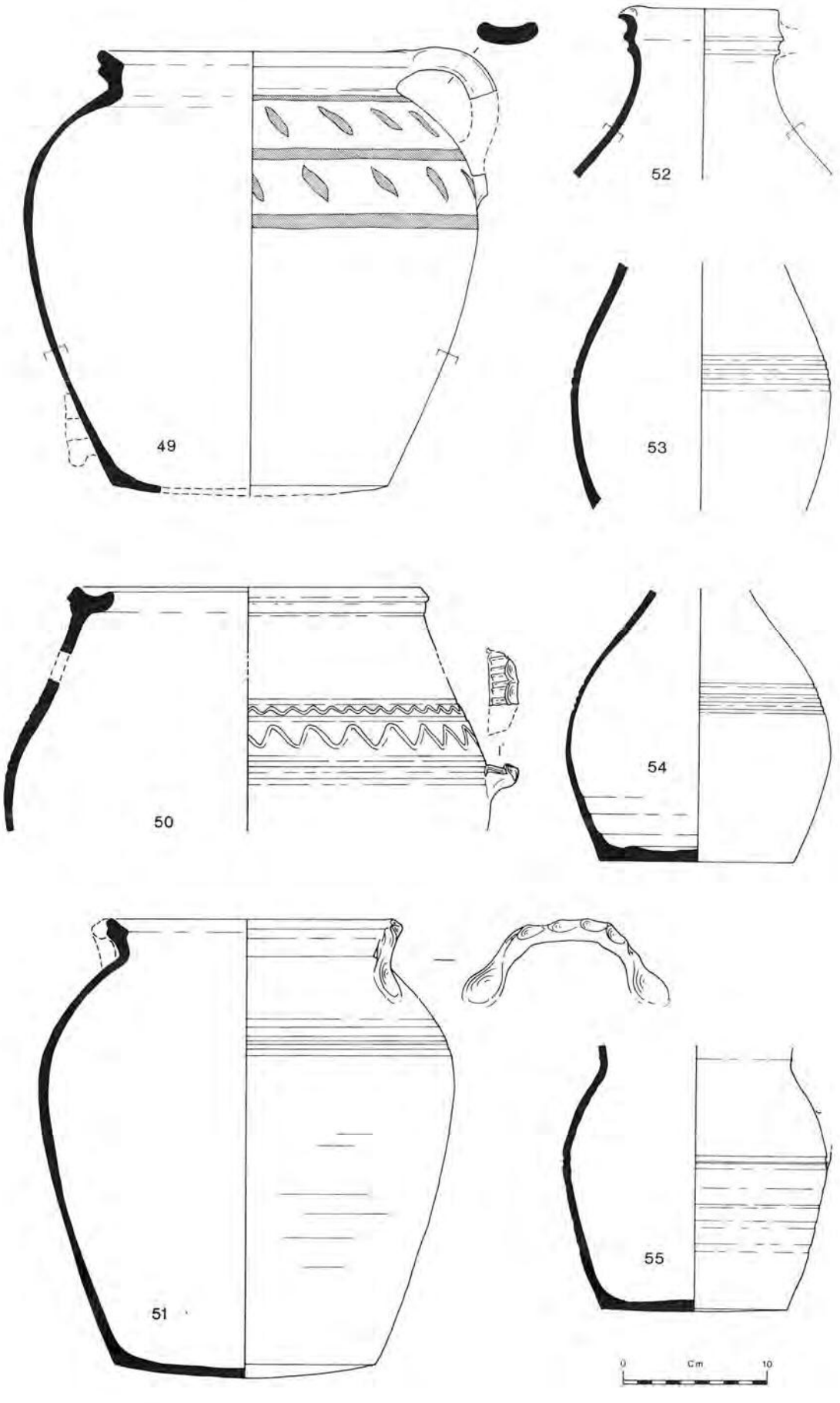

Fig.18 Site 149N, sub-site 2/3. Pottery. Cellar H, 1507 fire deposits. Scale 1:4

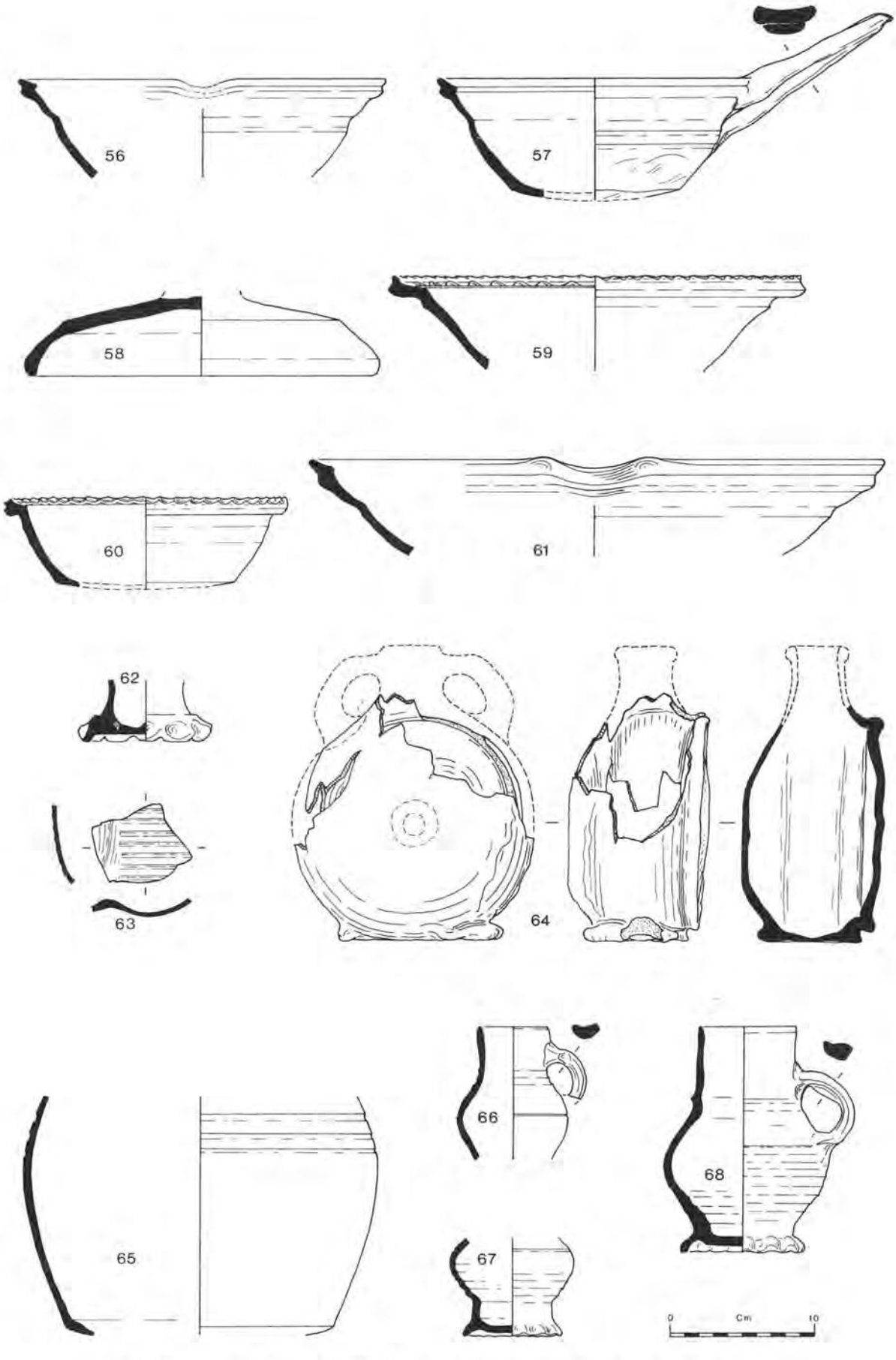

Fig.19 Site 149N, sub-site 2/3. Pottery. Cellar H, 1507 fire deposits. Scale 1:4

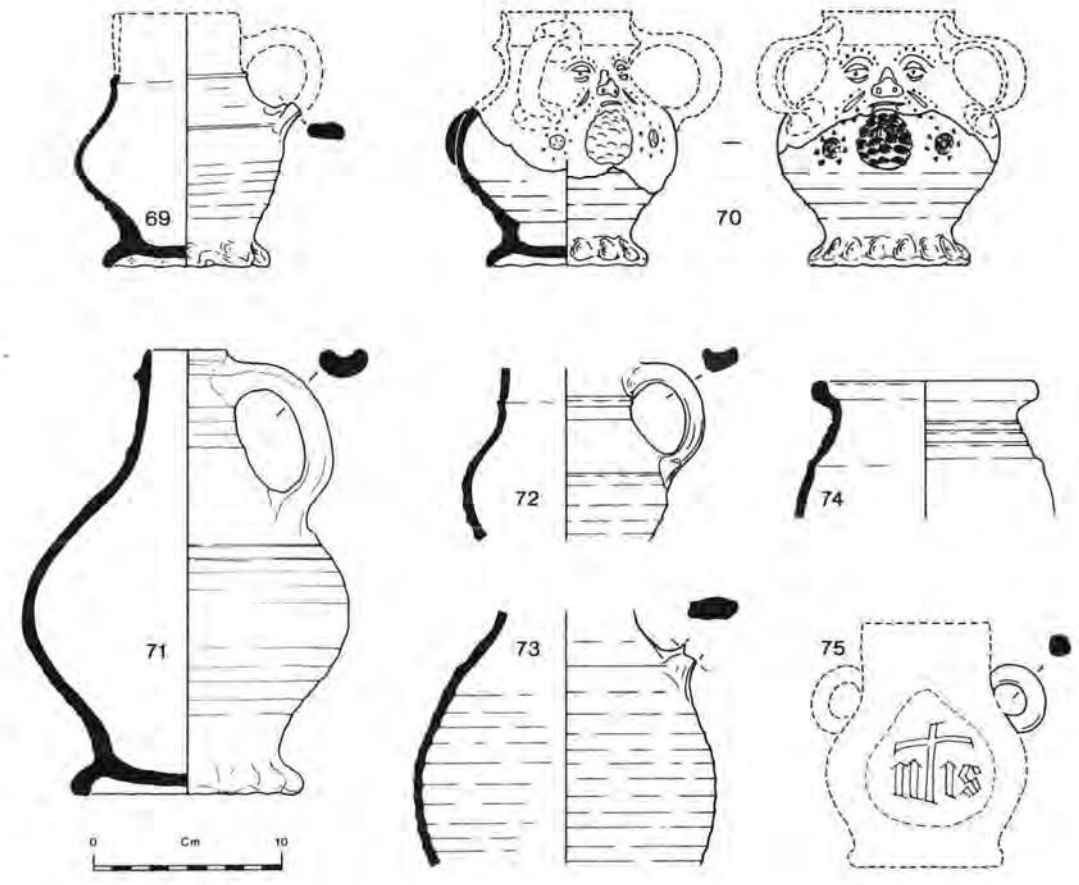

Fig.20 Site 149N, sub-site 2/3. Pottery. Cellar H, 1507 fire deposits. Scale 1:4

On the current dating of stonewares, the very earliest date which could be offered for the construction is *c.*1450, and it is more likely to be post-1475.

The stonewares in the fire deposits in cellars H, J and K are dominated by fully developed Raeren forms, and there is a total absence of Langerwehe and Langerwehe/Raeren vessels (MFT. 8). Of particular interest is a face jug (Fig. 20, No. 70); production of these is thought to have begun in *c.*1500, and most of the published examples are dated to the first half of the 16th century (cf. Reineking-von Bock 1971, nos 338 44). The other continental imports present in these cellars include a South Netherlands maiolica altar vase (Fig. 20, No. 75). A broad date range of *c.*1475-1540 was originally proposed for these vessels (Hurst 1971, 362), but the earliest firm dating evidence for their manufacture and use lies in manuscript illustrations of *c.*1485-90. Recent excavations on both sides of the North Sea suggest that they occur in contexts from *c.*1490 onwards, and most of the British finds appear to be of 16th-century date (open discussion at the 1984 conference of the Medieval Pottery Research Group at Bergen op Zoom, the Netherlands). Additional support for an early 16th-century date for these deposits is provided by the presence of a few Cistercian-type ware cups (cf. sub-site 1). The bulk of the rest of these assemblages consists of Late Medieval and Transitional wares, and is of similar composition to the sub-site 1 groups, though one or two additional forms are present (e.g. Fig. 19, No. 64 and Fig. 21, No. 79). On balance, the ceramic assemblages from both sub-sites strongly suggest an early 16th-century date for the fire; supporting evidence from the other finds in these fire deposits is understandably scarce (because of the problems of closely dating objects of iron, etc.), but a fragment of an imported stove tile (type M4; see Ceramic Building Materials, below) and a decorated terracotta plaque (Fig. 44, No. 78) are almost certainly post-1500 in date. It therefore seems reasonable to equate these deposits with the major conflagration of 1507.

Rebuilding is known to have taken place on the St Laurence's Lane frontage within thirty years of the fire, but very little pottery is associated with this construction (MFT. 9-10); however, presumably associated with the occupation of this frontage is cesspit 1332, which is of particular interest as it appears to pre-date the introduction of the local glazed red earthenwares (Figs 26-27, MFT. 12).

The main dating evidence for the rebuilding on the Pottergate frontage is provided by the contents of pits 503, 564, 664 and 666, as these contain pottery which has been disturbed from the fire deposits during rebuilding *c.*1650-70 (MFT. 12 and MFT. 15). Almost certainly of the same date is the infilling of the Period II cesspit 862. Following this rebuilding there was a short burst of pit digging and rubbish deposition in the yards, but this appears to tail off after *c.*1670. Of the later features, only the well (1011) is of interest; this appears to have been backfilled in *c.*1760-80 (Fig. 32 and MFT. 14)—the small quantity of transfer-printed ware may represent later contamination as the fill settled.

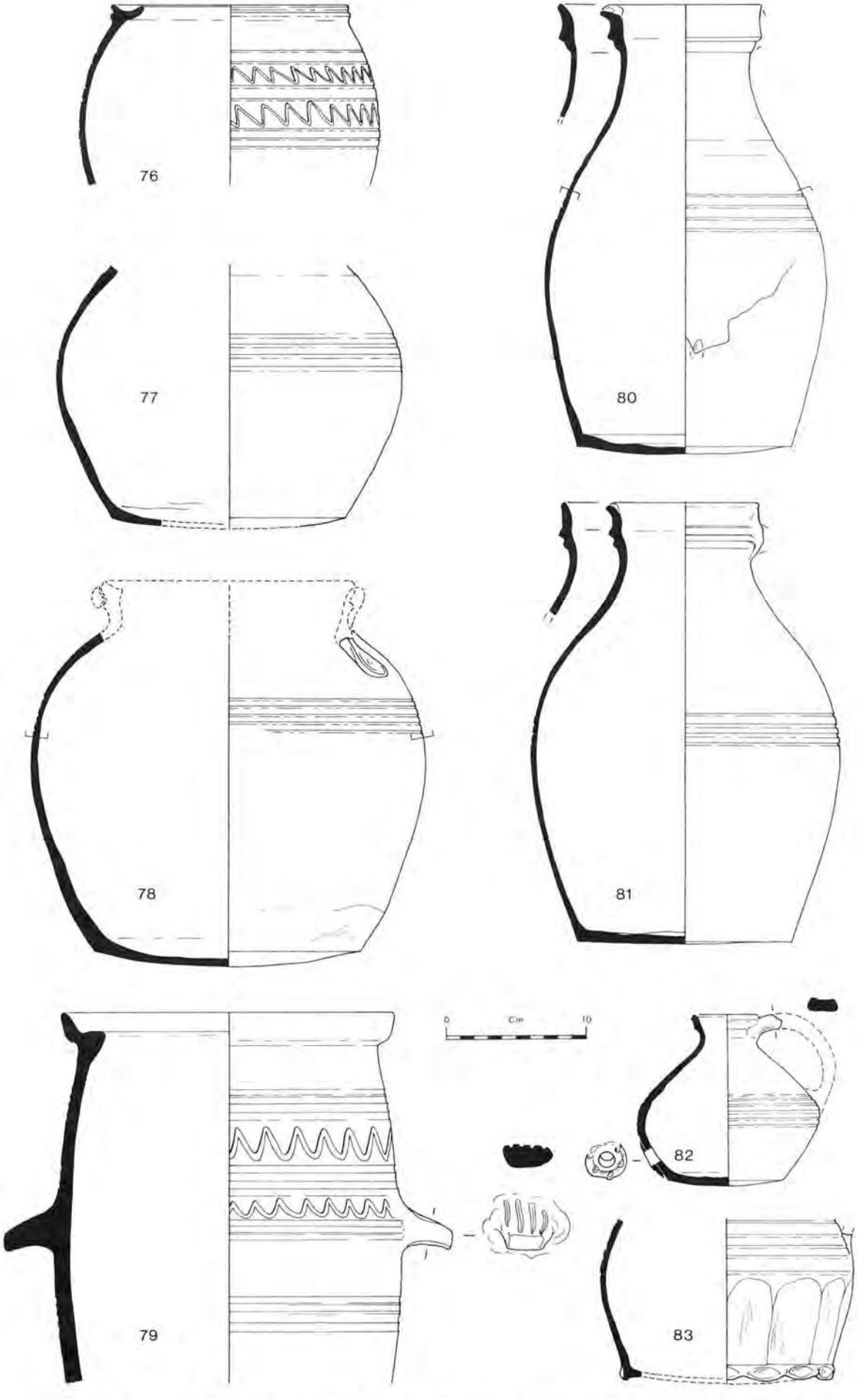

Fig.21 Site 149N, sub-site 2/3. Pottery. Cellars J and K, 1507 fire deposits. Scale 1:4

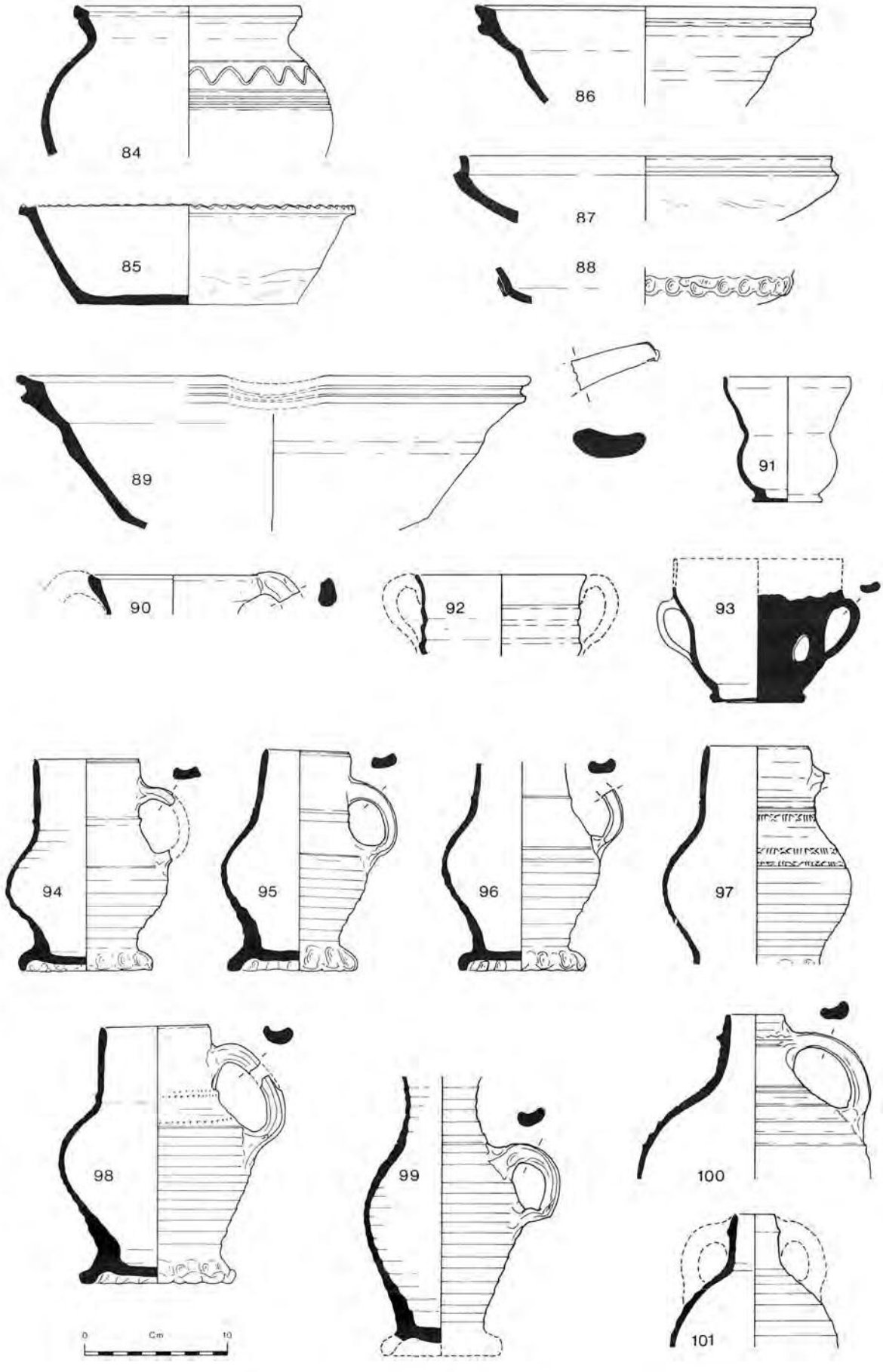

Fig.22 Site 149N, sub-site 2/3. Pottery. Cellars J and K. Scale 1:4

The Pottergate frontage

Cellar H, 1507 fire deposits; layers 978, 752, 671, 661, 521 and 513 (Figs 18-20, 56; MFT. 8)

49-62. LMT.

63. Non-local late medieval jug. Orange fabric; light brown interior; purplish-brown exterior with splashes of purplish-black glaze.

64. ?LMT standing costrel. Fabric and surfaces so badly burnt that firm identification is impossible.

65. LMT.

66-69. Raeren.

70. Raeren *dreihenkelgesichtskrug* (three-handled face jug). Cf. Reineking-von Bock 1971, no. 344.

71. Aachen. Cat. 774.

72-73. Raeren.

74. Low Countries late medieval jar. Orange fabric; red surfaces with external patches of amber glaze. Surfaces partially reduced to black in the fire.

75. Ring-handle of a South Netherlands maiolica altar vase. Cream fabric; badly burnt surfaces.

Unillustrated:

Base of a Spanish lustreware plate. Cream fabric; burnt black surfaces under the remains of a tin glaze. The fire has rendered any decoration unrecognizable.

Cellars J and K, 1507 fire deposits (Figs 21-22 and 57-58; MFT. 8)

Because of a mistake in the recording, some of the pottery from both cellars has been attributed to layers 669, 659 and 668 which ran over the top of both. Layers 912 and 913 are firmly in cellar K; 980, 670, 672 and 673 are in cellar J.

76. LMT. Layer 669.

77-80. LMT. Cellar K.

81-85. LMT. Cellar J.

86. LMT. Cellar K.

87. LMT. Layer 669.

88. LMT. Cellar J.

89. LMT. The handle is possibly from this vessel. Cellar K.

90. Low Countries late medieval. Reddish fabric with a grey core; red surfaces with an amber glaze internally, and greenish-brown glaze externally. Smoke blackened. Layer 669.

91-92. Cistercian-type ware cups. Hard red fabric; purplish-brown lead-glazed surfaces. Layer 669.

93. Cistercian-type ware cup. Fine red fabric with small quartz grits; maroon surfaces dipped in a chestnut brown lead glaze; applied pipeclay roundels which have fired yellow under a clear glaze. Layer 669.

94. Raeren. Layer 668.

95-96. Raeren. Cellar K.

97-98. Raeren. Cellar J.

99-101.Raeren. Cellar K.

St Laurence's Lane frontage

Area D, Period I (Fig. 23, MFT. 9)

102. Foot-ring of a Pingsdorf-type amphora. Hard, coarse creamy-buff fabric; dirty creamy-buff surfaces. Pit 1210.

Area B, Period I (Figs 23-24, MFT. 9)

103. Neck of a Nantes flagon. Hard creamy-white fabric; smooth white interior; smoke-blackened exterior, with no trace of glaze. Small pinched-out spout; handle possibly wheel-thrown. Pit 1197. Cf. Dunning 1955-56, 69-70, figs 29 and 32, for which a 14th-century date has been suggested.

Area E, Period I (Fig. 24, MFT. 10)

113. Non-local medieval unglazed jar. Greyish-buff fabric with small white grits; dark grey surfaces, badly weathered. Pit 1231, layer 1247.

Area E, Period II *Early 15th-century pit-group 1269* (Fig. 23)

104. Local medieval unglazed cooking-pot.

105. Non-local jug. Orange-red fabric with large white grits; greyish-fawn interior; dark orange-red exterior, with patches of green and brown lead glaze. Exterior has been wiped vertically.

106. Local medieval unglazed cooking-pot.

107. Local medieval unglazed jug.

108. Local medieval unglazed cooking-pot.

109. Late Grimston-type. *Cat. 380.

110. Non-local LMT cistern. Fine orange fabric; light grey interior; reddish-brown exterior, with upper two-thirds of vessel dipped in medium green lead glaze. Areas of thumbing spaced around the base.

Unillustrated:

Cat. 453. LMT jug.

Area E, Period II (Fig. 24, MFT. 10)

111. Non-local medieval jug. Fabric and surfaces as No. 105. Pit 1240.

112. Low Countries late medieval. Orange fabric; dull greenish-brown lead glaze internally; dark grey-brown exterior with olive brown lead glaze. No smoke blackening. Pit 1259.

Area C, Period II *15th-century pits 1025 and 1004 (Fig. 24, MFT. 9)*

Pit 1025

114. Local medieval unglazed cooking-pot.

115-116. LMT.

Unillustrated:

Copy of a Rouen-type jug. Red fabric with a buff core; red-brown interior; brownish lead-glazed exterior. Applied decoration in pipeclay and an iron-rich slip, firing yellow and dark brown/black respectively.

Pit 1004

117. Langerwehe.

118-20. LMT.

Area E, Period III (Fig. 24, MFT. 10)

121. Late LMT. Pit 1058.

Unillustrated:

Martincamp type I flask. Pit 1058.

Cat. 721. *Cistercian-type ware lid. Pit 1058.

Cat. 541. Werra dish. Pit 1058, layer 1071.

122-123. LMT. Pit 1060.

Area C, Period IV (Fig. 24, MFT. 9)

124. GRE. Cellar 1012.

The Yards, southern half

Period I (Fig. 25, MFT. 11)

125. Pingsdorf-type red-painted amphora spout. Fairly hard reddish-brown fabric with a grey core; reddish-brown surfaces with splashes of dark purplish-red paint externally. Pronounced thumbing and knife-trimming around the base of the spout. Pit 1324.

126. Non-local medieval jug or cistern (either a spigot- or a handle-socket). Hard red fabric with a grey core, and small white grits; dirty grey interior; maroon exterior. Iron concretion at base of spigot- or handle-socket. Pit 829.

127. Non-local medieval jug. Soft, orange sandy fabric with a grey core, and small white grits with some flint; reddish-orange surfaces; upper half of body dipped in olive green lead glaze. Decoration of horizontal zones of diagonal finger-nail ornament. Pit 829.

Period II (Fig. 25, MFT. 11)

128. Non-local medieval jug. Buff-brown fabric with a black core, and small white grits; black interior; medium brown exterior, smoke blackened. Decorated with six-toothed combed ornament. Pits 807 and 814.

129. Non-local LMT jug. Hard reddish-brown fabric with small white grits; reddish-buff surfaces with splashes of amber and olive green lead glaze. Pit 814.

130. Grimston-type. Pit 807, layer 806.

131. Low Countries late medieval. Reddish-buff fabric with a light grey core, and small white grits; dirty fawn interior; greyish exterior with patches of olive green lead glaze. Smoke blackened. Pit 1009.

132. Low Countries late medieval frying-pan. Red fabric with a grey core; red interior, with an overall amber and greenish-brown lead glaze; brown exterior, smoke blackened. Pit 1009.

133. Low Countries late medieval. Reddish fabric with a grey core; greenish-brown lead-glazed surfaces. Pit 1009, layer 796.

134. Grimston-type bowl. Pit 1009.

135. ?Western French medieval jug handle. Hard reddish fabric with a dark grey core; brown surfaces dipped in a dull medium green lead glaze, which appears to have some copper in it. Pit 737, layer 736.

136. Part of a ?chafing-dish - or a ?fuming-pot. Hard red fabric with small white grits; dark red-brown surfaces, smoke blackened. Layer 765.

137. Siegburg. Layer 731.

138. Siegburg. Pit 687 and layer 593.

139. LMT. Layer 731.

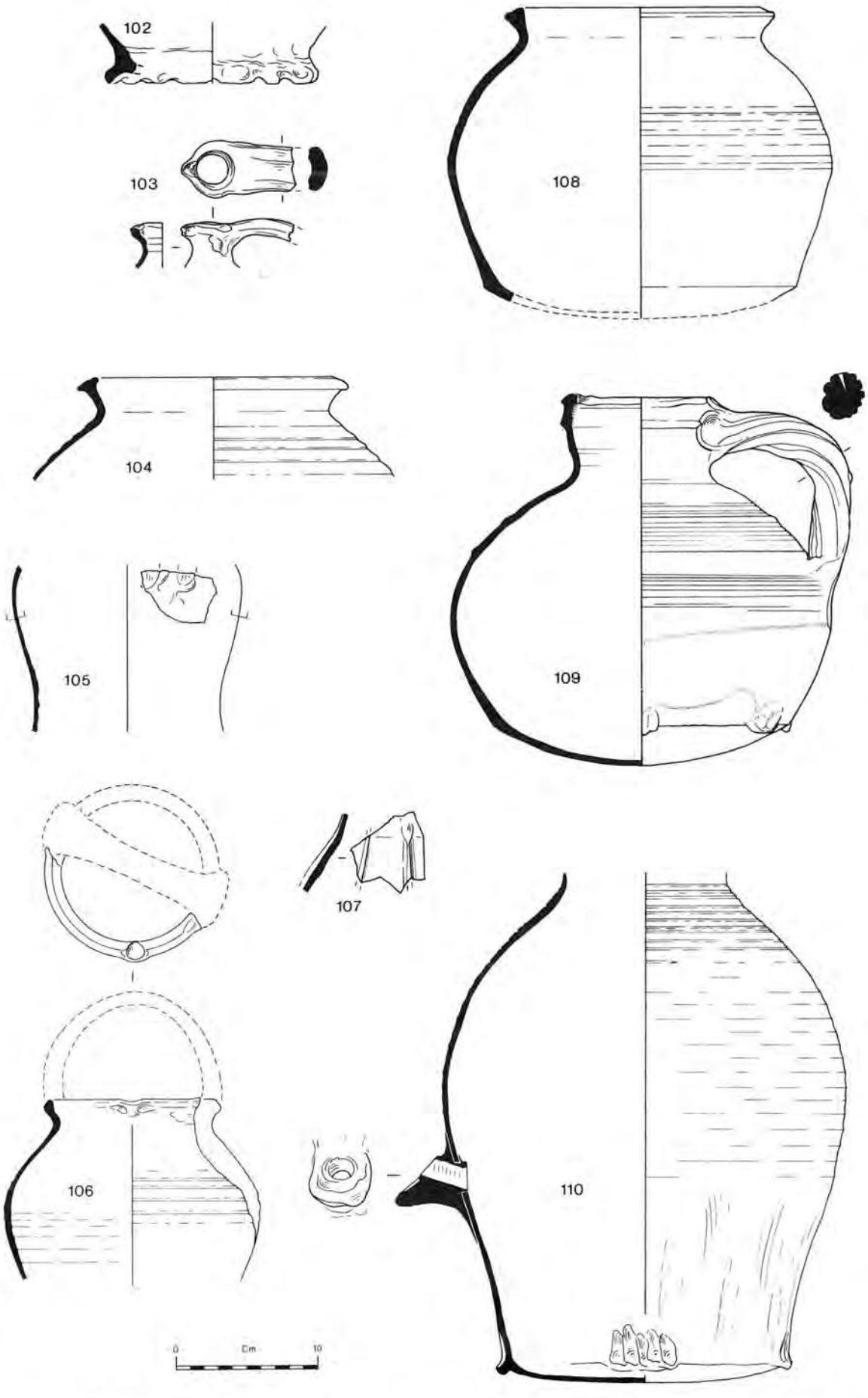

Fig.23 Site 149N, sub-site 2/3. Pottery. St Laurence's Lane frontage, Periods I and II. Scale 1:4

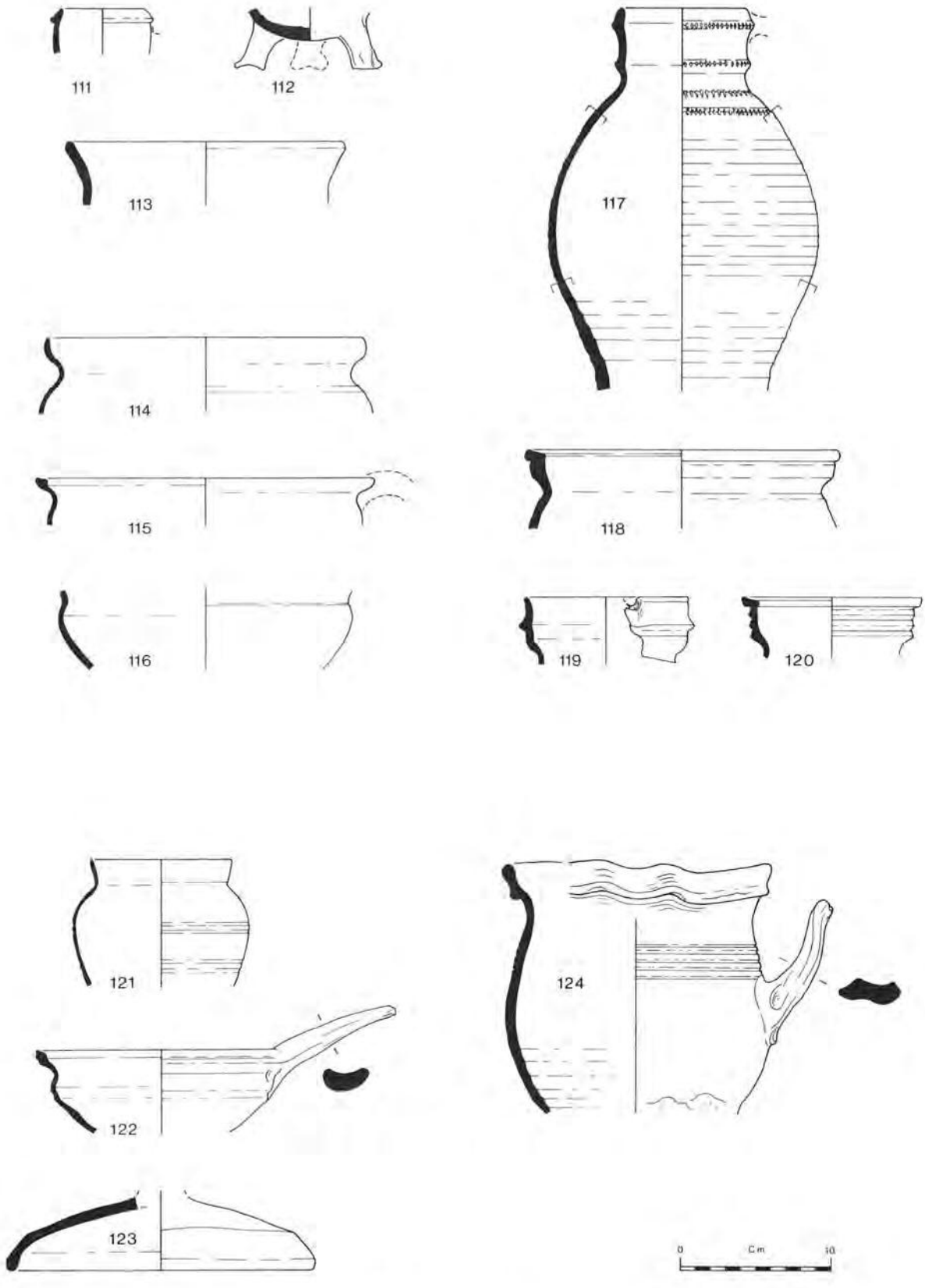

Fig.24 Site 149N, sub-site 2/3. Pottery. St Laurence's Lane frontage, Periods I-III. Scale 1:4

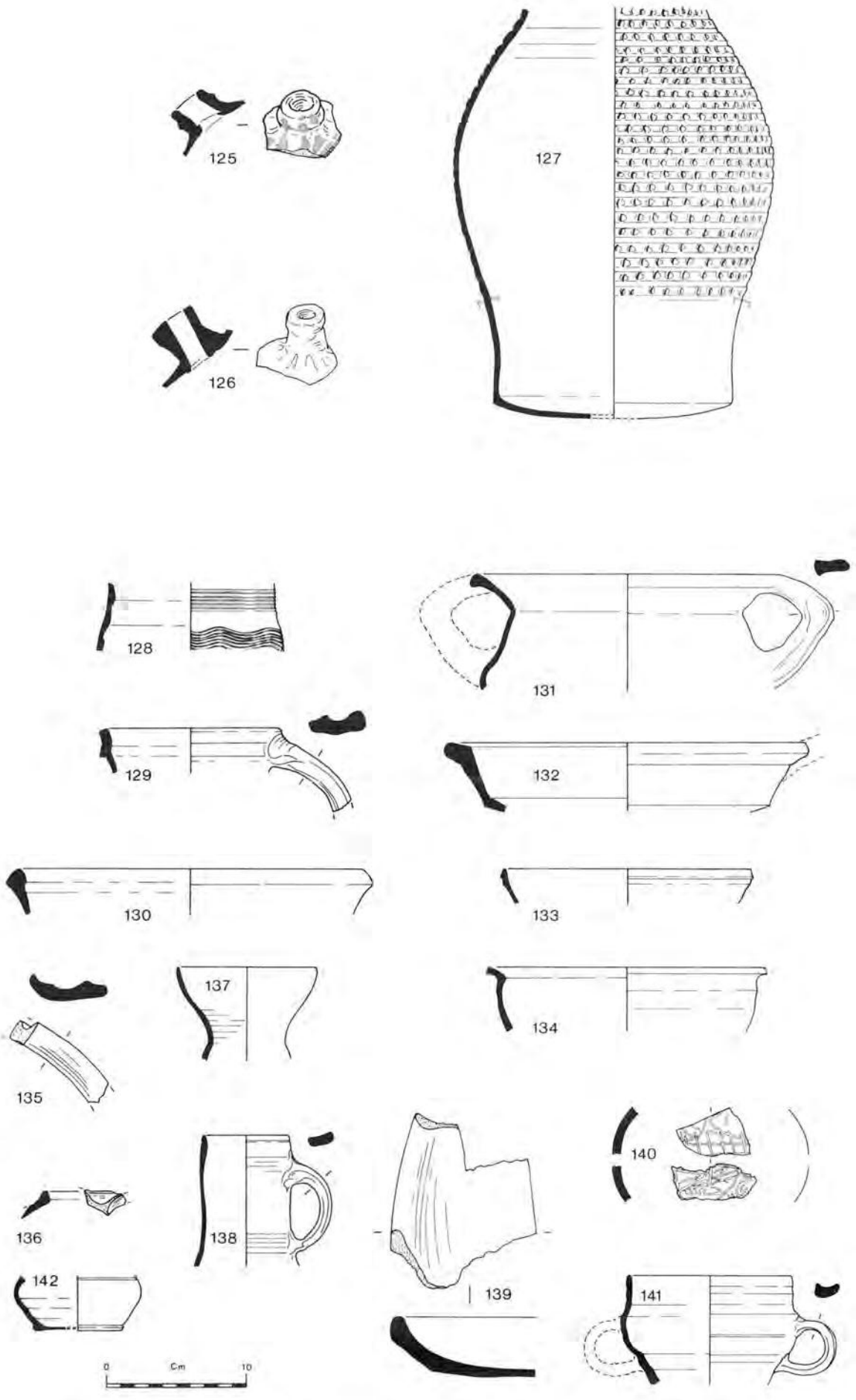

Fig.25 Site 149N, sub-site 2/3. Pottery. Yards, southern half, Periods I and II. Scale 1:4

140. Iron-glazed ware. Hard, reduced grey core; dark green iron-glazed surfaces. Incised decoration under glaze. Layer 731 and Period III pit 686.

141. Late LMT. Layer 731.

142. LMT. Layer 731.

Period III (Figs 26-29, MFT. 12)

Cesspit 1332 (Figs 26-27)

The majority of the coarsewares in this pit are in Dutch-type lead-glazed red earthenware; the rest are in West Norfolk bichrome and late LMT fabrics. The assemblage is of considerable interest because it contains no glazed red earthenware vessels, and presumably predates the introduction of these wares. The presence of Frechen mugs suggests a date after 1550 for the deposit; the absence of clay pipes suggests a latest date of *c.*1610 (although smoking is recorded in London from the 1580s onwards, the Port Books show no imports of tobacco into Yarmouth or Lynn before the second decade of the 17th century; for similar evidence from Southampton, cf. Arnold 1977, 314). A date early in this bracket is probably to be preferred—perhaps 1550-1590.

143-60. Post-medieval Dutch-type red earthenware.

161. Raeren.

162. TGE foot-ring. Creamy-white fabric; off-white tin-glazed exterior; internal decoration in blue, yellow and orange-brown on a white background.

163. TGE saucer. Pinkish fabric; bluish-white glazed exterior; internal decoration in blue and manganese on a bluish-white field.

164. and 166. TGE foot-rings. Pinkish fabric; off-white glazed exterior; internal decoration in green, blue and orange-brown on a whitish field.

165. Spanish lustreware foot-ring, probably from a jug or albarello. Fine, pale buff fabric with a buff-grey core; off-white surfaces slipped in white; rosette in copper lustre painted on the underside of the base, firing reddish brown under a clear tin glaze; wash of copper lustre around the bottom 2cm of the exterior. Interior badly stained and discoloured to a dark brown or black, but no apparent internal decoration.

167-8. LMT.

169. Late LMT. Cat. 502.

Pit 686 (Fig. 28)

170. Cologne. Second half of the 16th century.

Unillustrated:

Cat. 639. North Italian slipware base.

Infill of cesspit 862 (Fig. 28)

171. Westerwald. Decoration in cobalt blue.

172. Non-local GRE jug. Fine orange-red fabric; reddish surfaces dipped in a greenish-yellow lead glaze with specks of copper. Joining sherds from pit 686.

173. Low Countries undecorated slipware. Fine, orange-red fabric; dark red exterior with splashes of clear amber glaze; white slipped interior under an even light green copper glaze.

174. Dutch-type lead-glazed red earthenware.

175. GRE double basin container (condiment dishes). Cf. Dawson 1979, fig. 4, no. 32.

176. TGE. Creamy-white fabric; pale green glazed exterior; interior decorated with green, manganese, yellow, blue and light brown on an off-white field. Row of raised roundels on the lip, pushed up from underneath, and painted in different colours. Deep post-glazing, pre-firing scar through the foot-ring may be a failed suspension hole; stacking marks on base.

177. Iron-glazed.

178. GRE.

179. West Norfolk bichrome.

180-2. GRE.

183. Dutch lead-glazed white earthenware. Bichrome glazed.

184-5. Dutch-type lead-glazed red earthenware.

Pit 666 (Figs 28-29)

186-7. LMT.

188. Frechen.

189. ?Non-local iron-glazed. Hard, purplish-red fabric; dark brown iron-glazed surfaces.

190. Late LMT.

Pits 665 and 664 (Fig. 29)

191. TGE. Cream fabric; dirty brownish glazed exterior; internal decoration in blue, yellow and brown on a white field.

192. GRE. Pit 565.

193. GRE. Pit 503.

194. Dutch lead-glazed white earthenware. Green glazed internally. Pit 663.

195. Late LMT. Layer 760.

196. Metropolitan slipware. Pit 557, layer 523.

197. Late LMT. Pit 501.

198. LMT. Pit 757.

199. Late LMT. Pit 663.

Unillustrated:

Cat. 613. Low Countries undecorated slipware bowl. Pit 533. An identical handle from this or a similar vessel from Pit 557, layer 523.

Area L, Pit 906 (Fig. 29, MFT. 8)

200. Frechen.

Unillustrated:

Sherd of Staffordshire-type yellow lead-glazed creamware.

201. GRE. Layer 903.

Period IV (Fig. 29, MFT. 13)

202. TGE. Cream fabric; creamy-buff exterior with traces of worn off-white glaze; internal decoration in blue on a bluish-white field. Pit 532, layer 577.

The Yards, northern half

Period I (Fig. 30, MFT. 14)

203. Early Medieval Sandwich ware. Pit 791, layer 798.

204. Local medieval unglazed cooking-pot. Pit 791, layer 810.

Period II (Fig. 30, MFT. 14)

Pit 698 (Associated with a coin of Edward IV, struck 1464/5-1470).

205. Low Countries late medieval pipkin. Fine orange fabric with small white grits; light reddish-brown surfaces with sporadic patches of amber lead glaze. Smoke blackening at base of handle.

206. Non-local medieval jug. Fine hard white fabric with a light grey core, and small white grits with some chert; interior varies from off-white to fawn; exterior varies from greyish-white to pale buff-brown, with sporadic patches of yellowish-green lead glaze.

207. Low Countries late medieval. Fine, sandy, micaceous orange fabric with small white grits; smooth, pale orange interior with a single speck of amber glaze; dark red-brown exterior, heavily smoke-blackened.

208. Langerwehe/Raeren.

209. Tudor Green type 8a lobed cup. Cf. Holling 1977, fig. 1.

Period III (Fig. 31, MFT. 14)

Pit 1075

210. Non-local GRE. Fabric and surfaces as No. 40.

211. Low Countries unglazed ware. Orange fabric with small quartz grits and sporadic mica.

212. Raeren. Bearing the coat-of-arms of Philip II of Spain, prior to his becoming King of Portugal in 1580 (pers. comm. Mr Patrick Palgrave-Moore of the Norfolk and Norwich Genealogical Society). The coat-of-arms is flanked at the top with the date (15)75, and at the base by the initials (?I)E—presumably those of the master potter Jan Emens (pers. comm. Dr Gisela Reineking-von Bock, Kunstgewerbemuseum, Köln).

213. GRE.

214. Non-local GRE. Fabric and surfaces as No. 40.

215. TGE. Cream fabric; pale bluish-white glazed exterior; internal decoration in medium and dark blues on a bluish-white field. Pit 1010.

216. West Norfolk bichrome. Pit 1015.

217. ?Post-medieval Dutch lead-glazed red earthenware. Fine pale orange fabric with small white grits; pale reddish-orange surfaces; interior glazed overall with an orange lead glaze; exterior sporadically glazed. Pit 1007.

218. Westerwald. Pit 1001.

219. Dutch lead-glazed white earthenware. Bichrome glazed. Pit 1005.

220. Metropolitan slipware. Pit 1002.

221. Metropolitan slipware. Pit 1005.

222. GRE. Pit 1002.

223. Non-local lid. Dark red-brown fabric with white inclusions; dirty buff-brown surfaces. Pit 1005.

224. Non-local lid. Reddish fabric with small quartz inclusions; reddish-orange surfaces. Pit 1005.

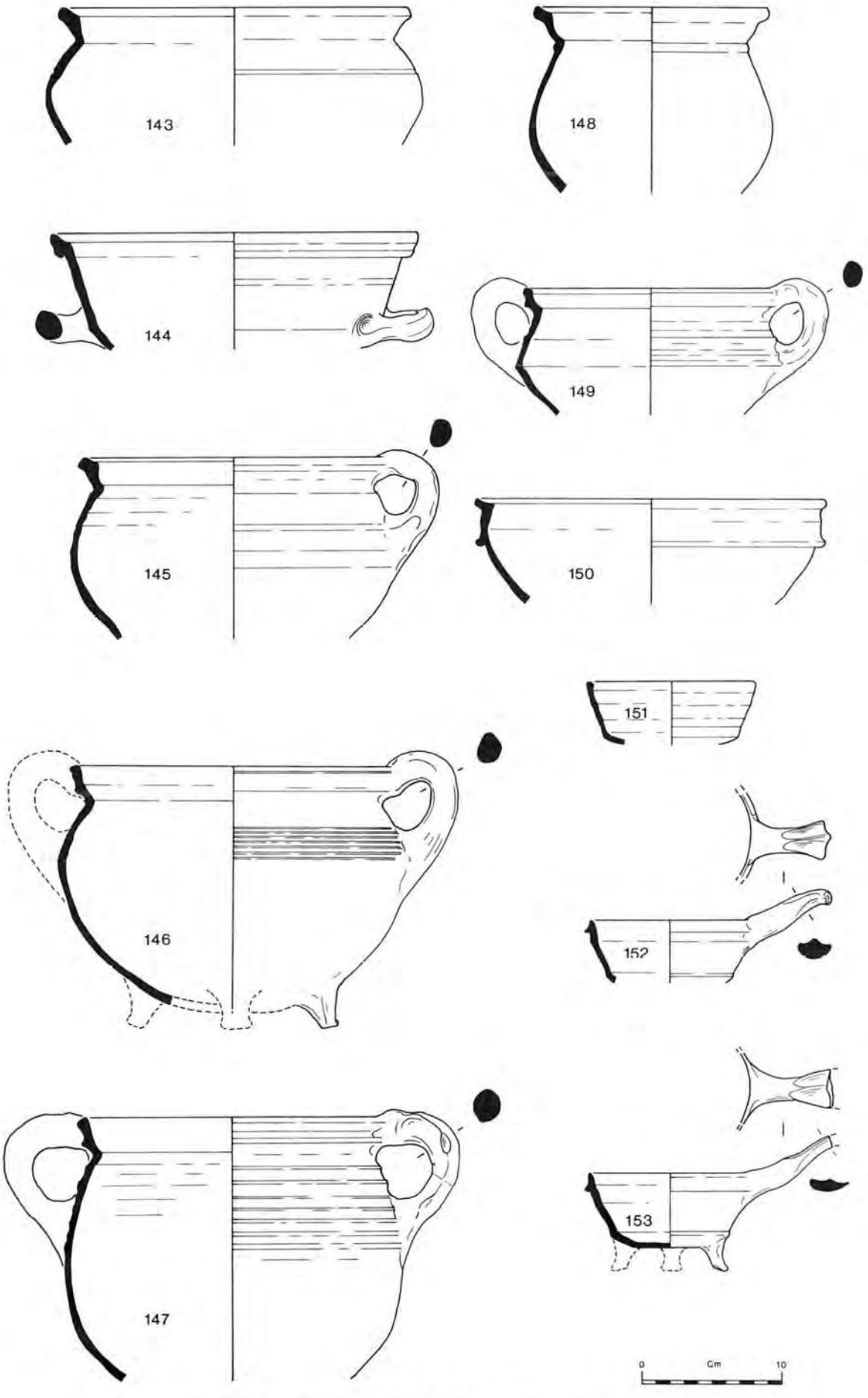

Fig.26 Site 149N, sub-site 2/3. Pottery. Cesspit 1332. Scale 1:4

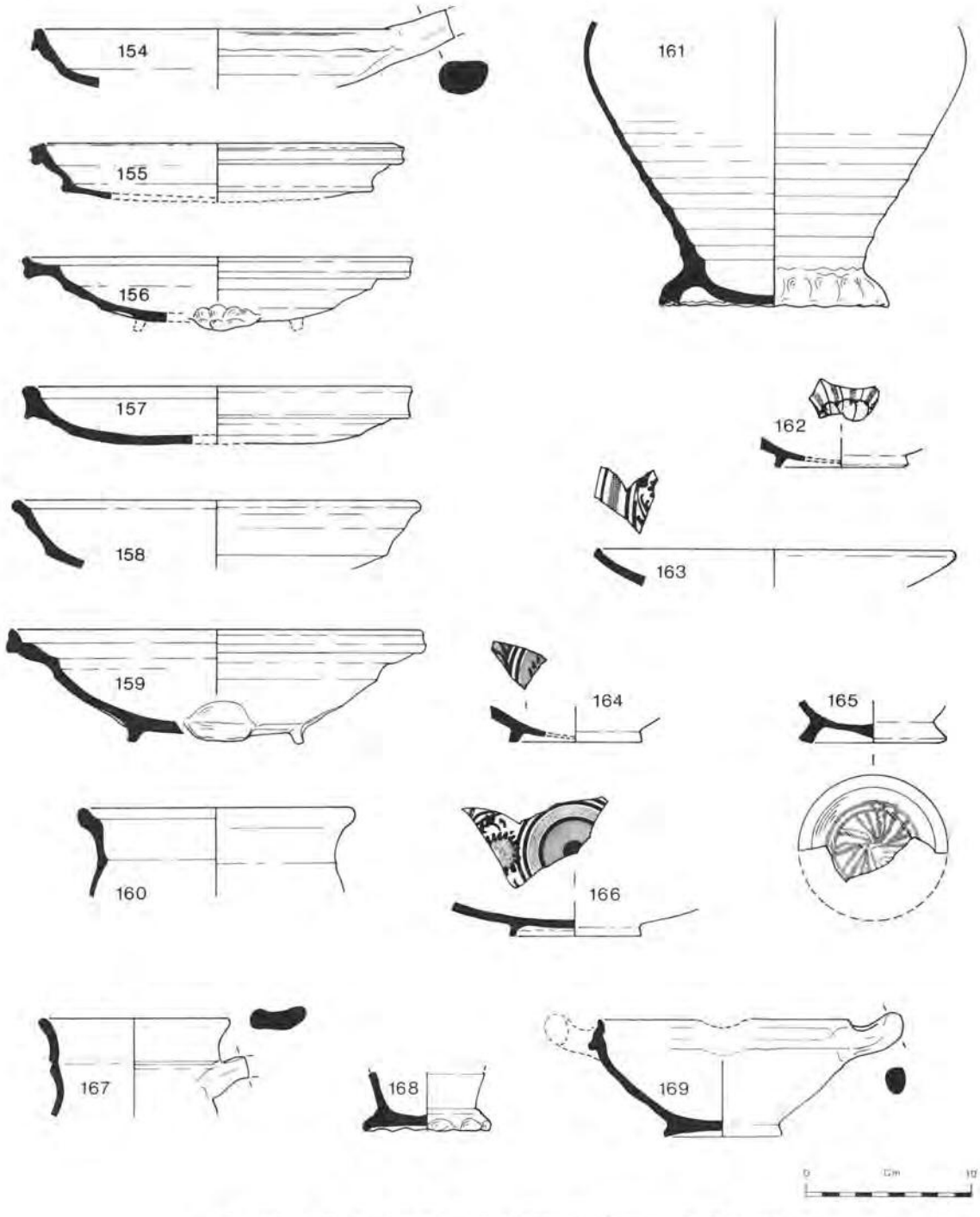

Fig.27 Site 149N, sub-site 2/3. Pottery. Cesspit 1332. Scale 1:4

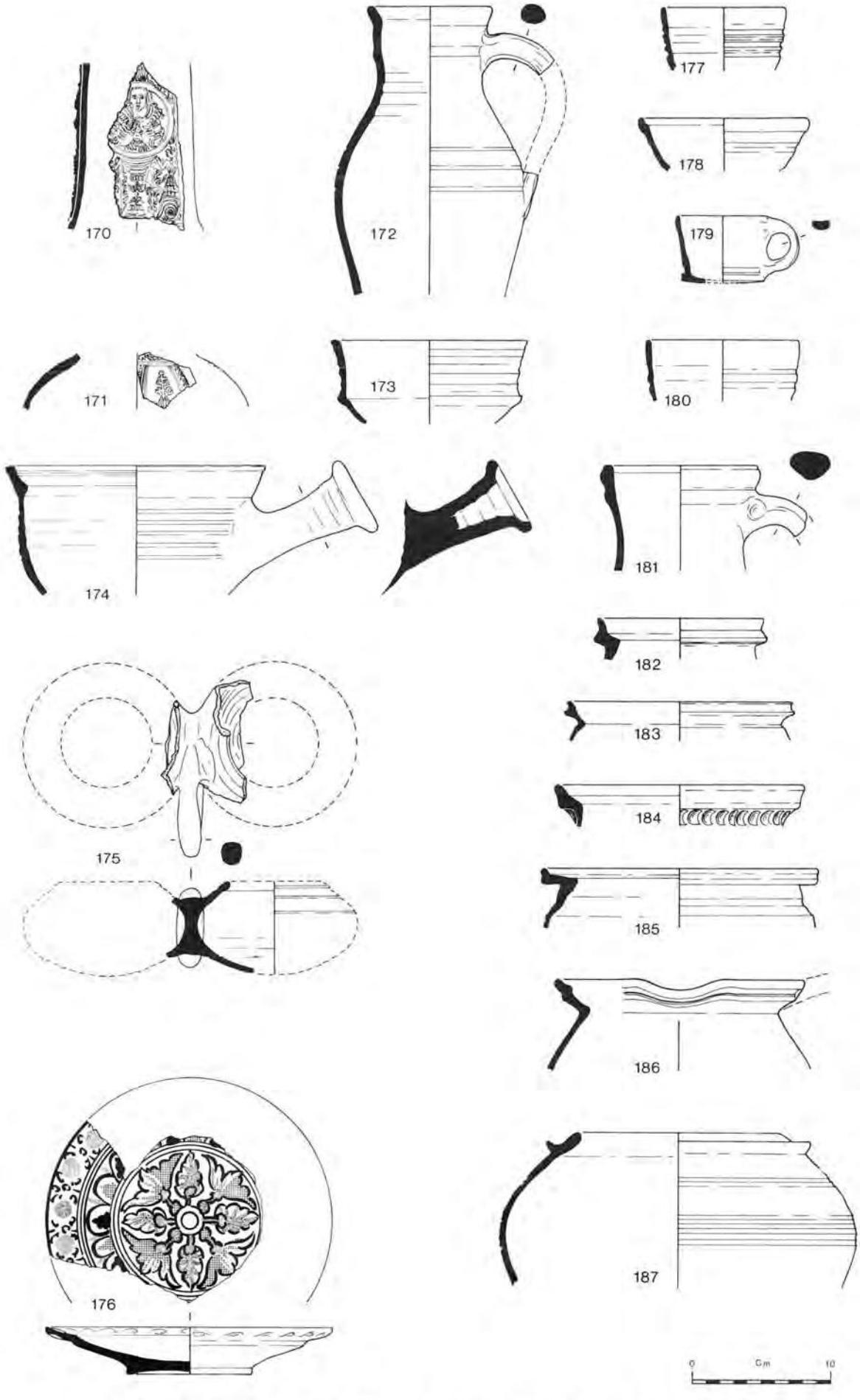

Fig.28 Site 149N, sub-site 2/3. Pottery. Yards, southern half, Period III. Scale 1:4

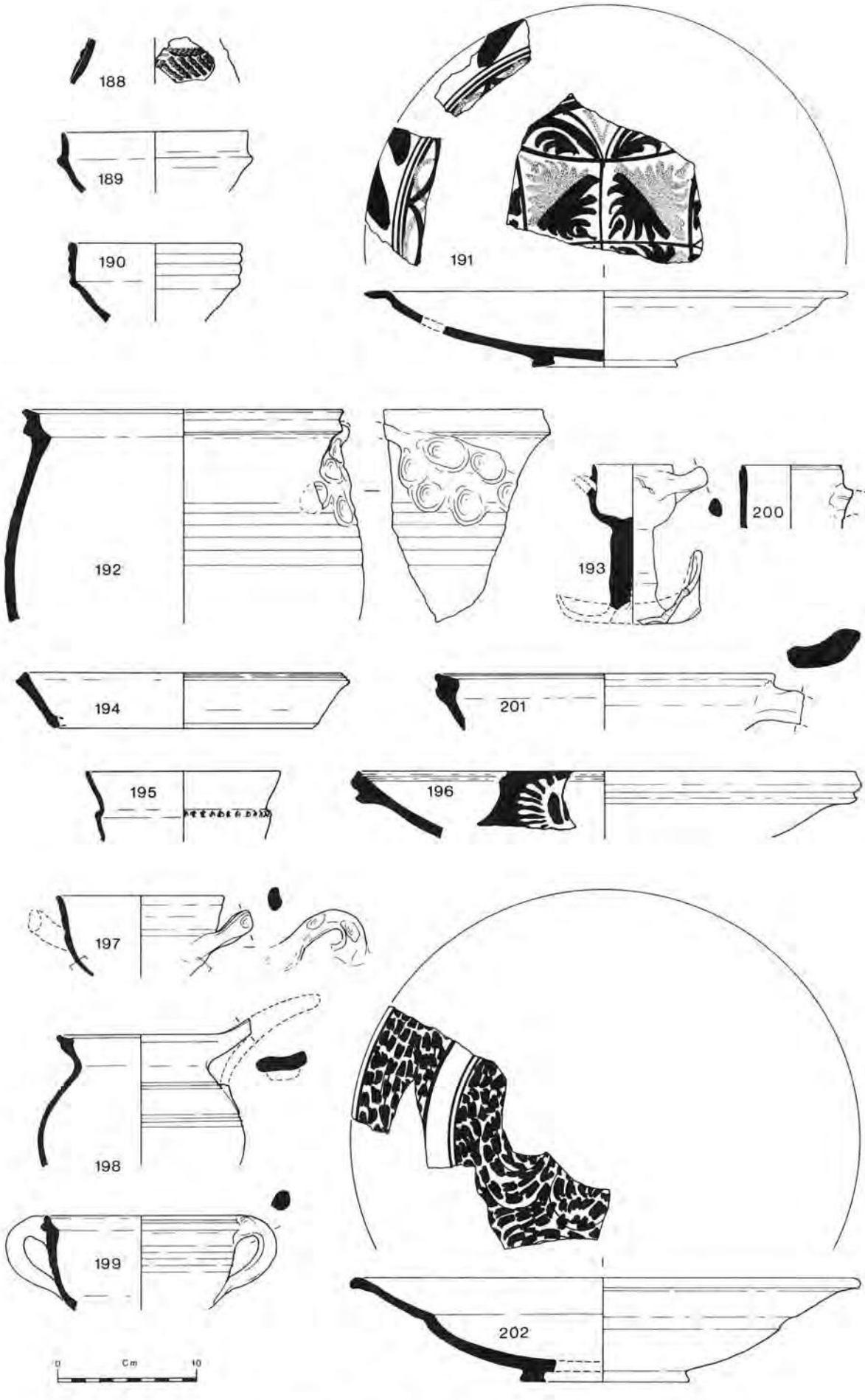

Fig.29 Site 149N, sub-site 2/3. Pottery. Yards, southern half, Periods III and IV. Scale 1:4

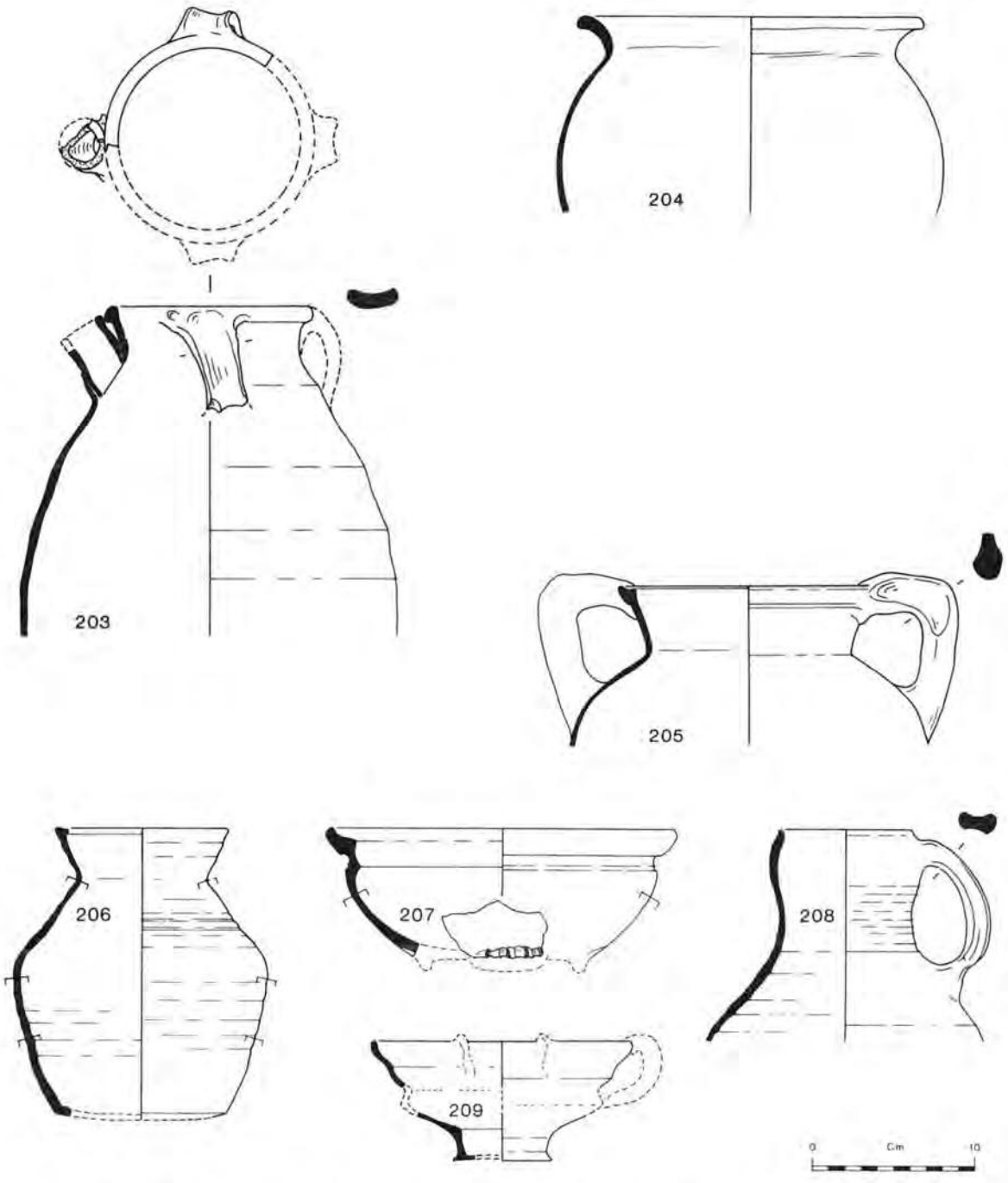

Fig.30 Site 149N, sub-site 2/3. Pottery. Yards, northern half, Periods I and II. Scale 1:4

225. Non-local lid. Orange-red fabric; smooth dark grey-brown surfaces. Pit 1005.

Unillustrated:

Cat. 556. Weser rouletted ware. Pit 1005.

Period IV (Fig. 32, MFT. 14)

Infill of well 1011

226. TGE. Cream fabric; internal decoration in blue on a white ground. English.

227. TGE. Cream fabric; internal decoration in blue on a white ground. English.

228. Westerwald.

Unillustrated:

Cat. 694 and 696. Staffordshire-type slip-decorated press-moulded dishes.

Cat. 718. Staffordshire-type slip-decorated cup.

Cat. 799. Frechen bellarmine.

Cat. 1244. GRE jar.

Cat. 1302 and 1308. GRE colanders.

TGE dish. Cream fabric; bluish-white glazed exterior; internal decoration in medium blue on a pale blue field. MF Pl.1.

Pit 813, unillustrated:

Cat. 650. Metropolitan slipware dish.

A certain amount of pottery was collected during machine clearance and in watching briefs of subsequent work by the contractors. None of this has been quantified here because the selection policy was random, and heavily biased towards fine wares and exotics. The following vessels have been published:

Cat. 243. Non-local English medieval jug.

Cat. 607. Low Countries undecorated slipware dish.

Cat. 730. Langerwehe/Raeren jug or drinking mug.

Cat. 731. Langerwehe standing costrel.

Cat. 843. Westerwald (?) flower-pot.

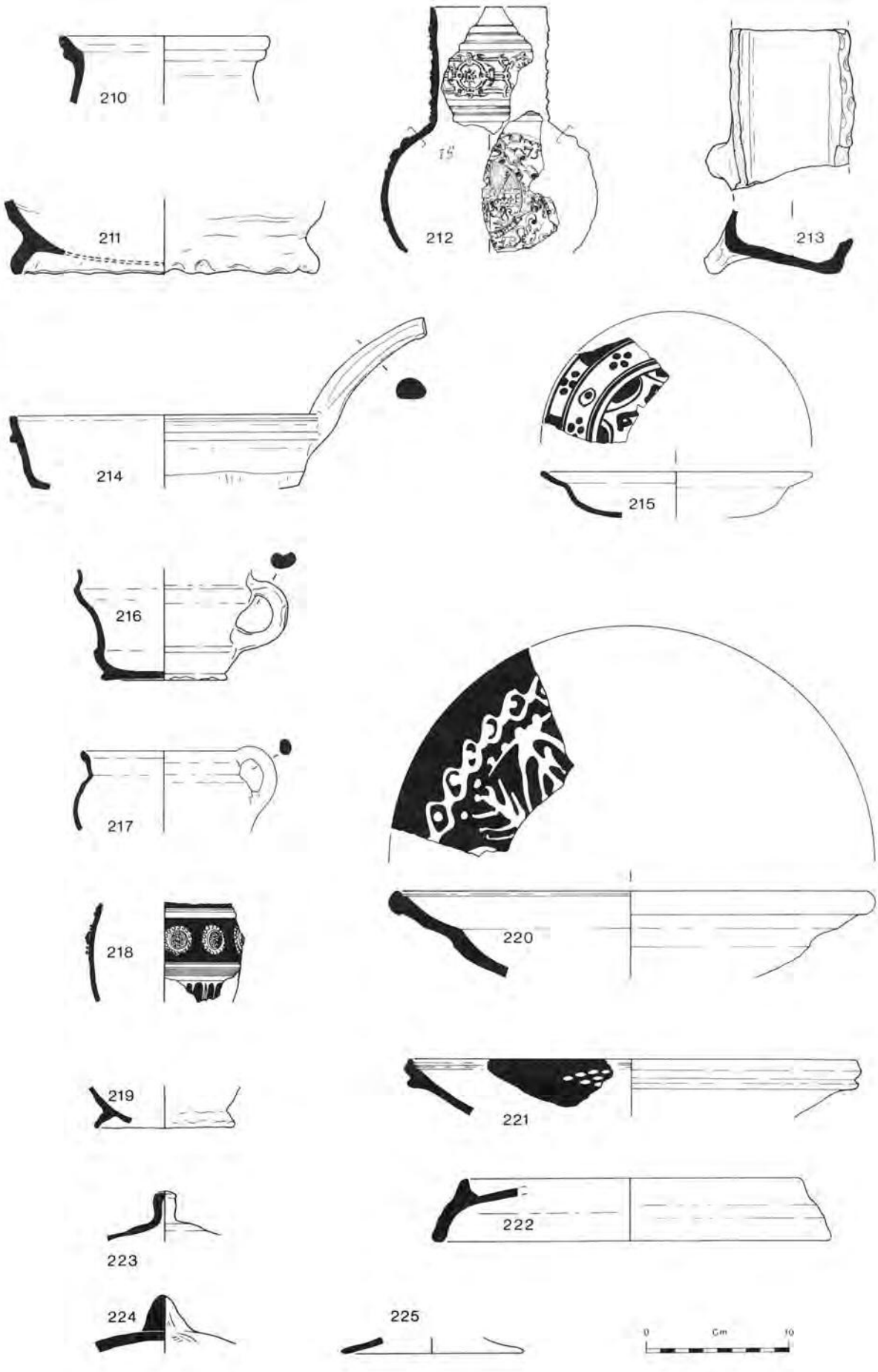

Fig.31 Site 149N, sub-site 2/3. Pottery. Yards, northern half, Period III. Scale 1:4

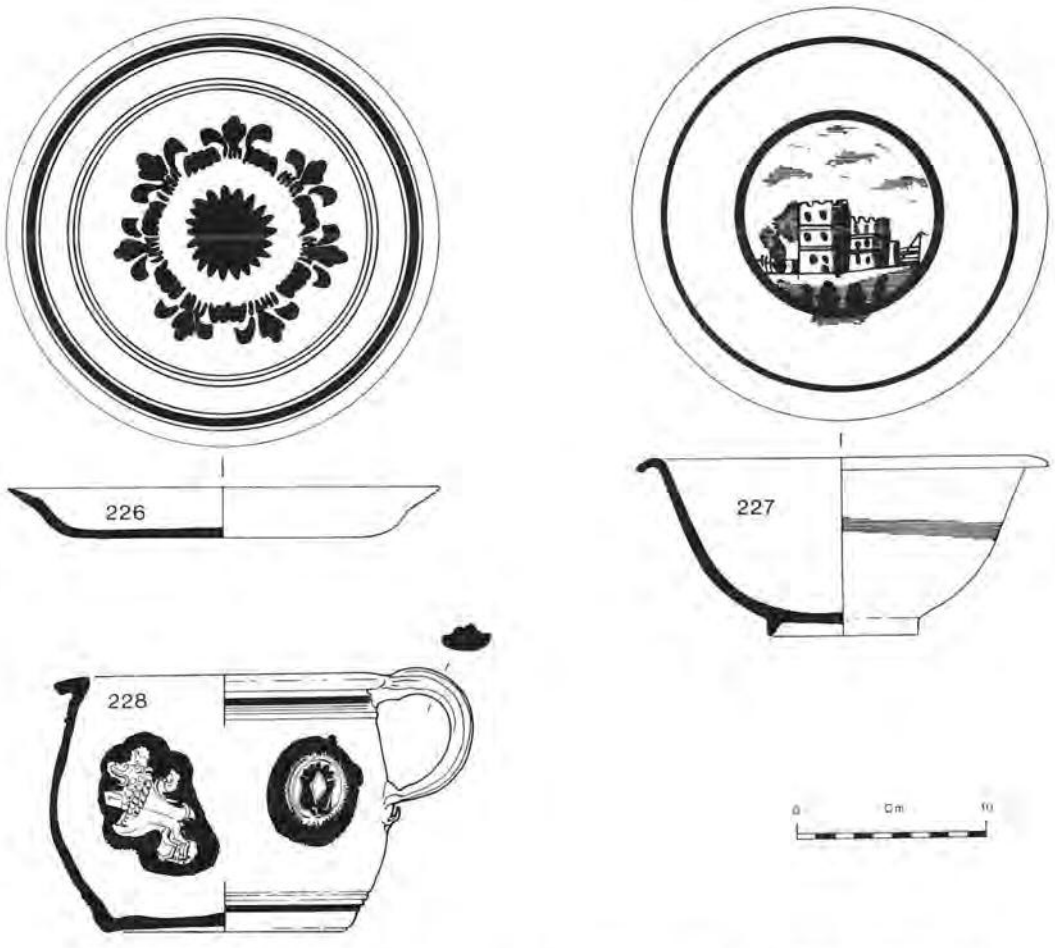

Fig. 32 Site 149N, sub-site 2/3. Pottery. Yards, northern half, Period IV. Scale 1:4

Tin-glazed Tiles

A small number of tin-glazed wall tiles was found (MFT. 16). There are two decorated fragments from 577 and 812; the rest are plain. All are probably of English manufacture, and none need be earlier than the first quarter of the 17th century (fragments in the deposits over cellars J and K were almost certainly intruded during the *c.*1650s rebuilding on the Pottergate frontage).

The Clay Pipes

by Susanne Atkin

Sub-site 1 (Fig. 33; MFT. 17)

Approximately 1160 fragments were found over this area, most of them on 1 East.

Phases a-c, east and west: twelve contexts produced eighteen fragments, all intrusive contamination, probably from Phase d contexts.

Phases 1Ed and 1Wd

There is a scatter of early and mid 17th-century bowls (1600-40; 1640-70) of forms comparable to London types, occurring as residual material in contexts 3 and 6 (1Wd and 1We); and 5, 175, 182, and 258 (1Ed), but it is a very small amount compared to the large numbers of such bowls found on sub-site 2/3.

A major period of activity is represented by bowls which must be post-1670/80, mainly because of their size and capacity (reflecting the decrease in the cost of tobacco) (Fig. 33, Nos 1-3); the bases and milling are still reminiscent of the third quarter of the 17th century (Fig. 33, Nos 3-4) but the bulbousness has almost gone and they are gradually becoming more upright. It is on bowls of this 'transitional' type (up to *c.*1720/30) that initials appear marked on the sides of the base, the most frequently found initials being IM (Fig. 33, No. 5)—perhaps Jane Morgan, master of an apprentice in 1693 (Karshner 1979). The contexts producing such bowls occur mainly in Phase 1Ed in the pits 'above' context 11.

Spurred or pedestal-based bowls, and narrow-bored stems of the 18th century (*c.*1730-1800) occur in small numbers in 91, 103, 124, 171, 185, 243 (1Ed); 101, 191 (1Ee); and within large mixed groups of fragments as pit 5 (1Ed); and 6 (1Wd).

The latest types are: the George Browne pipes found in pit 5 (and 505 on sub-site 2/3); a 19th-century bowl fragment in fill 233 of pit 5; and a tall, upright, late 18th-century long-spurred bowl in 191 (1Ee). Greater numbers of 19th-century pipes were found on sub-site 2/3 within coherently late groups.

Fig. 33 Clay Pipes. *Sub-site 1, Phase 1Ed*

1. Chubby transitional; large untidy rouletting nearly all round under rim; smoothed seams and exterior surface. *c.*1670-90. Layer 11.
2. Long straight-sided; two short lines rouletting front and back; white, smooth exterior, thick stem, hardly smoked. *c.*1670-1700. Layer 175.
3. Unusual, transitional shape; blackened rim, frontal rouletting. *c.*1680-1700. Layer 175.
4. Slender, transitional; blackened rim, smooth exterior. Mark on right side of base is unique in Norwich—no mark on left side. *c.*1690-1710. Layer 258.
5. Transitional type; rim nearly parallel with stem, frontal line with no visible rouletting-marks; smooth exterior. IM on sides of large heart-shaped base is common mark in Norwich—may be Jane Morgan, master in 1693. *c.*1690-1730. Layer 258.

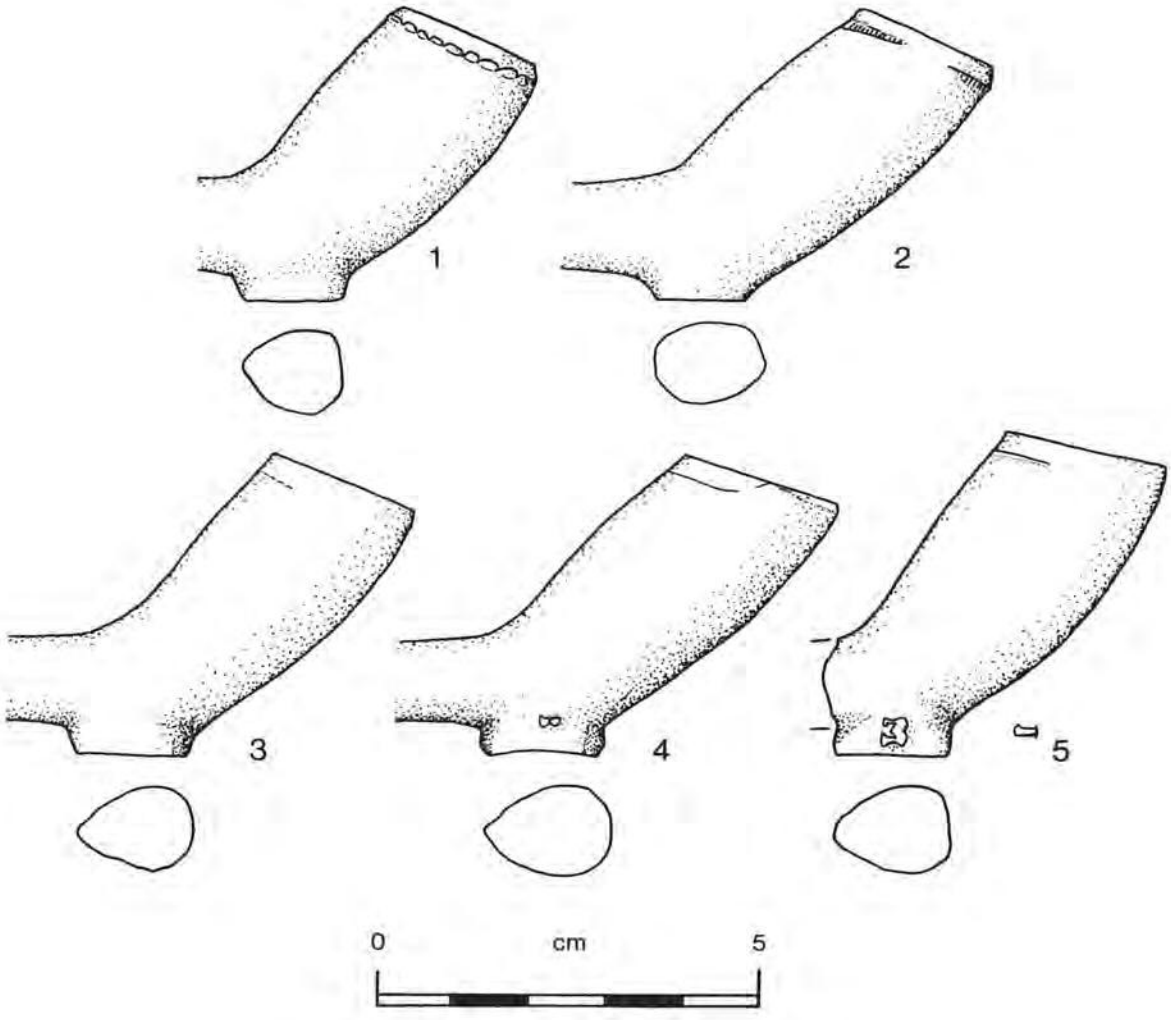

Fig.33 Site 149N, sub-site 1. Clay pipes. Scale 1:1

Sub-site 2/3 (Fig. 34; MFT. 17)

The majority of the material comes from pits in the yards (north and south) with very few 'stray' or isolated-context finds. Within these pits, only the mid 17th-century pipes are, for the most part, found in consistent groups, in 504, 546 and 557 (Fig. 34, Nos 8-12); they also occur residually in most of the unequivocally later pits—505 and 780. The most commonly found 18th-century initials are WA and RS (Nos 13-15), replacing the earlier IM mark which does not appear on this sub-site.

Period II (*c.*1400-1550): fourteen intrusive fragments in pits 1004 and 698.

Period III, southern half of the yards: a total of 200 fragments, of which 24 are bowls all within a broad 1640-80 date bracket (Fig. 34, Nos 8, 10). No small pre-1640 bowls, nor any larger, post-1680 types are present—only two 'later' intrusive stems.

Only one bowl is marked—a burnished, nicely-made example from pit 501 with the initials IS on the sides of the egg-shaped base, typologically dated to 1660-80 (Fig. 34, No. 8). A similar mark (IS) was found in a 17th-century well/cesspit in Norwich (site 301N), associated with bowls of 1650-80. No recorded Norwich maker corresponds with the initials.

Ten bowls are of a distinctive bulbous/waisted type, with a kick above the round base, *c.*1660-80; twelve more were found in Period IV contexts (pits 504 and 505). Eleven of the twenty-two bowls have a slit on the left side of the base, implying local manufacture, perhaps a maker's batch (Fig. 34, No. 12).

Period IV, southern half of the yards

Pit 504: 392 fragments including 60 bowls of *c.*1640-80 (Fig. 34, Nos 9, 11 and 12). Ten stem fragments have narrow, and therefore later, bores; there is also a section of a strip of clay, possibly kiln waste.

Pit 505: 217 stems and bowls. A few are of 17th-century date, but the majority date from the 18th and 19th centuries.

Pit 532: 28 fragments including 4 bowls, post-1680 to *c.*1720, representing an intermediate phase of pipe-deposition between the types of bowls in pit 504 and the later types in 505, but they are found in much larger numbers on sub-site 1 (cf. Nos 1-3).

Period III, northern half of the yards

Pits 1001, 1005, 1010 (847) and 1014 contain bowls *c.*1630-60/70, including a small London-type bowl stamped on the base with an eight-spoked wheel and pellets (Fig. 34, No. 6), and a small burnished bowl of a type not commonly found in Norwich (Fig. 34, No. 7).

Pit 1016: 18th-century bowl, marked W( ), and contemporary with Period IV activity in the yards.

Period IV, northern half of the yards

The two pits (780 and 813) and the two wells (1011 and 1027) all contain 18th- and 19th-century material (with a few residual 17th-century stems and bowls in pit 780).

The marks are predominantly WA and RS (Fig. 34, Nos 13-15); HR, WR and WS also occur. William Symonds was recorded in 1693; Richard Skipper was apprenticed in 1699; William Adamson was recorded between 1763 and 1769 in the Freemans' Books (Karshner 1979). HR and WR do not correspond with any known maker.

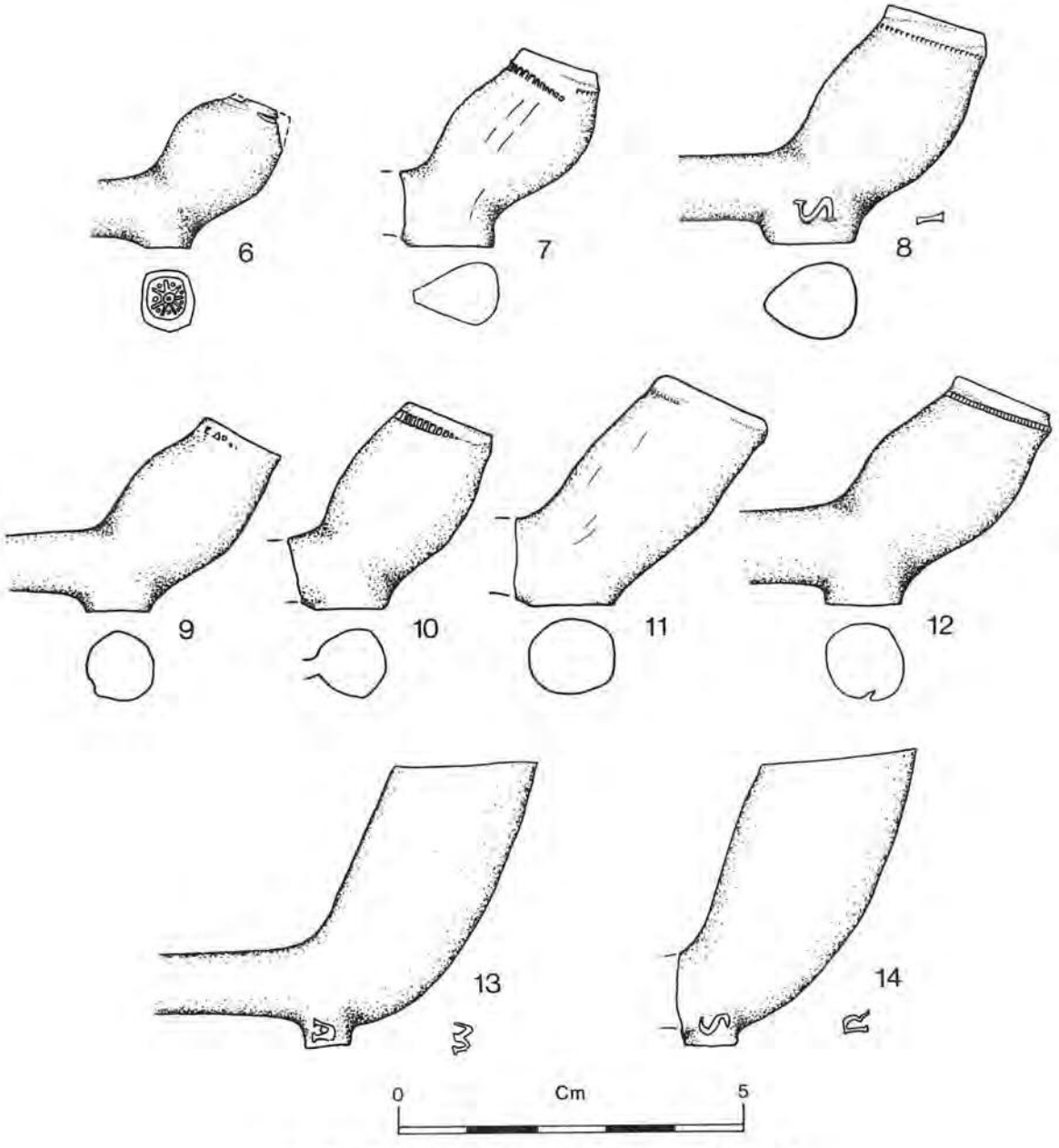

Fig.34 Site 149N, sub-site 2/3. Clay pipes. Scale 1:1

Area E, Period III

Pit 1223: one bowl 1620-40.

Context 1003 contained fragments of 18th-century bowls, and small stem fragments all of narrow bore.

Soakaway 1062 produced seventy-four narrow-bored stem fragments and five bowls, all 19th-century, one of them decorated with a sailing ship and thistle *c.*1840+.

Fig. 34 Clay Pipes. *Sub-site 2/3*

6. Small bulbous/waisted; damaged rim and rouletting; rough orangey exterior probably originally burnished, wide bore; eight spokes and pellets on base, London type (cf. Rutter and Davey 1980, 57, 102). 1610-50. Pit 1010, layer 847, yards north, Period III.

7. Small bulbous/waisted; rouletted all round rim; burnished and neatly finished; uncommon in Norwich. *c.*1620-50. Pit 1005, layer 1006, yards north, Period III.

8. Bulbous/waisted; rouletted all round rim, solid bowl and thick stem, burnished and good quality finish; marked IS in relief on sides of large base. Maker unknown. *c.*1660-80. Pit 501, yards south, Period III.

9. Slender bulbous/waisted; frontal rouletting. ?Contemporary with No. 10, *c.*1630-60. Pit 504.

10. Small chubby bowl; lopsided with frontal rouletting, crack on left side bulb, unsmoked. ?Contemporary with No. 9, *c.*1630-50. Layer 545, yards south, Period III.

11. Nearly straight-sided type; frontal rouletting, carefully finished flat rim, burnished, well-smoked. *c.*1660-80. Pit 504, yards south, Period IV.

12. Taller bulbous/waisted. Similar to No. 8 but poorer finish, with slit on left side of round base—one of a large group with this feature. *c.*1660-80. Pit 504.

13. Slender upright type; unmilled, smooth surface; pedestal base marked WA on sides. AO type 25, *c.*1720-70. Well 1011, yards north, Period IV.

14. Upright type; unmilled, smooth white surface, unsmoked; pedestal base marked RS on sides. *c.*1720-70. Well 1011.

15. (Not illustrated). Upright type, chubbier than No. 14; unmilled, unsmoked, crudely marked RS on sides of small heart-shaped base. *c.*1700-50. Well 1011.

Kiln debris

Several items of kiln debris were found on sub-sites 1 and 2/3, presumably deposited along with other rubbish. They consist of chunks of clay (some backed with 'slag') with stem fragments embedded in them (pit 5); burnt, narrow-bored, thin stems, some heavily blackened, some grey and overfired (pits 5, 505, 780 and 813); bowls and stems covered with 'clinker' type material (5, 233); strips of clay, flat on one side and with finger impressions on the other (504, 505, 780, 813); and a possible fire-bar (504).

Among the associated bowls is a fluted (ribbed) type, generally datable from 1770 to *c.*1840 (Oswald 1975, 111-2) which is covered in clinker, and several bowls typologically of the 18th century, were probably discarded soon after being fired. These are amongst the small amount of surviving physical evidence for pipemaking in Norwich; similar pieces of kiln debris were found in the same area (Pottergate/St Benedict's Street) some years ago and are now in the Bridewell Museum, Norwich, together with a probable supporting column for the kiln.

Building *f*3 was built in the 18th century, immediately east of the entry to Brown's Yard, which was at one time known as Pipemakers, or Pipeburners, Yard. George Browne, his widow, and sons, worked until the 1860s in this yard which stretched between Pottergate and St Benedict's Street; most of the GB-marked spur fragments from pit 5 are covered in clinker, suggesting kiln waste. It can be noted that pipe-kiln waste was often used as hardcore or fill beneath floors (Hammond 1982, 32-3).

The bowls, kiln material and the Browne family will be discussed fully in the forthcoming clay pipe volume.

The Small Finds

by Sue Margeson

with contributions by Elisabeth Crowfoot (textiles), Ian H. Goodall (ironwork), D. King (window-glass). The bone has been identified by Mary Harman, the stone by D. Moore; the vessel glass has been identified by J. Haslam.

Methodology

Because of the importance of the cellar deposits for the interpretation of the site as a whole, much of this material has been catalogued and fully illustrated. As the deposits are so closely dated, the catalogue entries have been kept to a minimum, with parallels cited only if the identification of an object is doubtful. Obviously burnt material from other areas of the site, redeposited in the yards in post-fire clearance or in subsequent rubbish deposition, has also been included in the catalogue. Datable objects from later contexts are included where contemporary in context. Introduction and catalogue have been divided by sub-site, and 2/3 further divided by area. Brief textual summaries are supplemented by microfiche lists of finds from each context, arranged according to function (MFT. 18). Detailed discussion of individual objects will be reserved for the final Small Finds volume.

Sub-site 1

The fire deposits are predominantly of kitchenware, tools and furnishings, an assemblage which bears close resemblance to the finds from contexts of the same date from sub-site 2/3. The kitchenware includes copper alloy vessel fragments and iron implements (a socketed hook, perhaps a fire-hook, Fig. 36, No. 14, and a knife). An iron three-armed pricket candlestick (Fig. 36, No. 13) is notable among the furnishings, and tools include a billhook (Fig. 36, No. 26). Robber pits of the 16th and 17th centuries contained material probably derived from buildings destroyed in the fire, such as structural ironwork (hinge-pivots, latch-rests, and a bolt-catch) and painted window-glass (small fragments of 14th-century glass with hawthorn diaper, and some 15th-century glass).

The pits and garden soils of the 17th and 18th centuries produced large quantities of material, which reflect the extent of successive rubbish deposition in the gardens. Most contexts therefore contain residual material. The dress-fittings include residual 16th-century wire-work jewellery (Fig. 35, No. 3) and a pair of decorated openwork hooked tags (also 16th century, Fig. 35, Nos 1 and 2), and contemporary shoe buckles (Fig. 35, Nos 10 and 11). There are lace-tags and loop fasteners, and high concentrations of dress-pins and dress-making pins of 17th-century date (79 from various layers in pit 2 of 1670-1700 in 1Wd; 224 from layers 6 and 23 of 1650-1730/60, also in 1Wd). Household furnishings include a bail handle from a chest of drawers of 17th/early 18th-century type (Fig. 35, No. 12), kitchenware and tools.

Finds relating to leisure activities were also found in the garden soils. A 17th-century pipeclay figurine (Fig. 37, No. 28) of probable Low Countries' manufacture is likely to have been a toy. Cellar 393, contemporary with these garden soils, produced four pottery gaming-counters of Staffordshire slipware, tin-glazed earthenware, and glazed red earthenware (SF149N/*1941* layer 258).

A cast lead token (Fig. 37, No. 27; compare Fig. 48, No. 99) appears to belong to a class of objects which may have served varied purposes (Noël Hume 1976, 172-3). Since it bears a probable merchant's mark incorporating the initials CM, this example may have been used to pay workmen, or to signify units of merchandise.

Dress

(a) Fasteners (Fig. 35)

1-2. SF149N/*291a, b*, 1Ed layer 40 (pit group 1650-*c.*1700)
Copper alloy hooked openwork tags, 16th century

3. SF149N/*99*, 1Wd layer 6 (1690-1730/60 garden soils)
Copper alloy hook from chain fastener; a chain of similar construction comes from a 16th-century context at Amsterdam (Baart *et al.* 1977, cat. no. 162), and compare also the construction of the wire-work frame around the pilgrim sign from sub-site 2/3, Fig. 38, No. 4.

4. SF149N/*79*, 1Wd layer 6 (1690-1730/60 garden soils)
Copper alloy chain

5. SF149N/*153*, 1Wd layer 2 (pit, *c.*1650-1700)
Copper alloy button

(b) Buckles and belt-fittings (Fig. 35)

6. SF149N/*101*, 1Wd layer 6 (1690-1730/60 garden soils)
Copper alloy double-looped buckle and plate

7. SF149N/*1977*, 1Wc layer 177 (post-fire silting and collapse)
Copper alloy buckle, 16th century

8. SF149N/*98*, 1Wd layer 6 (1690-1730/60 garden soils)
Copper alloy buckle, ?16th century

9. SF149N/*1490*, 1Ed layer 40 (pit group 1650-*c.*1700)
Copper alloy strap-end, ?16th century

10. SF149N/*1200*, 1Ed layer 182 (*c.*1730-1800 pits/garden soils)
Copper alloy shoe buckle, 17th century

11. SF149N/*141*, 1We layer 3 (1730/60)
Copper alloy shoe buckle, 18th century

Domestic Fittings and Furnishings

(a) Fittings (Fig. 35)

12. SF149N/*106*, 1Wd layer 6 (1690-1730/60 garden soils)
Copper alloy bail handle from drawer; compare a similar example of *c.*1690-1720 from Williamsburg (Noël Hume 1976, fig. 72, no. 3)

(b) Lighting (Fig. 36)

13. SF149N/*1489*, 1Ec layer 227 (1507 deposits)
Iron three-armed pricket candlestick

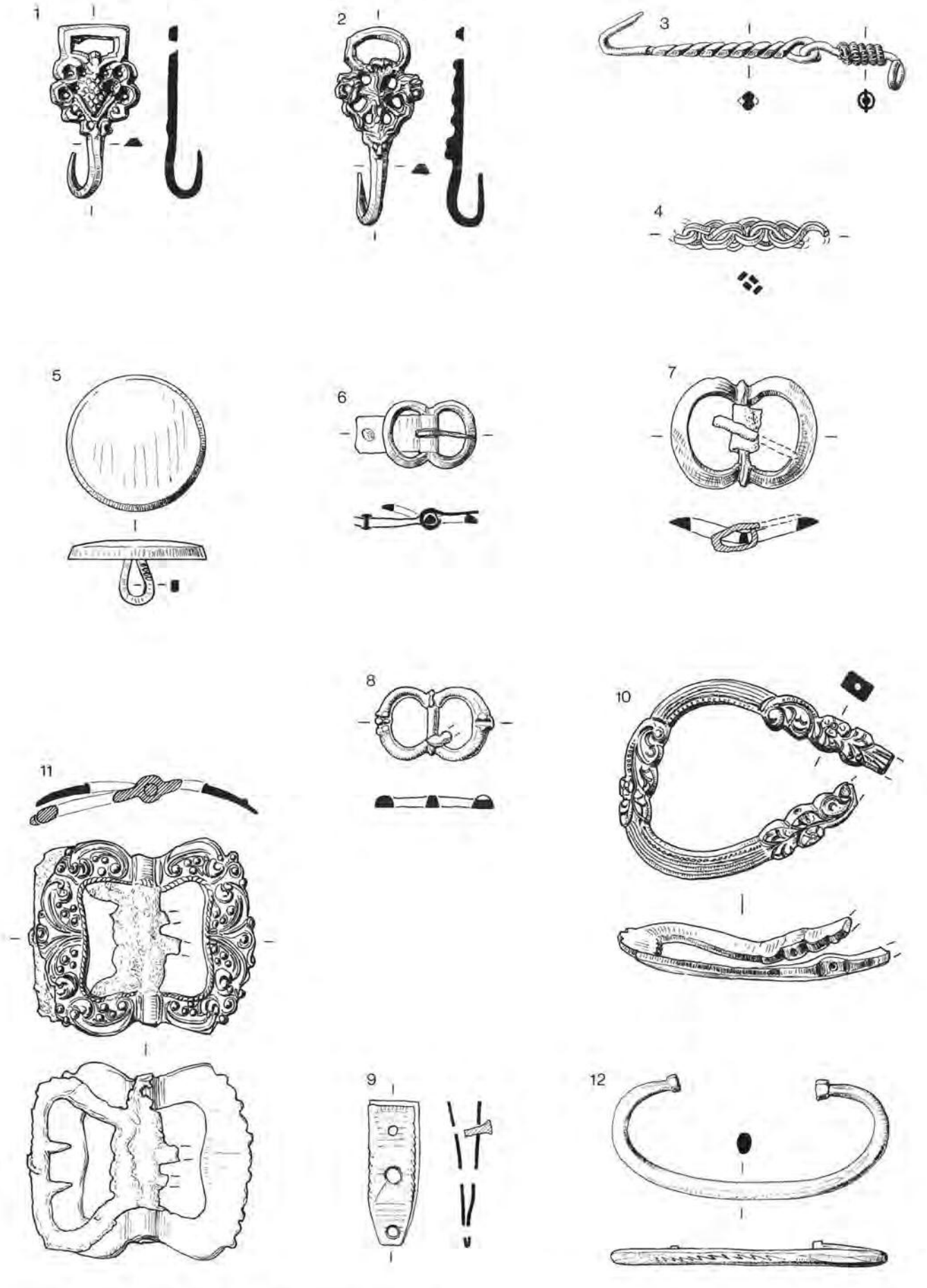

Fig.35 Site 149N, sub-site 1. Dress-fittings: copper alloy (1-11); domestic objects: copper alloy (12). Scale 1:1

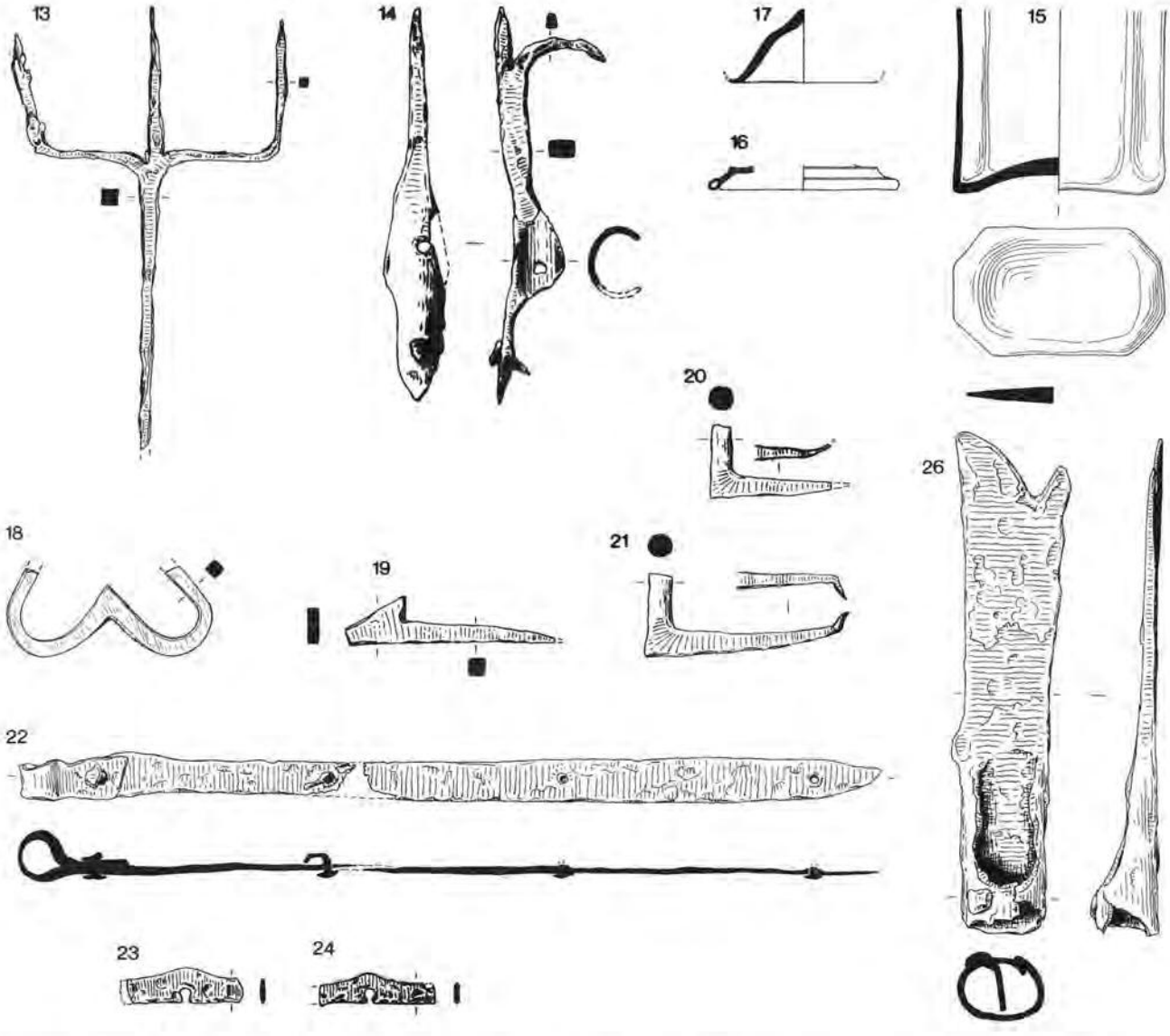

Fig.36 Site 149N, sub-site 1. Domestic objects: iron (13-14), glass (15-17); building ironwork: copper alloy (18), iron (19-24); tool: iron (26). Scale 1:4, except No.18 at 1:2

(c) Implements (Fig. 36)

14. SF149N/*1875*, 1Ec layer 260 (1507 deposits)
Iron socketed hook perhaps a fire-hook

(d) Vessels (Fig. 36)

15. SF149N/*1461*, 1Ed layer 228 (pits/garden soils *c.*1730-1800)
Glass 8-sided wine-bottle base, blown into a mould; oval pontil mark on base

16. SF149N/*720*, 1Wd layer 71 (pits *c.*1650-1700)
Glass bowl, folded foot and base; pale green glass, late 16th/17th-century type

17. SF149N/*86*, 1Wd layer 6 (1690-1730/60 garden soils)
Glass flask base, pale green glass, probably 15th century

Building Ironwork and other related finds

(a) Door-fittings (Fig. 36)

18. SF149N/*1864*, 1Ec layer 260 (1507 deposits)
Copper alloy latch-handle fragment. Similar handles were used on chafing-dishes (Lewis 1973, pl. xiii a, type B1).

19. SF149N/*935*, 1Ec layer 123 (1507 deposits)
Iron latch-rest

20. SF149N/*858*, 1Ec layer 123 (1507 deposits)
Iron hinge-pivot

21. SF149N/*942*, 1Ec layer 123 (1507 deposits)
Iron hinge-pivot

22. SF149N/*1371*, 1Ec layer 123 (1507 deposits)
Iron strap hinge with looped eye

(b) Locks and Keys (Fig. 36)

23-24. SF149N/*2186a, b*, 1Eb layer 334 (1470-1507)
Two iron wards from locks

Tools

(a) Needlework (Fig. 37)

25. SF149N/*118*, 1Wd layer 2 (pit group *c.*1670)
Copper alloy thimble with maker's mark (pair of shears). Compare a similar thimble from a context of 1645 at Sandal Castle (Goodall, A.R. 1983, fig. 2, no. 89).

(b) Horticulture (Fig. 36)

26. SF149N/*1876*, 1Ec layer 260 (1507 deposits)
Iron bill-hook

Trade and Commerce

Tokens (Fig. 37)

27. SF149N/*2428*, 1Wd layer 23 (1690-1730/60)
Lead cast disc, ?token, with ?merchant's mark incorporating the letters CM

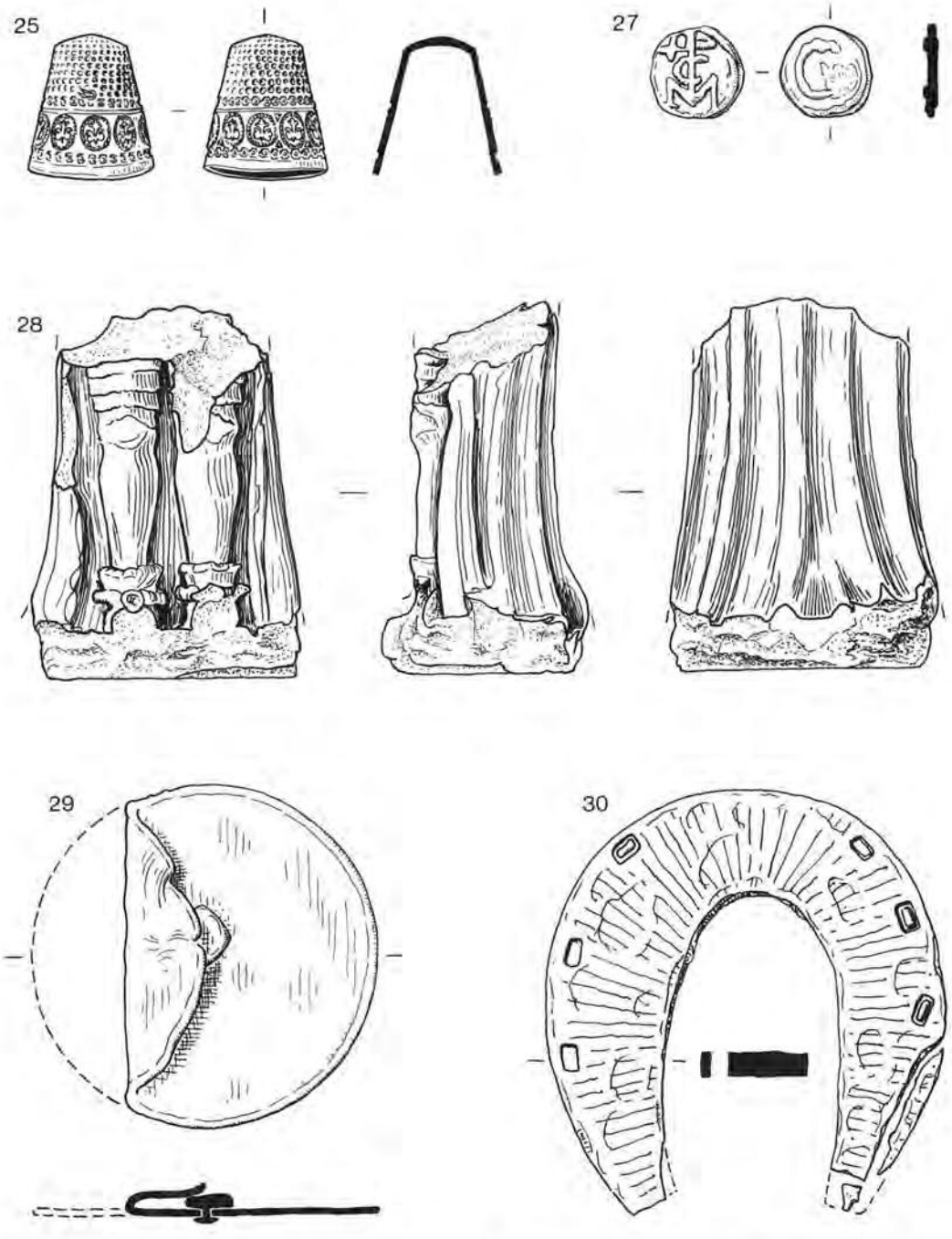

Fig.37 Site 149N, sub-site 1. Tool: copper alloy (25); trade: lead (27); toy: pipeclay (28); horse equipment: copper alloy (29), iron (30). Scale 1:1, except No.30 at 1:2

Miscellaneous

(a) ?Toy (Fig. 37)

28. SF149N/*162*, 1Wd layer 6 (1690-1730/60 garden soils)

Pipeclay figurine, 17th century (compare one from Southampton in similar armour, Platt *et al.* 1975, cat. no. 1959)

(b) Horse equipment (Fig. 37)

29. SF149N/*2238*, 1Ea layer 319 (*c.*1200-*c.*1460/70)

Copper alloy disc, ?harness mount

30. SF149N/*2016*, 1Wc layer 285 (1507 deposits)

Iron horseshoe

Sub-site 2/3: St Laurence's Lane frontages

The pre-16th century finds, mostly dress-fittings and furnishings, such as the 13th-century casket-mount (Fig. 39, No. 25) were the result of casual loss from the buildings on Pottergate before the cottages were built along St Laurence's Lane in the 1520s. Pit 1269 of *c.*1400 contained some dress-fittings, a belt-boss (Fig. 38, No. 16) and a bone toggle. The pins and lace-tag, and fragments of structural ironwork found in the floor make-up of the 16th-century cottages may come from the post-fire clearance along the Pottergate frontage. It is likely that the objects of the late 15th or early 16th century from E/III, such as the pilgrim sign with the wire-work frame (Fig. 38, No. 4), and the inscribed copper alloy plaque (Fig. 39, No. 27), came from the Pottergate houses.

Sub-site 2/3: Pottergate frontage

The pre-fire cesspit in the uncellared building F (which also contained dress-fittings) produced an important deposit of numerous copper alloy offcuts, sheet fragments and rivets. This may be the debris from a vessel workshop functioning in the later 15th century.

The cellars of H, J and K produced particularly rich assemblages of kitchen implements and equipment (for the complete contents of each cellar see MFT.18). These include vessels: of copper alloy (cooking-pots, a skillet Fig. 40, No. 43, and fragments of a colander or sieve), iron (a long-handled cooking pan Fig. 41, No. 52), and glass (Fig. 42, Nos 53-57); implements: of copper alloy (skimmer with handle Fig. 40, No. 36), and iron, e.g. strike-a-light (No. 35) and a flesh-hook (Fig. 40, No. 38). There is iron hearth equipment: a pot-hook, a shaft from a rotary spit, cauldron hooks and a fire 'shovel' (Fig. 43, Nos 58-62); iron tools for crafts: heckles or woolcombs, shears, chisel, anvil, smith's punch, plasterer's hoe, reamer (Figs 45-47). Horticultural implements, sickles, were presumably used in a kitchen garden or for some other domestic use such as cutting reeds for floor-coverings (Fig. 46, Nos 94-95). Furnishings have survived in the form of three types of candlesticks in copper alloy and iron, i.e. pricket, socketed with drip-tray, and one combining socket and pricket (Fig. 40, Nos 31-34). Evidence of the high status of these buildings is provided by the painted window-glass (which formed a figure panel) and the terracotta plaque from cellar H (Fig. 44, Nos 75-6 and 78). The latter, which possibly represents the head of John the Baptist (pers. comm. P.J. Drury) may have adorned the exterior of the building or been placed in a niche indoors. It is among the earliest datable terracotta sculptures in the country. Because of the way in which the ironwork has survived, complete door-furniture was recovered from cellar H (latch-rest, door-bolt, and bolt-catch, hinges and hinge-pivot, and keys) as well as other fittings such as a barrel-padlock (Fig. 44). There are substantial remains of building ironwork from the other cellars too.

Few dress-fittings survived, partly because of the nature of the deposits (kitchens) and partly because they must have been too fragile to withstand the fire and subsequent building collapse. What does survive is of relatively high quality, for example the 14th/15th-century brooch from H/IIb (Fig. 38, No. 1), a copper alloy version of a precious metal type. An unusual iron dress-accessory, a hinged purse-mount, was recovered from cellar J (Fig. 39, No. 20). Dress-fittings from the Pottergate houses survived elsewhere on the site particularly in the yards (Fig. 38, Nos 3, 13, 14).

Each cellar deposit contained fragments of at least one horseshoe and cellar K also produced a rowel spur (Fig. 48, No. 101). This may reflect the relatively high status of these properties. It also suggests that there was some open grazing land in the vicinity.

Sub-site 2/3: The Yards

The considerable numbers of finds are the result of rubbish deposits from the houses along Pottergate as well as post-fire clearances. The southern half of the yards produced the greater number of finds (especially dress-fittings), as might be expected given the proximity to the houses. Some of the pit deposits contain early 16th-century material from the cellars: kitchen equipment (a copper alloy vessel handle), structural ironwork (a key and a latch-rest), painted window-glass, and tools (iron pincers, Fig. 46, No. 86). Among the large numbers of dress-fittings are some items of late 15th or early 16th-century date, re-deposited in pits of the 1640s, such as the bone heart-shaped pendant (Fig. 38, No. 3). A copper alloy toilet implement is also likely to have come from the pre-fire houses (Fig. 39, No. 22). Material of 16th-century date from post-fire contexts includes an openwork button (Fig. 38, No. 10) and two decorated lace-tags (Fig. 38, Nos 8, 9). A cast lead disc (?token) (Fig. 48, No. 99), similar to one from sub-site 1, is probably 17th-century, and may bear a merchant's mark (the initials RF and a cross on the reverse).

Dress

(a) Brooches and pendants (Fig. 38)

1. SF149N/*2204*, Cellar H/IIb layer 978 (1507 deposits)

Copper alloy annular brooch with engraved chevron and rocker-marked ornament, and moulded pin, 14th/15th century

2. SF149N/*2437*, Yards N/I layer 791 (1100-1400)

Stone, square bead

3. SF149N/*710*, Yards S/III layer 503 (*c.*1640 pit group with re-deposited 1507 cellar material)

Bone heart-shaped pendant with incised and stamped ornament, late 15th/early 16th century; made from large long bone (cattle/horse). The incised transverse line represents the wound in Christ's heart, and lines extending like rays from this represent blood dripping from the wound, a characteristic late medieval image

4. SF149N/*1259*, St Laurence's Lane E/III layer 1079 (1550-1700)

Copper alloy pilgrim sign, late 15th/early 16th century; two stamped discs set in a wire-work frame with two glass beads. One disc shows St George killing the dragon; the other (Pl. IX) shows the Virgin and Child with a robe on a hanger and above, the letter SR, signifying SANCTA ROBA (The Holy Robe). The shrine of the Holy Robe was at Chartres (pers. comm. B. Spencer). A fragment of a similar sign came from the same area (SF149N/*956* layer 1060) but it is too fragmentary to identify the subject

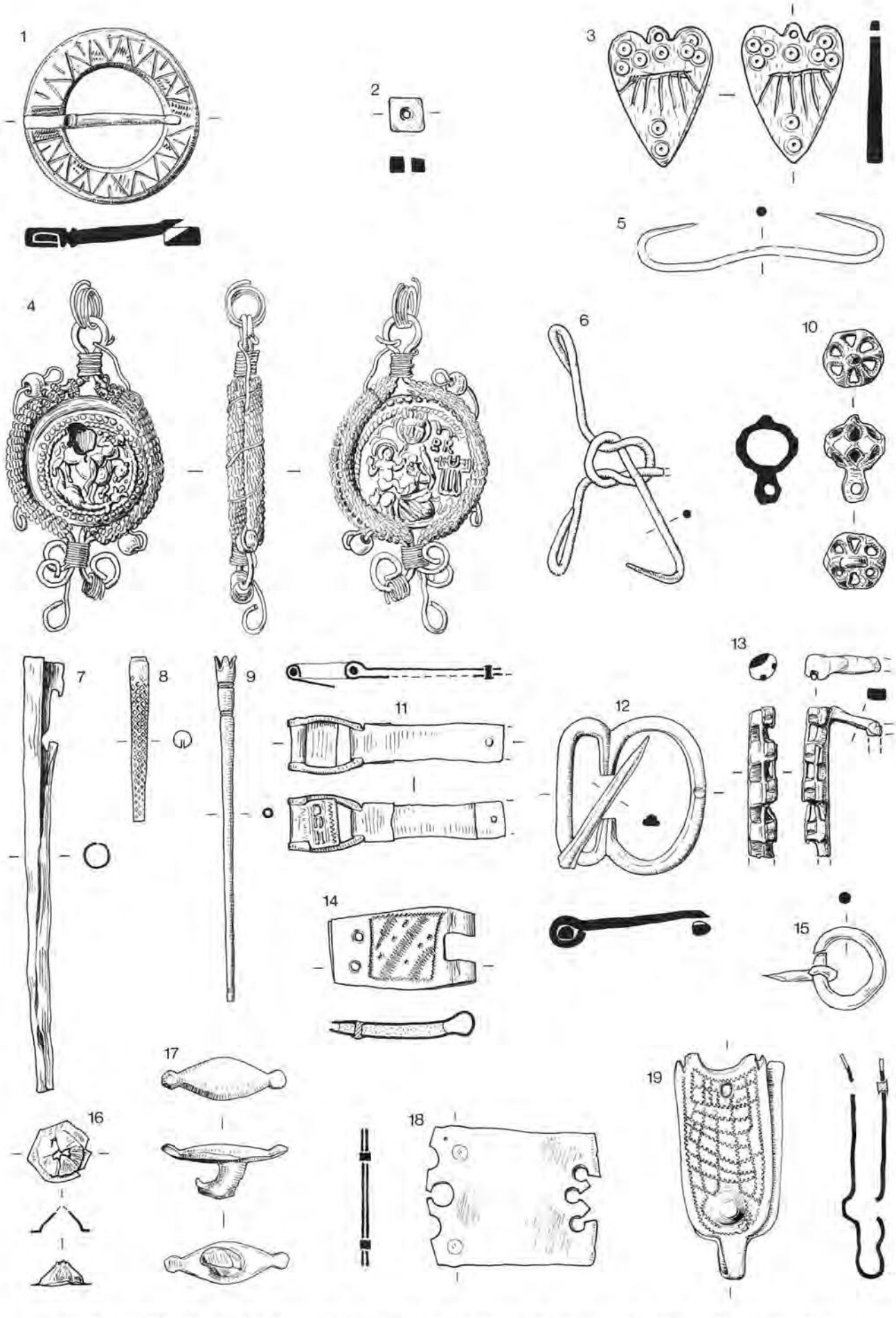

Fig.38 Site 149N, sub-site 2/3. Dress-fittings: copper alloy, except No.2 stone; No.3 bone; No.15 iron. Scale 1:1

(b) Fasteners (Fig. 38)

5. SF149N/*1026*, Yards S/II layer 733 (1400-1500)
Copper alloy wire double-hooked fastener

6. SF149N/*371*, Cellars J/K IIb layer 669 (1507 deposits)
Copper alloy twisted wire double-hooked fastener with attachment loops

7. SF149N/*902*, Yards S/III layer 644 (1550-1700)
Copper alloy long lace-tag, type 1

8. SF149N/*2014*, Yards S/III layer 660 (1550-1700)
Copper alloy decorated lace-tag, type 2

9. SF149N/*2195*, Yards S/III layer 812 (1550-1700)
Copper alloy long decorated lace-tag, type 1

10. SF149N/*762*, Yards S/IV layer 532 (*c.*1700-1885)
Copper alloy cast openwork button, 16th century (Baart *et al.* 1977, cat. no. 235)

(c) Buckles and belt-fittings (Fig. 38)

11. SF149N/*308*, Yards S/II layer 709 (1400-1550)
Copper alloy strap-fitting with swivelling tag, decorated with rocker-arm ornament, and plate

12. SF149N/*2044*, Cellar L/IV layer 903 (1700-1885)
Copper alloy buckle

13. SF149N/*623*, Yards S/III layer 676 (1550-1700)
Copper alloy buckle frame fragment with two lengths of wire inlaid in the cast lobes

14. SF149N/*1443*, Yards S/III layer 770 (1550-1700)
Copper alloy buckle plate decorated with rocker-arm ornament

15. SF149N/*2035*, Cellar L/IIIb layer 917 (1550-1700)
Iron buckle

16. SF149N/*2310*, St Laurence's Lane E/II layer 1269 (pit group *c.*1400)
Copper alloy belt-boss, 14th century

17. SF149N/*2089*, Yards N/I layer 798 (1100-1400)
Copper alloy gilded belt-stud

18. SF149N/*725*, Cellar H/IIb layer 671 (1507 deposits)
Copper alloy belt-plate

19. SF149N/*1801*, Cellars J/K IIb layer 669 (1507 deposits)
Copper alloy belt-fitting, decorated with rocker-arm ornament and boss; loop at base for pendant

(d) Purses (Fig. 39)

20. SF149N/*676*, Cellar J/IIb layer 670 (1507 deposits)
Iron hinged purse-mount with clip fastener (operating by means of a spring)

21. SF149N/*1796*, Cellar J/K IIb layer 669 (1507 deposits)
Copper alloy ?purse-loop

Textiles (not illustrated)

SF149N/*2464*, Cellars J/K IIb layer 669 (1507 deposits)
Shirt-fabric, or sheet, flax, Z-spun, tabby weave; carbonised fragment rolled up tightly, perhaps to stop the neck of a large jar or to wedge into a joint in the beams of the building (MF149N. 2, E5)

Personal Implements

(a) Toilet articles (Fig. 39)

22. SF149N/*1748*, Yards S/II layer 1009 (1400-1500)
Copper alloy ear-scoop, made from twisted strip, 15th century

(b) Writing (Fig. 39)

23. SF149N/*1966*, Yards S/II layer 1030 (1400-1550)
Bone stylus (or pin) made from reused ?parchment pricker, turned, made from long bone shaft of large animal (cattle/horse)

24. SF149N/*1094*, Yards N/IV layer 1011 (1760-1780 well-fill)
Bone stylus (or pin) made from reused ?parchment pricker, turned, made from long bone shaft of large animal (cattle/horse)

Domestic Fittings and Furnishings

(a) Fittings (Fig. 39)

25. SF149N/*2099*, St Laurence's Lane D/II layer 1209
Copper alloy gilded zoomorphic ?casket-mount, 13th century

26. SF149N/*992*, St Laurence's Lane E/IV layer 1062 (1700-1885)
Copper alloy hinged hasp with iron pin in hinge

27. SF149N/*1257*, St Laurence's Lane E/III layer 1079 (1550-1700)
Copper alloy inscribed plaque, letters MAU executed in repoussé technique, late 15th century (pers. comm. R. Greenwood)

28. SF149N/*2121*, Yards S/III layer 523 (*c.*1550-1700)
Copper alloy decorated book-clasp, early 16th century

29. SF149N/*382*, Yards S/II layer 710 (1400-1550)
Copper alloy gilded upholstery stud

30. SF149N/*1802*, Cellars J/K IIb layer 669 (1507 deposits)
Copper alloy collar with two s-shaped suspension loops

(b) Lighting (Fig. 40)

31. SF149N/*1305*, Cellar H/IIb layer 671 (1507 deposits)
Copper alloy candlestick

32. SF149N/*1483*, Cellar J/IIb layer 670 (1507 deposits)
Copper alloy candlestick socket

33. SF149N/*1455*, Cellar L/IIIb layer 908 (1550-1700)
Copper alloy candlestick shaft fragment

34. SF149N/*2389*, Cellar L/IIa layer 1431 (1400-1550)
Iron candle-holder combining socket and pricket

35. SF149N/*2216*, Cellar H/IIb layer 978 (1507 deposits)
Iron strike-a-light

(c) Implements (Fig. 40)

36. SF149N/*2202* with *2206*, Cellar H/IIb layer 978 (1507 deposits)
Copper alloy skimmer; a long wooden handle would have been fitted into the socket

37. SF149N/*2408*, Cellar H/IIb layer 752 (1507 deposits)
Iron handle and part of bowl of ladle

38. SF149N/*1312*, Cellar H/IIb layer 661 (1507 deposits)
Iron flesh-hook

(d) Knives and shears (Fig. 40)

39. SF149N/*1991*, Yards N/II layer 795 (mid/late 15th-century pit group)
Iron whittle tang knife

40. SF149N/*85*, Yards S/II layer 512 (1400-1550)
Iron scale tang knife with bolster, antler scales and iron rivets. 17th century

41. SF149N/*1067*, Cellar H/IIb with layer 671 (1507 deposits)
Iron shears

42. SF149N/*2404*, Yards S/III layer 1332 (cesspit group *c.*1580)
Iron scissors

(e) Vessels (Figs 40-42)

43. SF149N/*1265*, Cellar H/IIb layer 752 (1507 deposits)
Copper alloy skillet

44. SF149N/*1268*, Cellar H/IIb layer 752 (1507 deposits)
Copper alloy skillet handle, decorated

45. SF149N/*2025*, Yards N/II layer 698 (1400-1550)
Copper alloy skillet handle fragment

46. SF149N/*2045*, Area L/IV layer 903 (1700-1885)
Copper alloy vessel fragment, made of hammered sheet

47. SF149N/*2405*, Cellar H/IIb layer 752 (1507 deposits)
Copper alloy vessel leg, with handle and body fragments

48. SF149N/*1310*, Cellar H/IIb layer 661 (1507 deposits)
Copper alloy vessel legs; body fragments not illustrated

49. SF149N/*2314*, Cellar H/IIb layer 521 (1507 deposits)
Copper alloy cast decorative disc from base of bowl, with three attachment shanks soldered in place on reverse

50. SF149N/*1351*, St Laurence's Lane E/III layer 1098
Iron support for handle (such as No. 51)

51. SF149N/*1264*, Cellar H/IIb layer 521 (1507 deposits)
Iron handle from bucket or other vessel

52. SF149N/*1311*, Cellar H/IIb layer 661 (1507 deposits)
Iron long-handled pan

53. SF149N/*2210*, Cellar H/IIb layer 978 (1507 deposits)
Glass drinking vessel or bowl fragment with rouletted trails, pale green glass

54. SF149N/*1279*, Cellar H/IIb layer 752 (1507 deposits)
Glass drinking vessel or bowl fragment with rouletted trails, colourless glass

55. SF149N/*630*, Building F/II layer 1045 (1400-1550)
Glass drinking vessel fragments, pale greyish blue glass; foot with folded edge and body decorated with diamond-shaped mould-blown ribbing. Compare SF149N/*2148*, layer 1042 in the same cellar from the same or a similar vessel

56. SF149N/*678*, Cellar J/K IIb layer 669 (1507 deposits)
Glass phial (illustration taken from sketch at 1:1 made in 1973 before phial handed over to site owners, Marshalls Securities, now no longer in existence); distorted by heat

57. SF149N/*1059*, St Laurence's Lane E/III layer 1060 (*c.*1550-1700)
Glass rim of urinal, thin pale green glass, late medieval type

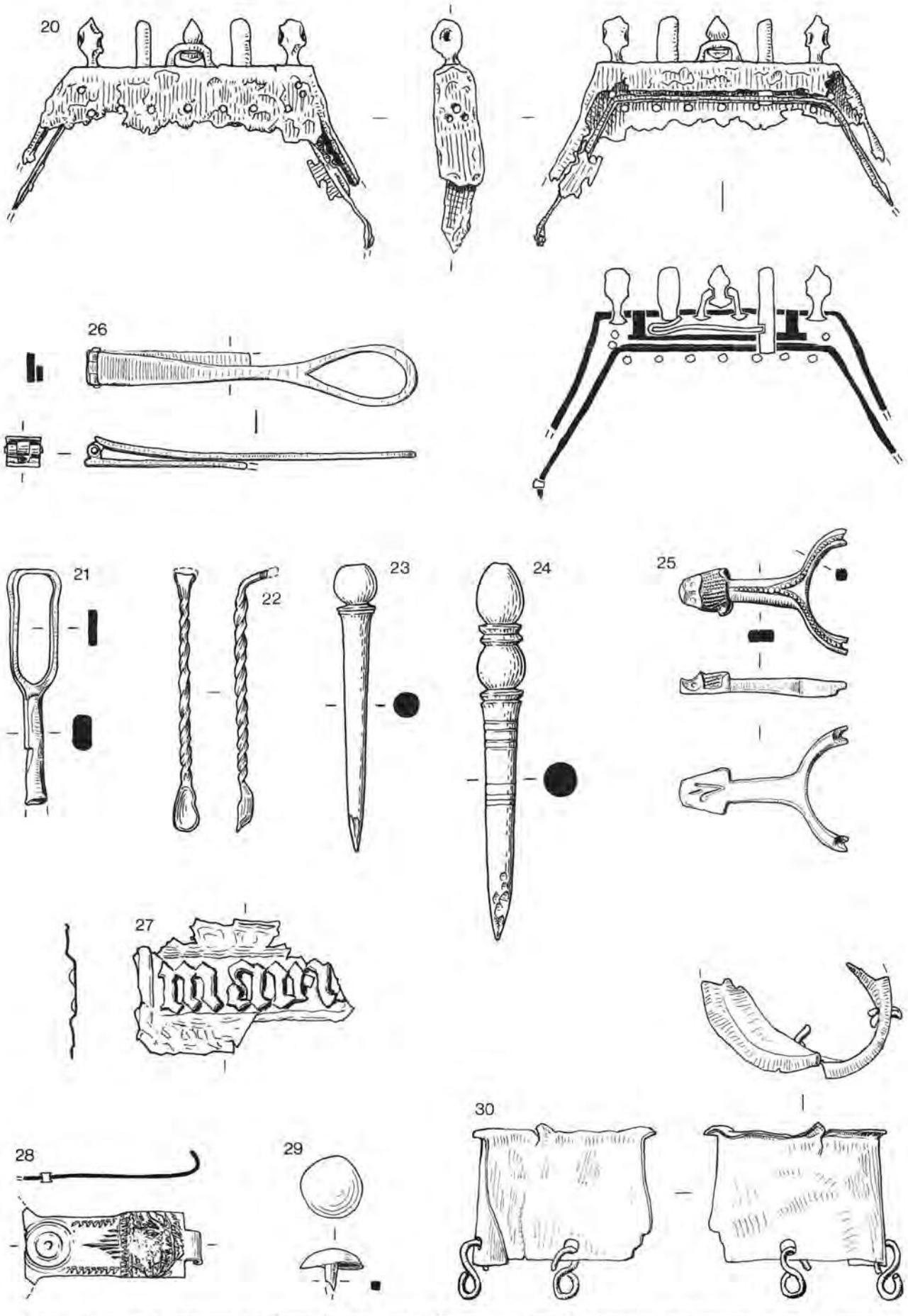

Fig.39 Site 149N, sub-site 2/3. Dress-fittings: iron (20), copper alloy (21); personal implements: copper alloy (22), bone (23-24); domestic objects: copper alloy (25-30). Scale 1:1, except No.20 at 1:2

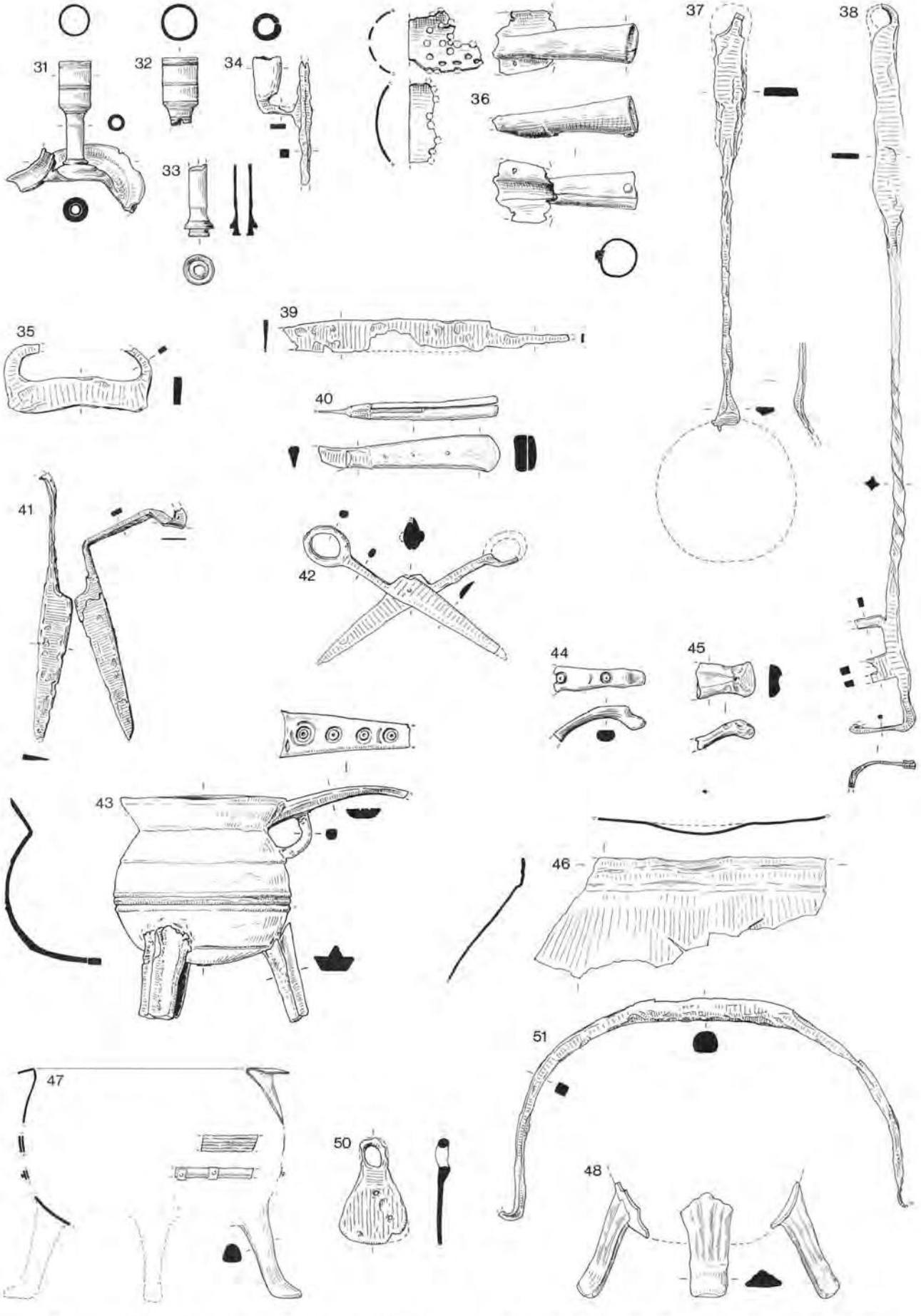

Fig.40 Site 149N, sub-site 2/3. Domestic objects: copper alloy (31-33, 36, 43-48), iron (34-35, 37-42, 50-51). Scale 1:4

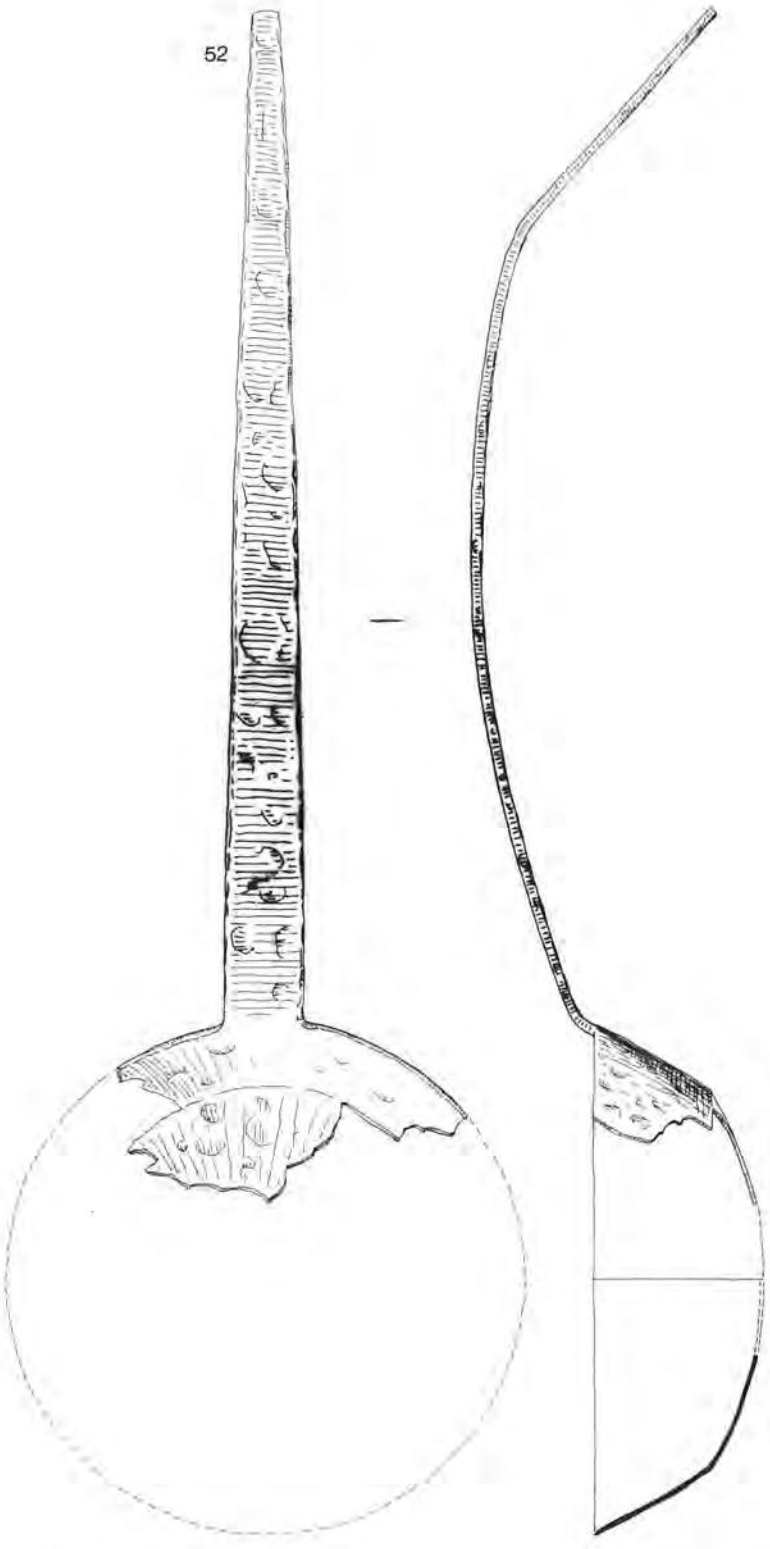

Fig.41 Site 149N, sub-site 2/3. Domestic object: iron pan (52). Scale 1:4

(f) Hearth equipment (Fig. 43)

58. SF149N/*1221*, Cellar H/IIb layer 752 (1507 deposits)
Iron pot-hook with pawl and ratchet adjustment

59. SF149N/*1365*, Cellar H/IIb layer 661 (1507 deposits)
Iron hook, perhaps from pot hook

60. SF149N/*1367*, Cellar H/IIb layer 661 (1507 deposits)
Iron cauldron hooks

61. SF149N/*1290*, Cellar H/IIb layer 752 (1507 deposits)
Iron fire 'shovel' with flange and socketed handle

62. SF149N/*1364*, Cellar H/IIb layer 661 (1507 deposits)
Iron shaft from rotary spit

Building Ironwork and other related finds

(a) Door-fittings (Fig. 44)

63. SF149N/*1790*, Cellar K/IIb layer 913 (1507 deposits)
Copper alloy latch-handle. Similar handles were used on chafing-dishes (Lewis 1973, pl. xiii a, type B1)

64. SF149N/*1099*, Cellar H/IIb layer 752 (1507 deposits)
Iron door-bolt

65. SF149N/*1019*, Cellar J/IIb layer 673 (1507 deposits)
Iron hinge-pivot

66. SF149N/*1152*, Cellar H/IIb layer 752 (1507 deposits)
Iron strap hinge with nailed u-shaped eye (compare the similar hinge SF149N/*1151* from the same context)

67. SF149N/*677*, Cellar J/IIb layer 670 (1507 deposits)
Iron pinned hinge

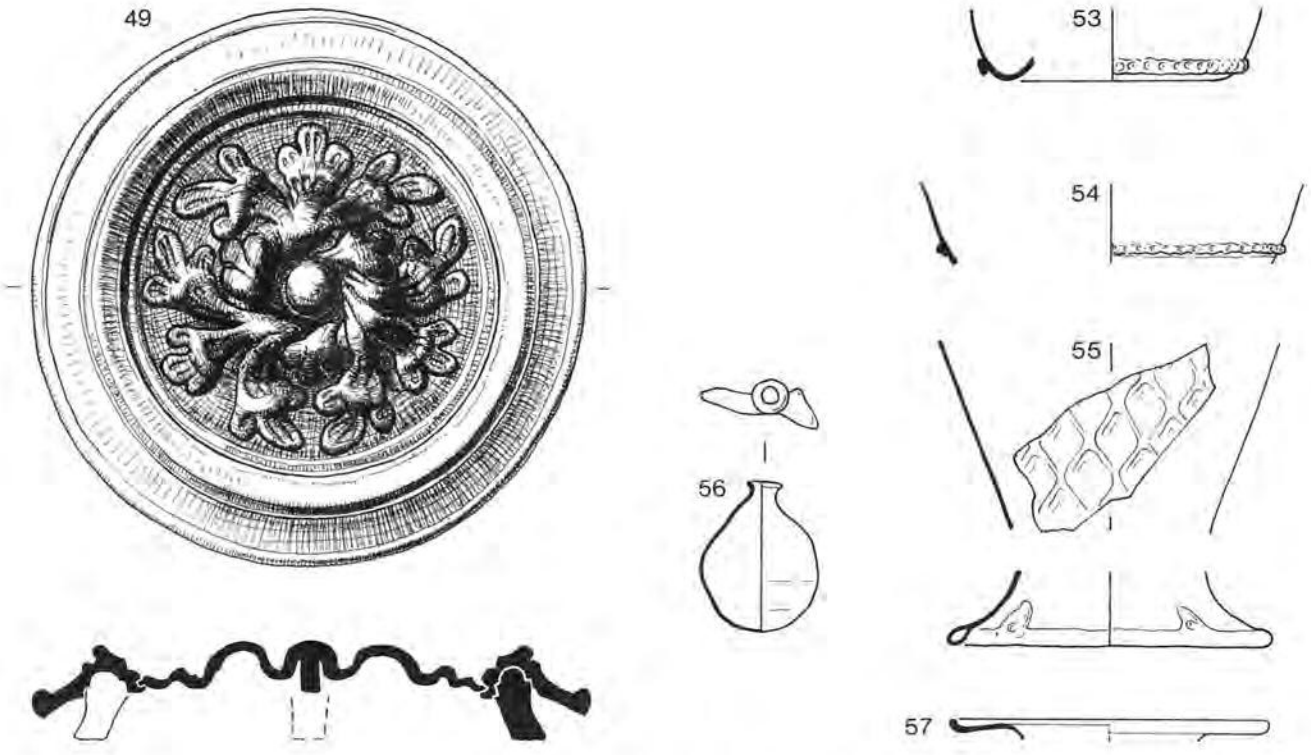

Fig.42 Site 149N, sub-site 2/3. Domestic objects: copper alloy (49), glass (53-57). Scale 1:2, except No.49 at 1:1

(b) Locks and keys (Fig. 44)

68. SF149N/*673*, Cellar J/IIb layer 670 (1507 deposits)
Iron lock. Plate fragment retains tumbler and toothed bolt from mechanism

69. SF149N/*1302*, Cellar H/IIb layer 752 (1507 deposits)
Iron case from barrel-padlock with shackle, and copper alloy straps

70. SF149N/*597*, Cellar H/IIb layer 671 (1507 deposits)
Iron box-padlock with hinged u-shaped shackle

71. SF149N/*1368*, Cellar H/IIb layer 661 (1507 deposits)
Iron key

72. SF149N/*1633*, Cellar J/K IIb layer 669 (1507 deposits)
Iron key

73. SF149N/*1687*, Cellar K/IIb layer 912 (1507 deposits)
Iron key

(c) Structural ironwork

74. SF149N/*1562*, Cellar J/K IIb layer 659 (1507 deposits)
Ring-headed spike

(d) Painted window-glass (Fig. 44)

75. SF149N/*1969*, Cellar J/K IIb layer 669 (1507 deposits)
Fragment with merchant's mark, back-painted, perhaps within shield, second half 15th century. Thickness 2mm

76. SF149N/*1901*, Cellar K/IIb layer 913 (1507 deposits) with SF149N/*1709*, Cellar L/IIIb layer 917
Two fragments with Norwich School sea-weed diaper, and yellow stain on reverse; from top of arched pane, used as background to a figure, perhaps within a canopy such as No. 77. Second half 15th century. Thickness 2mm

77. SF149N/*148*, Yards N/III layer 1010 (1550-1700)
Fragment with vertical zones, alternating plain and cross-hatched within contour-lines; from canopy shafting used around a figure panel (perhaps related to No. 76). Second half 15th century. Thickness 2mm. Compare another fragment of the same from Yards S/III, layer 664 (*c.*1640 pit group with re-deposited 1507 cellar material), SF149N/*1550*

(e) Decorative features (Fig. 44)

78. SF149N/*1295*, Cellar H/IIb layer 752 (1507 deposits)
Terracotta plaque fragment; beard from human head, possibly St John the Baptist (pers. comm. P. J. Drury)

Tools

(a) Textile manufacture and needlework (Figs 45-46)

79. SF149N/*2038*, Yards S/III layer 517 (pit group of *c.*1640/50)
Copper alloy thimble

80. SF149N/*1304*, Cellar H/IIb layer 671 (1507 deposits)
Iron heckle or woolcomb

81. SF149N/*1387*, (+ part of *1304*), Cellar H/IIb layer 671 (1507 deposits)
Iron heckle or woolcomb

82. SF149N/*1069*, Cellar J/IIb layer 673
Iron heckle or woolcomb
In addition to these heckles or woolcombs, many individual or groups of comb teeth were found.

(b) Metal-working (Figs 46-47)

83. SF149N/*2213*, Cellar H/IIb layer 978 (1507 deposits)
Iron anvil with two perforations through face

84. SF149N/*2212*, Cellar H/IIb layer 978 (1507 deposits)
Iron cold set

85. SF149N/*1384*, Cellar H/IIb layer 671 (1507 deposits)
Iron punch

86. SF149N/*1591*, Yards S/III layer 572 (1550-1700)
Iron pincers

87. SF149N/*2395*, Cellar H/IIb layer 978 (1507 deposits)
Iron hammer-head

88. SF149N/*639*, Cellar J/K IIb layer 669 (1507 deposits)
Iron chisel

89. SF149N/*1294*, Cellar H/IIb layer 752 (1507 deposits) (Fig. 47)
Limestone mould for casting decorative bosses

(c) Plastering (Fig. 46)

90. SF149N/*2403*, Yards S/III layer 1332 (cesspit *c.*1580)
Iron trowel with remains of wooden handle on tang

91. SF149N/*1266*, Cellar H/IIb layer 513 (1507 deposits)
Iron socketed hoe

(d) Wood-working (Fig. 46)

92. SF149N/*596*, Cellar H/IIb layer 671 (1507 deposits)
Iron axe-head and collar

93. SF149N/*640*, Cellar J/K IIb layer 669
Iron reamer

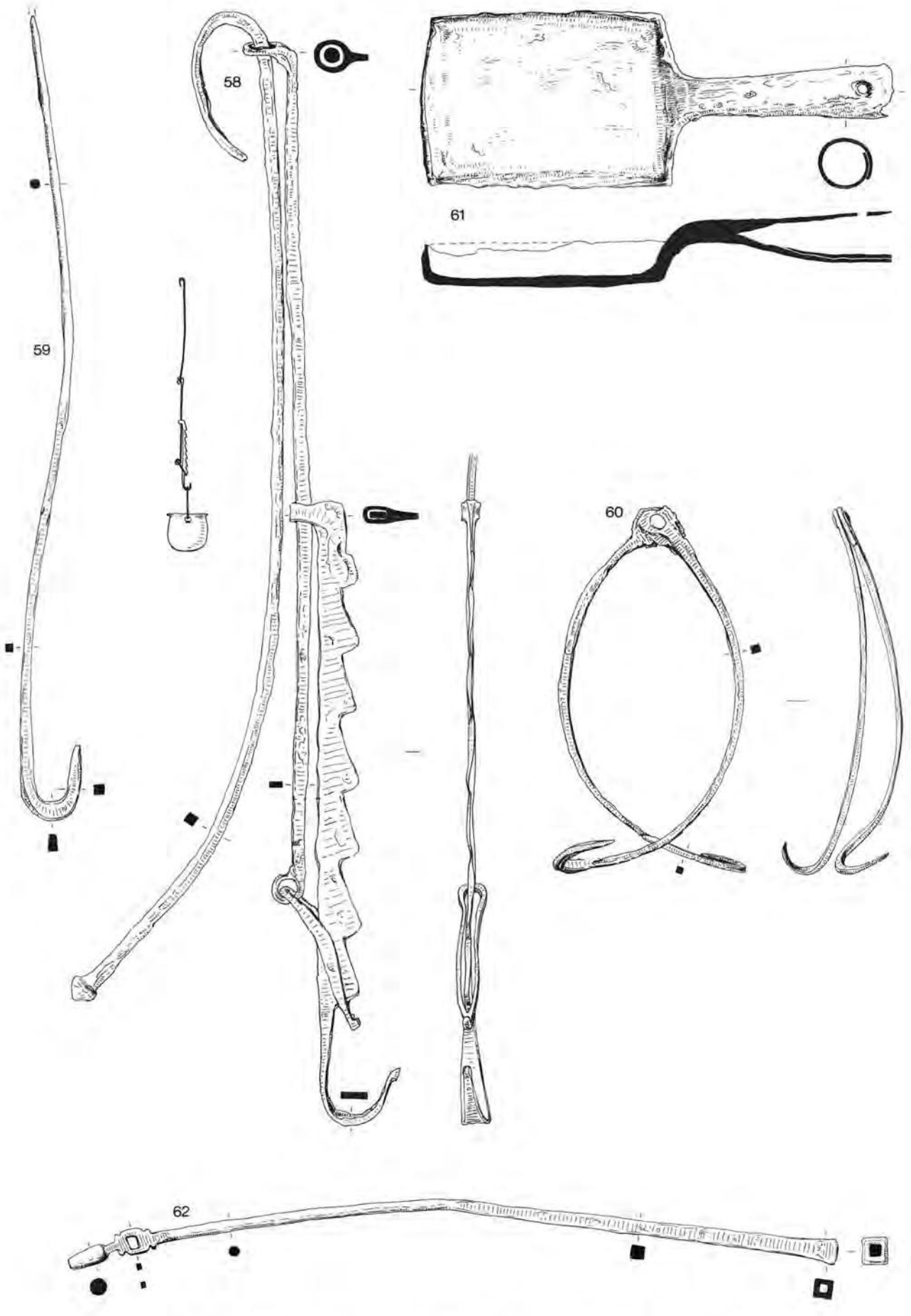

Fig.43 Site 149N, sub-site 2/3. Domestic objects: iron (58-62). Scale 1:4

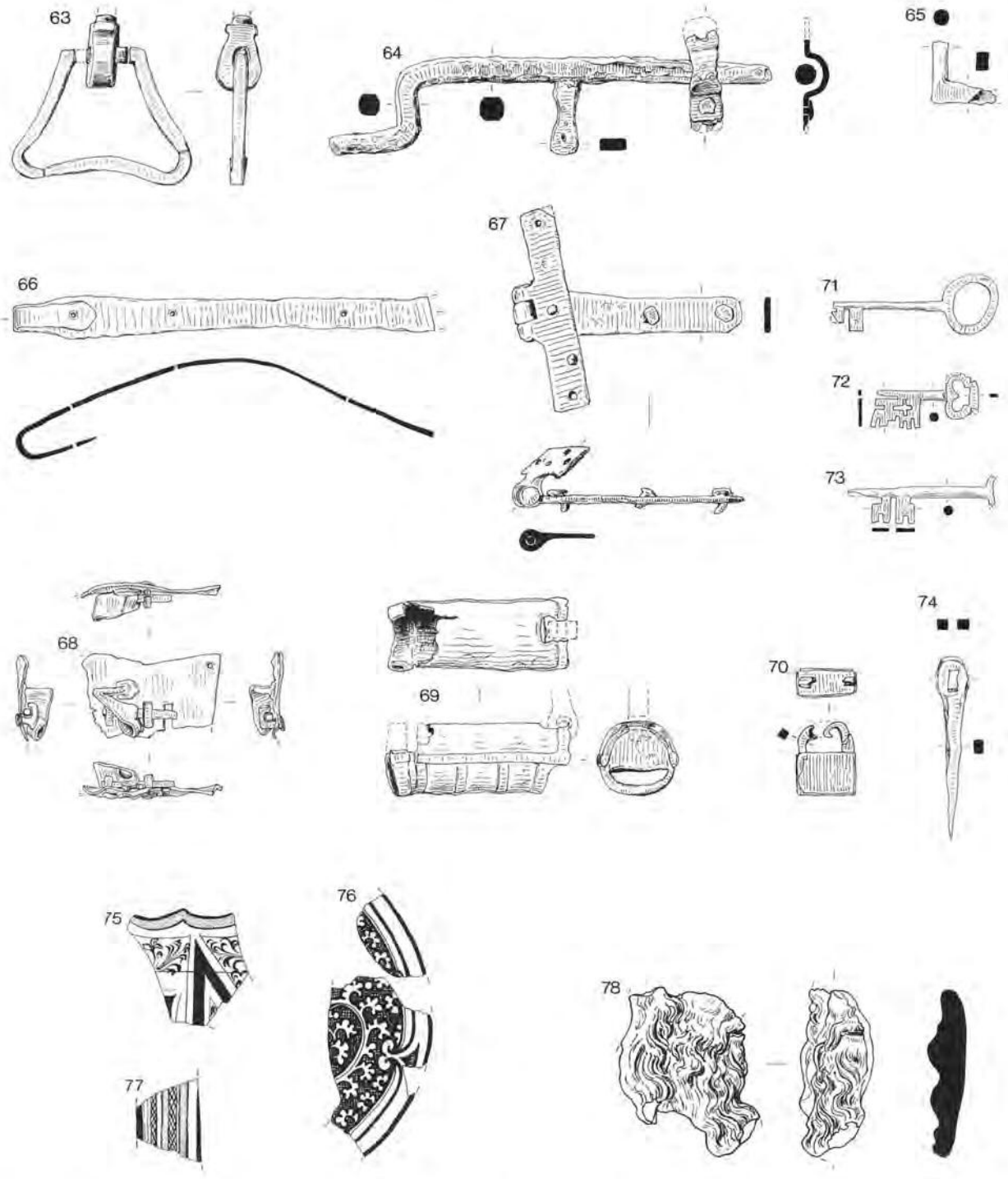

Fig.44 Site 149N, sub-site 2/3. Building ironwork and other: copper alloy (63), iron (64-74), glass (75-77), terracotta (78). Scale 1:4, except No.63 at 1:2

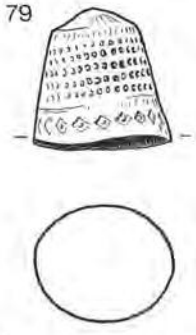

Fig.45 Site 149N, sub-site 2/3. Thimble (79). Scale 1:1

(e) Horticulture (Fig. 46)

94. SF149N/*1370*, Cellar H/IIb layer 661 (1507 deposits)
Iron sickle

95. SF149N/*1374*, Cellar H/IIb layer 661 (1507 deposits)
Iron sickle blade fragment (part of same sickle?)

(f) Miscellaneous tools (Fig. 48)

96. SF149N/*595*, Cellar H/IIb layer 661 (1507 deposits)
Sandstone grinding stone (muscovite, plagioclase, tourmaline)

Trade and Commerce

(a) Weights (Fig. 48)

97. SF149N/*1857*, Cellar J/K IIb layer 669 (1507 deposits)
Copper alloy weight, 6.00 grams

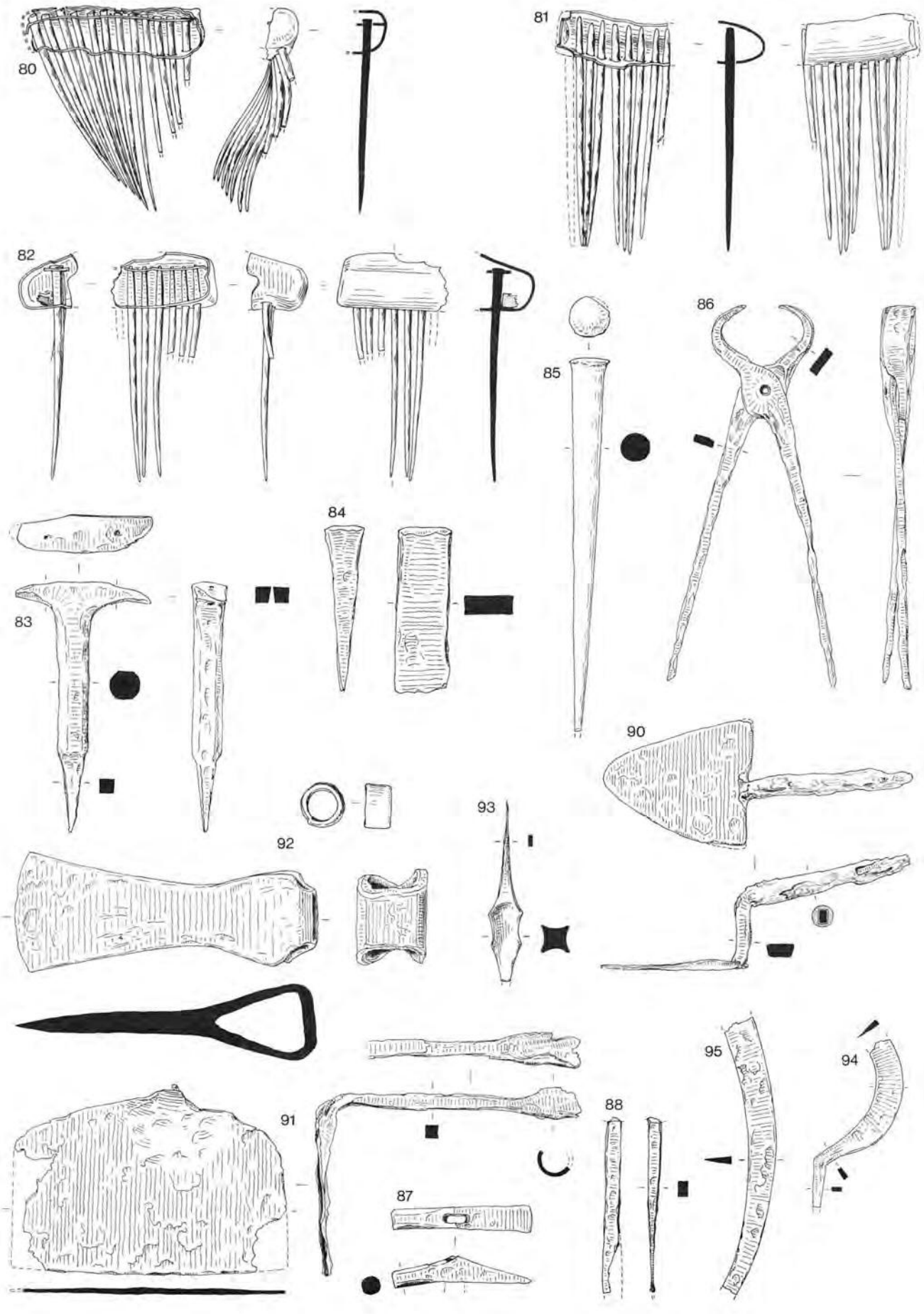

Fig.46 Site 149N, sub-site 2/3. Tools: iron (80-88, 90-95). Scale 1:4

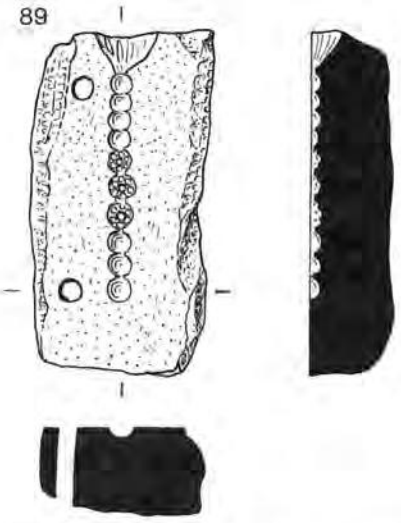

Fig.47 Site 149N, sub-site 2/3. Stone mould (89). Scale 1:2

98. SF149N/*1655*, Cellar K/IIb layer 913 (1507 deposits)
Copper alloy weight, 6.97 grams

(b) Tokens (Fig. 48)
99. SF149N/*2431*, Yards S/III layer 523 (*c.*1550-1700)
Lead cast disc, ?token

Miscellaneous
(a) Horse equipment (Fig. 48)
100. SF149N/*1070*, Cellar J/IIb layer 673 (1507 deposits)
Copper alloy rumbler bell, made from sheet metal
101. SF149N/*1788*, Cellar K/IIb layer 913 (1507 deposits)
Iron rowel spur

(b) Fittings (Fig. 48)
102. SF149N/*2273*, St Laurence's Lane E/III layer 1223 (*c.*1550-1700)
Iron ferrule, used to protect base of wooden staff or pole

Ceramic Building Materials

Finds of brick and tile are listed in MFT.19, with the exception of the tin-glazed tiles (MFT.16), and three stove-tile fragments (from cellar H, layer 513: pit 1005: topsoil); descriptions and illustration of the latter have been held over for the final volume. Comment by Paul Drury on significant occurrences of ceramic building materials on this site has been inserted in the relevant places in the main excavation text.

Burnt Daub

Sub-site 1

As only to be expected, the fire left considerable quantities of burnt daub in the cellar deposits. As well as fragments of the walling, there were a number of pieces *c.* 4cm thick, which may have derived from a ceiling or upper floor; these bore on one side the impression of ?rushes, which varied in diameter between 1.50 and 4mm.

Sub-site 2/3

As with sub-site 1, the 1507 fire produced considerable quantities of burnt daub in the cellar deposits. The largest of these was a fragment of walling from cellar H; it was *c.*13cm thick and had vertical holes 20mm in diameter, spaced between 6 and 9cm apart, for the wattles. Its internal face was rendered with a 6mm-thick skin of white plaster; plaster was also present on one of the fragments from cellar K. Most of the other fragments of daub were much thinner (*c.*4mm thick), and like the sub-site 1 fragments, may have derived from a ceiling or upper floor; they bore the impressions of ?rushes on one surface, ranging in diameter from 2 to 5mm.

The presence of burnt daub in other contexts is interesting. That in areas C-E seems best explained as debris from the 1507 Pottergate frontages spread across the St Laurence's Lane frontage to level the site preparatory to building in the early 16th century; the fragment from 1184 is probably intrusive from this levelling. The presence of daub in cesspit 1045 is interesting, as none of its pottery showed any signs of burning. Most of the other daub was found in the Period III pits associated with the rebuilding on the main frontage in the mid 17th century; most of these also produced joins with pots from the cellars, and the material clearly derives from the disturbed fire deposits. The presence of daub in 504 suggests, as did the pottery, that this 19th-century pit has cut through one of those 17th-century rubbish pits, and that the 1635/6-1644 farthing token which it contains, probably offers a *terminus post quem* for the rebuilding.

VII. Environmental Reports

by Peter Murphy

Charcoal

Large charcoal fragments apparently from structural wood, fittings or furniture destroyed during the fire, and a single charcoal sample from a Phase 1Ea pit (268), have been examined. Identifications and descriptions of this charcoal are given in MFT.20-25. It is impossible to be certain of the original functions of the wood and timber represented, but several categories of fragments are distinguishable:

1. Twigs and small branches under 40mm in diameter. So far as can be determined from the fragments, straight rods seem generally to be represented. The predominant species in the fire debris is ash (18 identifications), followed by oak (6), and hazel (6), hazel or alder (3), alder (1), and indeterminate twig fragments. The split, curved rod of hazel or alder from cellar 65, layer 260, is almost certainly from a wattle panel. Ash twigs from building *f*2, layer 261 show oblique transverse cuts. The sample from pit 268 consists of irregular small oak twigs, twigs of hazel/alder and a probable small fragment of heather charcoal. It seems to represent firewood.
2. Larger wood fragments. These include untrimmed branches or young trunks generally around 50-70mm in diameter, halved branches, some roughly squared, and fragments from larger timber. Oak is common (23 identifications) but ash (12), conifer (4), birch (2), alder (1), hazel or alder (1), possibly willow (1) and indeterminate charcoals are also present.
3. Boards. Four fragments of oak boards, radially sawn or split and up to 17mm in thickness, were identified. Board fragments of ash, elm and conifer also survived, and these are all split or sawn tangentially. Debris from building *f*2 included some very thin boards of ash and oak (7-9mm thick). These seem too insubstantial to be floorboards. One ash board fragment from layer 271 has a dowel-hole and a further fragment from layer 273

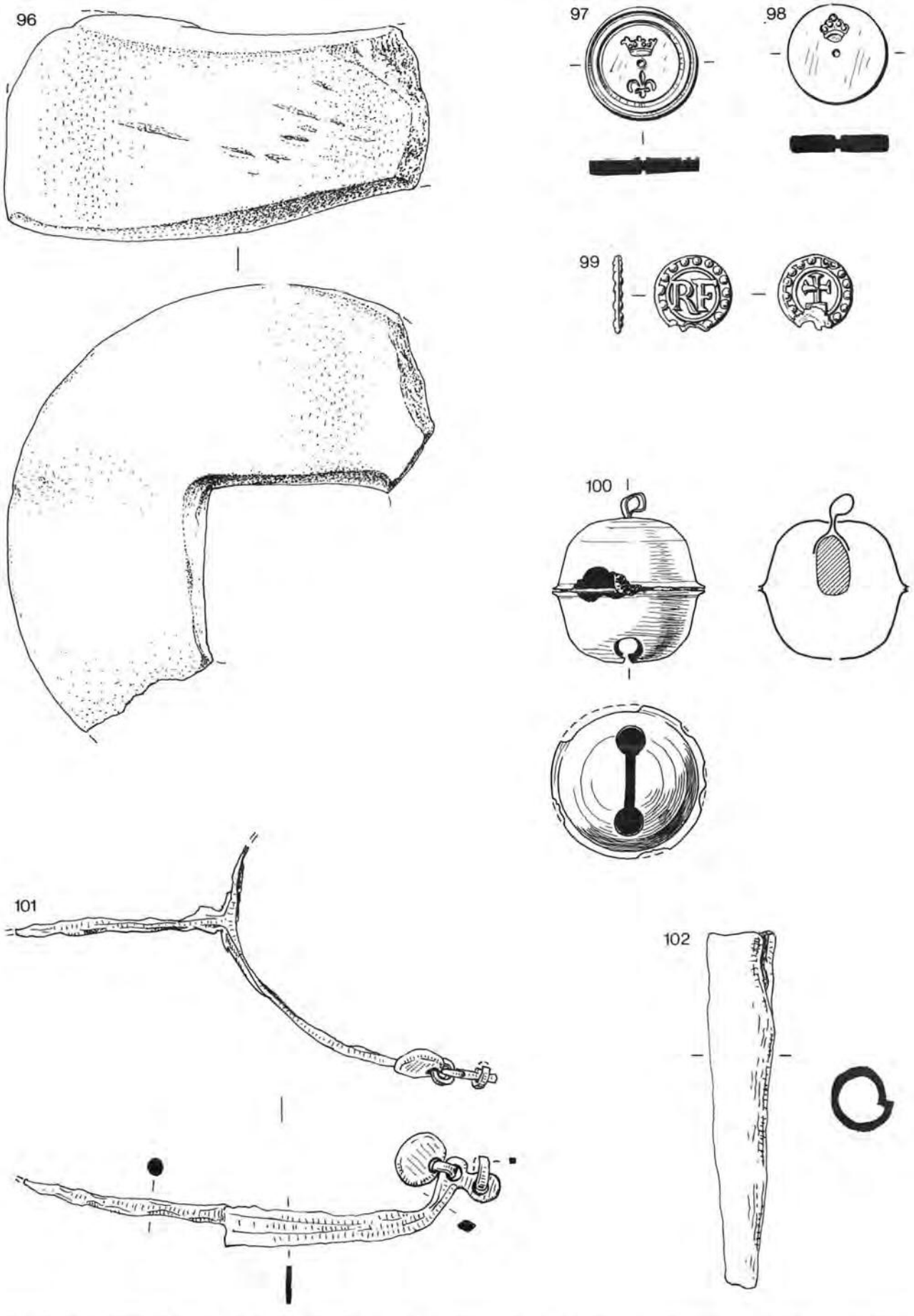

Fig.48 Site 149N, sub-site 2/3. Tool: stone (96); trade: copper alloy (97-98), lead (99); horse equipment: copper alloy (100), iron (101); ferrule, iron (102). Scale 1:1, except Nos 96, 101 and 102 at 1:2

shows a gouge-cut groove at one end, perhaps for a groove-and-tongue joint.

4. Other worked fragments. A small peg made from ash wood came from building *f2*, layer 177. Cellar H layer 513 produced a small batten of coniferous softwood, about 22mm square with a chamfer on one corner.

Many fragments from cellars H, J and K show insect borings in section and exit-holes on exterior surfaces. Most of these cannot be identified, though an ash branch from cellar J layer 670 shows a well-preserved system of galleries of the ash bark beetle (*Hylesinus fraxini*) and there is an extensively-damaged small oak beam from layer 671 showing large exit-holes, probably of the deathwatch beetle (*Xestobium rufovillosum*).

Plant macrofossils (excluding charcoal)

Plant macrofossils were recovered from eleven contexts by Andrew Jones, using a bulk sieving and flotation tank (Kenward *et al.* 1980). Preservation was by carbonisation and mineralisation (Green 1979), although the extremely abundant seeds of elder (*Sambucus nigra*) owe their survival apparently to their extreme durability. Methods and preservation conditions are described in greater detail in the report on site 302N (q.v.). Plant remains identified are listed in MFT.26.

Four 13th-to-15th-century refuse pits (791, 1269, 297, 308) produced small assemblages of charred cereal grains (barley, bread wheat, oats and rye), peas, and a charred grape 'pip'. These deposits appear to represent accidental carbonisation during food preparation. Similar assemblages were very common at site 302N (see below). A 15th-century cesspit (1042) also contained material of this type, but in addition produced abundant mineralised seeds of fig, grape, elder, bramble, raspberry, sloe and apple as well as a charred fruit of hop. The mineralised remains of soft fruits represent a mixture of seeds present in faeces as well as food waste dumped into the cesspit. Seeds of wild plants are rare in all these deposits but are mainly of arable weeds, presumably contaminants of crops consumed at the site. The hop fruit from cesspit 1042 provides the earliest record of hops in Norwich from a context strongly implying utilisation: hop fruits were common in early medieval waterfront deposits at Whitefriars (421N) but these specimens may have been dispersed by natural processes from wild plants (Ayers and Murphy 1983, 42).

Layer 912 was a burnt deposit from cellar K formed during the fire. The two main constituents of the sample are barley grains, perhaps from a batch of grain stored in the cellar, and large culm nodes, which on size criteria are likely to be of reed (*Phragmites*). Some of the barley grains had germinated before carbonisation, which might indicate damp storage conditions in the cellar or perhaps the storage of malted barley for domestic brewing. The grass culm nodes presumably represent remains of thatch from the burning building. The sample also contained some charred fruitstones of holly (*Ilex aquifolium*). Context 263, a 16th-century layer postdating the fire, seems to have included plant remains derived from the fire deposits.

The remaining contexts sampled (523, 503, 517 and 1058) were early to mid 17th-century pits. The first three of these produced a mixture of mineralised seeds, mainly of elder, bramble and fig, with charred cereals and peas and rare arable weed seeds. Pit 1058 contained a quite different assemblage including large numbers of charred arable weed seeds, with some charred cereal grains and a charred shoot of heather (*Calluna vulgaris*). The assemblage seems to be derived from several sources. The weed seeds are likely to represent contaminants of cereals which had been removed by sieving and hand-picking before preparation of the cereals for food. These were presumably thrown straight onto the fire where a proportion became carbonised. The sample also seems to include a component of charred prime grain, probably carbonised during cooking. The charred heather may represent the remains of floor sweepings.

The samples from this site are quite typical of dry, medieval to post-medieval sites in Norwich. Although detailed interpretation of specific deposits is inevitably tentative, there is no doubt that all these samples are of 'consumer' type, representing, for the most part, domestic food preparation and waste disposal. There is no evidence, even in the earliest sample, for the initial stages of crop processing which would have implied local production.

Avian eggshell

Avian eggshell occurred in medieval and post-medieval deposits at several Norwich Survey excavations, but 149N produced more samples than any other site.

Most of the material consists of small quantities of fragments recovered by bulk-sieving, though conspicuous concentrations of fragments were collected by hand during excavation. Occasionally fragments of brachiopods, echinoids and other calcareous crystalline material derived from the Upper Chalk had been mislabelled as eggshell on site. The fragments of eggshell are mostly white to cream in colour, sometimes stained reddish or brown and their microstructure is well-preserved, showing little sign of chemical or physical weathering except on outer surfaces.

Shell thickness, though not providing specific identifications, is a useful criterion separating the main size groups of birds (Keepax 1981, 323). Thicknesses of fragments from all well-preserved samples were determined using a screw-gauge micrometer (MFT. 27). Mean thicknesses of around 0.30 - 0.35mm were usual, and these are comparable to the range characteristic of the domestic hen: Romanoff and Romanoff (1949, 150) give mean thicknesses of 0.26mm (Bantam), 0.31mm (Leghorn) and 0.36mm (Cochin China).

The distribution of shell thicknesses for samples from 149N is shown in histogram form in MFT. 28. In an earlier report (Murphy 1978) thicknesses of 0.21 -0.42mm were given for this site, but re-examination and further measurement has produced some much thicker fragments. In all site phases fragments between 0.2 and 0.45mm predominate, corresponding to medium to large modern domestic fowl eggs. In addition, the sample from context 297, an early 15th-century pit, produced fragments with thicknesses between 0.45 and 0.7mm, comparable to thicknesses obtained for goose, swan or guinea fowl (Keepax 1981, 323).

Marine Crustacea

Exoskeleton fragments were recovered at several Norwich Survey excavations by hand collection during excavation and by bulk-sieving soil samples. Crustacean remains were rare at all sites, but 149N produced more samples of fragments than any other.

Most of the material consists of carapace fragments and dactyli and 'fixed fingers' from chelipeds of the edible crab (*Cancer pagurus*). All fragments are listed in MFT. 29.

Nowadays crabs and lobsters are caught over a 24km stretch of coast between Salthouse and Mundesley up to 3 - 4km from the shore, the main landings being at Cromer and Sheringham. The fishery is restricted to a bed of chalk on this stretch of coast, which provides cracks and crevices within which the crustaceans are usually found (Jones 1976). Changes in coastal morphology, particularly in the lower Yare, known to have taken place during the medieval period could not have produced similar suitable habitats elsewhere, so it can be assumed that the medieval and post-medieval specimens from Norwich came originally from the north coast of Norfolk, possibly via Yarmouth.

The earliest reliably dated crustacean fragment found in the city is from site 149N, pit 308 (early 15th century). The remaining fragments from the site range in date from the late 15th to the early 17th century (pits 1042 and 1060). There is thus no evidence that the products of the 'Cromer Crab' fishery were reaching Norwich before about 1400: commercial exploitation of this fishery appears on the present evidence to have been a development of the later Middle Ages.

Mollusca

Shells of edible marine molluscs and of *Helix aspersa* (garden snail) and *Cepaea* spp. (banded snails) were collected by hand during excavation. After counting, most specimens were discarded, but a representative collection of larger groups of the main species and all minor or uncommon species has been retained. Counts of bivalve valves and gastropod shells are given in MFT. 30 and 31. The marine species identified are *Ostrea edulis* (oyster), *Cerastoderma (Cardium) edule* (cockle), *Mytilus edulis* (mussel), *Buccinum undatum* (whelk), *Neptunea antiqua* (buckie) and *Littorina littorea* (winkle). Counts are also given of *Helix aspersa*. The shells were not examined in detail, though many show a rich epifauna. To simplify the Tables, counts are given in terms of the main site periods and phases. Sub-division by location would have been possible, but did not appear to show any significant patterns.

In almost all periods and phases the oyster is the predominant species, though cockles are frequently abundant. Mussels occur at moderate frequencies, but are probably under-represented in the collection since they are more prone to fragmentation, and their dark colour makes them less conspicuous during excavation. *Buccinum* and *Neptunea* occur only at low frequencies. These two species of 'whelk' were probably caught together in the same grounds and do not appear to have been distinguished by consumers: Woodward (1881, 69) notes their association in medieval deposits at Carrow Abbey. The main modern whelk grounds are off the North Norfolk coast with the main landings at Sheringham, Wells and Brancaster (Jones, F.R.H. 1976). Winkles are extremely rare and do not occur in pre-17th-century deposits. This may suggest that they were imported from further afield, perhaps from the rocky coastlines of Lincolnshire or Yorkshire (Jones, A.K.G. 1976).

Using average figures for meat weights given by Winder (1980) some assessment of the contribution of marine molluscs to the diet is possible. The relatively large collections of oyster and cockle shells from sub-site 1, Phases 1Wc and 1Ec represent a minimum of 510 and 326 individuals respectively. On Winder's figures these represent average figures of 3812g of wet oyster meat and 564g of cooked cockle meat. There is some variation in mollusc meat yields, but these figures give an order of magnitude estimate of meat weights represented by the shell collected during excavation. Purely in bulk terms such figures are small compared with the meat yield of even a single domestic animal, though of course the vitamin and mineral content of shellfish would have been of some importance.

The overall quantities of shell deposited on site are clearly related to the intensity of occupation and to rubbish disposal methods. There are large amounts of shell from sub-site 1 Phases 1Wc and 1Ec, and from sub-site 2/3 Period II, reflecting the high density of occupation in the 15th and early 16th centuries. On sub-site 1 there is a falling off of shell deposition in Phases 1We and 1Ee, which may reflect the carting of refuse from the City from the 18th century onwards. This is less marked on sub-site 2/3.

Helix aspersa is potentially edible, but there is no direct evidence that it was consumed, and indeed large numbers of shells occur in the deposits related to the 1507 fire debris and the subsequent partial abandonment of the site. Dense populations of this snail could have developed on the weed- and scrub-covered rubble.

VIII. The Buildings

by Alan Carter

Evidence of even the existence of buildings here, let alone their form, hardly survives from before the mid 15th century. On sub-site 1 the possibility of there having been a clay-walled house (building *f*1) was noted under Phase 1Wa, but on sub-site 2/3 not even the pre-cellar wall 1435 (Phase IIa) can convincingly be argued as that of a building. Interpretation of the main areas of medieval structures, those built some time after *c.*1450 and destroyed by fire in 1507, is complicated by three factors: the fragmentary survival of the evidence (most of which relates to the cellars of the houses not their superstructures); ignorance not only of where the property boundaries ran but also of the contemporary building line; and an almost complete lack of contemporary analogues (for the surviving buildings are few and generally much larger).

The outline ground-floor plans of the 15th/16th-century buildings that are offered as a basis for reconstruction (Fig. 1) should then be compared carefully with the excavated evidence (Figs 2 and 7). If they can be accepted then three types of house are distinguishable. The largest of them, represented by building *f*2 on sub-site 1 (Fig. 2), has a three-part plan which is well known from East Anglian towns (cf. Parker 1971, fig. 10). The type is normally built with a two-storied range parallel to the street, the first floor sailing over a carriage entrance. Here, however, unless the corner position of the hearth indicates a hood, the evidence points towards a single storey, and a gable end-on to the street. The hall, too, is likely to have been single-storied.

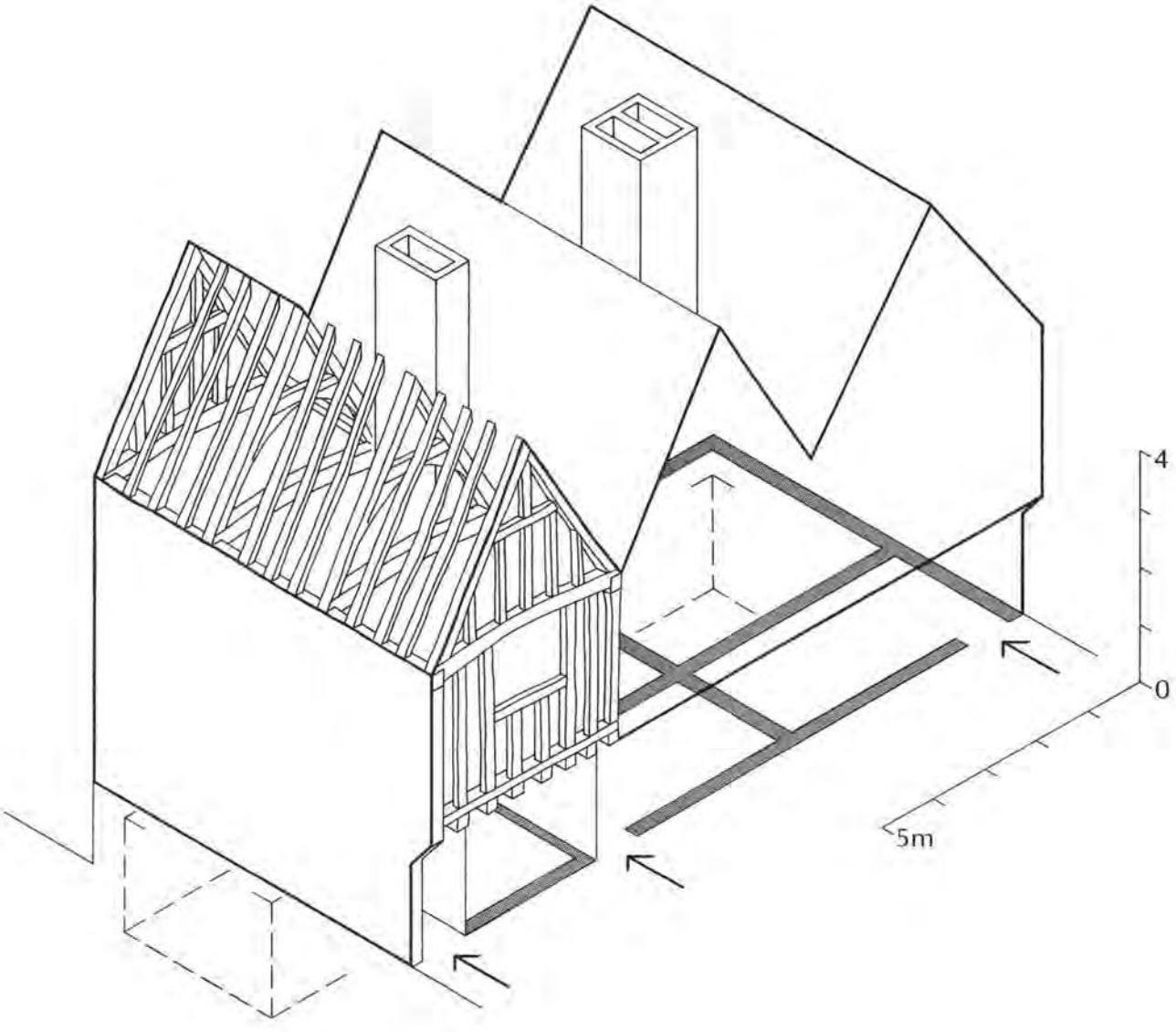

Fig.49 Site 149N, sub-site 2/3. Reconstruction of the Pottergate frontage above the Period II cellars H, J and K, as it might have appeared *c.*1500 (based on No.8 Tombland, Norwich). To be compared with Figs 1 and 7

The difference in character noted between its east and west walls suggests that the latter was timber-framed and therefore the principal facade. In the kitchen block, which appears to have been rubble-walled to its full height, the cesspit was clearly fed from an upper storey. It was here that the principal chamber in the house was located, and this would have been adequately heated by the chimney on its south wall. At least part of the building's roof was tiled (MFT. 19) and there is good evidence for some of its windows having been glazed.

The other house on sub-site 1, building *g*1/2, representing a second type, is less easily explained. It seems likely, though, that the building was two-storied and that its cellars lay outside its brick rubble rear wall (p.12). What the cellars were for (perhaps fuel stores) and why the original was thatched and the addition tiled (MFT. 19) has not been surmised. The form of the building is puzzling, for it seems too small to have required longitudinal sub-division. This, though, is normal in surviving 16th-century examples: with one large heated room and one small unheated one (Smith and Carter 1983, 16-17; also cf. building A3ii on Alms Lane, below). The possibility remains that this house represents a prototypical example of the classic small house of the late Elizabethan East Anglian town i.e. with a single room on two or more floors, the ground floor entered by opposed doors at the lower, non-chimney, end (Parker 1971, fig. 25; O'Neil 1953, figs 7-10). It has, however, in the past been assumed that this type represented a post-medieval response to rapidly rising population and that the general adoption of the use of attic space allowed a compensatory contraction of ground-floor area. There are now a number of suggestions that this may not necessarily be the case. Firstly, there is the evidence of Derek Keene's work on Cheapside (pers. comm.) which shows that in at least one English city centre the pressures of medieval population were as great as those of the 16th and 17th centuries. Secondly, there is a small but growing amount of documentary evidence for the existence of single-cell

medieval buildings, some of which are clearly two-storied (e.g. those illustrated in the late 14th-century Golden Book of St Alban's, BL Nero Dvii). Thirdly is our lack of knowledge of what occurs archaeologically on city-centre sites, which is not a problem confined to Norwich (cf. the pattern of housing revealed at Brook Street, Winchester: Biddle 1967, fig. 5 and pl. L). On sub-site 2/3, a building similar to *g*1/2, but slightly smaller, lay on the junction of Pottergate and St Laurence's Lane. Very little of it remained but there was enough to show that it, too, lay parallel to the street frontage, and in this it resembles almost every surviving early building in Norwich.

In contrast, the third type (the three houses thought to be represented by cellars H, J and K: Fig. 49) lay gable-end on to the street. The principal reason for suggesting this, is that had the block been ranged parallel to the street it would have been deeper than almost any other pre-modern building in the city. Rows of side-by-side houses, their gables to the street, are known from other English towns (e.g. Coney Street and the Shambles, York — RCHM 1981, 122 and 219-19 — or the Chesil Rectory, Winchester — a personal observation) and there is a strong possibility that a similar terrace may once have existed on Tombland in Norwich. It is there, at No. 8, that we have the only surviving evidence of a medieval house in Norwich with its gable end-on to the street (Norwich Survey Building Records). The building is much mutilated but appears to have had two first-floor rooms unceiled and open to the roof above a similarly partitioned ground-floor. The facade was once jettied and there appears to have been a stack on the rear wall. This pattern would fit the cellared buildings on Pottergate well, and the scale of the two buildings is closely comparable. How those on Pottergate were heated cannot be determined but a mixture of hearths and stoves is possible (two stove-tile fragments were recovered). Side-wall stacks seem the most likely, but a location on the rear wall which still allowed the back room to be lit is equally possible. The evidence of the cellar-fills — in which charred structural timbers and panels of daub were interspersed with rubble — suggests that the buildings had timber-framed party walls within a brick and flint rubble carcass. The nature of the facade can only be guessed at but it seems likely that this too would have been timber-framed, and probably jettied. Most of the brick seems to have been reused rubble (MFT. 19, types EB6, 8 and 9) but the plain and glazed Flemish floor-tiles from floors above cellar K (MFT. 19, types FT6, 7, 10 and 6/10) would seem to have been bought new for the job — perhaps for paving hearths. Although small the houses seem to have been quite luxuriously appointed and it seems likely that most, if not all, of the windows were glazed.

Little can be said of the early 16th-century house or houses on the St Laurence's Lane frontage. In the interim report (Carter *et al.* 1974, 47 and 49) it was suggested that the increase in their ground-floor area over that of the pre-1507 houses represented an improvement in living standards, but this was on the assumption that all the buildings were two-storied. If, as now seems equally likely, the later cottages were single-storied (for no evidence of stairs survived), then it is the earlier buildings, the storied ones on the principal street frontage, that had the greater floor area.

The form of the house reconstructed over the infilled cellars J and K on the Pottergate frontage in the 1640s is ambiguous. The probability, however, is that this was a three-cell lobby-entrance house with a back-to-back stack heating the parlour and the hall/kitchen; an unheated service room or rooms would have occupied the west end of the building. A considerable amount of brick was used in the building's foundations (MFT. 19), much of it of Drury's types LB1 and 2. It is from this period that the first entirely brick-built vernacular buildings survive in Norfolk (dated examples of 1636/7, 1638 and 1644 in Great Yarmouth: O'Neil 1953, 149) and it is possible that this was one of them. Equally possible is that by 1660 at the latest it was roofed with pantiles, for fragments of these become increasingly common in pits after the mid century (MFT. 19, types RT10 and 11).

The latest houses excavated were those on sub-site 1, where building *f*3 (of *c.*1750) represents a complete departure in planning from the buildings discussed above. The new type, two rooms deep in plan, first appears in Norwich in the late 17th century (e.g. 18 Golden Ball Street) but is not generally adopted until the 1730s or later. This example appears to have had a principal ground-floor reception room entered from a staircase hall. The stairs probably rose along the west gable wall while a passage ran through to the service rooms behind. The building was probably three-storied and it is likely to have had reception and living rooms on the first floor with bedrooms above extending into the attic. Buildings *g*3 and 4, dating from the 1820s, are likely to have been of similar plan but it is only in the rather smaller *g*4, where the stairs perhaps ran across the house between front and back rooms, that the passage arrangement is reflected by the foundations.

IX. The Historical Evidence

The documentary evidence for this site was investigated by the late Helen Sutermeister at an early stage in her research and was not subsequently re-examined. We have, therefore, reprinted verbatim her original report (Carter *et al.* 1974, 50-54), adding to it an appendix by Geoffrey Kelly on the later history of the site. In both reports the lines of former tenement boundaries were inferred, and the blocks thus defined are referred to by the italicized lower-case letters *a-h* (Fig. 50, bottom). These correspond to the area or room codes of the excavation (Figs 2 and 7) as follows:

Tenement	Excavation Area	Street Number in 1886
a	Sub-site 2/3: B, F and G	51 Pottergate
b	Sub-site 2/3: H-M and yards north and south	45-49 Pottergate
c	unexcavated	rear of 41-43a Pottergate
d	unexcavated	41-43a Pottergate
e	unexcavated	39-41 Pottergate
f	Sub-site 1W	37 Pottergate
g	Sub-site 1E	31-35 Pottergate
h	unexcavated	25-29 Pottergate

The endnotes for the two reports appear together on p.76.

The site before 1626

by the late Helen Sutermeister

The site excavated formed the southern part of a large city block bordered by Pottergate on the south, St Gregory's Alley on the east, St Laurence's Lane (formerly Smallgate or Small Lane) on the west, and St Benedict's Street (formerly Upper Westwyk) on the north. The parish boundary runs north-to-south through the block, making two short right-angle turns to follow property boundaries. On the earliest large-scale Ordnance Survey map, that of 1885, the Pottergate frontage, which was excavated in 1973, comprised three separate tenements in St Laurence's parish on the west and ten in St Gregory's to the east; moreover, the whole block was densely built up and intricately sub-divided, including many small properties of irregular shape in the interior.

The present line of St Gregory's Alley, which gives a sloping side to the block on the east, suggests that it has been diverted from its original line by the addition of properties on the Pottergate end, filling in part of the churchyard. The documentation suggests that this took place in the early 14th century. The advowson of the church was the property of the Infirmar of Holy Trinity Priory, donated by Walter, son of Bernard, knight, in an undated document of mid 13th-century hand, now in the Dean and Chapter Records.[1] Our first mention of building in the cemetery is in the abuttal of a deed of 1336-7,[2] the Infirmar's accounts for the earlier part of the 14th century show no income from this site, but by 1345-6 the Priory was receiving 66s 4d from the development of property within the churchyard.[3] This probably included not only the corner of Pottergate and St Gregory's Alley, but also tenements built against the chancel of the church itself (later to become almshouses) and the important property at the north-west entry to the churchyard, which was owned in the 16th century by the Mayor, John Reed.[12] Nine separate tenements were listed in 1440-1.[3]

The evidence suggests that the whole Pottergate to St Benedict's block was fairly well built up as early as the first half of the 14th century. Several deeds refer to small pieces of land without street frontage, evidently carved out of larger tenements as pressure on the land increased. In 1286, for example, Peter le Chaucer sold Thomas de Huningham a patch measuring 36 feet by 48 feet in St Gregory's Parish, probably behind one of the Pottergate tenements. It is difficult, however, to assess how many individual houses may have stood along the Pottergate frontage in the 14th century, because some families clearly held large blocks of property, probably comprising several houses. In the 13th century, for example, the two tenements which lay astride the parish boundary and faced respectively on to Pottergate and Upper Westwyk to south and north, were in different ownership but each passed between 1322 and 1329[4] to Adam Perers of Holt, who then held a complete strip from one street to the other. The same build up and dispersal of groups also took place along the street frontages.[5]

From the evidence of the abuttals, it is possible to build up a succession of at least seven tenements along Pottergate from the corner of St Laurence's Lane up to and including the Priory property on the corner of St Gregory's churchyard. The evidence is incomplete and the total number may have been larger or individual holdings might have comprised several houses rented to different people. It is not possible to pin down any of these properties on the ground with any certainty, except in the case of *c* and *d*, which lay directly on the parish boundary, comprising a tenement in St Laurence's and cottages in St Gregory's.

The holders of these properties in the late 13th and 14th century followed a wide variety of callings, but none of them appears to have been a potter. In the block as a whole, two trades predominated in the first deeds, the sherers, after whom the east end of Upper Westwyk was named 'Shergate' and Charing (or Shering) Cross, and the bakers, who were chiefly concentrated in this and St Stephen's parish. There were at least two bakeries along the Upper Westwyk side of the block, one of them belonging to William de Merkeshale near the centre of the block, another on the north-east corner originally belonging to Robert de Weston, which passed in the mid 14th century to the city's leading property magnate, Thomas Bumpstead.[6] This site was still used for baking in the late 15th century under the ownership of Robert Bulle, clerk.[7]

Of those who owned the Pottergate frontage in the late 13th and 14th centuries, only one is definitely known to have been a baker, John Goluard, who held *c* and *d* in 1320.[8] It is, however, very likely that tenement *f* was owned in the early 14th century by the baker Richard Weston, who died in 1312, leaving several tenements in this parish. Certainly, the property was in the hands of his family for nearly a century, beginning with Robert de Weston in 1297-8. After this it passed through the hands of Alexander, Agnes and, finally, John Weston, who held it in 1378-80.[9]

Other holders of property along this street included a leatherworker, a fuller, a cobbler, a chaplain and one merchant, Henry de Heveringland. None was a man of the first rank of civic importance, none held office as Bailiff, but they were generally prosperous individuals. In almost every case it is possible to trace their names in the enrolled deeds as owners of other tenements in this parish or elsewhere.

The documents do not allow a clear picture of who owned these tenements during the 15th century, except in the case of *c/d*, which went to Robert Fale by 1397 and Jacob Note and John Man by 1480. The abuttals, however, suggest that *a* and/or *b* and also *g* were in the possession of John Manning in 1397. He owned four tenements in this parish in the Landgable list of that year and can probably be identified with the hosier and Mayor of 1409, 1415 and 1422. If so, the area was evidently attracting the attentions of the wealthiest citizens in Norwich. We cannot, unfortunately, suggest who owned these properties at the time of their destruction by fire.

The evidence of the Infirmar's accounts at the Priory suggests that the fire which caused this destruction took place in the first decade of the 16th century. In 1497-8 the Priory received 30s rent from its tenements in the parish of St Gregory, but in 1511-12 only 17s 8d, perhaps from properties which survived the fire or were very speedily rebuilt.

(Blomefield[10] has some further information on this point, although the documents on which he bases his account, with the exception of the Almoner's accounts, can no longer be traced. He quotes first the Almoner's account to the Prior of Norwich for 1505: 'Received this

year from the rents belonging of the almoner's office which were formerly 10 l. a year, and after that 5 l. a year, only 33s because many tenements are burnt', and goes on to say 'after the great fires, they were reduced to 19s. 4d. a year'. He then describes the 'great fires': '. . . on the 25th day of April 1507 a fire broke out, which burnt with continual violence four days . . . on the 4th of June following . . . another lamentable fire, which burnt two days and a night, as an old roll in the Herald's Office informs us . . . "Norwich was byrned with fire at twey times, to the noumbir of xviii score howsholdys and mo. and most parte of their goodys." But I find by the evidences that the city was almost utterly defaced, that there were 718 houses burnt in the parishes of . . .'. A list of sixteen parishes follows; four are on Colegate and Magdalen Street, the others on the area extending west from Tombland to St Giles and St Margaret's, Westwick, but including St Peter Mancroft and St Martin in the Bail. These are clearly the areas of the two separate fires of 1507, one including the Pottergate site.

Holinshed,[11] although saying that the fire was in 1508, locates the fire of June 4th as having started in the parish of St George Colegate. It is thus highly likely that the Pottergate fire, which occurred in an area from which the Almoner was not drawing rents, can be dated to 25th April 1507. AC) [*See editorial note, p.76, on re-dating of fire to 25th March 1507 — Ed.*]

Three surviving Landgable lists, for 1549, 1570 and 1626, make it possible to trace the ownership of the Pottergate frontage through the 16th and early 17th centuries.[12] At the date of the first list it is clear that much of the area was void ground and the total number of properties along the street front, including the Priory's tenement on the east, had been reduced to five. On the west, at the corner of Pottergate and St Laurence's Lane, was a large property belonging to John Hill in 1549 and formerly to Richard Freeman. It probably included both *a* and *b*, comprising excavation areas *C* to *L*, with houses facing on to both streets. Richard Freeman was probably the owner responsible for the building of these cottages after the fire, for he owned the area before 1528. In his will of that year he mentioned a wife and daughters, but his only son, John, was apparently a monk at Walsingham, and all his property in the city was sold, including this tenement, reserving only one other tenement in the parish, for the use of his daughters.[13] It was probably bought in 1528 by the Hill family,[14] of whom Robert was a calunderer. By 1570 the property had passed to a widow, Margaret Myles, who was evidently a lady of considerable property, for she paid on £8 worth of goods in the tax of 1576 and was thus the fourth largest tax payer in the parish.[15] She, or perhaps a daughter, still held the tenement in 1626. Clearly, neither Freeman nor Margaret Myles was living on this property; presumably the houses were built and maintained as a source of income for these already prosperous citizens.

The next two tenements to the east made one payment together in the Landgable accounts, although they were clearly separate and one lay in St Laurence and the other in St Gregory's Parish, so it seems fairly certain that they can be equated with properties *c* and *d*. They were described as 'tenements and voide ground late old Dunstons and part Spendloff and Thomas Corye', which suggests that this property might have been expanded to include *e*, that is, the whole of the disturbed area along Pottergate and perhaps also *f*. The Corye family certainly owned *f* and may also have held *e* at one point.

In 1547, however, the northerly tenement, *c*, formerly Dunston the Mason's, was held by Richard Lee, who had enrolled as a mercer in 1524-25[16] and was a man of some property. ('Old Dunston' is probably the man who appears in the Chamberlain's account for 1534-35, 'Dunstan and his man for iii dayes work makying and ransakyn the synke in the women's prison'.) Lee also held a stretch of St Laurence's Lane, where the houses were described as 'new built' in 1538,[17] so may also have been a landlord of rental property. In 1570 the owner of *c* was John Goodwyn, a city alderman and a man worth £6 13s 3d on goods in the tax of 1576 (top tax payer in St Laurence on goods).[15] By 1626 the tenement had been amalgamated with *d* and the joint tenement was held by Thomas Pye.

Edmund Warden, who held *d* from 1547 to at least 1570, was a colleague of his neighbour, Goodwyn, on the city corporation and also a wealthy man, paying £5 on lands in 1576.[15] In his will,[18] proved in 1582, his son Thomas inherited most of his property, except one tenement for his daughter, which probably lay immediately to the north of *d*, facing on to Upper Westwyk. Almost certainly, he lived in the parish, for he asked to be buried in St Gregory's church. Thomas Pye was probably the most notable of all the property holders along this frontage. He was a grocer, enrolled in 1567-8, who married the daughter of the Mayor, Christopher Soam, and came to be Mayor himself in 1597. With his second wife, of 1612, he founded a set of almshouses designed to serve the parishes of St Peter Mancroft, St Giles, and Mary Coslany. Blomefield described their position as in 'the South west corner of that Churchyard, on the other side of the street there',[19] but they were probably the same almshouses that appear on the Landgable lists at the east end of St Gregory's chancel.

Continuing eastward along Pottergate, the next property was described in 1547 as 'Tenement or gardens late Thomas Davy and Thomas Corye vocatum Bakhousyerd' and is almost certainly to be equated with the Weston family property. Davy was enrolled as a baker in 1522-3 and Cory, also a baker, in 1517-18,[20] and it seems likely that they held land side by side,[21] Cory on the west, since his name was mentioned in relation to *e*, and Davy on the east, perhaps in *g*, bordering on the Priory's property, *h*.

Although the trade of baker was hardly amongst the high status crafts, the Cory family appears to have been prosperous. Nicholas, probably father or grandfather of Thomas, held at least two tenements in this parish in 1480,[7] probably including *f*. Thomas himself was buying property elsewhere in the city in the 1520s.[22] He died before 1537, for his widow, Margaret, was buried beside him in St Gregory's church that year and left 10 marks for the repair of the roof.[23] Edmound Cory, who appeared as the second highest taxpayer in the parish in 1576,[15] was probably Thomas's son, but apparently sold off tenement *f* before 1549, for Edmund Warreyn appears as its owner in the Landgable list and was thus in possession of a stretch of street frontage including tenement *f* and, probably, tenement *g*, although there is strong archaeological evidence for a physical division between *f* and *g*.[24]

Nothing in the documents suggests that there were necessarily any buildings on properties *c* to *g* in the century after the fire; indeed, they are continually referred to as void ground, yet their owners were evidently prosperous men. Presumably they were not reconstructed because the demand for housing had declined in the area, or perhaps their owners, who usually lived close by, preferred to keep the ground open. The main Cory dwelling house, for example, was in the north-west corner of the same block, so that tenement *f* could easily have been employed as a kitchen garden.

The site after 1626

by Geoffrey Kelly

Tenement a. In 1626 tenements *a* and *b* in St Laurence's parish had been held by Margaret Myles (see above). Later in the 17th century they again became separately owned and an abuttal of 1692 indicated a tenement analogous to *a* as 'now or late of widow Scot'.[25] This may well have corresponded to the tenement of Nicholas Scot which had but one hearth in 1671.[26] A similar abuttal of 1710 gave Thomas Lawson as the owner of *a*.[27] Lawson probably lived in this vicinity somewhat earlier, for he and his wife Judeth (*sic*) had their son Isaac baptized at St Gregory's church in 1698; it is, however, from 1710 that the ownership of *a* has been determined through to 1830. Lawson's property was given as having eight lights from 1715 to 1718, then four lights from 1719 to 1733. The land tax levied on this remained the same throughout the overall period, so it is likely that the decrease in window tax was due to part of the premises being let rather than through the blocking-up of casements.[28]

Thomas Lawson last appeared in the land tax assessments in 1743, and it is known from a deed of 1748 that his property in St Laurence's parish was left about the earlier date to his son, Isaac.[29] The elder Lawson had been a worsted weaver, the younger a hotpresser. The latter, together with his wife Mary Anne, was to release *a* for the sum of £60 to Joseph Burton, beer brewer of Norwich, in 1748. Burton had actually shared an interest with the successive Lawsons in this property since 1739, according to the land tax assessments.

The property as formally acquired by Burton in 1748 was described as follows: '. . . all those three messuages or tenements lying together with the edifices gardens and appurtenances and one ladeing and one entry and also one garden on the north part of the said tenements (as the said garden is now divided into two parts) with the well jakes and one parcel of land adjoining at the north part of the lands . . . now of Peter Head the younger . . .'. It is clear from this description that the gardens as acquired extended to the north of *b*; less clear but inferred from this deed, and bearing in mind those to be considered later, was that the well and 'jakes' were shared with Head.

According to the 1748 deed just cited, the three messuages making up *a* were in the several uses or occupations of Bartholomew Reason, Susan Thornton a widow, and Peter Head the younger. As the previous batch of users or occupants were listed in the same document as Thomas Lawson, Robert Brid, and Mary Dormer a widow, one might have supposed that when Isaac Lawson took up his father's property about 1743 he did not at the same time choose to reside there. In-

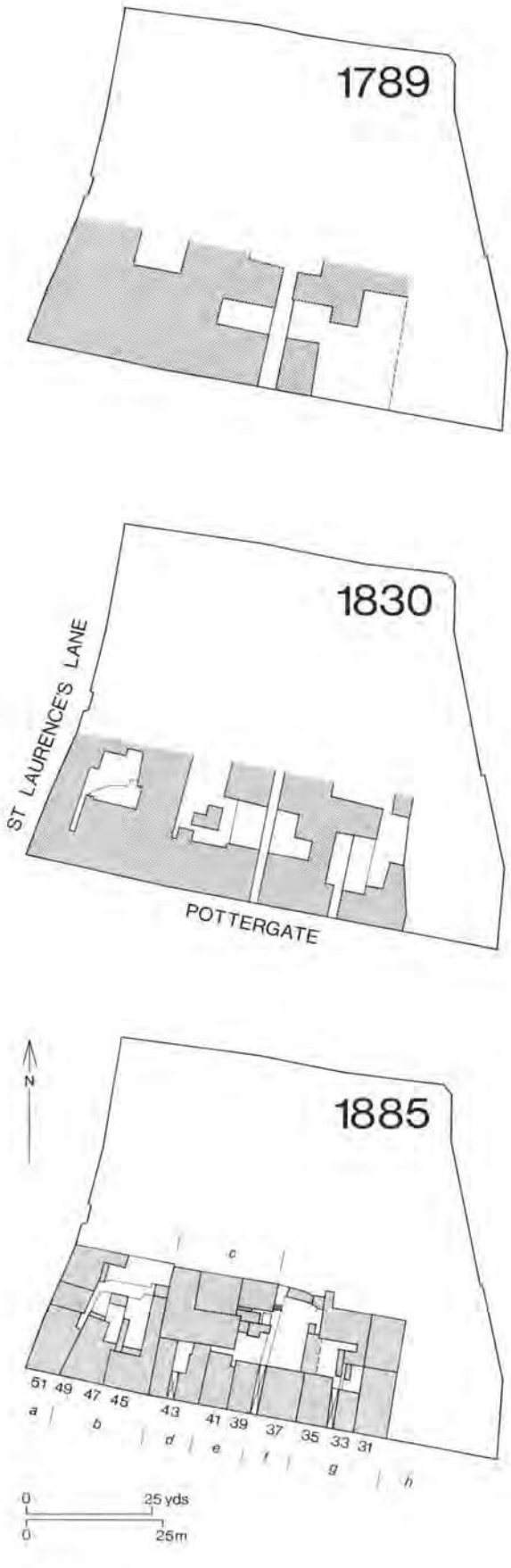

Fig.50 Site 149N. Early maps of the Pottergate frontage. Scale 1:1250

stead, the deceased man's residence would appear to have been let to Peter Head, one already connected with neighbouring *b*. However, this matter remains unclear as the land tax continued to list Isaac Lawson as both owner and occupier of part of the property under discussion, while that part ascribed to Joseph Burton from 1739 was stated as being occupied by Robert Sergeant from 1740.[28]

Joseph Burton owned *a* until 1771 (possibly 1772). As a beer brewer, it is likely that he used the property as an alehouse prior to its first having been recorded as such in 1760, the succession of occupiers given in the land and window tax assessments[28] having been the actual publicans. These latter persons were: Robert Sergeant to 1750, Amy Sergeant to 1757, John Spinsby to 1765 (Spinsby, a hotpresser, was granted an alehouse licence for this house known by the sign of the 'Chequer' in both 1760 and 1763[30]) followed by one Sturgis to 1770, then John Starling from 1771.

The land tax assessment for 1772 has been lost, but in 1773 a Mrs Newstade was given as the owner of *a*. John Starling remained as the occupier.

In 1774, Charles Weston became the owner of *a*. Weston owned a brewery near St George's Bridge in Norwich, a concern which remained in the hands of his descendants until its purchase by Youngs, Crawshay and Youngs in 1864.[31] Upon the elder Weston's death in 1798, *a* passed to his son and namesake with whom it remained until after 1830. John Starling continued to be the occupier until either 1786 or 1787 and, while the land tax assessment for the latter year has been lost, was in turn followed by one Tallock or Tallack until 1799. The next occupant was William Coats, who was granted a licence for the sign of the 'Chequers' (*sic*) in 1806.[30] The address of the 'Chequers' was given as St Laurence's Lane in 1810,[32] perhaps indicating that the part of *a* used as an alehouse then did not front Pottergate; while the source just cited also described Coats as a cabinet maker. He remained at the 'Chequers' until 1818.[28]

William Coats' successors as occupiers of *a* were: William Bailey in 1819, John Singleton junior in 1820, Thomas Palmer in 1821, 'Palmer and another' from 1822 to 1823, and Samuel Stevens from 1824 to 1831.[28] By 1830 the part of the premises used as an alehouse may well have been extended, for in that year its address was given as both Pottergate and St Laurence's Lane.[33] For the record, the 'Chequers' had been renamed the 'Builders Arms' by 1842.[34]

Tenement b. In 1626, *b* and *a*, as noted above, were in the common ownership of Margaret Myles, but by 1686 they were owned separately. A deed of 1692[25] referred back to an indenture of 1686 made between Richard Pye of Heigham next Norwich, tanner, and David Pye of Rickinghall, Suffolk, woolcomber, in the first part, and Peter Head the younger of Norwich, worsted weaver, and Bridget his wife in the second part. The 1686 document referred to was a grant of *b* between these two parties; the 1692 deed itself was a release for sixpence involving broadly the same parties, Richard Pye not being named therein while David Pye's wife, Olive, was.

In 1710 the western end of *b* was involved in a settlement for uses in respect of the intended marriage of Nicholas Head, barber, the son of Peter and Bridget, and Frances Peck, daughter of a widow of that name.[27] The ground, well and 'house of office' to the rear of *b* were to remain in the common usage of all the occupants of that property; such occupants were to continue to share the costs of maintaining the appurtenances just mentioned (including the 'charge of carrying muck away').

No further evidence of Nicholas Head or his intended wife was forthcoming from the documents consulted. Peter Head the younger was described as 'the elder' in the land and window tax assessments from 1715 to 1721; certainly both he and his wife had died by 1732.[35] By the latter date the only son and heir of the late Peter and Bridget Head was another Peter, also a worsted weaver and whose wife's name was Elizabeth. For the period from 1714 to 1727 *b* was assessed for ten lights.[28]

In 1732, Peter and Elizabeth Head released *b* to John Rushbrook of Norwich, carpenter.[35] (Rushbrook's name variously appeared as Risbrow, Risebrow and Rishborough in the land and window tax assessments.[28]) In the release just cited, *b* was described as being in the 'use possession or occupation of Peter Head and John Scarlett their assigns or undertenants'. A furthur obfuscation was that Peter Head remained an apparent coowner of the property with Rushbrook up to 1738;[28] moreover Head was still described as having *b* in 1748, according to an abuttal.[29] Further attempts to unravel the situation were not considered worthwhile.

Tenement c. No serious attempt was made to ascertain the ownership of this property subsequent to that of Thomas Pye in 1626 (for which see Helen Sutermeister's text above). If *c* was still distinct from *d* in 1762, an abuttal to the north of the latter tenement then may be relevant: that is the reference to 'ground sometime of Thomas Doughty gent called or known by the name of the Mount'.[36]

Tenement d. An abuttal of 1692 gave Millicent Beaumont, widow, as 'now or late' of tenement *d*.[25] Others with this surname, Elizabeth and Thomas, with one and three hearths respectively in 1671, could, one and/or the other, have been associated with this property,[26] the westernmost in St Gregory's parish.

An abuttal of 1732 gave *d* as the tenement of Ann Weavers, widow.[35] She seems likely to have been a relation of James Weaver who disposed of this property in 1762, although his parents' names were given as John, deceased, and Alice, widow of Bradfield. The deed just cited was complex and had four parties to it. In essence it was a bargain and sale from James Weaver, described as 'late of Trunch but now of Bradfield bricklayer', to William Dewing of Norwich, gent.; however, the intent was that James Weaver's sister, Elizabeth, the wife of Bozoon Brigge the younger of Bradfield, gent., should finish up with the property, and to this end the Brigges paid Weaver £117. In 1762 the previous occupiers of the two messuages with appurtenances making up this property were given as Joseph Day and Samuel Brigge; the 'now or late' users or occupiers William Bolding and one Rivett, 'their or some of their assigns or undertenants'.

Tenement e. All that is known of this property throughout the period under discussion comes from an abuttal of 1762.[36] This described the property east of *d* as 'ground (whereon a new messuage hath been lately built) some time of John Cooke formerly of Alderman John

Loveland since of Henry Negus esq or his tenants and now of . . . Bozoon Brigge and Elizabeth his wife.'

Tenement f. The occupation of tenement *f* and perhaps adjacent property by the Cory(e) family in the 15th and 16th centuries has been discussed by Helen Sutermeister (above). Corys owned property in St Gregory's parish up to the mid 18th century,[37] by which time it was no longer possible to ascribe to them any particular site or sites. That it was no longer *f* was apparent, however, from an investigation of the land and window tax assessments. These proved to be the only real guides to the ownership and occupation of *f*; the only ostensibly relevant deed contained no substantive information.[38]

The relevant land and window tax assessments could, however, only be followed back with facility to 1751. Even so, difficulties arose through the apparent coalescing or splitting of units with some relation to this property. Tenement *f* alone, that is the house which survived into the 20th century, could not have had the twenty-four lights its occupier was assessed for from 1752 to 1762, nor the twenty-one assessed for in 1765 and 1766.[37] All that can be said for certain was that the related property lay in St Gregory's parish; only a few need have been adjacent to *f*, for *e* is known to have been in other hands in 1762 (as already described) and *g* was mostly void ground until after 1789 (Hochstetter's map: Fig. 50, upper). The 1789 map does show buildings within the garden ground of *f* (as indicated by the Ordnance Survey of 1885: Fig. 50, bottom) and as these buildings still existed in 1830 (Millard and Manning's map: Fig. 50, middle) a possible partial solution to the problem outlined is thus suggested. This still does not offer a satisfactory explanation as to why the rateable value of the property concerned was £20 from 1751 to 1821, yet only £6 10s from 1822 to 1832.[37]

In 1751, Peter Harvey, gent., was the owner and John Clark the occupier of the property under consideration. From 1752 to 1764, Thomas Harvey, esq., was the owner while John Clark remained the occupier until 1762, being followed by a Mr Gostling. From 1765 to 1775, Jeremiah Ives owned the entire property, there being a succession of occupiers to 1771 as follows: Nicholas Ganning to 1766, widow Ganning in 1767, Daniel Smith in 1768, then a Mr Harrington.[37]

The 1772 land tax assessment had been lost, but the sequence of these documents from 1773 to 1775 gave no occupier for Ives' property. From 1776 to 1778 and from 1800 to 1832 this was split in a variety of ways. The list that follows gives the owner-occupiers of *f* alone.

1776: William Ellinet. Rateable value: £6.
1777-1797: Christopher Ellinet(t). Rateable value: £12 to 1778, then £20.
1798-1799: Robert Ellinett. Rateable value: £20.
1800-1829: Mary Ellinett, spinster. Rateable value £10 to 1821, then £6 10s.

In 1830 the owner was given as 'late Miss Ellinett', the occupier one Quinton.[37] The latter was certainly John Quinton, a bookbinder whose family were subsequently to own *f* until at least 1910.[39]

Tenement g. As has been observed above, this property was mostly void ground until after 1789. The exceptions in 1789 comprised a building upon the eastern half of what became 31 Pottergate, and presumably commercial or industrial premises to the rear of the whole block. By 1830 (Millard and Manning's map: Fig. 50, middle) the street frontage of *g* had taken the shape that it was to retain until well into the 20th century. No further information was discovered in respect of this particular tenement.

Editorial note

Recent work (pers. comm.) by Paul Cattermole on Norwich Cathedral Priory's obedientary rolls, backed up by Andrew King's work on the accounts of the City and the Great Hospital, allows some correction to the above account to be made. The Almoner's account for 1505 does indeed record the decrease of rents but not 'because many tenements are burnt.' Income from rents of assize had been declining for years in all the account rolls studied but it is not until 1507 that they take a sudden dive (the value of rents recorded in 1507-8 seems generally to be about half that of 1505-6). In 1483-6 some of the Great Hospital's property in, among other parishes, St Laurence's and St Gregory's, had been burnt but only a very small number of houses were damaged. The effects of the widespread destruction of 1507 are recorded graphically in all the account rolls, but only the Almoner dates the event closely: *immediate post terminum Anunciatone beate Marie dictum tenementum fuit combustum.* The date of the fire is, then, the 25th of March (the festival of the Annunciation) rather than of April.

Endnotes

1. Norwich Dean and Chapter Records (hereafter NDCR). St Gregory's Deeds, No. 970
2. Norfolk Record Office (hereafter NRO). Norwich City Court Roll 13, m.13d, Stalun to Brunn
3. NDCR Infirmer's Accounts, 1345 and 1440
4. NRO Court Rolls 9, m.21d; and 12, m.1d
5. NRO Court Roll 12, m.15
6. NRO Court Roll 2, mm.10d and 12. Landgable List 1397 (Domesday Book, fol. xlix. Case 17b)
7. NRO Landgable List 1490 (Chamberlains' Book, 1470-90, p. 142. Case 18c)
8. NRO Court Roll 9, m.9
9. NRO Court Rolls 6, m.5d; 9, mm.4d and 8d; 12, m.2; Kirkpatrick's notes on St Gregory's, Case 21f
10. Blomefield 1806, III, 182
11. Holinshed 1807-08, III, 539
12. NRO Landgable Lists, Case 18c
13. NRO Norwich Consistory Court (hereafter NCC) Wills, Albaster 209
14. NRO Court Roll 21, m.92d
15. NRO Assessment of 1576, Case 7i
16. Rye (ed.) 1888, 86
17. NRO Court Roll 21, m.92
18. NRO NCC Wills, Cawston 390 and Moyse 557
19. Blomefield 1806, IV, 222
20. Rye (ed.) 1888, 37 and 41
21. NRO Court Roll 20, m.87
22. NRO First Docket Book, 67 and 72
23. NRO NCC Wills, Godsalve 242
24. NRO NCC Wills, Moyse 282
25. NRO Court Roll 47, 1.38
26. NRO Norwich City Hearth Tax, Case 13a
27. NRO Court Roll 61, o.3-4
28. NRO Norwich City Land and Window Tax Assessments, Cases 23a.1 and 23d.3
29. NRO Court Roll 98, e.9
30. NRO Norwich City Alehouse Recognizances, Case 14e. II
31. Cozens-Hardy and Kent 1938, 133, 142
32. Berry 1810, 84
33. Pigot & Co. 1830, 581
34. Blyth 1842, 181
35. NRO Court Roll 82, c.6
36. NRO Court Roll 112, g.11-12
37. NRO Land and Window Tax Assessments, 23b.3 and 23e.1
38. NRO Court Roll 161, a.30
39. NRO Board of Inland Revenue Registers of Duties on Land Values, P/DLV/1. 33

X. The Site in its Context

by Alan Carter, D.H. Evans and Sue Margeson

Geographically (Fig. 51) the site lay close to the medieval city centre but in both socio-economic and cultural terms it was probably as peripheral as that on Alms Lane (below, p.257). It lay in an 11th and 12th-century 'no-man's land': west of the industrial area which gave the street its name; south of a string of probably 11th-century churches on St Benedict's Street; and north of the Anglo-Norman settlement between St Giles church and the new provision market. The only activity before the mid to late 13th century seems to have been the quarrying of sand, chalk and gravel: the products going perhaps for road repairs or for use in the building industry. By 1300, and to be associated with a rapidly rising population, there is unequivocal documentary evidence among the city's enrolled deeds that all this had changed, for houses and cottages are recorded along the full length of Pottergate. That it was, however, still a backwater is demonstrated dramatically by the blocking of its western end by the newly constructed city wall; while a measure of the low intensity of settlement is provided by the numbers of cottages, as opposed to houses, recorded in the deeds. As elsewhere in the city, though, these cottages were scattered among more imposing buildings, which were owned in the 13th and 14th centuries (Section IX) by generally prosperous individuals.

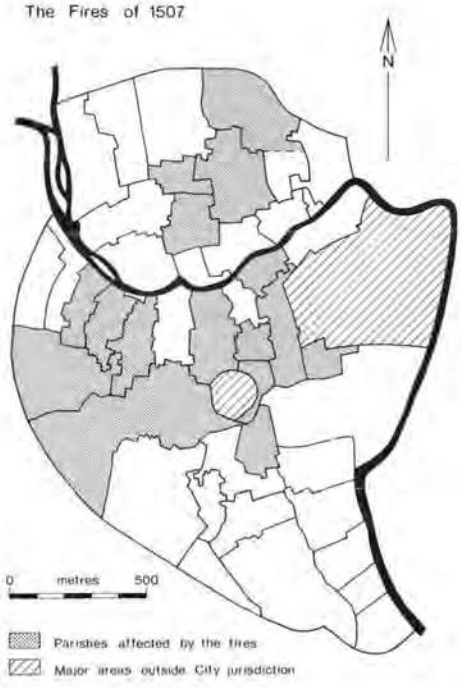

Fig.52 Norwich parishes affected by the 1507 fires of March (south of the river) and June (north of the river)

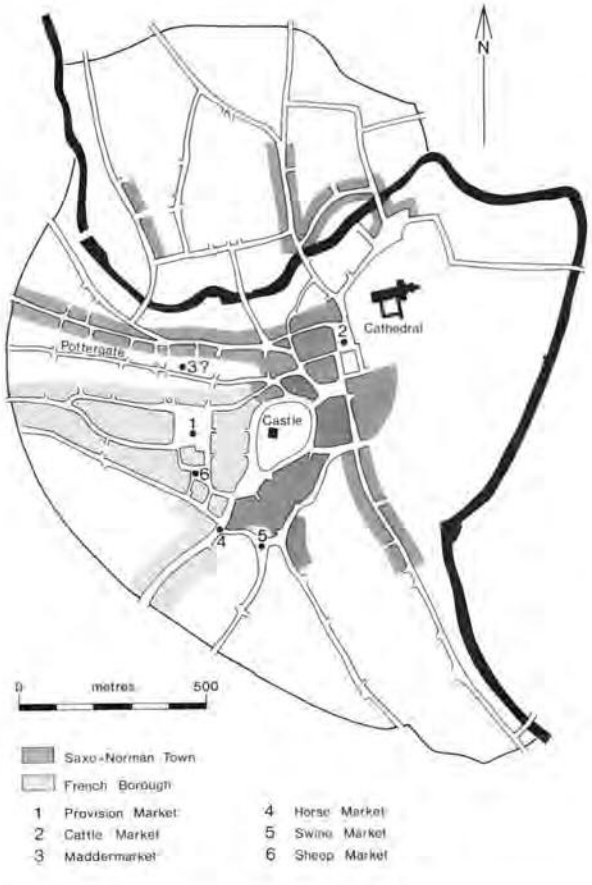

Fig.51 Norwich: the Norman town and the medieval markets

By the late 15th century, when the cellared buildings were constructed, there is no question of owner-occupation: the wealthy owners of the site were living elsewhere and we are left to infer the range of crafts practised in the ground-floor workshops of the houses from the objects found in their cellars (below). It is from this material, too, that we can guess at the wealth and social standing of the occupants. Their buildings (as discussed above) were substantial, sufficiently so to have destroyed most of the evidence of earlier structures, and, to judge from the painted window-glass and the Italian terracotta (Section VI), sophisticated. The rents must have been fairly substantial, yet one imagines that the tenants, not least the one who lost a religious medallion (Fig. 38, No. 4), were among those who contributed most generously to the lavish late 15th-century rebuilding of the parish church (Blomefield 1806, IV, 269-70, for the will references; but most of the money would have come from unrecorded gifts during life).

By 1507 the roof of St Laurence's was entirely leaded, and it was this that probably saved it in the fire that ravaged Pottergate. Since 1413, when the newly finished Dominican Priory had burnt down (Blomefield 1806, III, 126) there had been an uneasy awareness of the dangers of another large-scale occurrence, but throughout the 15th century the fire-fighting ordinance of 1423 (Hudson and Tingey 1906, 279) had been effective. Neither a well-kept curfew nor the provision of ladders and 'feerhoks' (for pulling down burning houses) were proof, however, against the tinder-dryness of 1507 (Section IX). Two separate fires, one north and one south of the river (Fig. 52) swept through 16 parishes, destroying 718 buildings. This represented perhaps 40%

of the houses in the city, and must have made an appalling impact on its citizens. One can only guess at what the city's immediate reaction to the loss of perhaps 40% of its houses was, for the records for 1507/8 are silent, but an indication is provided by the will of Alderman Robert Gardiner. In this (NRO NCC Wills Spyltymber f94r) he is concerned to protect his investment and he instructs his executors to see that his new houses 'be cov[er]ed wt tile and wt no Rede'. In 1509 the Assembly followed suit, ordering that all new buildings should be covered with *'thaktyle*, and by no means with reed straw called *thakke'* (Hudson and Tingey 1910, 107, CXCIV). In 1532 'upon divers and many consideracions' the act was repealed and 'every person atte ther libertie maye cover ther houses wt slatte, tyle or reeyd' (ibid, 120, CCIX). It was for other 'diverse' reasons, unstated but related perhaps as much to restored prosperity as to an increase in building activity, that the act was rephrased in 1570 (ibid, 137-40).

This piece of legislation (which added lead to the list of roofing materials) also contained fresh requirements for more fire-fighting equipment. This was to be stored in the parish churches and in the houses of the aldermen and was to be inspected periodically by the constables. A second order on the same day (ibid, 143, CCXL) enjoined the Scavenger to 'se that every manes chymney be dewlye swepte and the backes of the same to be made suer agenst daunger of fyer'. The implicit assumption that every man had a chimney at this early date seems justified if one considers the evidence of the 1541 Sanctuary map (Public Record Office MP1 221; reproduced in Bensley 1889). This was intended to show the disposition of Norwich's churches but was fleshed-out with a series of thumb-nail sketches of houses. Some seventy or more of these are still legible and in almost every case there is indeed a chimney.

The 1570 Act described how through fire damage 'many goodly buyldinges and houses ar becom gardens and orteyards' while in 1559 (Hudson and Tingey 1910, 133, CCXXXII) it had been claimed that through 'great gredynes and obstynacy [of] dyverse men. . .many commely and fayer houses. . .fall in rewin and decaye'. Attempts to alleviate this situation had been taken in 1534, when the city obtained an Act for Re-edification (Stat. 26 H. VIII, c.8), but if the archaeological evidence from Pottergate, of the rebuilding of the Phase 1Wc boundary wall 76/77 (Fig. 3), is extrapolated then it would seem that owners had taken the easy way out. The Act had required owners to rebuild their houses or at the least to enclose the 'brent groundes' with stone walls on pain of forfeiture to the city. By 1538, however (Hudson and Tingey 1910, 122, CCXIV), only five tenements had been siezed. Dr Dyer has argued (Dyer 1979, 62-3) that this pattern suggests rapid rebuilding by owners but it is clear that this is not necessarily the case: the mid 16th-century Landgable records, for instance (NRO Norwich City Records, case 18, shelf d), record many void grounds on Pottergate and elsewhere.

What is difficult to explain is why these grounds remained void thereafter for such a long time and why there was no rebuilding in such periods of rapid population expansion as 1580-1620 and 1670-1730 (Campbell 1975, 17-18, and footnote 47).

Whatever the reason, and 'obstynacy' may have over-ridden any economic cause, building progress was slow. The St Laurence's Lane frontage was briefly built-up in the 16th century; on sub-site 2/3 a new house was erected in the 1650s; but on sub-site 1 building *f*3 was probably near-contemporary with its neighbour, 'lately built' in 1762. To what extent can one generalise from this evidence? Not at all, it would seem, for within a few hundred yards of the site in any direction there is plentiful evidence of building activity throughout the 16th, 17th and 18th centuries. In this, as in so many other ways, the site speaks only for itself but in doing so it provides a timely reminder of how averages conceal extremes and of how apparent homogeneity often subsumes considerable diversity. (The parish is, for instance, of 'average wealth' in both the Lay Subsidy of 1523/4 and in the Hearth Taxes of the 1670s: Pound 1975, 29 and 49-50.)

In one respect, however, the site provides a paradigm and that is in the field of the accumulation and disposal of rubbish. As with Alms Lane (this volume, below) the pattern before and after *c.*1670 is quite different. Before this date night-soil and other rubbish (including that cleaned from the streets) was allowed to accumulate: in cesspits, in worked-out quarries or other pits, or simply on the surface of the ground. Periodic attempts were made to persuade 'every person dwelling withine the citie' to 'gather all such ffilth and vile mater. . .and leye it upon rounde hepys redye to the carte wekely' (Hudson and Tingey 1910, 110, CXCIX) but these failed, for 'voide grounde' particularly was 'soore accombred and replenyssed. . .with muk' (ibid, 122, CCXIV). From the late 16th century onwards the streets appear to have been becoming cleaner; and from *c.*1670 onwards the archaeological evidence suggests that most domestic refuse was removed with the night-soil. By 1710 this had become a legal necessity and the deed of that date quoted above (Section IX) makes provision for the 'charge of carrying muck away'. The citizens' gain was the archaeologists' loss, for apart from odd domestic refuse tossed into the gardens on sub-site 1 the late ceramic assemblages are extremely fragmentary.

The 1507 deposits

By the end of the 15th century, fire had become an ever-present danger in the town; indeed isolated outbreaks are recorded on some properties on Pottergate in 1495 (pers. comm. Andrew King). As the identification of these cellar deposits with the 1507 fire is the keystone of this report, it is worth stating our reasons at this point. (a) The fire deposits revealed by excavation show that at least a 57m stretch of frontage was destroyed, and comparison of the finds in the various cellars suggests that these are contemporary. The probability is that this represents a single conflagration rather than two isolated outbreaks. (b) Some of the pottery forms, and particularly the imports, present in these deposits are unparalleled in contexts before 1500. Similarly, a decorative terracotta plaque from one of the cellars, if lost in 1507, is amongst the earliest datable terracotta sculptures in the country; if from an earlier context, it would indeed be singular. (c) One of the most unusual aspects of these deposits is that they were hardly disturbed for the next century and a half. Had this been an isolated outbreak, one would have expected some attempt to sift through the wreckage to see what was worth recovering; such behaviour seems more understandable in the light of a

Fig.53 Site 149N, sub-site 1. Pottery assemblage from cellar 64

major conflagration which destroyed much of the southern part of Norwich (see above, and Fig. 52). (d) The documentary evidence shows that Pottergate lay within the area affected by the 1507 fire, and that several of the properties on this particular stretch of the road are referred to as void ground in the century following this event.

The circumstances of the fire combined with the subsequent abandonment of the site and the relatively minor amount of disturbance of these deposits, offer a rare opportunity to examine the contents of several early 16th-century Norwich houses; however, it should be stressed that the samples, though large, are by no means complete, in that they represent the material from the rear of the buildings only, and that certain materials are poorly represented because they have tended not to survive the fire (e.g. textiles, wooden and leather objects, and latten and pewter vessels). Nevertheless, they offer useful insights on the status of these households, and the occupations and eating and drinking habits of their occupants.

The Pottery (Figs 53-58)

Of all the various types of material present in these deposits, pottery has probably survived the best, although both the fabrics and glazes have sometimes been seriously affected. The degree of completeness of the vessels varies enormously, as some vessels were clearly *in situ* in the cellars (e.g. cistern No. 20, which has exploded with the heat), whilst others fell into them as the floors collapsed, and have been scattered over a wide area; there were clearly high-spots within the blaze, as adjoining sherds have occasionally been totally reduced, or oxidized (in places, the fire must have exceeded 1200°C, as several of the stoneware vessels have been vitrified). With the exception of cellar 65 (Fig. 56), which may well have gone out of use before the fire, these assemblages should represent the ceramic range in

Fig.55 Site 149N, sub-site 1. Pottery assemblage from building *f*2

Fig.54 Site 149N, sub-site 1. Pottery assemblage from cellar 65

use in the rear of these buildings; the associated structural evidence and artefacts suggest that in at least two of the houses, these areas included the kitchens. Reconstructions of all of the vessels present, however fragmentary, are offered in Figures 53-8; vessels which were unillustrated in the catalogue appear here unnumbered.

These assemblages comprise a range of storage vessels (in various sizes), numerous 'drinking vessels', a few flatwares (mainly bowls and dishes), and the occa-

Fig.56 Site 149N, sub-site 2/3. Pottery assemblage from cellar H

sional jug. Cooking-vessels are sparsely represented; two Low Countries 'grapen' (Nos 74 and 90) are the only pipkin or cauldron forms present — the local Late Medieval and Transitional ware variants (cf. Cat. figs 25-6) are conspicuously absent. The introduction from the Low Countries of the frying-pan into this part of England during the previous century (?perhaps even by the Flemish settlers in Norwich from the late 14th century; there is a mid 15th-century example in a Phase 1Ea pit) must have caused a significant revolution in local eating habits by broadening the repertoire of possible dishes; the evidence of the cellar deposits shows that this new vessel form had become sufficiently popular to be copied in the local Late Medieval and Transitional fabric, though the relatively small numbers present suggest that, as with the pipkins and cauldrons, most of the cooking was done in metal vessels — a reflection of the wealth and status of the households.

The full range of storage vessels was made by the local pottery kilns — as also were most of the flatwares and larger jugs; the bulk of these was in the local LMT fabric, but a few of the larger jugs and cisterns were in late medieval Grimston-type fabrics from north Norfolk. Almost all these assemblages produced one or more cisterns, and the associated evidence for home brewing is discussed below.

The major vessel form which the local potteries did not provide was the 'drinking vessel', or small jug. The bulk of these was found in Raeren stonewares, and forms one of the major elements in all of these groups. These vessels were imported in such massive quantities by the end of the 15th century (Le Patourel 1983, table 3.2), that they appear to have supplanted most of the local fine wares, and to have permeated most levels of society. Their considerable variation in size, from about a gill to larger jugs of perhaps four pints, suggests that they fulfilled a variety of functions besides being used as drinking vessels at table (as so frequently illustrated in Dutch and Flemish paintings in the 16th century) — e.g. small cooking measures and fine-ware serving vessels. The one English fine-ware tradition which seems to have been able to compete with these locally, appears to have

Fig.57 Site 149N, sub-site 2/3. Pottery assemblage from cellar J

been the Cistercian-type tradition; a few cups in this ware are present in two of the buildings, and have clearly been imported from some distance, probably from the East Midlands — perhaps from north Cambridgeshire, where numerous vessels occur in early 16th-century groups at Denny Abbey (Christie and Coad 1980, 230-6). Curiously absent from the cellar groups are any Tudor Green or early Surrey white ware products; they were clearly reaching Norwich in the later 15th century (e.g. Fig. 30, No. 209), and also occur, albeit never in large numbers, in later 16th-century groups in the City (cf. site 170N, below), but it is possible that their absence here is purely fortuitous.

Certain forms are noticeably absent from these assemblages, e.g. large flatwares (such as plates, trenchers, dripping-trays, etc.), and complex hollow-wares (such as chafing-dishes); the former are easily explained, in that they were not being made in pottery at this time, and would almost certainly have been found in treen (wood), or a lead-based alloy, such as latten or pewter — with the exception of dripping-trays, which would have to have been made of a heat-resistant material (probably iron or copper alloy) because of their proximity to the hearth. Chafing-dishes, although known in pottery at this date in some parts of the country, are not known in the local Late Medieval and Transitional fabrics — making their appearance in glazed red earthenware and in the products of the Fulmodeston kilns (Wade-Martins 1983) — nor, in spite of the continued volume of trade in wine from S.W. France which was reaching Yarmouth and Norwich via the Low Countries, are any later Saintonge vessels known from this area.

Metal cooking-vessels

The majority of the cooking-vessels from the Pottergate kitchens seem to have been of metal, whilst examples in pottery are scarce (see above). Both cauldrons and skillets are represented in these assemblages, though mostly in a fragmentary state. Part of a cauldron of hammered copper alloy with an everted rim survives (Fig. 40, No. 46), but not enough to suggest the form of the handles or whether it had legs. Such vessels were also cast, and a number of fragments of these survive, including several legs of two types: straight ridged legs (Fig. 40, No. 48), and legs with feet (Fig. 40, No. 47); on the typology of three-legged vessels, see Drescher 1968 and 1982-3. Cauldrons are shown in use in a marginal illustration in the 14th-century *Romance of Alexander* (Fig. 59): they have two handles, and at least one has three legs; the two smaller cauldrons contain other vessels (probably ceramic), and they must have functioned as double-boilers. Throughout the Middle Ages, such vessels were used either in an open fire, or hanging above it from a hook.

Fig.58 Site 149N, sub-site 2/3. Pottery assemblage from cellar K

Fig.59 Cauldrons. Detail, *Romance of Alexander*, Bodleian Library, MS Bodley 264, f. 170v

A cast copper alloy skillet with a decorated strap handle (Fig. 40, No. 43) is the only complete metal vessel to survive, but a number of fragments of decorated handles from similar vessels show that greater numbers were in use (Fig. 40, Nos 44-5). These are likely to have been of considerable age in 1507.

There are also iron cooking-vessels. A hoop handle may have come from an iron cauldron, and would have been looped through lug handles (Fig. 40, No. 51), as shown in a woodcut of 1507 (Fig. 60). There is also a long-handled pan (Fig. 41, No. 52) which was probably used as a frying-pan, perhaps resting on a trivet in the hearth. The presence of a small number of pottery frying-pans has been noted above. A frying-pan is listed in 1459 among the contents of Sir John Fastolfe's kitchen at Caister Castle (Amyot 1827, 278) but the material of which it was made is not recorded.

Fig.60 Kitchen scene. Woodcut from *Kuchemaistrey*, Augsburg 1507

Fig.61 Spit-roasting. Detail, *Hours of Catherine of Cleves*, M. 917, p.101

Kitchen implements

A long-handled iron ladle or basting spoon (Fig. 40, No. 37) may be compared with the ladle set in the dripping-pan in the marginal scene of spit-roasting from *The Hours of Catherine of Cleves* of *c.*1440 (Fig. 61). Two ladles are recorded in Fastolfe's kitchen inventory at Caister (Amyot 1827, 278). The flesh-hook and the copper alloy skimmer (Fig. 40, Nos 36 and 38) are similar to those shown in use in the *Luttrell Psalter* — the flesh-hook for extracting lumps of meat, the skimmer for skimming off fat (Fig. 62). Another skimmer is depicted stacked in the wooden wall-rack in the kitchen of the Holy Family in *The Hours of Catherine of Cleves* (Pl. X). There were a flesh-hook and two brass skimmers in Fastolfe's kitchen (Amyot 1827, 278).

Fig.62 Cook with skimmer and flesh-hook. Detail, *Luttrell Psalter*, British Library, Add. MS 42130, f. 207

Hearth equipment

There is a probable rotary spit shaft in the assemblages (Fig. 43, No. 62). A handle would have been inserted in the socket in one end, and the hole at the other would keep the bar in place on a ratchet. Several manuscript illuminations of spit-roasting show the spit with the attendant vessels, implements and of course, the 'turnspit' — the boy holding the spit. Spits range from simple bars resting on two blocks to more complicated pieces of equipment such as that shown in *The Hours of Catherine of Cleves* (Fig. 61), where the bar rests on one of several ratchets on the decorated fire-iron or cob-iron (for a recent discussion of spit-supports, see Heidinga and Smink 1982). It is possible that the Pottergate example was of a similar type.

Most impressive of the iron hearth equipment is the complete pot-hook with pawl and ratchet adjustment (Fig. 43, No. 58). One is shown in use in the Holy Family's kitchen in *The Hours of Catherine of Cleves* (Pl. X).

The hinged hooks (Fig. 43, No. 60) were used to suspend a lug-handled cauldron (pot-hooks are referred to in Fastolfe's kitchen: Amyot 1827, 278). They could obviously be adjusted to fit cauldrons of different sizes.

The iron 'shovel' (Fig. 43, No. 61) would have had a wooden handle, and may have been used to move hot embers; as it is flanged all around, it cannot have functioned exactly as a shovel, but the flange would have held coals or embers safely. There are numerous documentary references to fire-pans, for example a 'fire schovle' in Fastolfe's kitchen at Caister (Amyot 1827, 278), and a 'fer panne' listed in Thomas Mocking's will of 1373 (Rickert 1948, 59-62); they were used not only to transfer fire from one room to another, or to light portable braziers, but also in medicinal remedies (Moorhouse 1978, 13).

One of the dangers of portable braziers, as indeed of kitchen fires and household lighting, was the obvious danger of sparks igniting floor-coverings or wall-hangings. It was presumably to cope with such accidents that a fire-hook was kept on the premises (Fig. 36, No. 14).

Glass tableware and other vessels

In addition to pottery mugs (see above), a number of glass drinking-vessels were found — another sign of the relative wealth of these households (Fig. 42, Nos 53-5).

The rim of a green glass urinal, probably of late medieval date (Fig. 42, No. 57), is of similar type to that held by the physician in the death-bed scene in *The Hours of Catherine of Cleves* (Fig. 63). Such urinals may have been used for other medical purposes, such as mixing ingredients for medicine (Moorhouse 1978, 5).

Fig.63 Physician with glass urinal. Detail, *Hours of Catherine of Cleves*, Pierpont Morgan Library, M. 917, p.180

Vessels and equipment not represented

For obvious reasons there is no trace of items of basket-work, wood and leather, although these would have undoubtedly constituted a significant proportion of the average kitchen's contents (Fig. 64). For instance, Fastolfe's kitchen contained a wooden sieve (Amyot 1827, 278). At the lower end of the social scale, the account books of Munden's Chantry (Wood-Legh 1956, 18, 64) record the purchase of wooden dishes (at 1d each) and 4 cups (at 2d), probably also of wood. Besides drinking-vessels, dishes and equipment of wood and leather, there would probably have been plates or vessels of latten or pewter; these too would not have survived the heat of the fire. A 1381 inventory of the goods belonging to a farmer, Thomas Sampson of Harkstead in Suffolk, includes 2 dozen pewter vessels, 2 pewter pots, 2 pewter salt-cellars, 2 lead vessels, and wooden vessels (as well as copper vessels, and a silver dish with 6 silver spoons) (Rickert 1948, 199).

Likewise, the 1373 will of Thomas Mocking, a fishmonger in London, records 8 pewter jugs, 3 chargers, 12 platters, 12 plates and 12 salt-cellars — all of pewter (Rickert 1948, 59-62).

Any objects of precious metal uncovered during the 17th-century rebuilding (always assuming that they had survived the fire), would certainly have been looted.

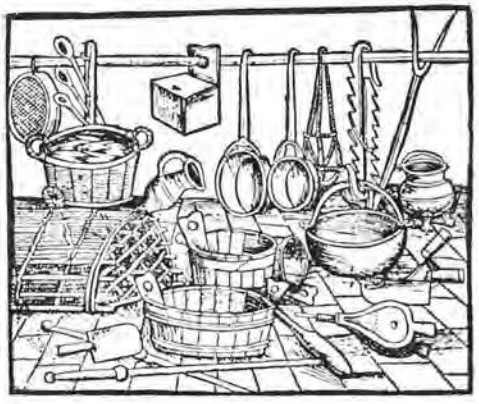

Fig.64 Kitchen equipment. From a mid 16th-century woodcut by Hans Folz of Strassburg, 'Küchengerät'

Craft tools

The number of iron tools is also significant as they reflect the other activities carried on in both the buildings and the yards — from the preparation of flax or wool for textile manufacture (Fig. 46, Nos 80-2), to smithing (Fig. 46, Nos 83-9), plastering and woodworking (Fig. 46, Nos 90-3), and horticulture (Fig. 46, Nos 94-5). It seems likely that at least some of the buildings on this frontage were used as workshops. The large number of bronze offcuts found in cesspit 1042 suggests that part of the corner building on Pottergate and St Laurence's Lane (area F) was used as a vessel workshop at some stage in the later 15th century, whilst the adjacent building to the east (incorporating cellar H) appears to have been occupied by a blacksmith at the time of the fire. More than one of the households were engaged in the textile industry as spinners, but this may have represented little more than a part-time cottage industry, perhaps unrelated to the main trade of the occupants (spinners took in flax or wool, combed, spun and twisted it, before selling it to the weavers).

Home Brewing

Large pottery cisterns holding between one and two gallons of ale or beer, and with substantial traces of sediment on their lower walls and bases, occur in almost every one of the 1507 assemblages. In addition to these, samples of germinating barley were found in cellar K, and hop fruit in cesspit 1042. These are of considerable interest in that they represent the first archaeological confirmation of a gradual change in the area from ale to beer-brewing — the documentary evidence for which has so far been little used.

The importation and use of hops in 9th and 10th-century England is well-attested; and there is even a suggestion that this use continued after the Conquest, until prevented by the Assize of Bread and Ale of 51 Hen. III (Wilson and Connolly 1978, 147-50). Although the latter appears to have successfully regulated the brewing of ale *(cervisia)*, it does not appear to have applied to imported

beer: in 1288/9 Ricardus Somer was fined 2s in the Norwich leet court for underhandedly selling Flanders beer *(cervisiam flandrensem)*, thereby evading payment of custom to the Bailiff — but not for breaking the Assize (Hudson 1892, 21). By the end of the 14th century there are indications that the use of hops in brewing may have started to make a comeback in this area, for in 1390/91 Floritus Taylor was fined 2s in the Norwich leet court *pro Beer*, as one of a number of offenders against the Assize of Ale (Hudson 1892, 73). During the 15th century the importation of hops from the Low Countries is attested in the Port Books of a number of major East Coast ports, and points towards a change in English brewing and drinking habits; whilst hops have always had a number of other uses besides brewing (e.g. in medicine, as a tonic and a sedative), the size of the 15th and 16th-century shipments indicate bulk industrial use. The records of the petty custom on merchandise imported by the Hanse merchants and other aliens into London in 1420/21 show that two sacks and sixteen hods of hops were landed in four shipments during the calendar year (Gras 1918, 424-515); the size of the measures is not stated, but the hops appear to have formed a fairly substantial part of the cargo.

The first indisputable record of beer brewing in Norwich occurs in an order of the Council for 1st February 1459, which granted a monopoly of beer brewing to one man based at the former quay of Abbot Wendling . . . 'It is granted that no foreigner or anyone else shall brew beer for sale within the city except him. Except that every citizen shall brew beer for his own and domestic use' (Hudson and Tingey 1910, 94). This last provision is of interest, for in the following years the domestic brewing of small beer seems to have increased sufficiently to threaten the commercial ale brewers, who complained to the Council; in 1468 the latter noted that 'certeyn personnes of this citie callyng them selfe comon brewers . . . have nowe newely bigonne to take money for their seid goddisgood' (ibid, 99). Confirmation that this was beer, rather than ale, can be found in a second complaint in 1471 about the common brewers and 'their weak and unwholesome brewing'; this produced an edict that 'they shall not brewe nowther with hoppes no gawle, no noon other thyng which may be found unholsom for mannes body upon payne of grevous punyshment' (ibid, 100). Similar protectionist measures were sought and obtained in London in 1484 by the men of the Art of Brewers (Sharpe 1912, 211-2); however, these efforts to stem the trend towards hopped brews failed in both these cities. By 1493 the *Art or Mystery of Berebruers* was firmly established in the capital, and the city council was making regulations to ensure the cleanliness and sweetness of the hops used in brewing (Sharpe 1912, 295-6); whilst Norwich council in 1498 issued a *proclamation for bere*, which set the prices for the different strength brews (Hudson and Tingey 1910, 155). Some indication of the local taste for hopped brews by the turn of the century can be found in the customs records for the goods of the Hanse merchants and other aliens at Lynn; in 1503/4 over 2½ tons of hops (in 21 pokes) were imported, together with two *brewing pannys* weighing 200 lb and valued at £7 (Gras 1918, 646-8, and 656); in the same year, 1,200 lb of hops and some 3,700 gallons of beer (26 pipes) were shipped out of Lynn to the neighbouring ports via the coastal trade (ibid). Nor was Lynn the only Norfolk port engaged in this trade, for amongst the other shipments recorded in that year were the imports of 3 pipes and 3 hogsheads of beer (perhaps 267 gallons) into Lynn on a Yarmouth ship (ibid, 648). Comparable records for London show that in two months in 1509, 52 sacks and 42 pokes of hops were landed — the average value of a sack being £2, and a poke 30s (ibid, 560-94). The new drink by no means met with universal acceptance, and consumer resistance continued into the 1530s and 1540s, as evidenced by a 1542 observation . . . 'Bere is made of malte, of hoppes, and water: it is a natural drink for a Dutchman. And now of late days it is moche used in Englande to the detryment of many Englysshe men.'[1]

The main processes involved in brewing are discussed elsewhere in this volume (site 302N, below). In the houses in Pottergate, most of the fermentation and bulk storage of small beer would probably have been in stave-built wooden vessels, whilst the mashing may have been in copper alloy vessels (perhaps ordinary domestic cauldrons); the quantities involved were clearly not large, and would have been for domestic consumption only. The pottery cisterns would have been used as large flagons, with a cloth cover tied around the rim, and a wooden tap, variously called a *spiggott, ducel* or *forcet* in contemporary documents, in the bung-hole at their base (Moorhouse 1978, 8-9); they would have been stood on a shelf or on the edge of a table so that the ale or beer could be easily drawn off — hence, the contemporary documentary references to *stands* (ibid).

Social status of the households

The principal evidence for all the excavated buildings comes from the area of the kitchens. However, the range of kitchen equipment represented in these groups is incomplete, because of the fire and the disintegration of organic materials. For this reason, manuscript illuminations and woodcuts have been used (though not specifically related to Pottergate or Norwich) to show the full range of kitchen equipment and to demonstrate the way individual objects functioned.

The Pottergate assemblages bear witness to the increasing material culture of the 16th century. A comparison with the inventory of goods in Sir Roger Wodehouse's kitchen at Kimberley, Norfolk (d. 1588) suggests that the *variety* of copper alloy and iron pots, implements and equipment in the Pottergate houses was on a par with a nobleman's well-to-do household of the period. His kitchen contained a bell-metal mortar, 5 brass pots, 2 skillets, 1 "posnett", 1 cup, 2 broad brass pans, 2 brass pans, 2 chafing-dishes, 1 frying-pan, 2 dripping-pans, 2 cleavers, 3 knives, 9 spits (3 large and 6 small), 2 pairs of cob-irons (for supporting the spit), 4 hooks and an iron bar on which to hang the hooks, an iron tray "agaynst [the] Droppinge panne", pot hooks, a pair of tongs and a gridiron (Bolingbroke 1904, 107).

The impression gained from the Pottergate assemblages, then, is one of considerable wealth. The status is reflected partly in the high proportion of metal cooking-vessels (there was in any case an increased use of metal cooking-vessels from the 14th century onwards: Le Patourel 1968, 101-2), and more clearly in the painted window-glass, the decorative terracotta plaque, and the high degree of craftsmanship of many artefacts, such as the iron purse-mount.

Endnote

1. The first beer-brewer to be enrolled in Norwich was John Peterson in 7 Hen. VII (1491/2). Another Peterson, Peter, was enrolled simply as 'Dutchman' in 10 Hen. VII (1494/5), and either he or the Peter Peterson enrolled in 14 Hen. VII, died in 1513 (NRO NCC Wills, Johnson 236), describing himself as a 'berebruer'.

Brewers first entered the freedom of the City in 2 Hen. V (1414/5: Rye 1888, v) — although whether these are ale or beer-brewers is uncertain — but in 1450, when admissions to the freedom were reorganised, brewing was no longer entered as a heading. The enrollment of beer-brewers is limited to the years between 1491 and 1551, with ten of the fourteen recorded in the years 1506-39. Apart from the Petersons mentioned above, only one other enrolled beer-brewer, Bernard Otber (in 28 Hen. VIII, 1536/7), is described as an alien.

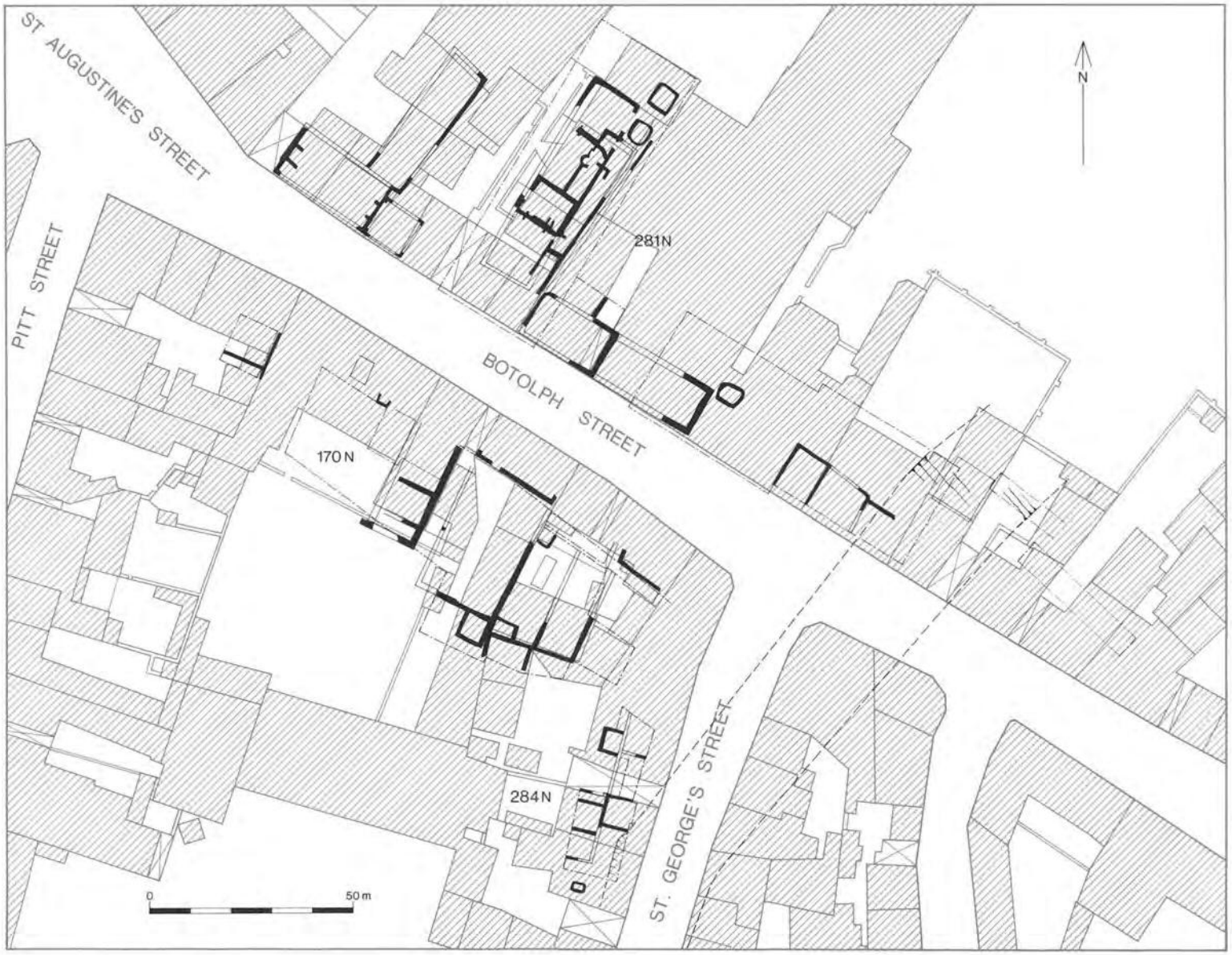

Fig.1 Location map of the Botolph and St George's Street sites, with 1885 OS map printed in blue.

Excavations on Botolph Street and St George's Street (Sites 170N, 281N and 284N)

by D.H. Evans with Andrew Davison

I. Summary

Three adjacent sites in St Augustine's parish were excavated—two on the Botolph Street frontages (170N and 281N), and a third on St George's Street (284N). The earliest feature was a late Saxon ditch which formed the northern limit of the town defences. In the early post-Conquest period an iron-working industry was established in the area, and this reached its peak in the 13th and early 14th centuries; evidence of this industry was found on all three sites. After the mid 14th century, the area was developed as a series of investment properties, and all of the frontages appear to have been built up. The documentary evidence reveals that by the later 15th century many of these properties had strong links with the textile industry; whilst during the 16th century the parish increasingly became a haven for the poor—as such, it attracted many of the new families of Low Countries immigrants ('The Strangers'), and this is also reflected in the archaeological record from all three sites.

II. Introduction

A proposed redevelopment scheme by Town and Cities Properties Ltd. of Bradford gave the opportunity to examine three sites in this area in 1974-75 (Fig. 1; Pl.XI); at the time of writing, this development has not yet taken place. The initial purpose of the excavations was to investigate the origins of settlement in the vicinity of St Augustine's Church, and possibly to determine thereby the northern limit of the late Saxon defences; in the event, the excavations were to shed light not only on the early settlement but also on the medieval and post-medieval development of this part of the town, and to reveal the existence of a hitherto unsuspected iron-working industry.

III. The Sites

These lay on a gently rising south-facing terrace of sands and gravels to the north of the river. A small scatter of Roman material across this terrace suggests the existence of a Roman occupation site in the immediate vicinity;[1] the material was probably introduced on to the terrace as manure. Only two sherds of Middle Saxon pottery were found in the excavations (Fig. 15, No. 1, and Fig. 41, No. 1), and one of these was in the fill of the late Saxon ditch—suggesting that this area lay outside the focus of early settlement. The earliest post-Roman activity seems to have been the excavation of the ditch which formed the northern boundary of the late Saxon settlement in the early 10th century (for a detailed discussion of the nature and date of the Saxon defences, see the General Introduction). The enrolled deeds for the properties on the north side of Botolph Street record that this section of the ditch was known as Dalymond for much of the Middle Ages. At first sight, this would seem to be at variance with the traditional location of the course of the Dalymond Brook, some distance to the east of the excavated areas (Campbell 1975, largely following Cleer's map and Kirkpatrick: Hudson 1889, 80-1, 102 and map); however, many of the references quoted by Kirkpatrick suggest that the Dalymond Brook continued to serve as a water-course throughout the Middle Ages, whereas the evidence of the deeds for these particular properties shows that this particular stretch of Dalymond had been largely infilled and converted into a lane by the end of the 13th century. It therefore seems likely that this part of the ditch may once have served as a subsidiary water-course to the main Dalymond Brook, and continued to share its name, long after it had passed out of use.

Settlement in this area may not have begun until some time after the Conquest; moreover, there are indications that much of the area north of the river was peripheral to the focus of settlement, and thinly populated for much of the Middle Ages. This is probably reflected in the establishment in this quarter of an otherwise anti-social and potentially hazardous iron-working industry from the late 12th until well into the 14th century.

The name Botolph Street seems to be largely a 19th-century creation; before then it merely formed part of St Austin's or St Augustine's Street—one of the main arterial routes into the city (the marginal heading "St Botolph Street" appears in Hudson's 1889 edition of Kirkpatrick, but not in the original: Hudson 1889, 77). This particular section seems to have sometimes been called The Middle Part or Mereholt, but according to Kirkpatrick the name Mereholt should more properly be applied to Middle Street (or that part of it near Botolph Street), which is now called St George's Street.

The relative positions of the three sites are shown on Fig. 1 (see also Pl. XI; for their location within the town, see General Introduction, Fig.01). Site 284N has been included in this section for the complementary evidence which it offers for the course of the late Saxon ditch and the presence in the area of the medieval iron-working industry; however, as excavation was largely limited to very small areas of yard deposits, it is felt that it does not merit full letterpress publication. The same applies to sub-site 2 on site 170N. Accordingly, relevant cross-references to these have been incorporated in the texts for 170N and 281N, and the full texts appear in microfiche (MF 170N.1, C1-2; MF 284N.1, A2-8). It will be apparent from the co-ordinates on the published plans that the 1975 excavations (281N and 284N) were planned on a different grid from that used in 1974 (170N).

IV. The Format of the Reports

In this set of reports, an essay on the documentary background to the area precedes the excavation texts. The main reason for this order of presentation is that excavation on two of the three sites (170N and 284N) was confined to yard areas rather than frontages; the problem is further compounded by the fact that sub-division of some of the yards by permanent boundaries did not occur until a fairly late date. Hence, unless these sites are considered in the light of the documentary evidence, there is no way of knowing how many properties one may be dealing with at any one time.

The treatment of the small finds from these three sites differs slightly from those from the other two sites in this volume. Finds summaries still appear in the relevant sections of the reports, and full listings are given in MFT.19, 25 and 36; however, the mixed nature of most of the deposits, and the high degree of residuality on these sites led to the decision to reserve the illustration and catalogue for the final volume, where they can be discussed in the general context of finds from Norwich. Similarly, although a certain amount of environmental material was recovered from these sites by small-scale bulk sieving and flotation, none merits full publication here; however, full species lists are held in archive, and a summary of the results will be published in a future volume.

Endnote

1. The site clearly must have lain outside the line of the later Saxon defences. Mr Tony Gregory kindly commented:

None of the vessels are particularly early, and although many of the grey ware body sherds are not very distinctive, 2nd and 3rd-century types predominate. Some 4th-century wares are also present, and these include all of the largest sherds recovered (for the illustrated vessels, see Jennings 1981, fig. 1).

Of all the Norwich sites so far examined, this area is the most likely candidate for being a Roman occupation site; at the very least, it was close enough to a real site to receive comparatively substantial quantities of pottery in manure or whatever.

V. The Historical Background to the Botolph and St George's Street sites

by the late Helen Sutermeister with Margot Tillyard

A basic draft of the documentation was written by Helen Sutermeister in the mid 1970s and forms the framework of the present report; however, the deed maps for this parish relating to the period 1285-1340 have been completely superceded by later work, initially by Ursula Priestley and subsequently by Margot Tillyard. All of the abuttals of the deeds shown on Figs 2, 3 and 5 have been rechecked by Margot Tillyard. The present text (edited by D.H. Evans) attempts to combine these two accounts, but is perhaps most exhaustive for the 14th century; wherever possible Helen's original text has been allowed to stand with little alteration —this is particularly true of the 15th-century properties; had she lived, she might well have reconsidered her conclusions on certain aspects of this report, e.g. on the interpretation of the Landgable evidence, particularly as it relates to population expansion.

The conjectural positions of the boundaries shown on Figs 2-5 have been arrived at by projecting back those existing in the 19th-century. Few of the deeds include any measurements so the degree of correlation is unknown.

These sites lie in the parish of St Augustine, which was one of the larger and least developed parishes in the city. Its church was not a rich one: the Norwich taxation of 1254 gave its annual value as only 6s 8d—one of five in this category. Most of the area between the city wall and the excavation sites remained open and in large closes until recent times (cf. 1885 OS 1:500 map). In the late 13th century several parcels of land near the wall were acquired by Norwich Priory;[1] further south, in the mid 14th century Lady Katherine de Norwich had a property of no less than three acres, whilst immediately to the north of site 281N, was a large piece of land which came into the possession of the College of St Mary in the Fields.[2] Except perhaps in the area to the north of St Augustine's Church, the street frontages had clearly been divided into property lots (many of them built up) by at least 1285; while the evidence of the Landgable rents points to occupation from a much earlier date.

Recent work on the early deeds shows that in *c.*1300 some 11% of the landowners in the sub-leet of St Clement Fyebridge, of which the parish forms a part, were ecclesiastics, and that a further 8% were employed in the leather, textile and clothing trades.[3] This pattern of ownership is reflected in the medieval deeds for the properties which include the excavated sites: these record several chaplains, a rector, shoemakers, cordwainers, slaymakers, glovers, worsted weavers, skinners, dyers, cloth merchants, weavers and a tailor. Hard documentary evidence for iron-working in the city, and particularly for its location is scarce—largely because the main documentary source, the enrolled deeds, relate to property ownership, rather than to the tenants or the land use; however, seven of the seventeen smiths recorded in the enrolled deeds between 1285 and 1311 owned property in this sub-leet (pers. comm. S. Kelly). Henry le Rus, *ferun*, had two tenements on the north side of Botolph Street, and one on the south *c.*1302;[4] Adam le Exsmith held several on the east side of Pitt Street at the same date;[5] Roger de Suthgate held another on the north side of Botolph Street in 1302; while Thomas Pagrave and John de Ingeworth both held tenements on the north side of Botolph Street in the 1320s. At least four other smiths can be identified in the parish before 1350.[6] Evidence of other medieval industries in the parish is not very well documented. A number of building workers did hold properties there: glaziers, masons, reeders, and wrights or carpenters all occur in the 14th-century deeds, and in *c.*1490 there were at least four masons holding property in St Augustine's.[7] If these tradesmen were resident, it is possible that they and their crafts were attracted to the parish by the very fact that it was sparsely occupied and offered space for the storage of bulky materials.

During the early 16th century there are signs of an expanding population. The number of properties listed in the Landgable tax almost doubled between 1490 and 1547, and many of the tenements were being divided. The parish, however, was still very poor, and the increasing population seems to have belonged to the lowest classes. In the Census of the Poor taken in 1570 there were no less than sixty-five individuals or heads of families in need of relief—more than one in five of the poor to be found in the whole ward of *Ultra Aquam* and suburbs.[8] The Assessment for a Subsidy of 1576 confirms this picture for there were only five landowners in

land of the Chapel of the Blessed Mary of the Fields

N

? 1369 John Lymes de Walsham *gent* → Robert Keye *carpenter*

1370 heirs → Walter Walcand

1367 Harvey → John Banham
1397 Landgable ½d.: J. Banham
1400 John de Catton + Robt. Marhaunt *glazier* → Agnes de Bayfield + John Bayfield *baker, mes. w. bdgs. gdns. once John Banham*

1377 Executors of Walter Sanon → Peter de Alderford *2 tenements together at Mereholt.*
1382 John Wodeward *chaplain* → John de Shipdam *mason*
mess. bdgs., gdns. etc. once Peter Alderford, dead.
1397 Landgable ½d: John de Shipdam

1382/3 the common land called Dalymont ditch

1394 Thomas de Ely → John Shipdam *mason*

DALYMOND

ST AUGUSTINE'S STREET

BOTOLPH STREET

Road 1361

Road 1364

Road 1358, 1367, 1370, 1386

1361 Thomas Cole de Kirkeby disposing of *land with two cottages*

Peter Kenyng 1361

once Kenyng 1385

1364 William Spink disposing of a *cottage*

once Bullock 1364

1379 Ad. Taillour of Terynton

1385

William Howlet

once Spink 1370 Wm. Spink 1358

once Spink 1370 Wm. Spink 1358

1358 Property changing hands
1367 Peter Kenyng to Robert de Creyk
1370 Robert Keye of Rakheyth *carpenter* → John Latimer and Thomas de Taterford *messuage with shop on corner and garden bought from Wm. Spink, reder.*
1386 Nicholas de Norton of Gylingham → Wm. de Grymmesby of Norwich *slaywright messuage with bdgs., gdns., once Robert Keye*

Road 1358, 1367, 1370, 1385, 1386

once Bullock 1364

Thomas Cole 1361

1358-67 John Bullock
1367/8 Wm. How)
1385-97 Wm. Hoylesdon *wright*

w. J. Bullock 1367
Bullock 1358

(? once) Robert Wright 1385

Bullock 1358
mes. John Bullock 1367
mes. William Upgate once J. Bullock 1370
ten. once Walter, parson of St Botolph 1386

ten. once Kenyng 1385

1385 property between the roads changing hands

Road 1385

PITT STREET

ST GEORGE'S STREET

CALVERT STREET

Fig.3 Analysis of later 14th-century property holdings (not to scale)

land of Geof. de Wilby. Passed to (? Lettice Payne, his aunt , and under her will to) the Chapel of the Blessed Mary of the Fields

1303 Henry, son William le Rus *smith* → Robert de Holveston *draper* 10/- p.a. + later additional 5/- p.a. from his messuage at Mereholt

1303 John de Boton → Henry le Rus *smith* piece of land 82' long part of his messuage at Mereholt

1208 land Will. Pistor

1352/5 Venellam Willian de Baxstere

1302 John Thedon → Roger de Suthgate *smith*

? 1313/14 John de Felmingham *rent from mes. once Rich. de Sithenge*

1325 John de Ingworth *smith* → Thomas de Surlingham *cutler, rent from John's mes.*

1327 John de Ingeworth *smith* → John Iringe *dyer*
1333 John Iringe *dyer* + wife → Richard Spynke of Marchesford (their son-in-law) *reder (d.1364)*

1315 Executors of Roger the Carter → John atte Strete de Buxton *merchant*

1325 John de Ingworth *smith* → Thomas de Surlingham *cutler*

1329 Will. de Wilton → Robert Austin + John, son Wm. Herre *rent fr. mes. T. de Surlingham, next to John Iringe's*

1337 Thomas de Surlingham *cutler* → Roger de Redforde *smith*
1338 Roger de Radford → Peter Westram *cutler mes. W. bdge. at Mereholt, once Thomas de Surlingham*

1328 Will. de Wilton → Robert Austin + John, son Wm. Herre *rent fr. mes. John atte Strete (W. part)*

1329 John atte Strete

1307 Henry le Rede (i.e. le Rus) → Bartholomew Walcot

1299 John Wodeman *skinner* → John, son Geof. le Chapman of Boton *messuage at Mereholt*

DALYMOND

Roger de St. Augustine at least up to 1333

N

ST AUGUSTINE'S STREET

BOTOLPH STREET

PITT STREET

ST GEORGE'S STREET

CALVERT STREET

1294 Regi de Bek Q → John de Birston *chaplain. Rent formerly payable by John*

John de Birston 1294

Birston 1309, 1312

1292 Will, son Henry Baldewyne → Ralph *chaplain messuage (landgable ½d.) and land.*
1304 Henry, son of Wm. le Rus → Alex, son of Roger le Carter *messuage*
1306 Alex, son Roger le Carter → Roger le Keu of Wychingham *messuage with buildings*
1309 Roger le Keu de Wychingham → Thomas Kynyth de Mulbarton *shoemaker*

1310 T. Knicht

1310 Thos. Knicht → Wm. de Blofeld *mason land from N-S 45', at S. 12'*

land once Roger de Carleton 1304, 1306, 1309, 1312

1312 Thomas Knith → Will. de Wymedham *rent from his mes.*

mes. John de

land T. Knicht 1310

land Wm. de Blofeld *mason* 1304 1306, 1309, 1310, 1312

? There is a messuage with a barn which might be here

land

Fig.2 Analysis of late 13th/early 14th-century property holdings (not to scale)

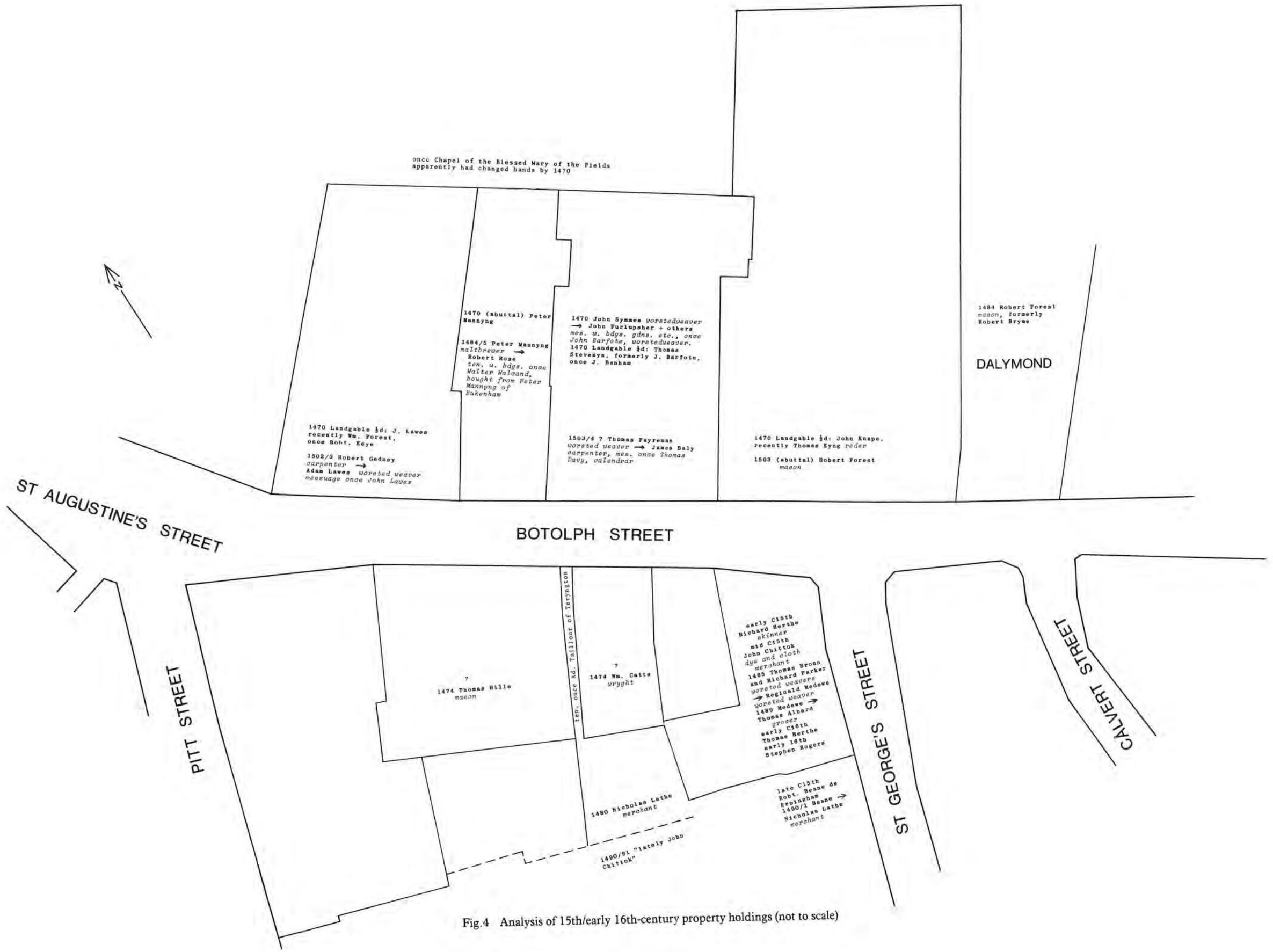

Fig.4 Analysis of 15th/early 16th-century property holdings (not to scale)

Fig.5 Analysis of later 16th and early 17th-century property holdings (not to scale)

the parish considered sufficiently wealthy to be taxed on their landed property, and six on their goods—and all for relatively small amounts. Among this group were Thomas Woodhouse and William Rogers (assessed on £3 of goods) who respectively owned the west and east corner tenements of the block on the south side of Botolph Street, but it is not possible to say whether either actually lived in them. On the other hand, eighty-two aliens were listed on the Assessment; of these, eighty were liable for the Poll Tax of 4d, and only two were rich enough to be assessed on their goods (new immigrants were not allowed to own property, so none of these appear on the near-contemporary Landgable list). It would appear that St Augustine's was becoming a haven for impoverished immigrants from the Low Countries. The parish was assessed at only £6 9s 8d (the third lowest in the ward), compared with more than £19 in the parish of St Michael Coslany nearby, and over £59 in St Peter Mancroft.[9]

The south side of Botolph Street

Although the series of enrolled deeds for Norwich begins in 1285, it is difficult to ascribe many of them to particular sites on this side of the street. Before *c.*1370 the deeds seldom specify the names of adjacent roads, so one describing a corner tenement may refer to one of three street corners in the parish. Nevertheless, it seems likely that those shown on Fig. 2 belong to this particular block. They confirm that it had been split into a number of properties by the end of the 13th century; but the Landgable lists indicate that the subdivision had occurred much earlier.

By *c.*1300 the block appears to have comprised three principal holdings. The western one may have extended to the corner of Pitt Street, and was held by John de Birston, a chaplain; it included a parcel of land rented by John in 1294, when Reginald de Bek quitclaimed it to him.[10] John de Birston had already been granted a piece of land *cum orrea* (with a barn) in the parish in 1292,[11] and it is possible that this included the land to the south fronting Pitt Street. A large central holding (paying a farthing Landgable tax) comprising a messuage and land was granted by William, son of Harvey Baldewyne to Ralph, a chaplain, in 1292. It then passed into the hands of Henry le Rus; this is presumably the same Henry le Rus, ironworker, who held two tenements on the north side of the street (see below), and it strongly suggests that iron-smelting and quarrying for iron-pan were still in progress on both sides of the street. Henry sold it to Alexander, son of Roger le Carter in 1304. In 1306 it was described as a messuage with buildings when it was granted to Roger le Keu de Wychingham. In 1309 he sold it to Thomas Knicht de Mulbarton, a shoemaker, who partitioned it in the following year, and sold a parcel in the south-east corner of the plot, measuring 45' x 12' to William de Blofeld, a mason, who owned the adjoining plot to the east.[12] Blofeld's property may have extended to the St George's Street frontage to the east, and possibly included the north-east corner of the Botolph Street frontage; there is some evidence to suggest that it formerly comprised two separate properties, and that the corner property was acquired at a later date, but this is not conclusive.

Although much of the land use in St Augustine's during the later 13th century may still have been agricultural or industrial, the deeds clearly show that domestic buildings were beginning to appear in the area by the early 14th century. In addition to the example cited above, a deed of 1306 records that Isabel and Cristiana, daughters of Walter de Senges or Sithing made over to the Hospital of St Giles their father's properties which included stalls, shops, gardens, orchards, rents, etc. at Mereholt (no abuttals).[8] There is a long gap in this series of enrolled deeds after 1312, but by the late 1360s the deeds record at least three cottages in this block, and in 1370 a corner shop and gardens.

The next references begin in 1358 with the sale of the corner property on St George's Street and Botolph Street.[13] Prior to this the Botolph Street frontage appears to have still comprised three main holdings: a large L-shaped holding at either end, and a rectangular central holding (Fig.3; the position of the boundaries shown here is largely conjectural, and there may have been other property to the west of the western holding). The eastern property was held by William Spynk, a *reder* or thatcher. There is no evidence that William ever owned anything besides the tenements mentioned here, and he does not appear in the franchise register; however, the next generation of the family may have produced the Thomas Spynk who rose to become Bailiff in 1375, and was a merchant of some stature[14] (see also the north side of the street). William Spynk partitioned his property and sold the corner tenement to Peter Kenyng who also owned the western holding which may have formed the other corner (he is recorded in an abuttal of 1361); so one or both of these holdings may already have been an investment property. The central tenement was held by Thomas Cole de Kirkeby; when he disposed of the northern part of it in 1361, it was described as land with two cottages. In 1364 the remainder of William Spynk's holding was further partitioned, possibly on his death, and the western half with a cottage was sold off. Thus, in the space of six years the Botolph Street frontage was transformed from three holdings into five.[15]

In 1370 the eastern corner was sold to John Latimer and Thomas de Taterford. It was then described as a 'messuage with shops, corner and garden', and was bordered on the west and part of the north by the messuage formerly of William Spynk.[15] Nothing is known of the two men to whom it was sold, beyond the fact that John Latimer was probably the man enrolled as John Latimer de Dilham in 1349.[16] By 1386, however, this tenement had come into the possession of Nicholas Norton and his wife, Margery, who sold it, then described as a messuage with buildings and gardens, to Robert de Grymmesby, his wife Marion, and their sons, Robert and John. Robert was described as a 'slaymaker', and a man of the same name (probably his son) enrolled in that trade in 1398-9. Their craft involved the production of hand boards for looms, which held the reeds to drive home the weft.[17]

By the late 14th century several other woodworkers owned property here. In addition to the slaymaker in the corner tenement, the Landgable list of 1397 shows that John Fundlyng, *le wryth*, owned a property to the south, possibly facing on to St George's Street; whilst William de Heylesdon, wright, owned one of the adjoining properties to the west, which lay behind Spynk's former property on the frontage. Moreover, we have some idea of the work Heylesdon did, for he appears in the City

Treasurer's accounts making a new window and other repairs on a butcher's stall in the market.[18]

For the 15th and most of the 16th centuries it is possible to trace the ownership of only the eastern corner tenement. This seems to have passed into the possession of more distinguished owners, and for most of the period must have been an investment property (Fig. 4). Richard Herthe held it in the early 15th century.[19] He was a skinner enrolled in 1411-12 who survived until at least 1450, when he sat as assessor for one of the alien subsidies, and he owned substantial tenements elsewhere in the city.[20]

By far the most important owner in the whole history of this tenement was John Chittok, who enrolled as a dyer in 1433-4 and became sheriff in 1450, burgess in Parliament in 1459, and Mayor in 1457 and 1466. He was one of many Norwich men of the medieval period who had close connections with the metropolis, being frequently described as citizen and cloth merchant of both Norwich and London, and even conducted an export trade through the port of London. He owned the manor of Norton and many other properties in the county. His own dwelling house was described in his will of 1471 as a very elaborate affair with gateway, stables and outhouses, and probably lay in the parish of St Martin at Palace, where he was buried.[21] The most likely explanation for a man of this stature owning an obscure tenement in the poverty stricken parish of St Augustine, is that he was renting it out to weavers who produced the goods for his own cloth trade. This interpretation is suggested by the fact that the next two occupants were also weavers.

In 1485 Thomas Bronn and Richard Parker, worsted weavers, sold the tenement to Reginald Medewe, who was also a worsted weaver, his wife Isabella and two feoffees. All these weavers were modest men of no great means, and may well have been living here; however, four years later Medewe sold to a more important citizen.[22] This was Thomas Alberd, a man of very substantial wealth (see also site 302N, below) who served no less than three times in the expensive position of city chamberlain. (One of his feoffees was John Dowe, a prosperous worsted weaver and common councillor.) Alberd was a grocer and lived in St Gregory's parish, so once again the St Augustine's tenement was probably an investment property and may well have still been occupied by weavers.[23]

Two other late 15th-century owners can be identified in the block. In 1379 the City had granted the rights to a well between two properties to Adam Taillour of Terington, a mason.[24] In the Landgable of 1474 this strip of land is described as being enclosed in an entry between the tenements of Thomas Hille, mason, and William Catte, *wryght*.[25] By the beginning of the 16th century it becomes very much more difficult to trace the ownership of tenements: the survival of deeds is much rarer, and the Landgable lists show that properties were becoming sub-divided, and are unfortunately vague about their position. In the 1547 list it is possible to identify only the corner tenement on Botolph Street and St George's Street; this may represent only a part of the tenement so far discussed (perhaps area F of the excavation site). Thomas Herthe held it about the turn of the century, followed by Stephen Rogers and Myles Kerre, who held it in 1547.[26] In 1570 it was once more in the possession of a worsted weaver, William Rogers, who had acquired it earlier from a russel weaver named John Hirne.[27] A William Rogers was indentured as an apprentice worsted weaver in 1552, and enrolled as a worsted weaver in 1568.[28] In 1590 Rogers sold to one Edward Nutting, who enrolled as a *berebrewer* in 1591,[29] and by 1626 it was in the occupation of a certain John Hastings, whose occupation was probably a tailor. It would seem that the connection with owners in the weaving trade, which had lasted for more than a century, had come to an end.[30]

The 1570 Landgable list shows that there were five tenements on the Botolph Street frontage, as well as the aforementioned access to the well (Fig.5); the latter paid 2d rent of assize instead of Landgable. The western corner tenement was held by John Staller and John Pye. The latter was a cordwainer who also held the adjoining tenement to the east. Two of his apprentices, Richard Sappe and John Crabbe, were subsequently enrolled as cordwainers in 1561 and 1564 respectively;[31] a man of this name became a sheriff in 1579, but whether this is the same person is uncertain.[32] The occupation of John Staller is not stated, but two John Stallers were indentured as apprentice worsted weavers in 1555 and 1557, the first of whom was subsequently enrolled in 1566.[33] Both tenements were previously in the hands of Stephen Bygott, glazier, and it seems likely that one or both of these were investment properties for much of the middle and later 16th century. Of the previous owners, Thomas Woodhouse can possibly be identified with a man of that name who was enrolled as a tailor in 1573.[34] On the other side of the passage-way the next two tenements were held by James Taillour, a glazier, and Robert Grenold, about whom nothing more is known.[35] One of the previous owners, Robert Mychell, a tailor, can possibly be identified with a Robert Mychell who was enrolled in 1552, but there was also a Robert Myhell enrolled in 1562.[36]

The properties to the south of the Botolph Street frontage seem to have had a similar history to that of the eastern corner tenement. In the late 15th century they passed into the ownership of quite substantial men, probably as investment properties. In 1480 Nicholas Lathe, a prosperous merchant, had the tenement to the west, which had once belonged to William de Heylesdon, and Alderman Robert Mitchel had it in 1547; Nicholas Lathe also had the tenement to the south, and John Dows, Common Councillor for *Ultra Aquam*, the property beyond in 1490.[37]

The north side of Botolph Street

The location of the properties on this side of the street has had to be deduced by working eastwards and westwards from the one fixed point which can be attributed—the late Saxon ditch. This survived into medieval times as a recognisable landmark, although by then it had become largely infilled and converted into a lane. It was said to have been the property of William Pistor (baker) in 1299[38] and he or a son was still holding it in 1332-4—when it was described as *venellam Willelmi le Baxtere* (the lane of William the baker).[39] By 1382-3 it was described as 'the comon land called Valymont ditch'.[40] It may have retained some drainage function, for in 1393-4 Thomas de Ely sold a piece of land and gutter measuring 120' x 12' and running into the Dalymont from the east.[41] Thereafter, the ownership is lost

until 1394-5 when Thomas de Ely sold it to John Shipdam, the mason, who already held one of the adjoining tenements to the west. In 1484 it was described as 'formerly the property of Robert Bryme, now of Robert Forrest, a mason'.[42]

The property to the east of the ditch lay outside the area of the excavations, but is of interest because it is one of the few in this block for which the deeds give any dimensions. It can be securely identified with the property once of Thomas Pagrave, smith, and owned by John de Schuldham, who paid one shilling tax upon it in 1332; at that date it measured 40' along the road and 36' in depth.[43] In the same year it passed to Geoffrey de Honigham *(sic)*, mason, and in 1334-5 to Robert Bulloke; in 1337-8 it passed to Warin de Snape of Great Hautboys, chaplain, and returned to John de Schuldham in 1342-3.[44] Such frequent changes suggest that the property was being rented out rather than sold; its occupants were men of no great standing and represent a succession of small craftsmen from a variety of different trades. This pattern of early settlement is also recognisable in the tenements to the west.

By *c.*1300 there appear to have been five frontage holdings to the west between the ditch and the point where the road turns northwards into the modern St Augustine's Street (Fig. 2). The nature of the land use at this date is uncertain; certainly at least some of Roger de St Augustine's holdings in the parish (he held the land adjoining the far western holding in this block) were still described as arable as late as 1317-18[45]). Moreover, in the first half of the 14th century smiths are recorded as owners in four of the five holdings of this block—reflecting the continued presence of iron-working in this part of Mereholt until at least the late 1330s. Unlike the rest of the sub-leet of St Clement Fyebridge, ecclesiastical owners are conspicuously absent in the early deeds for this block of holdings. By the second half of the 14th century the number of holdings to the west of the ditch had been reduced to four (Fig. 3), and a similar pattern of development to that on the south side of the street ensued. A number of building workers were congregating in the area, and deeds refer to buildings on most of the tenements; some of the new owners were very substantial men who were unlikely to be residents, and were probably owning them as investment properties. This pattern of ownership persisted through the 15th century (Fig. 4), with worsted weavers beginning to congregate in the area in the later 15th and early 16th centuries. Thereafter, it becomes very difficult to assign deeds and Landgable returns to individual properties; however, we can probably assume a similar pattern to that on the south side of the street—sub-division of properties as pressure on housing space increased, the persistence of investment properties, a continued connection with worsted weavers, and the presence after 1570 of immigrant families amongst the tenants.

The property immediately to the west of the ditch was owned by John Wodeman, *pelliparius* or skinner, in 1298 and sold to John of Boton.[46] In 1303 the latter partitioned it and sold the northern part which measured 82' long to his neighbour Henry le Rus of Sweynesthorp.[47]

Le Rus had held the tenement to the west since at least 1301, and was described as *ferun* or ironworker; he also held one of the lots on the south side of the street (q.v.). He himself was a man of small importance, but there were larger interests behind him. In two separate deeds he conceded 15s annual rent from this tenement to one of the city's leading merchants, Robert de Holveston, who served the city as Bailiff and Member of Parliament in 1300-1, and represented Norwich in negotiations with the government in London; the rent although not especially large, was substantial and rather more than a normal dwelling house would fetch. It therefore seems probable that the tenement was being used for industrial purposes—probably iron-smithing. In 1307 it had passed to Bartholomew de Walcot, about whom nothing more in known.[48]

By the mid 14th century these two eastern tenements had been joined into one, and by 1376 they were in the hands of another important citizen, Peter de Alderford who was city treasurer in 1375-6, Bailiff the next year, and Member of Parliament the year after that.[49] At that date, it was clearly an investment property. Thence, it passed to John Wodeward, chaplain, and in 1382 to John de Shipdam, when it was described as a messuage with buildings, gardens etc. Shipdam was a mason who appeared in the City Treasurer's accounts when he undertook repairs to the Stathe and the market properties; he continued to hold the tenement until at least 1397, but had no others in the city, so we may assume that it was his home and workshop.[50] The next known owner of this property was also connected with the building trade—Thomas Kyng the *reder*, who held it in the mid 15th century. Subsequently, it was held by John Knape in 1470 and 1490, and the last recorded owner was Robert Forest, a mason, in 1503.[51]

The next property to the west was a fairly large holding which for at least part of the 14th century was split into two. In the early 14th century it was held by Roger le Carter, whose son Alexander held a property on the south side of the street (q.v.). In 1315 he sold to John atte Strete de Buxton. He was a substantial property owner who paid 5s tax in 1332—considerably above the average in a tax which affected only the very wealthiest group of citizens.[52] Whether Strete was actually resident here or merely a landowner is debatable; certainly, by 1329 he had partitioned the property and conceded the rent on the western half to William de Wilton;[53] the eastern half was retained by the Strete family. The subsequent history of the tenement is far from clear, and it is possible that both halves had been reconsolidated by 1367, when it had passed into the hands of John Banham. He or a son of the same name still held it in 1397. By 1400 it was held by the bakers Agnes and John Bayfield.[54]

By the mid 15th century it had passed to a worsted weaver, John Barfote, who in 1468 bequeathed two tenements in St Augustine's, in one of which he had lived. Two of the subsequent owners were also worsted weavers—John Symmes and Thomas Fayreman.[55]

The next two properties to the west were both in the possession of John de Ingeworth, smith, in 1325, when he sold one and the rent on the other to Thomas de Surlingham, cutler. Surlingham was a man of some estate, paying 2s 3d on property in Castle Fee in the tax of 1332, and was clearly not living here. By 1329 he had conceded the rent from one messuage to William de Wilton, who was also renting the adjoining property to the east. In 1337 Surlingham sold the eastern of his two tenements to Roger de Radforde, smith. In the following

year it was described as a messuage with buildings.[56]

An abuttal of 1367 in a deed for the property to the east may refer to this tenement, where it is described as 'messuage once Thomas Spink'; the *c.*1400 deed of sale to the Bayfields of the adjoining property (see above) also shows this abuttal as 'mes. quondam Thomas Spynk'. Spynk later became Bailiff twice, Member of Parliament three times, and a substantial city landowner;[57] however, as his ownership of this tenement preceded his rise to prominence, it is possible that he was actually resident here, like his name-sakes Richard and William Spynk (q.v.), rather than owning it as an investment property. In 1370 it passed to Walter Walkand,[58] and in the late 15th century it was described as a tenement with buildings in the hands of Peter Mannyng, maltbrewer.[59]

The far western property passed from his parents-in-law to Richard Spynke de Marchesforde, *reder*, in 1333. He may have been related to William Spynk on the south side of the street (q.v.); although he later rose to some prosperity and owned several properties in the city, it would appear that this was the area where these two *reders* first settled on arriving in Norwich. The subsequent fate of this tenement is uncertain. It may be the same property which passed to Robert Keye in 1369; he was the carpenter who also held the eastern corner tenement on the south side of the street (q.v.), so one or both of these was an investment property. If the identification with this tenement is correct, it passed into the hands of Adam Lawes, worsted weaver in 1502-3.[51]

Endnotes

Unless otherwise stated all documentary references are to Norwich City MSS in the Norfolk Record Office (NRO). References to the City Court Rolls will be to roll and membrane only; where evidence is contained in an abuttal the names of the seller and buyer follow the reference in brackets.

1. Dean and Chapter Records, Reg. 2ii, m.19d
2. Court Roll 13, m.47; Kirkpatrick's notes from the now-missing court rolls of the mid 14th century (hereafter, Kirkpatrick's Notes), Case 21f, box 1
3. Kelly 1983, figs 5 and 6
4. Court Roll 4, mm.3d, 6 and 12d
5. Court Roll 4, mm.12d and 34d
6. Roger de Suthgate, Court Roll 4, m.3d; Thomas Pagrave, Court Roll 12, m.34d; John de Ingeworth, Court Roll 12, m.5; Walter de Sything, Court Roll 2, m.9d; William de Loge, Court Roll 8, m.13; John Roo and Simon Stoke, Court Roll 13, m.45d
7. Landgable list of *c.*1490 (Chamberlain's Book 1470-90, fol. 155-6, Case 18a)
8. J.F. Pound (ed.) 1971, 75-82
9. Assessment Roll for 1576, Case 7i
10. Court Roll 2, m.44d
11. Kelly 1983, 19
12. Court Rolls 2, m.39; 4, m.12d; and 5, mm.18 and 19
13. Kirkpatrick's Notes
14. Rye (ed.) 1888, 129; L'Estrange 1890, 97
15. Kirkpatrick's Notes
16. Rye (ed.) 1888, 85
17. Court Roll 14, m.26; Rye (ed.) 1888, 65; Wright 1904, V, 507-8
18. Landgable List of 1397 (Domesday Book, fol. Li-Lii, Case 17c); Account Roll for 1401, Case 7a
19. Court Roll 18, m.20
20. Rye (ed.) 1888, 72; Public Record Office (hereafter PRO) E 179/269/42
21. The evidence of Chittok's ownership is inferred from the reference to a former owner in the abuttal of the tenement to the south: Court Roll 20, m.30 (Beane to Lathe); Norwich Consistory Court (hereafter NCC) Wills, Jekkys 251; Blomefield 1806, III, 243; Cozens-Hardy and Kent 1938, 28
22. Court Roll 20, m.20d (Medewe to Alberd)
23. NCC Wills, Johnson 11; Landgable List of *c.*1490
24. Kirkpatrick's Notes
25. Landgable List of 1474 (Chamberlain's Book 1470-90, fol. 155d, Case 18a)
26. Landgable List of 1547 (Case 18d)
27. Court Roll 32, m.17 (Rogers to Nutting); Landgable List of 1570 (Case 18d); Hirne was enrolled as a freeman in 1589 — Millican 1934, 115
28. Millican 1934, 154 and 239
29. Millican 1934, 21
30. Landgable List of 1626 (Case 18d); Millican 1934, 21 and 135
31. Millican 1934, 41
32. L'Estrange 1890, 109
33. Millican 1934, 154 and 242. Yet another John Staller was made free as a wheelwright on 8 November 1542, served as a constable for Colegate in 1552 and 1554, and was a common councillor for *Ultra Aquam* between 1555 and 1557 (pers. comm. John Pound)
34. Millican 1934, 126
35. This may be a Mr Grenale who owned a house in St Augustine's in the 1576 census — Pound 1971, 78
36. Millican 1934, 124-5. Another possibility is Alderman Robert Mitchel — NCC Wills, Knight 248
37. Landgable List of *c.*1490
38. Court Roll 3, m.3 (Wodeman to Chapman)
39. Court Rolls 12, m.34d (Schuldham to Honigham); and 13, m.10 (Shuldam to Hevyngham)
40. Court Roll 14, m.14
41. Hudson 1889, 80-1
42. ibid
43. Court Roll 12, m.34d
44. Court Rolls 12, m.34d; and 13, mm.10 and 34; Kirkpatrick's Notes
45. See note 2
46. Court Roll 3, m.3
47. Court Roll 4, m.6
48. Court Roll 4, mm.3d and 11; L'Estrange 1890, 94; Hudson and Tingey 1910, II, 31
49. Kirkpatrick's Notes; Hudson and Tingey 1910, II, 31
50. Court Roll 14, m.14d; Treasurer's Rolls 1392-3 and 1394-5, Case 7a; Landgable List of 1397
51. Landgable List of *c.*1490; Rye (ed.) 1888, 83; Court Roll 20, m.68d
52. Court Roll 7, m.11d; PRO E 179/149/9
53. Court Roll 12, m.15d
54. Kirkpatrick's Notes; Court Roll 14, mm.14d (Wodeward to Shipdam) and 38d
55. NCC Wills, Jekkys 130; Landgable List of *c.*1490; Court Rolls 19, m.2; and 20, m.68d
56. Court Rolls 12, m.15d, and 13, mm.35 and 41d; PRO E 179/149/19
57. Court Roll 12, m.15d; Kirkpatrick's Notes; Court Roll 15, m.38d (Catton to Bayfield)
58. Kirkpatrick's Notes
59. Court Rolls 19, m.2; and 20, m.5d
60. Kirkpatrick's Notes; Court Roll 20, m.68

VI. Excavations on 44-56 Botolph Street (Site 170N)

by D.H. Evans

1. Introduction

The excavation was carried out by J.P. Roberts whilst employed by the Norfolk Museums Service as part of the 1974 season of the Norwich Survey (interim report in Roberts *et al.* 1975, 106-8). The phasing, interpretation and final report have been prepared by the author from Mr Roberts' original field notes and drawings.

2. Acknowledgements

We should like to thank the landowners and developers, Town and Cities Properties Ltd., for permission to excavate, for their assistance in the process, and their donation of the finds to the Norfolk Museums Service (accession no. NCM 610.974). The work was financed by grants from the Department of the Environment, Norwich City Council, Norfolk County Council and the

Norfolk Research Committee; post-excavation work and publication has been funded by the Department of the Environment (latterly the HBMC), to whom our grateful thanks are due. We are indebted to all those people who worked on the site, and especially the site assistants, Malcolm Atkin, Jerry Thorp and Mike Baxter, and the Finds Assistants, Dr Patricia Galloway and Mary Karshner. The late Helen Sutermeister prepared a draft report on the documentation for the area; some aspects of this have been augmented by more recent work on the early deeds (Priestley (ed.) 1983, 1 ff.), and Margot Tillyard has kindly undertaken the task of checking and revising the draft in this specific respect. The site photographs are by J.P. Roberts. Lastly the author would like to thank his colleagues in the Norwich Survey, and in particular Malcolm Atkin, Alan Carter and Sarah Jennings for many useful discussions, and for their help and criticism.

3. The Site TG 2295 0943 (Fig. 1)

The excavations comprised a large irregular open-area site (sub-site 1), and a small rectangular trench measuring 4.7 x 3.8m (sub-site 2) to the west. Comparison between the 1885 OS 1:500 map and those of more recent date showed that the Victorian housing line (and presumably the medieval frontage) now lay beneath the modern road and pavement; this and the presence of deep cellars over most of the back of the frontage effectively restricted work to the area of the yards.

Excavation revealed a natural ground surface of yellow and brown sands (250, 400 and 1118), interleaved with lenses of gravel (907 and 1000), and iron-panning (e.g. 1600).

4. Method of Excavation

The excavation was carried out in eight weeks in the summer of 1974, with an average working force of twenty-five people. Although a machine was used to clear off most of the overburden, all other excavation was by hand. At a fairly early stage it became apparent that most of the main area was criss-crossed by several large medieval quarries, which would have removed any trace of any earlier features; consequently, it would have been totally impractical and largely uninformative to excavate everything down to natural. Instead the main sequence of quarries and pits was established by cutting several large sections across the site, and most of the other features were excavated only to the level of the upper quarry fills. Work began on a second sub-site (2), but limited time and resources did not allow this to be completed, and a number of potentially early pits were planned but never excavated.

A major problem in phasing the site is that most of the yards area was not sub-divided until a fairly late date. The drawbacks of this are two-fold. First, the lack of structural events means that pits have had to be assigned to purely arbitrary periods on the basis of their finds, or by virtue of their place in a floating relative sequence; the dangers inherent in such dating are manifest, particularly on a site with such high residuality. Secondly, as there are no physical divisions into tenements for most of the periods, sub-site 1 has had to be described as a single large area. For the reader's ease of reference, the excavation text invariably works across the area from west to east; for the phasing charts and the finds reports, the nomenclature of the Period 4 tenements (A to F on Fig. 6) has been projected backwards onto the earlier unenclosed yards to assist in location.

5. Summary

Sub-site 1

Period	*Description*	*Dating*
1	A boundary ditch and a cluster of pits and post-holes at the west end of the site.	? 11th-12th c.
2	Rise of iron-working industry: hearths and several quarries for iron-pan. Most of site unoccupied; possible boundaries and rubbish pits at east and west ends. Deeds survive for at least three cottages and a corner shop on the frontage by 1360/70.	*c.*1200-1400
3	Quarries infilled and frontage built up by *c.*1500. Increasing pressure on frontage leads to building C/1 extending back into the yard. *(Landgable list for 1576 shows five properties on the Botolph Street frontage.)*	*c.*1400-1600
4	Low Countries immigrants living in at least one property. Building C/1 replaced by a shorter, wider building (C/2). Yards divided and enclosed *c.*1650, and pit digging ceases; advent of night-soil collection.	*c.*1600-1700
5	Patching and rebuilding of yard walls. More sub-division of yards.	*c.*1700+
Sub-site 2 (MF170N.1, C1-2)		
1	Possible pits.	? 11th-12th c.
2	Occupation on one of the frontages; several rubbish pits.	*c.*1200-1400
3	Very little activity.	*c.*1400-1600
4	Some pits. Yards enclosed *c.*1650.	*c.*1600-1700
5	A well and a cesspit dug.	*c.*1700+

6. The Excavation: Sub-site 1 (Figs 6-13; Pls XII-XIV)

Period 1 (11th-12th century) (Fig. 6)

The only features which were recovered lay in the western half of the site. Whilst the extensive disturbance by later quarries and cellars would have removed any early features over much of the site, the paucity eastwards of late Saxon and early medieval wares (both local and imported) suggests that occupation was indeed confined to this end of the site. This may reflect the presence at this date of marshy ground along the edges of the Dalymond ditch, to the east.

The eastern boundary of the holding was formed by an 0.9m-deep gully (73), the upcast of which was piled up into a bank on its west (Fig.13, S11). At the extreme west end of the site was a cluster of pits and scoops (365, 367-70, 374, 431-9, 484 and 493); most of these were characterised by dirty sandy fills, and almost all contained ash and charcoal spreads and other domestic rubbish. No clear pattern was recovered from the few post-holes (e.g. 433 and 437) which were identified. The pottery recovered from these features could date from the later 11th or 12th centuries.

Period 2 (c.1200-1400) (Fig. 7)

This comprises those features which contain local unglazed wares or Grimston wares, but which predate the introduction of Late Medieval and Transitional wares.

The documentary evidence shows that by the end of the 13th century the block of land between Pitt Street and St George's Street had been parcelled into a number of small lots; however, the excavation suggests that most of these must have been non-residential, and that a substantial stretch of the Botolph Street frontage must have been open. This period saw the emergence of a burgeoning iron-working industry in this street. The actual evidence for smelting on site 170N is slight — a couple of hearths at the east end of the site (see below); however, a number of hearths were found on the adjacent sites 281N and 284N. The principal manifestation of the industry on sub-site 1 is the presence of several large irregular quarries (Figs 11-12, S1-S5), which were almost certainly exploiting the lenses of iron-pan in the underlying gravels (e.g. 63, 1119, 1334/1537, 1602, 1780/1790 and 1893). The suggested date for the excavation of these quarries relies heavily on that for iron-working phases on the adjacent sites (the material in the quarry fills relates to their infilling rather than their excavation). The problem is compounded by the fact that several appear to have been left open for some time, and not infilled until well into Period 3; moreover, it is quite likely that some of the larger Period 3 pits, e.g. 360 and 119 (Fig. 8), also represent the infilling of smaller quarry pits. Industrial activity on this scale suggests that the land was being rented for iron extraction, and not for housing, and that there would have had to be reasonable access on to the street from these quarries; the sand and gravel by-products of this industry may well have been sold off as building materials.

In the western half of the site the Period I gully had silted up and gone out of use; this is demonstrated by the fact that it was cut by two pits (543 and 551). It appears to have been replaced by a new boundary ditch (405) to the west. The possibility that this was also a Period 1 feature running parallel to 73, and forming the west side of a narrow tenement with it, has been considered, but seems unlikely as it was a shallower, more irregular cut which was kept clean for a longer time. It probably formed the east side of the central holding shown on Fig. 2. The northern part of the enclosed area was dominated by quarry 63, but the southern part seems to have formed a yard for at least part of this period; it contained a number of pits (54, 120, 153, 212-3, 258, 289-90, 364, 430, 485 and 517), and a hollow which was levelled up with metalling (57). Pit 258 is of particular interest because it had the bottom half of an upright local medieval unglazed cooking-pot set in it. The practice of burying earthenware pots in the ground, often with one on top of another, and leaving them there for anything up to a year, is a basic requirement of many medieval recipes for medical or industrial products which need a long distillation or fermentation period (Moorhouse 1981, 116 and fig. 90); typical examples cited are potions for dropsy, palsy, dysentry and pleurisy, and recipes for making oil of Juniper, white lead, and vermillion.

Towards the end of Period 2, ditch 405 was allowed to silt up and was not replaced. It was cut by four new pits (307, 490, and 601-2). To the east, in the area which was later to become tenement C, a number of pits suggest some occupation in the vicinity (26, 30, 100, 345, 513, 545, 551, 603-4, 1107, 1110, and 1220-1); the presence of brick in some of these probably points to some building activity on the frontage, but the only structural evidence is a solitary post-hole (75). Further east there were a number of scattered pits in the areas which were later to become tenements D and E (418, 510, 615, 851, 1106, 1276, 1348, 1660 and 1755); on the basis of their finds these could be assigned to this period, but given the high degree of residuality on the site, and the fact that a great deal of old rubbish was introduced on to the site in Period 3, the possibility that these may be of later date cannot be ruled out.

The high level of activity in the north-east corner of the site indicates occupation of the corner tenement on Botolph Street and St George's Street. Initially this may be connected with iron-working immediately to its west, but by 1370 it was described as a 'messuage with shops, corner and garden'. Three of the larger pits in this area, 297-8 and 304, may well be small quarries. Immediately to the west the bases of two metal-working hearths (835-6) are indicated by patches of intense burning associated with quantities of iron slag; amongst the infilling of pit 304 was 3.2kg of smelting slag and furnace lining (including small clay repair plugs). The surrounding yard area had been surfaced with layers of gravel (869 and 1500). Whilst some of the pits undoubtedly go with the industrial phase, others may well be domestic (e.g. 313, 885, 906, 968, 1089, 1114-5, 1176, 1428, 1491 and 1494). Three post-holes (314, 1117a and 1117b) could relate to either. An 0.35m-deep, U-shaped gully (906) might form the western boundary of this corner tenement at an early stage during this period.

Period 3 (c.1400-1600) (Fig. 8)

This comprises those features which contain local Late Medieval and Transitional wares, but which predate the introduction of local glazed red earthenwares and clay tobacco pipes. A useful horizon is provided by the introduction of Raeren stonewares after *c.*1470. This period saw the infilling of the Period 2 quarries and the gradual build-up of the frontage. The documentary evidence suggests that for much of the 15th century the Botolph Street frontage was divided into five properties (Fig. 4). Quite a few of the properties in the block were clearly being owned for investment purposes, and this is certainly true of the eastern corner tenement (F), and some of those to the south of the excavated area; the lack of boundaries in the yards suggests that this also applies to most of the other excavated holdings. Both the historical and archaeological evidence suggest that there were houses fronting the entire block by the mid 16th century, if not before.

The quarries

Most of the early infilling of the Period 2 quarries consisted of localised dumps of domestic rubbish (mostly animal bone) and large quantities of smelting slag and furnace lining. Some 70kg of the latter were recovered, mostly from the western half of the site; it had clearly been dumped into these quarries long after smelting had ceased in this part of the town, and probably represents the removal of an unwanted slag-heap on one of the adjacent iron-working sites. The sequence of alternating tip-lines of silty loams and gravelly sands (Figs 11-12, S1-S5) suggests that their infilling took place over a fairly long period, and was helped by natural silting processes. Pottery in these fills suggests that parts of quarries 1119 and 63 still lay open in the early and mid 15th century respectively; whilst quarries 1780/1790 and 1602 were

still open in the late 15th or even early 16th centuries, because their upper fills contain Raeren stonewares. Whilst open these would have constituted quite a hazard, but whether one can infer from this that individual tenements would not have been fronted by housing whilst a particular quarry in their yard lay open is a moot point; however, the dating evidence from the yard surfaces suggests that most of the site was not heavily built up until the late 15th or early 16th centuries.

Period 3 pits (c.1400-1525)

At the western end of the site in the area which was later to become tenements A and B, domestic rubbish pits do not appear in any numbers until the early to mid 15th century (e.g. 25, 28, 49, 55, 90, 119, 135, 150, 239, 360 and 429) suggesting that most of this frontage was not heavily built up in Period 2. The majority of the pits (37, 70, 78-80, 89, 93-4, 96-7, 99, 114 and 142-3) and the gravel yard surface (173) are demonstrably post-1470 as they either contain Raeren stoneware themselves, or are stratigraphically later than contexts which do.

In the area immediately to the east, which was subsequently to become tenement C, a well (252) was sunk at the south end of the yard, suggesting that this plot at least was now occupied; the date of its construction is uncertain, but the shaft was built of flint and brick rubble. It is possible that this is the well to which Adam Taillour of Terington was granted access by the city in 1379. Three nearby pits (27, 44 and 990) could be mid 15th century in date, but all of the others (130, 249, 274 and 383) are either demonstrably later than 1470, or post-date the well. Post-holes 127-9, 251, 253 and 991 may be associated with the well-head winding-gear.

Further east, in the areas which subsequently formed tenements D to F, it is less certain when the frontages were first built up, but there is certainly a great increase in activity during this period. The bulk of the pits could be of early or mid 15th-century date (e.g. 205, 246, 346, 349, 382, 413-4, 416, 489, 537, 544, 546, 550, 555, 600, 623, 627, 733, 878-881, 886, 897-9, 905, 992, 1014-5, 1098, and 1277); however, the major tips into quarries 1780/1790 and 1602, and most of the yard surfaces (190, 207, 358, 693, 695, 700, 750 and 806), are demonstrably later than 1470; the latter consist mainly of compressed layers of gravels or sands. Possibly contemporary or earlier spreads are represented by layers 621-2, 674 and 694. Certainly later than 1470 are the pits listed hereafter but some of these are of 16th-century date (187, 189, 204, 206, 209, 224, 311, 312, 330, 347, 353, 356-7, 427, 547, 596-9, 625-6, 629, 654-5, 663, 673-4, 676-7, 681, 687, 691, 758, 784, 793, 800, 802, 833-4, 849, 857, 864, 890, 973-4, 977, 1284, 1363, 1407, 1427 and 1659). This period also seems to see the first signs of activity other than quarrying at the extreme south ends of the yards.

The frontages

Although the frontage lay outside the area of excavation, it is possible to deduce some of the characteristics of the new buildings from the construction debris recovered from pits throughout the yards. Large quantities of diverse early brick occur in the later 16th-century pits (MFT.20), but these had clearly been introduced on to the site as rubble, along with various medieval roof- and floor-tiles. This suggests that the new buildings had ground-floor walls of brick and flint rubble — though probably with a timber-framed upper storey (cf. standing building G on site 281N, below); conversely, the absence of similar quantities of construction debris in earlier pit and quarry fills suggests that at least some of the structures which they replaced may have been clay-walled. The new buildings also appear to have had tiled roofs (types RT3 and RT4), and glazed windows, if not initially, at a fairly early stage in their occupation.

Period 3 (c.1525-1600)

The documentary evidence suggests that for most of the 15th century, the eastern corner tenement (F) was owned as an investment property; however, by the early 16th century the owners were poorer and less distinguished, suggesting that it might have become owner-occupied. It seems likely that this change in the status is reflected in the construction of a new property boundary (clay wall 1235), which separates it from the large block of unenclosed tenements to the west. Elsewhere increased pressure on the frontage led to one of the buildings being extended back into the yards. At the very end of this period, one of the western tenements was sub-divided by a new fence-line. The Landgable returns suggest that there were still five properties on the frontage in 1576 (Fig. 5); if the evidence of these returns is accepted, then this sub-division must be later than 1576.

In the area which would later become tenement C, the early Period 3 well (252) was infilled, and a new building (C/1) constructed over its site, extending some 12m back into the yard. Its walls were built of rough flint and brick rubble bonded with pale buff mortar and were *c.* 0.4m wide. The east wall (16) was bedded in a foundation trench (924), and survived to a height of *c.* 0.55m for most of its length. Part of the south wall survived, but most lay outside the area of excavation. The west wall (21) had been almost completely dismantled in Period 4 during the construction of building C/2 (see below), but its line was indicated by a surviving fragment of its north end which was revealed in section (Fig. 12, S6). The line of a cross-wall was preserved in its robber trench (226), with an internal buttress at its west end; an internal doorway between the two rooms was suggested by a space between the east end of the robber trench and the east wall (16) of the building. The south room measured *c.* 5.5 x 4.6m. Part of a thin yellow clay floor (1745) survived only on the east side of the building (Fig. 13, S11).

To the east a new well (168) was sunk, probably to replace the earlier one (252). It had a 2.4m-deep well-pit at the base of which lay a central shaft lined with flint rubble (Pl. XII). The block of tenements B-E were still undivided in Period 4, so presumably were undivided throughout Period 3; if this assumption is correct, the well would have served all of the properties fronting this particular lot.

At the west end of the site a new fence-line divided tenement A from the area which would become tenements B-E. It was formed by a north-to-south line of six posts (101-6) which were spaced 0.6m apart and had an average diameter of 0.2m; if feature 145 represents a continuation to the south, no post-pipe was detected.

Period 4 (c.1600-1700) (Figs 9 and 10)

Defined as those features which contain 17th-century coins, clay pipes and pottery types (notably the local glazed red earthenwares). A major horizon within this

period is provided by the sub-division of the yards, which appears to have prompted a change in rubbish disposal methods.

Early to mid 17th century

For this early part of the period the site seems to have comprised three blocks of property: tenements A and F on either side of a large undivided lot (tenements B-E). The latter can be shown to be undivided by the joins in clay pipe and pottery fragments between pits as far apart as 12 and 166, 61 and 166, and 662 and 529. The large numbers of Low Countries and German pottery vessels from pits of this period on a site in one of the poorest areas of Norwich probably represent the personal possessions of immigrant families, rather than serving as an indicator of wealth or high status; it seems reasonable to suggest that these reflect the presence of one or more families of Strangers living in the block fronting tenements B-E.

On tenement A the property boundary presumably continued in use from the end of Period 3. The only activity associated with this period was the digging of pits 13 and 77 (Fig. 11, S1). Pit 13 appears to be an unlined cesspit which shows a sequence of gradual infilling with tips of rubbish.

On tenements B-E the major event was the rebuilding of building C/1. The new structure (C/2) was substantially shorter but wider. The new east wall (17) was laid directly on top of the earlier wall. It was built of rough flint and brick rubble bonded with yellow mortar, and was roughly faced on the lower courses of its exterior, and had a plastered interior. The south wall (18) survived for a length of only 2.5m, as the rest of it, together with most of the west wall, had been completely robbed; the line of the latter is indicated by its robber trench (98), and a small stub at its northern end (Fig. 12, S6). During the construction of the new building, part of the Period 3 structure had had to be dismantled, and the floor level raised considerably by the dumping of layers of silt and sand on top of the Period 3 floor. Part of the new clay floor (32/1742) survived in the south and eastern parts of the building (Fig. 13, S11). No details of its internal arrangements are known.

Yard surfaces and ash spreads survived around the new building, particularly to the east (e.g. 200-2, 548-9, 710, 846 and 1339), and pit digging continued over the whole plot though on a reduced scale (e.g. 11-12, 36, 60-1, 166, 177, 631, 662 and 711). Pits 12, 61, 166, 662 and 529 are probably contemporary as they share joining sherds of the same vessels and pipes; a probable deposition date of *c.*1635-50 is suggested for these particular pits. Most of these were probably new rubbish pits, but 166 (Fig. 13, S7) may have been an old quarry pit, later used as a convenient dump for rubbish.

On the north end of what was later to become tenement E, a house appears to have encroached back into the yard. Its east and west walls are indicated by the robber trenches 908 and 843 (shown on Fig. 10 rather than Fig. 9, in order not to obscure the pits which it overlies). The south wall was never detected in excavation but its line appears to be shown by a westward return at the south end of 908, and by the northern edge of what appears to have been a flint-lined cesspit (194), tacked onto its south-west corner (Fig. 10). A *terminus post quem* for this encroachment is provided by a James I farthing token of 1613-1625 in an underlying pit (711; Fig. 9). Possibly of similar date is a cesspit (10; Fig. 10) which is presumably abutting the rear of a building on tenement B (Fig. 12, S6); certainly the only other pit at the rear of this particular building which might have been a cesspit is pit 60 (Fig. 13, S8), but if so, it must have been infilled in a fairly short time, as its deposit is undifferentiated. Evidence of similar rebuilding on the frontage is provided by the appearance of new brick types (LB1, 2 and 5) in many of these pits. Possibly associated with this work was the removal or replacement of one or more tiled floors in these buildings, as evidenced by a broken FT21 floor-tile and by a number of bricks which had been reused as paviors (types EB2 and 9, and LB1 and 4).

The corner tenement (F) may also have been occupied by Low Countries immigrants, for considerable quantities of imported wares were found on the adjacent excavation, site 284N (area B), which must have lain within the southern half of this tenement; on site 170N, the only feature of this period in this area was pit 970.

Mid to late 17th century (Fig. 10)

The population of the City is thought to have almost doubled from an estimated 12,000 or 13,000 in *c.*1600 to some 20,000 inhabitants in the 1620s (Corfield 1972, 263-7) — a level at which it seems to have remained until the late 1670s. The consequent pressure on housing space would seem to be reflected in the sub-division of the properties on this site. A *terminus post quem* of *c.*1640 for the division of the yards is offered not merely by the finds from pit 533 which was sealed by one of the walls, but also by the groups from pits 12, 61, 166, 529 and 662 which share joining fragments; it is self-evident that once the yards were partitioned with walls there was no way in which sherds of a vessel broken on tenement B could end up in a pit on tenement D South or tenement E. The new boundaries created six tenements opening on to Botolph Street (A to F), and at least two more (D South and E South) opening on to a court to the south which had access via a passage on to St George's Street. The other principal change in this phase is the cessation of pit digging in *c.*1660-70 which signals the arrival of the collection of night-soil; it is interesting to note that this change in rubbish disposal methods seems, as on Alms Lane (site 302N), to have taken place some twenty to thirty years before the site on Pottergate (site 149N).

On tenement A a new wall (20) replaced the earlier fence-line; it was built of flint chips and gravel bonded with a pale, creamy yellow mortar. Very little change can be observed on tenements B and C, except that the southern end of the later robber trench (98) suggests that the line of the west wall of building C/2 was extended southwards to form a boundary between the two tenements. In tenement D a north-to-south path had at some stage been laid along the east side of building C/2, and edged on its south and east sides with narrow flint and brick walls. The new yard was separated from tenement E (to the east) by wall 844 (set in foundation trench 1842); to the south it was bounded by wall 1690. Both were built of coursed flint-and-brick rubble bonded with yellow mortar. In the south-east corner of the yard pit 254 probably belongs to this period.

Tenement E was bounded on the west by wall 844.

Fig.6 Site 170N, sub-site 1. Period 1. Scale 1:150

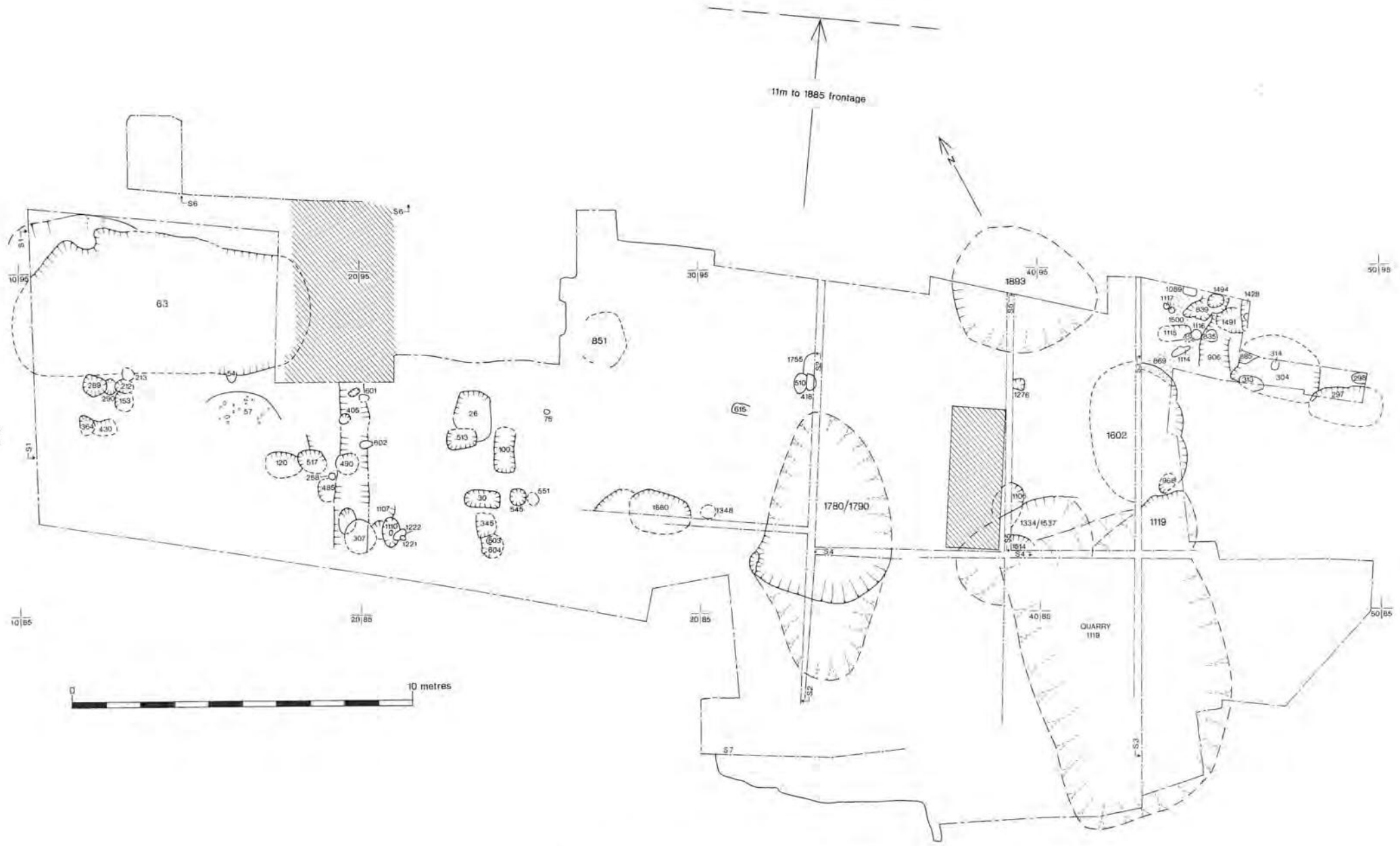

Fig.7 Site 170N, sub-site 1. Period 2. Scale 1:150

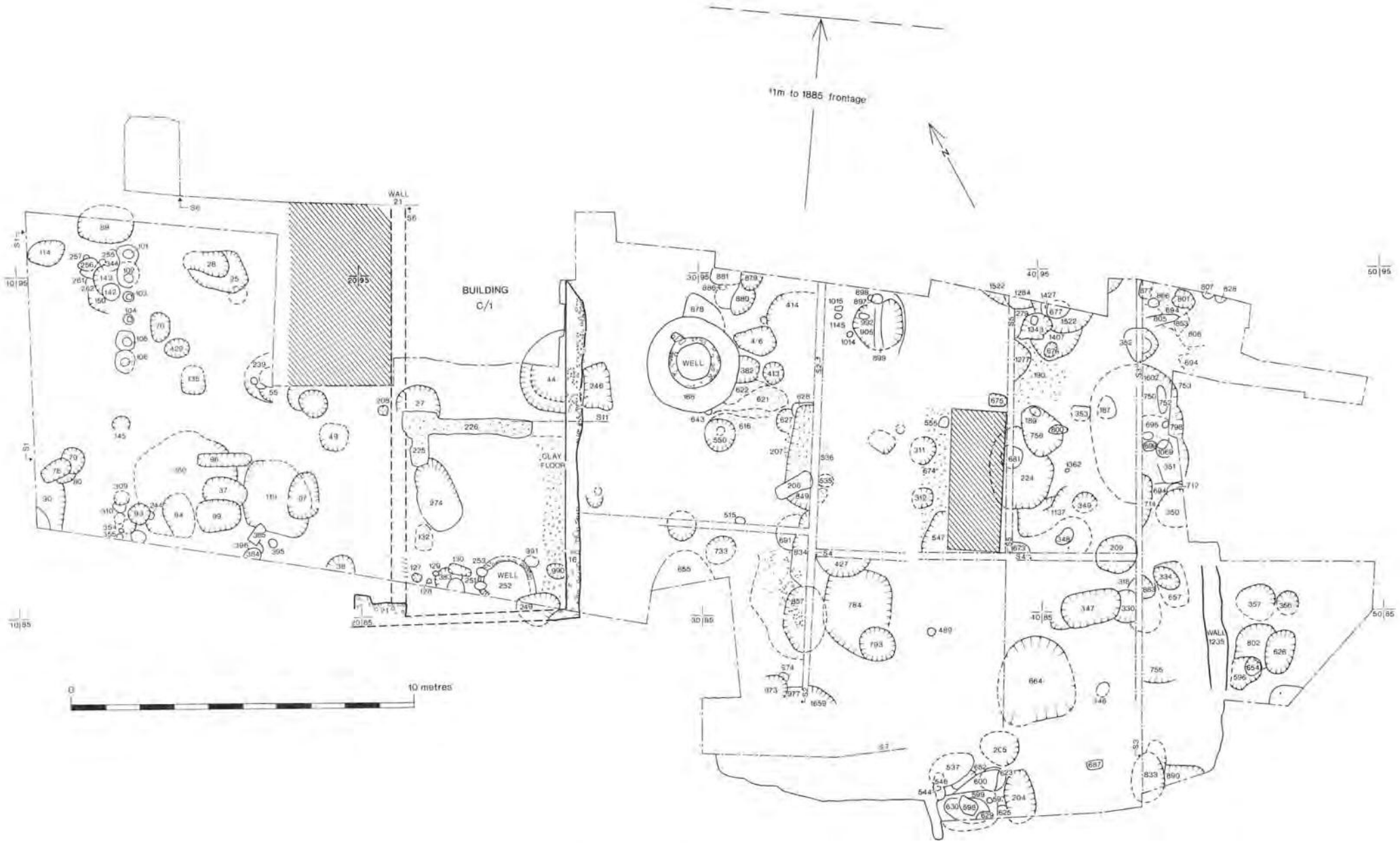

Fig.8 Site 170N, sub-site 1. Period 3. Scale 1:150

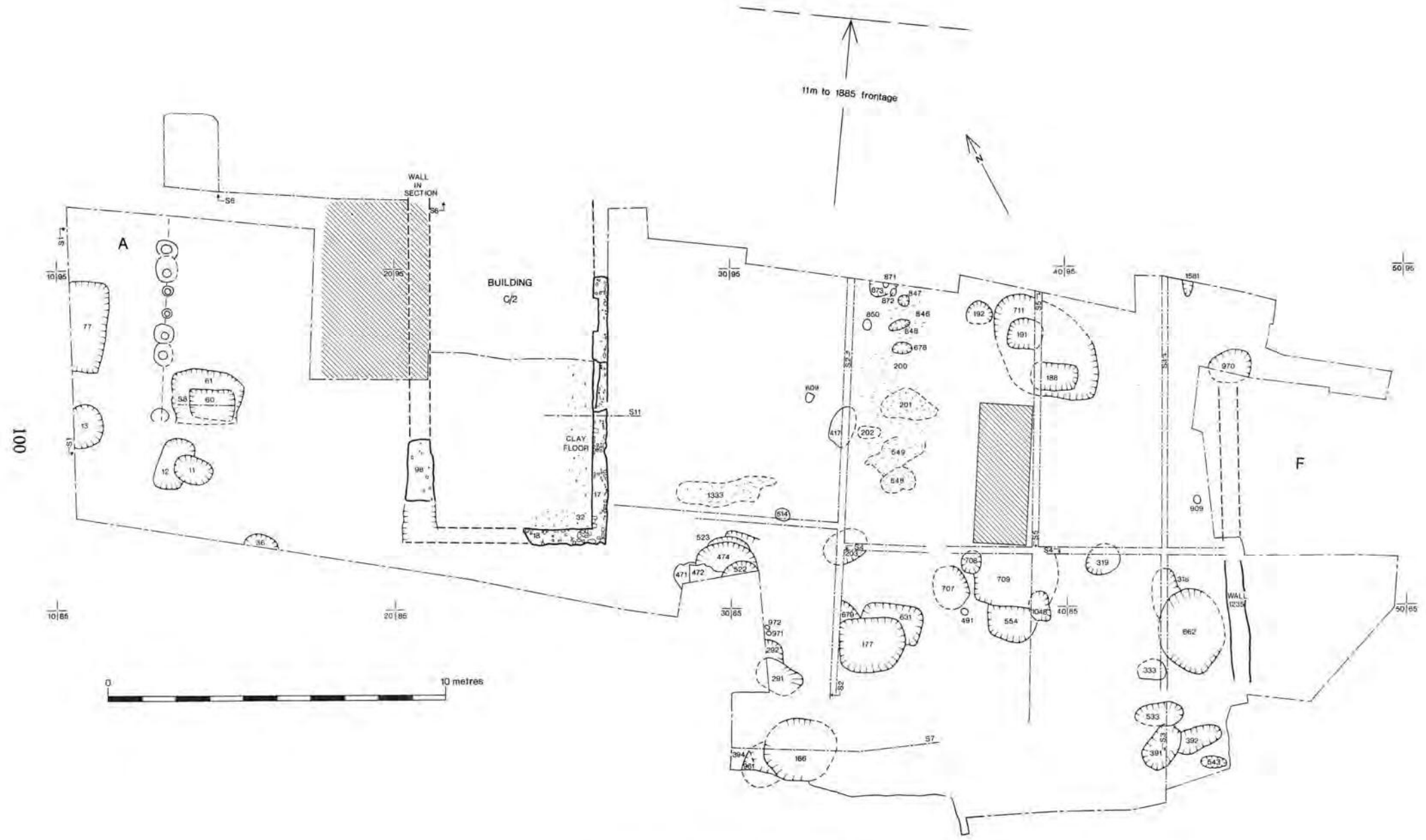

Fig.9 Site 170N, sub-site 1. Period 4, early features. Scale 1:150

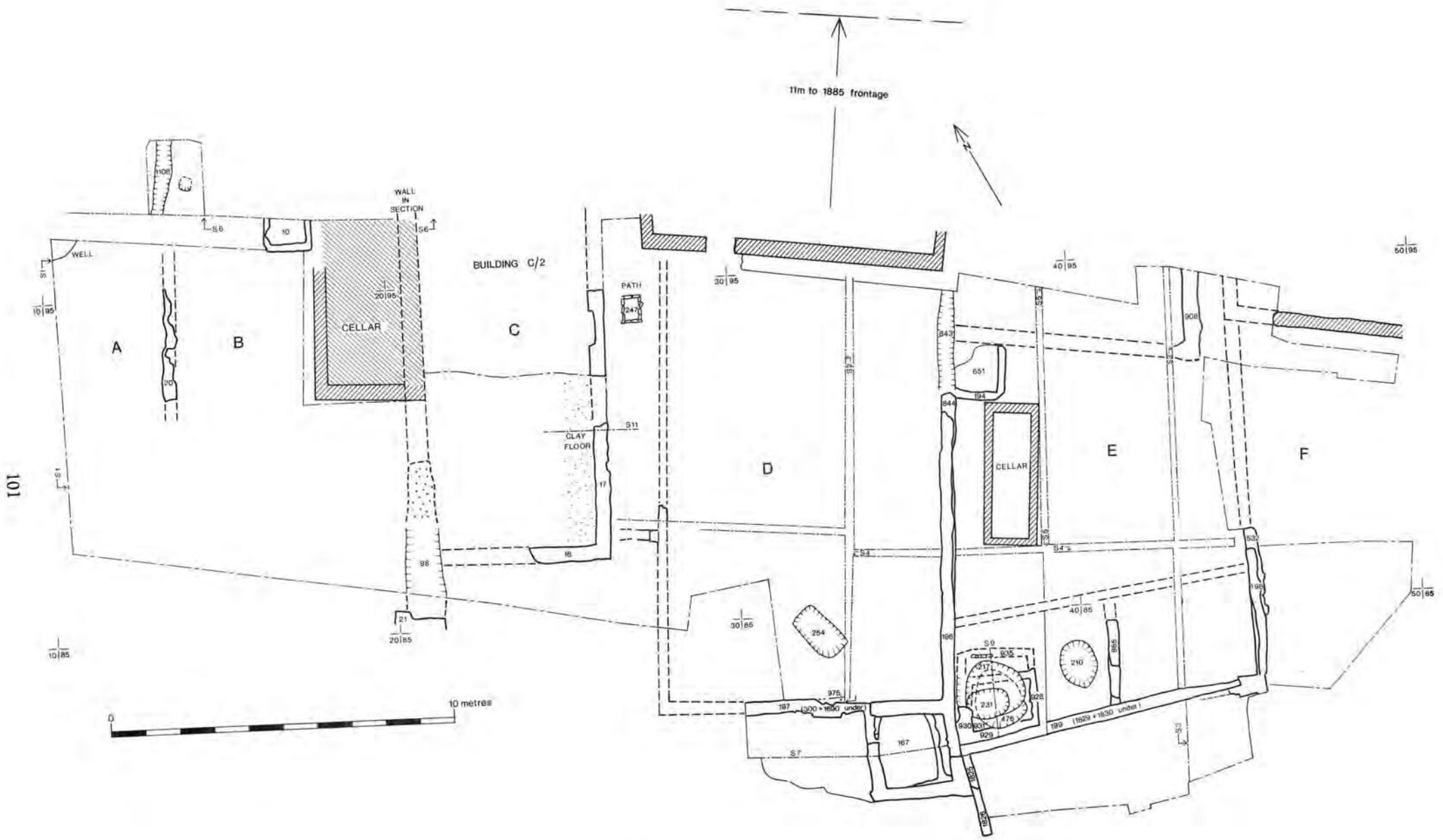

Fig.10 Site 170N, sub-site 1. Period 4, later features (194, 843 and 908) and Period 5. Scale 1:150

Fig.11 Site 170N, sub-site 1. Sections S1-S3: quarries. Scale 1:50

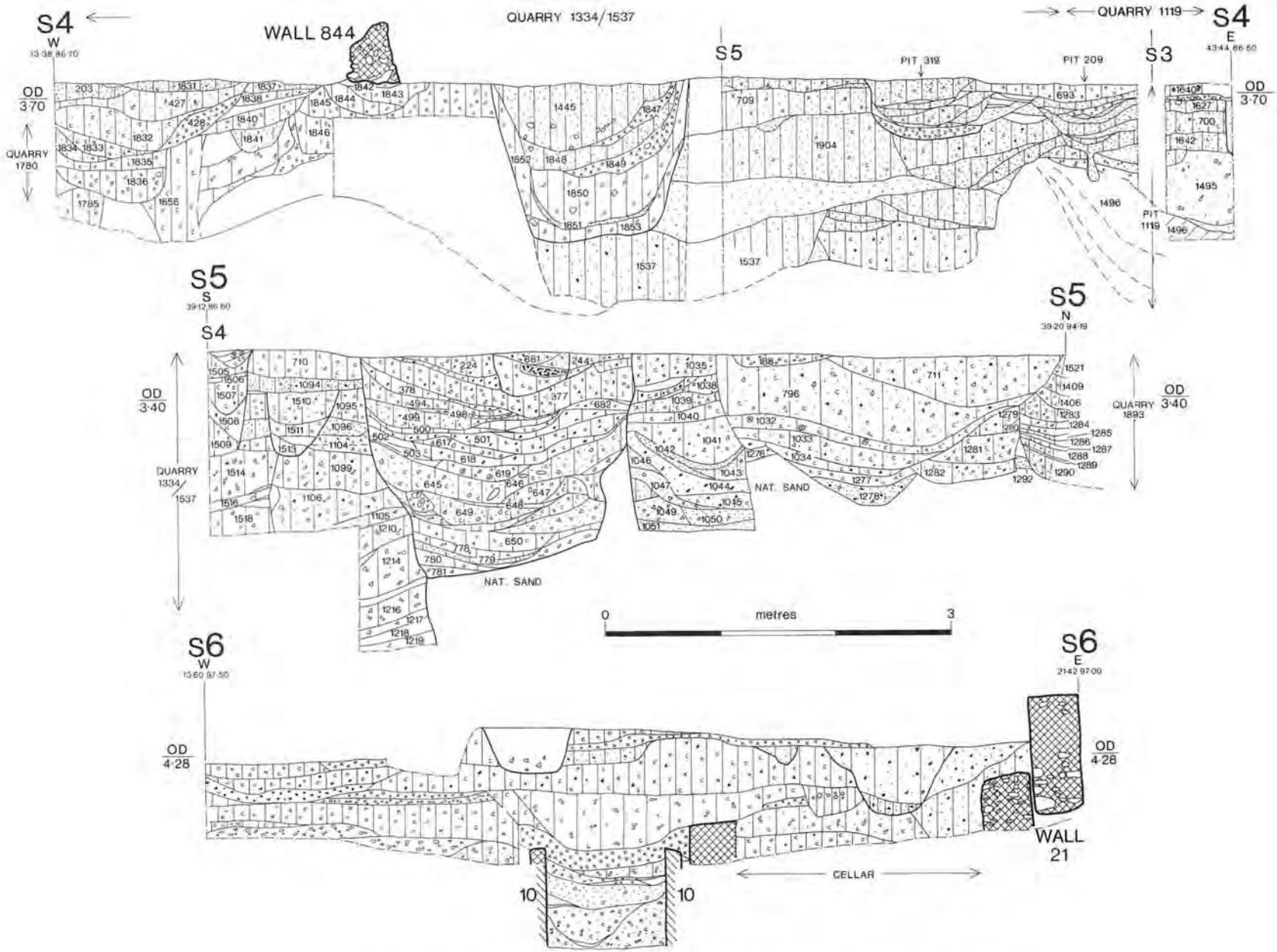

Fig.12 Site 170N, sub-site 1. Sections S4-S6: quarries and cesspit 10. Scale 1:50

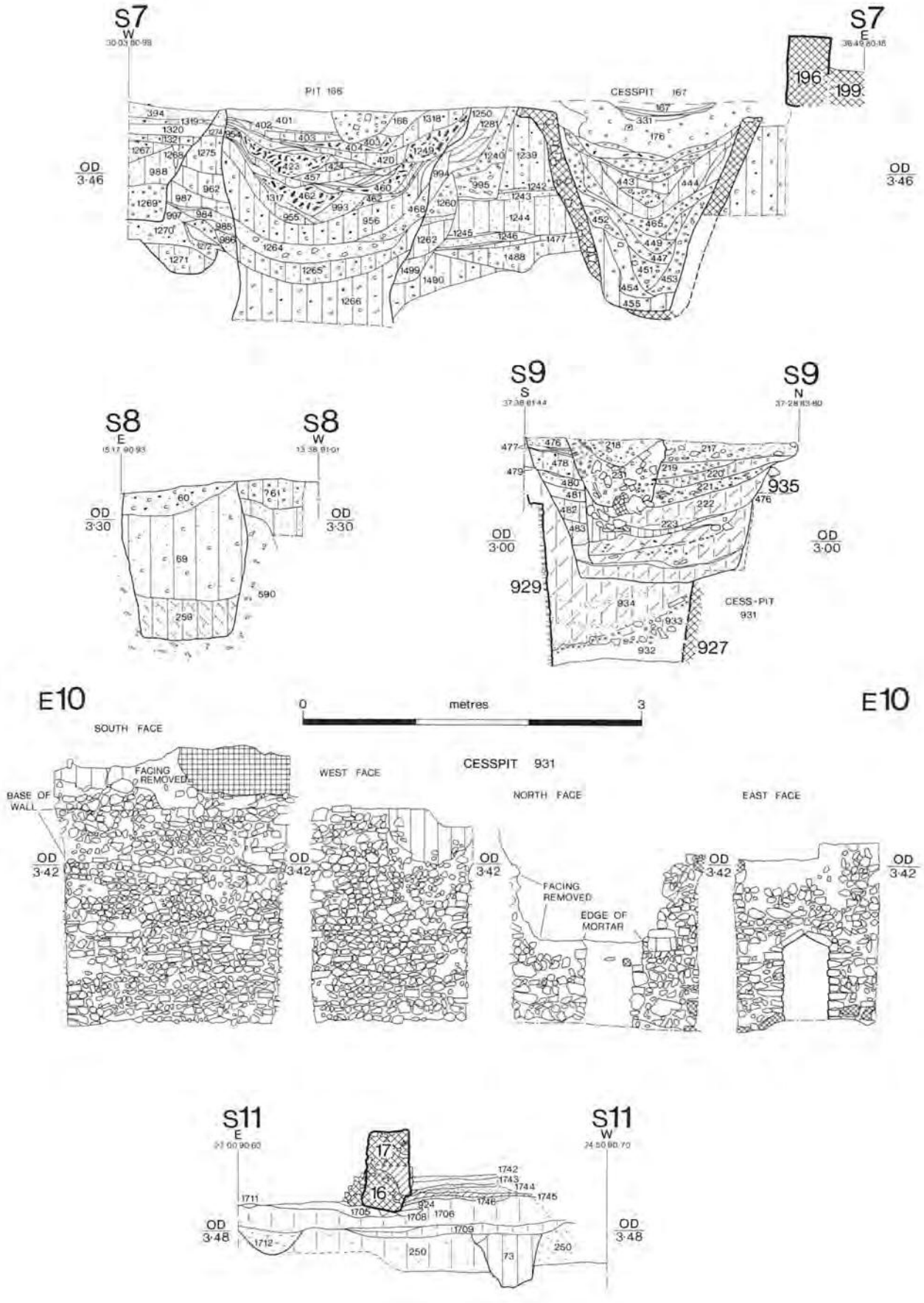

Fig.13 Site 170N, sub-site 1. Sections S7-S9, S11. Elevation of cesspit 931 (E10). Scale 1:50

On the east, wall 532 was built on top of the Period 3 - boundary (1235); it was built of flints bonded with yellow sandy mortar. To the south, wall 1830 was built of small, well-coursed flint rubble bonded with yellow-grey mortar. In the south-west corner of the yard an elaborate flint-lined cesspit (931) was built against the new walls — presumably replacing the early Period 4 pit (194) to the north. It was *c.* 1.5m deep with a pointed arched adit at the base of its east wall (Pl. XIII; Fig. 13, E10). A comparable example from the 13th or 14th century has been found at Carrow Abbey (sire 296N, unpublished). After the pit had been in use for some time and had largely been infilled, it was partially cleaned out and enlarged by the construction of a new north wall (935). The new cesspit (476) was kept fairly clean, and infilled over quite a long period with a sequence of gradual tipping (Fig. 13, S9). It was probably contemporary with an adjacent rubbish-pit (210) of *c.*1650-60/70, with which it shares sherds of the same vessel. Cesspit 476 was itself finally recut as a shallow unlined pit (231) (Fig. 13, S9), which was infilled with large quantities of domestic rubbish some time between 1680 and 1700. No activity of this later phase was detected on tenement F.

In the new yards created at the south end of the site, a new flint-and-brick rubble wall (1826) separated yards D South and E South from each other. In the north-east angle of yard D South, a new cesspit (167) was set against the walls. Like 931 this was a fairly elaborate affair, built of flint masonry with an arched adit at the base of the south wall; each wall bore one or two rows of small rectangular adits to assist with seepage (Pl. XIVb; cf. a late 17th-century cesspit on Duke Street, site 701N, unpublished). It was infilled over a fairly long period by a sequence of gradual tipping (Fig. 13, S7), probably between *c.*1650 and 1680. Joining fragments of clay pipes between this pit and the 931/476/231 sequence of pits may represent residual rubbish lying on the surface of the yards before they were sub-divided.

The occurrence of pantiles (type RT10) in the upper fills of these cesspits suggests that one or more buildings on the frontage was re-tiled between 1670 and 1700.

Period 5 (c.1700 and later) (Fig. 10)

At some stage all of the yard walls had been rebuilt, but whether this marked a concerted campaign of renewal, or whether it merely marked routine patching and repair of boundary walls is uncertain. Most of this work is not closely datable; however, most of these walls in their final state are shown on the 1885 OS map (cf. Fig. 1).

On tenement D the east wall was rebuilt as 196, and the south as 300 — both in flint and brick rubble. Wall 300 was subsequently rebuilt as 197, the upper courses of which were mainly in brick with only the occasional flint. A brick-lined soakaway (247) in the north-east corner of the yard is probably of 19th-century date.

On tenement E the east wall was rebuilt as 198, and the south as 1829 — both in flint rubble bonded with loose grey mortar. Wall 1829 was subsequently rebuilt as wall 199, the upper courses of which were mainly in brick. At some stage the southern half of the yard was divided into two rectangular plots by the construction of north-south (865) and east-west (1121) cross-walls; both were built of roughly coursed flints and occasional bricks bonded with a hard, pale beige sandy mortar. Their date is uncertain, but their plan bears a marked resemblance to the covered yards or outbuildings shown on the 1885 OS map. Similarly, the flint and brick masonry walls forming the northern edge of the excavations of tenements D—F are probably the rear walls of the buildings shown on the 1885 map.

In the southern yards wall 1826 was rebuilt as 1825, in roughly coursed large flint rubble bonded with crumbly yellow-grey mortar.

The only other feature shown on Fig. 10 is a 19th-century sewer-pipe trench (1108) to the north of tenement A.

Sub-site 2 (Fig. 14) — see MF 170N.1, C1-2 (C3)

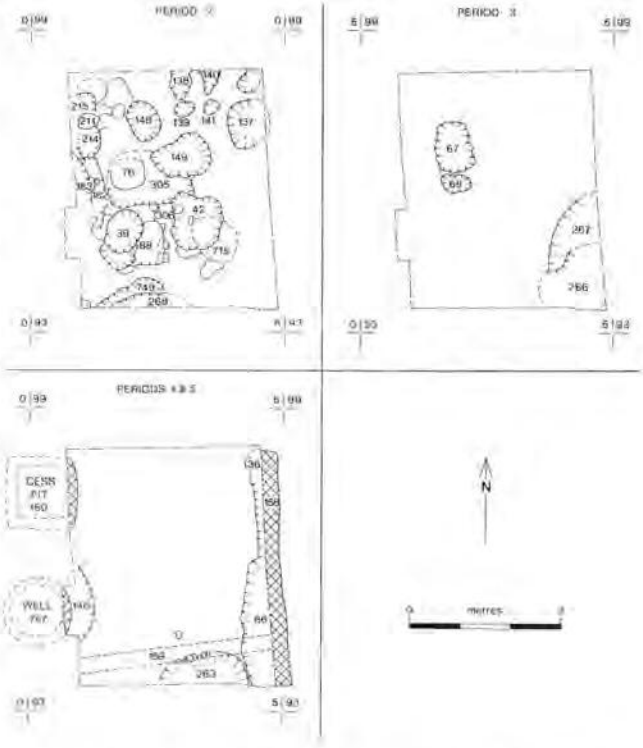

Fig.14 Site 170N, sub-site 2. Periods 2-5. Scale 1:200

7. The Artefacts

The reader is referred to the General Introduction for an explanation of the basis on which material has been selected for illustration and publication, and a full list of the abbreviations used in these reports

Medieval and Post-Medieval Pottery

by D.H. Evans

Evidence for early occupation is slight (MFT.1), and what little there is was concentrated in the western half of the block, in areas A to D, and on sub-site 2 (MFT.2, 5 and 14). The bulk of the pottery from sub-site 1 was deposited during Period 3 — mainly in the infilling of the earlier quarries; much of this rubbish is highly residual and was probably introduced on to the site from old tips in the vicinity, in much the same way as the smelting slag. The sequence is best demonstrated in area

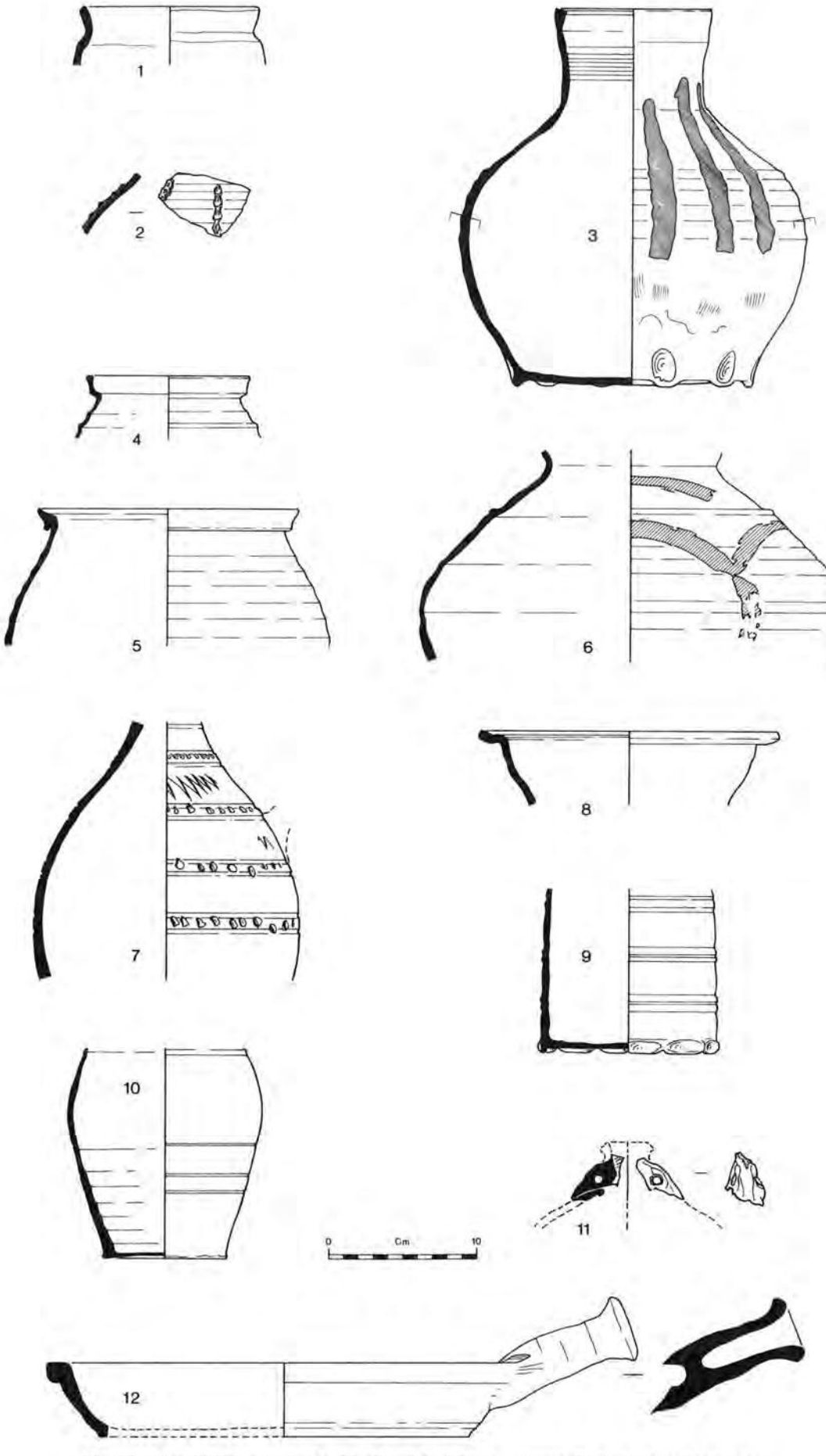

Fig.15 Site 170N, sub-site 1. Medieval and later pottery. Periods 2-4. Scale 1:4

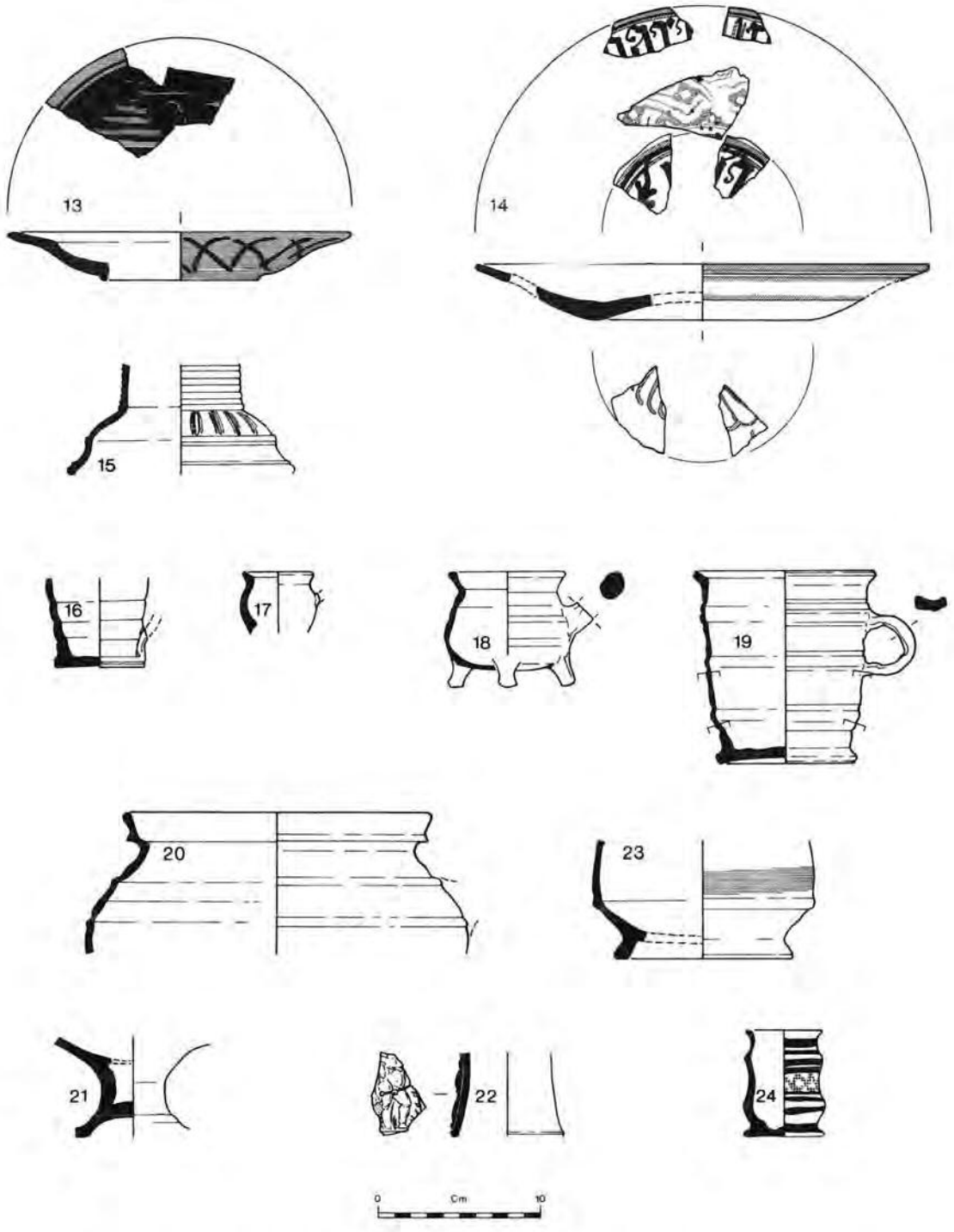

Fig.16 Site 170N, sub-site 1. Late medieval and post-medieval pottery. Periods 3-4. Scale 1:4

D (MFT.6), where the quarries and pit fills which precede the introduction of Raeren stonewares and the laying of new yard surfaces contain masses of residual material but very little contemporary pottery (i.e. early and mid 15th-century wares); whereas the later features have a very low residual element, but much larger quantities of Late Medieval and Transitional ware, etc. (a similar pattern can be seen in areas A to C — MFT.3). The low status of the holdings is probably reflected in the comparative scarcity of fine wares, and particularly imports, throughout the Middle Ages: the only late medieval imports which are present in any numbers are the ubiquitous German stoneware drinking-mugs.

The later 16th and 17th centuries see a significant change in the proportions of local and imported wares, in that there is now a fairly strong element of imported Low Countries and German fine-wares (Pl.XXI). The documentary evidence suggests that these are unlikely to reflect the presence of a high status dwelling in one of the poorest areas in Norwich, and it seems likely that these are the personal possessions of immigrant families; the continued presence of these fine-wares well into the first half of the 17th century may reflect a particular demand or taste for these wares amongst families which must by now have been settled in the community for some time. Joins in vessels across the site (MFT.16) show that the yards remained unenclosed into the 1640s. The subsequent partition of the yards seems to have been accompanied by the introduction of night-soil collection, and this is reflected in the almost total absence of later 17th and 18th-century pottery types (MFT.1).

As several vessels occur in features in more than one area, the catalogue is organised by period, and the area is given in brackets after the feature number (for brevity areas A to C are indicated by the prefix A).

Site 170N (Fig. 15)

1. Middle Saxon cooking-pot. Gritty, hard reddish fabric with a light grey core and small white inclusions; reddish-brown surfaces. Smoke-blackened exterior. Residual in pit 49, layer 50 (A/3).

Period 2 (Fig. 15; MFT.2, 5, 8, 11 and 14)

2. Non-local glazed jug. Light grey fabric with an occasional dark grey core; light grey interior; exterior dipped in a light green lead glaze. Applied plastic ornament. Layers 496 and 1315 (D/2).

3. Grimston-type jug with iron-rich applied decoration. Layer 1226 (D/2).

Period 3 (Figs 15 and 16; MFT.3, 6, 9, 11, 13 and 14)

4. Late medieval Low Countries GRE jar. Fine red fabric with sparse, minute white inclusions; purplish-brown surfaces with a dark greenish-brown lead glaze on the exterior and on the lid seating. Smoke-blackened. Pit 70, layer 163 (A/3).

5. Non-local unglazed cooking-pot. Fine, hard, light blue-grey fabric with small white grits; light grey interior; blackened exterior. Wheel-thrown. Pit 626 (F/3).

6. Grimston-type jug with iron-free applied strips. Layer 700 (E/3).

7. Non-local glazed jug. Hard, orange-red fabric with occasional minute white grits; orange surfaces; exterior dipped in a medium/dark green lead glaze. Horizontal bands of impressed finger-nail ornament. Pit 347 (E/3).

9. LMT jug or large tankard. Pit 38 (A/3).

10. Medieval Surrey white ware jug. Fine off-white fabric with a light grey core; pale buff surfaces; upper part of body dipped in a mottled, light greyish-green copper-bearing lead glaze. Probably a product of one of the East Surrey kilns such as Kingston or Cheam (inf. Mr A.G. Vince, Museum of London). Layer 358 (F/3).

11. Neck and lug of a 16th-century Tudor Green or early Surrey white ware costrel. Cf. Holling 1977, types 15 and 16. Pit 334 (E/3).

12. Late medieval Low Countries GRE frying-pan. Orange-red fabric with a light grey core; reddish-brown surfaces; base of interior covered with an even amber lead glaze. Smoke-blackened exterior. Pit 239 (A/3).

13. TGE dish. Cream fabric; surfaces painted with dark blue brush strokes on a pale blue field. Cf. small bowls finished in identical colours and with the same style of external decoration from Caerleon and Penhow Castle, Gwent (Evans 1982, fig. 6, no. 55; inf. Dr Stuart Wrathmell — publication forthcoming); a southern European origin has been suggested for these wares, although opinion differs between an Iberian or an Italian source (Lewis and Evans 1982, 87-8). Pits 657 and 656 (E/3).

14. Hispano-Moresque lustreware dish. Pinkish granular fabric with few visible inclusions; interior painted in medium/dark blue and gold lustre on a plain white ground; exterior, plain white with two bands of decayed copper lustre painted around the rim and the belly of the dish, with a rosette on the base. Probably 15th century (inf. Mr J.G. Hurst). Pit 244, layer 645 (E/3).

15. Shoulder of a late Raeren decorated jug. Cf. Cat. 778 for form. Pit 347 (E/3).

Unillustrated:

Cat. 186. EMW jar. Pit 360, layer 175 (A/3).

Cat. 503. Local early post-medieval jug or jar shoulder (probably illustrated upside down). Pit 1659 (D/3).

Cat. 884. Surrey white ware skillet. Layer 710 (E/3).

Cat. 217. Late medieval Low Countries GRE jar rim. Pit 224 (E/3).

Cat. 612. Low Countries undecorated slipware bowl. Pit 629 (ES/3).

Period 4 (Figs 15-18; MFT.4, 7, 10, and 11-14)

8. Post-medieval Grimston-type bowl. Exterior unglazed; interior covered with an even light green lead glaze. Wheel-thrown. Pit 77, layer 116 (A/4).

16. Early post-medieval vase. Pit 662, layer 659 (E/4).

17. Late Grimston-type small jar. Interior largely unglazed. Scar on upper part of body may have resulted from a stacking accident, or may indicate a small handle. Pit 817, layer 818 (E/4).

18. Early GRE pipkin. Pit 391 (ES/4).

19. Early post-medieval handled mug. Pit 391 (ES/4).

20. Post-medieval Dutch GRE cauldron. Reddish-brown fabric with minute white inclusions; reddish-brown surfaces; greenish-brown lead glaze on the lid seating and part of the upper body of the exterior. Smoke-blackened. Pit 13, layer 15 (A/4).

21. Base of an English TGE salt. Creamy buff fabric; plain white surfaces. Pit 1273, layer 988 (DS/4).

22. Part of a Cologne stoneware tankard or *schnelle*, with a moulded depiction of a man's torso with a vine trailing across his middle, and flanked on the right by more foliage. Pit 679 (D/4).

23. TGE drug jar. Coarse, granular red fabric with small black inclusions; bluish-white tin-glazed interior; bluish-white exterior, with a pale blue stripe painted around the waist. The base is heavily stained. Pit 177 (D/4).

24. TGE ointment pot. Fine cream fabric; dirty greyish-brown tin-glazed interior; exterior, painted decoration in manganese and medium blue on an off-white ground. Probably a London product, late 16th/early 17th century; cf. Garner and Archer 1972, pl. 2b. Pit 177 (D/4).

25. GRE double basin container or condiment dish. Pit 166 (DS/4).

26. Speckle-glazed beaker. Pit 166, layer 993 (DS/4).

27. Iron-glazed jug. Pit 166, layer 1265 (DS/4).

28. Dutch white ware cauldron; bichrome glazed. Pit 166, layer 1265 (DS/4).

29. Early post-medieval bowl. Pit 166, layer 1265 (DS/4).

30. Late or post-medieval Grimston-type small jar. Unglazed interior; light green lead-glazed exterior. Pit 166, layer 956 (DS/4).

31. GRE chamber-pot. Pit 166, layer 993 (DS/4).

32. Local slipware beaker. Slightly raised decoration applied in thick darker orange slip (stippled on drawing). Pit 60 (A/4).

33. Base of an Anglo-Netherlands TGE charger. Coarse pink fabric; greenish lead-glazed exterior; interior painted with foliage and fruit decoration in green, brown, medium/dark blue and orange ochre on a pale blue field. Suspension hole in base. First half of 17th century. Pit 61 (A/4).

34. Anglo-Netherlands TGE charger. Fine, pinkish-buff fabric with occasional small voids. Greenish-buff lead-glazed exterior; interior, painted geometrical decoration in medium blue and orange ochre on a bluish-white field. ?1630-1640. Pit 60 (A/4).

35. Anglo-Netherlands TGE plate. Fairly coarse white fabric with occasional large red grog inclusions; pale greenish lead-glazed exterior;

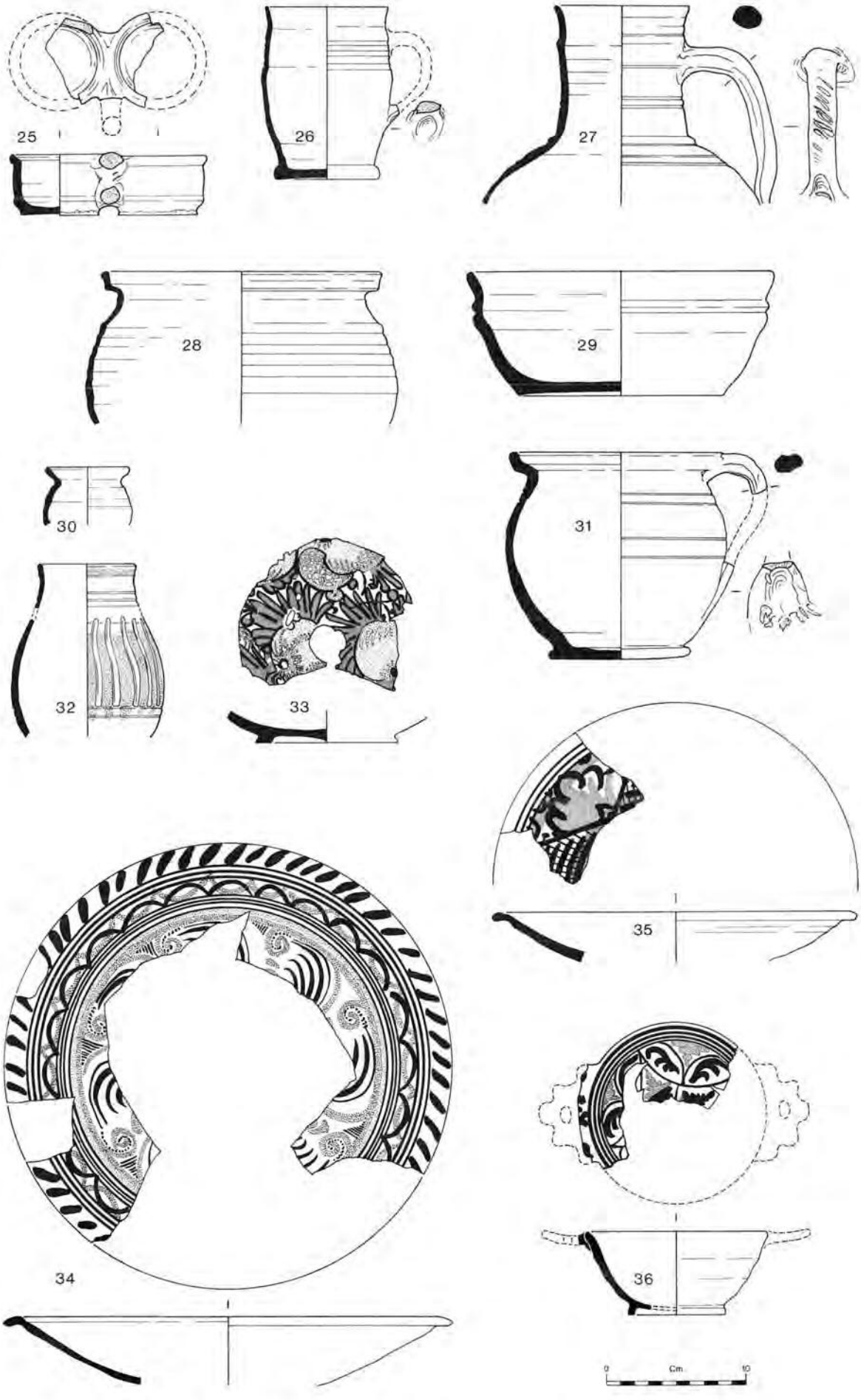

Fig.17 Site 170N, sub-site 1. Post-medieval pottery. Period 4. Scale 1:4

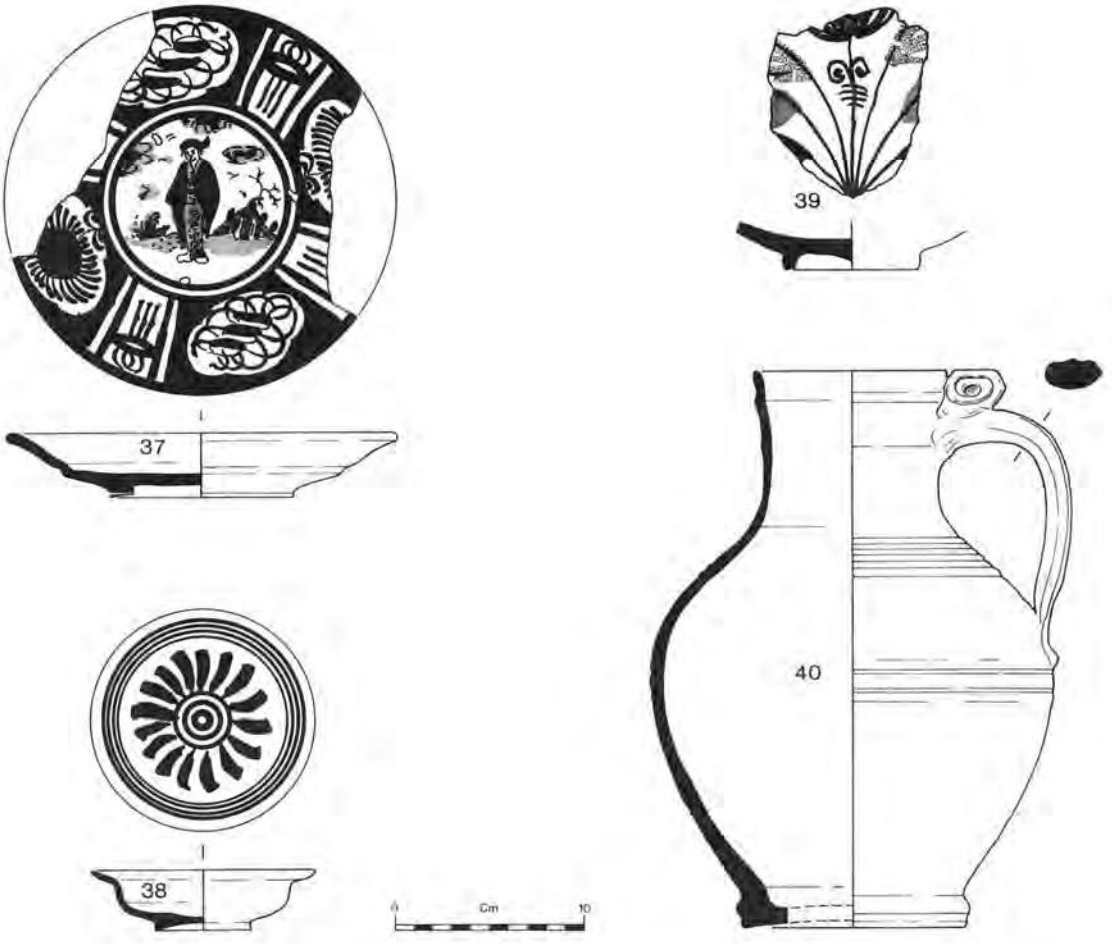

Fig.18 Site 170N, sub-site 1. Post-medieval pottery. Period 4. Scale 1:4

interior painted with dark blue and pale green on a white ground. ?1630-1650. Pit 60 (A/4).

36. Anglo-Netherlands TGE porringer. Fine, soft creamy-white fabric; grey-green lead-glazed exterior; interior decorated with dark blue, yellow, green and orange ochre on a white field. Pit 60 (A/4).

37. ?North Netherlands TGE plate. Cream fabric; pale blue-green lead-glazed exterior; interior painted in pale and medium/dark blue on a white ground. Trivet marks and suspension hole. First half of 17th century; for a similar scene, cf. Korf 1963, fig. 124; for similar border motifs, cf. Korf 1963 and Jennings 1981. Pit 210 (E/4).

38. Anglo-Netherlands TGE bowl. Pinkish-buff fabric; grey-brown lead-glazed exterior; interior painted in light and medium blue on a white ground. Pit 210 (E/4).

39. English TGE tulip dish. Coarse creamy-white fabric with one massive quartz pebble; pale greenish lead-glazed exterior; tulip painted on interior in medium blue, pale green, yellow and brown ochre on a white ground. Cf. a London or Brislington product dated to the last quarter of the 17th century (Garner and Archer 1972, pl. 16b), and a Brislington example dated to 1680-1700 (Archer 1969, 152-61). Cesspit 231 (E/4).

40. Iron-glazed jug. Cesspit 231 (E/4).

Unillustrated:

Cat. 997. Late medieval Low Countries unglazed cauldron. Pit 77 (A/4).

Cat. 883. Surrey white ware pipkin. Pit 12 (A/4).

*Cat. 1019. Post-medieval ?S.W. French jug with vertical incised stripes. Cf. Clarke and Carter 1977, no. 287 for fabric and glaze. Pit 12 (A/4) and layer 2.

Cat. 1227 and 1229. GRE pipkins. Pit 12 (A/4).

Cat. 588. N. Holland slipware cockerel bowl. Pit 11 (A/4).

Cat. 511. Local early post-medieval bowl. Pit 61 (A/4).

Cat. 544. Werra dish dated 1625. Pit 61 (A/4) (Pl.XXI).

Cat. 585. N. Holland slipware cockerel bowl dated 1614. Pit 61 (A/4) (Pl.XXI).

Cat. 598. Dutch 'non-cockerel' slipware bowl. Pits 61 and 166 (A/4 and DS/4).

Cat. 619. N. Holland slipware basket dish. Pit 61 (A/4).

Cat. 625. N. Holland slipware dish. Pit 61 (A/4) (Pl.XXI).

Cat. 685. Local slipware mug. Pit 61 (A/4).

Cat. 953. Dutch GRE cauldron. Pit 61 (A/4) (Pl.XXI).

Cat. 994. Dutch-type GRE tripod skillet. Pit 61 (A/4).

Cat. 1069. Iron-glazed tyg. Pit 61 (A/4).

Cat. 1126. GRE dish. Pit 61 (A/4).

Cat. 1351. GRE sprinkling pot. Pit 61 (A/4).

Cat. 589. N. Holland slipware cockerel bowl. Pit 60 (A/4).

Cat. 629. N. Holland slipware pipkin. Pit 60 (A/4).

Cat. 1110. GRE dish. Pit 60 (A/4).

Cat. 547. Werra bowl. Pit 60, layer 69 (A/4).

Cat. 1084. Speckle-glazed cup. Pit 60, layer 69 (A/4).

Cat. 182. EMW ginger jar. Layer 722 (D/4).

Local unglazed copy of a Low Countries grey ware *grape* (two-handled tripod cooking-pot or chamber-pot), presumably contemporary with local unglazed jug production. Pit 201 (D/4).

Cat. 928. Dutch white ware bowl. Pit 1250, layer 1251 (DS/4).

*Cat. 460. Non-local LMT jug. Pit 166, layer 423 (DS/4).

Cat. 924. Dutch white ware collar-rimmed bowl. Pit 166, layer 401 (DS/4).

Cat. 548. Werra dish. Pit 166 (DS/4).

Cat. 596. N. Holland slipware cockerel bowl. Pit 166 (DS/4).

Cat. 652. Metropolitan slipware dish. Pit 166 (DS/4).

Cat. 673, 674, 678 and 680. Metropolitan slipware mugs, jar and chamber-pot. Pit 166 (DS/4).

Cat. 468. LMT lid. Pit 166 (DS/4).

Cat. 942. Dutch GRE base. Pit 166 (DS/4).

*Cat. 1034. Reversed Cistercian ware mug. Pit 166 (DS/4).

*Cat. 722. Late Cistercian ware sherd, ?tankard. Cesspit 167, layers 447 and 451 (DS/4).

Cat. 560. Weser slipware bowl. Pit 709 (E/4).

Cat. 538. Werra slipware dish. Pit 662, layer 359 (E/4).

Cat. 597. N. Holland slipware cockerel bowl. Pit 662, layer 359 (E/4).

The Clay Pipes

by Susanne Atkin

There were 251 fragments recovered from 46 individual contexts, most of them from pit-fills — all are listed in MFT.17.

The main areas of pipe-deposition appear to be area D South (pits 166 and 167), and area E (pit 231 and cesspit 217); a small number of pipes occur in pits in areas A, B, D and G, all of similar date to those bowls in areas D South and E. However, considering the number of 17th-century pits on the site, the paucity of pipe fragments is surprising when compared to the larger numbers from the contemporary pits on Alms Lane and Pottergate.

Period 4; Area D South

Pit 166: fifty-one fragments, including fifteen datable bowls; two bowls are probably early London-types *c.*1590-1620 (Fig. 19, No. 1), while two others were probably made in Norwich *c.*1600-30/40 (Fig. 19, Nos 2-3). The latter are crudely-made, with degenerate 'spurs' rather than any defined base. The remainder of the bowls in this pit must have been in production between 1640 and 1660/70. A stem from layer 462 joins with one from pit 12.

Layer 1, 'over 401' (in pit 166): includes two small early bowls *c.*1610-40; one of them is a London-type spurred bowl, the other is stamped on the base with a five-leaved (heart-shaped) rose, perhaps of Dutch or London origin. Among the five mid 17th-century bowls is one with a mould flaw on the right side of the base identical to a flaw on a bowl from cesspit 231 (area E) but the former is 'decorated' on the left-hand side of the stem near the bowl with four diagonal lines of incised, irregular circles; perhaps the maker tried it as an experiment — certainly no other example of such a design has been found in Norwich.

Pit 167: forty-three fragments including five bowls, all datable to between 1640-70. Two bowls in layer 176 and one in layer 231 (area E) must be from the same mould as all have an identical mould flaw on the left side of the base (Fig. 19, No. 4).

Period 4; Area E

Pits produced a total of eighty-four fragments including seventeen bowls of between 1640-70 at the limits, but probably used during the 1650s/60s. One bowl in layer 231 has a mould flaw identical to one found nearby on site 284N (layer 128). A complete pipe, 200mm (8in) long, *c.*1630-60, came from layer 757, a fill of pit 210.

There are two spurred bowls (in contexts 220-223 and 476), and on both Pottergate and Alms Lane these occur in similarly-dated groups. There are crossfits between 231, 220-223, and 476.

Discussion

Among the interesting aspects of this site are: a) the number of joins within, and between, layers, and between areas as shown in MFT.18 (cf. the pottery report); b) the incidence of mould flaws; c) the completeness of many of the pipes from bowl to mouthpiece (or near to it). All suggest a fairly short period of deposition with little subsequent disturbance. The absence of any 'transitional' types of bowl would indicate that the filling of the pits occurred prior to 1670/80. The only later bowls are four of mid 18th century date (in layers 1 'over 401' and 2).

Area D South (Fig. 19)

1. Swollen bowl; rim crudely finished with knife and not bottered indicating an early date; thickish stem with wide stem bore. *c.*1590-1620. Layer 462, pit 166.

2. Tiny spur merging into stem, crudely milled, small capacity. ?Early Norwich product. 1600-40. Pit 166.

3. Rough exterior, cracked clay with light brown tinge and mica specks on surface, crude high milling all round rim, 'degenerate' spur, thick stem. Probable Norwich product. 1600-40. Pit 166.

4. Bulbous type; crude untidy milling all round rim, smoothed seams and exterior, mould flaw on left side base. Cf. AO 1969, fig. 1, no. 12: 1640-70. Layer 176, pit 167 (two examples; 1 other example in pit 231, area E).

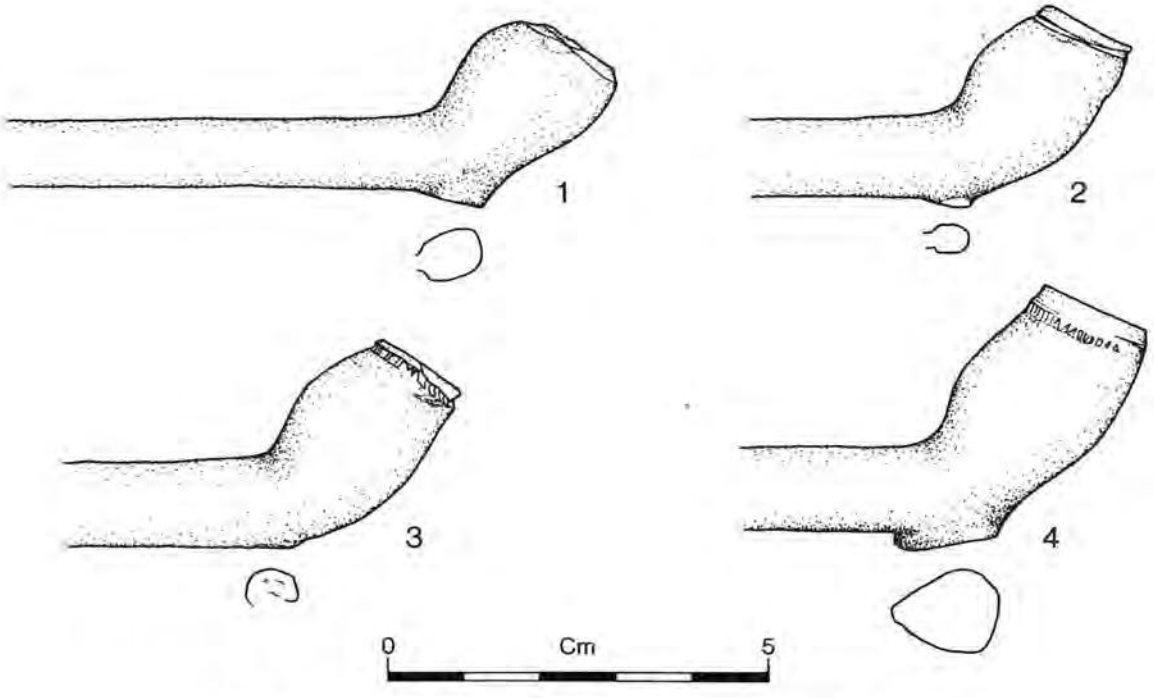

Fig.19 Site 170N, sub-site 1. Clay pipes, area D South. Scale 1:1

The Small Finds

by Sue Margeson

As explained in the introduction to these sites, the key material will be published in full in the Small Finds volume, and what follows here is merely a contextual summary to be read in conjunction with MFT.19.

It is difficult to draw conclusions from the finds about the occupations and life-styles of the occupants as the objects found in each tenement do not necessarily represent the furnishings or belongings of people living on it — as material was scattered from tenement to tenement over the unenclosed yard up to the middle of Period 4 (*c.*1650). Furthermore, the deposits are likely to include large amounts of residual material from other sites, as the quarries were infilled over Periods 1-3.

There is evidence of small-scale craft activity in several periods. The presence of horseshoes and horse equipment may reflect stabling in the area (cf. Sachse 1967, 28-9, 133 and 199). Otherwise, the finds relate mainly to buildings and their domestic contents, among them an important deposit of glass vessels. Apart from a finger-ring, two buckles, and a purse-bar of 15th-century date, the dress-fittings show no evidence of any degree of wealth, consisting mostly of wire pins, lace-tags and loop fasteners of the 16th or 17th century.

Period 2 (1200-1400)

Sparse occupation on the site before Period 3 is reflected in a paucity of finds, many of which were probably brought from elsewhere as the quarries were infilled. Whetstones of Norwegian ragstone and English sandstone in area D were probably for domestic use. A hemispherical bone spindle-whorl from area A of typical early medieval form, and a large and finely-worked bone needle from area D indicate domestic craft activity. There is also an asymmetrical bone die from area F.

Period 3 (1400-1600)

The number of finds throughout the site at this period shows increasingly dense occupation, though infilling of the quarries continued. Building materials consist of nails, structural ironwork and a few fragments of window-glass, some of which (from areas D and E) is painted and may be intrusive from elsewhere. Industrial evidence includes an important piece of bone-working debris (from making counters or buttons) from area A, teeth from heckles or woolcombs (area D), and an auger bit for wood-working. Whetstones of blue phyllite and sandstone (areas A and E South), and Ardennes schist and Norwegian ragstone (from area E), and a few fragments of Rhenish lava quernstone from areas A, E and F may be the result of rubble clearance. Domestic assemblages are notable in area E where a large number of fragments of drinking-glasses (some decorated) were found, including a fragment of a North Italian goblet.

Medieval dress-fittings from areas A and E are of relatively high quality. A buckle of late 15th or early 16th-century date from area E (Pl.XXII) may be the product of the Cheapside buckle-maker whose buckles have distinctive repoussé ornament and are further decorated with black lacquer (Museum of London, pers. comm. J. Clark). It is rare to be able to trace the products of a medieval metalworker. If this is indeed the case it has implications for the interpretation of the site, as the importation of a buckle from London would indicate a citizen of some standing. A copper alloy finger-ring with a setting (presumably for a precious stone) from area A, and the arm of a medieval locking-buckle from area E (both residual in Period 4) are of equivalent quality, as is a copper alloy purse-bar, all of 15th-century date. The deposits in area E South included a horseshoe and a rowel spur, and there are horseshoes in other contexts in this period, perhaps evidence of stabling. A harness-stud with suspension loop (residual in Period 5, area A) can probably be assigned to this period. A Nuremberg jetton of the mid 16th century and a *liard* of Philip II of Spain as Count of Flanders (1577-81) are contemporary in context. This latter may illustrate further the association with Low Countries' immigrants already evident on the site (see above, p.108).

Period 4 (1600-1700)

The yard was divided and enclosed in *c.*1650. The deposits all contain evidence of the buildings themselves (nails, hinge-pivots, door-fittings, and a considerable quantity of window-glass and came, especially from area D). Evidence of industry and crafts, though sparse, reflects a number of different activities: textile manufacture in the presence of a Jurassic limestone spindle-whorl from area D, and a heckle or woolcomb tooth from area E; metal-working (a blacksmith's set from area A), woodworking (a gouge bit from area E), and stone-working (a double-ended pick from area D South). A leatherworker's knife from the same area implies a connection of some sort with this trade. The tenements at this period produced an impressive assemblage of glass vessels including many drinking-glasses (some decorated), a decorated storage vessel, a bowl, a plate or dish, some phials, fragments of wine bottles, and a ?urinal fragment (areas A, D, E and D South, pit 166). Glass vessels (a phial, and a pendant ring from a glass goblet) intrusive in Period 2 are probably part of this group. There are also many knives from all areas, and three pairs of shears from area E. A double-sided, ivory comb from area D in Period 2 may also be of 17th-century date. Wire dress-fittings of familiar types (lace-tags, pins, loop fasteners) are found across the site. One long dress-pin from cesspit 167 on area D South, and a pin with a decorated head from area E South, stand out amongst these ordinary dress-fittings.

There is some evidence for commercial activity at this period. A coin weight for a 5s 6d coin of James I was found on area A and the pan from a balance from the same tenement. A farthing token of Charles I of 1625-34 issue found in cesspit 167 (area D South) was deposited around 1660-80 (and was in use when lost).

Two German jettons of Hans Schultes, one of the early 1550s from area D South and the other of *c.*1570 from area D, were probably still in use during the early part of this period.

Horse equipment is distributed over several tenements: a spur fragment from area A and horseshoes from areas A, D and E.

Leisure activities are reflected in the presence of a number of counters made from tile and pottery from areas E and D South.

Sub-site 2 — see MF 170N.1, G5-6

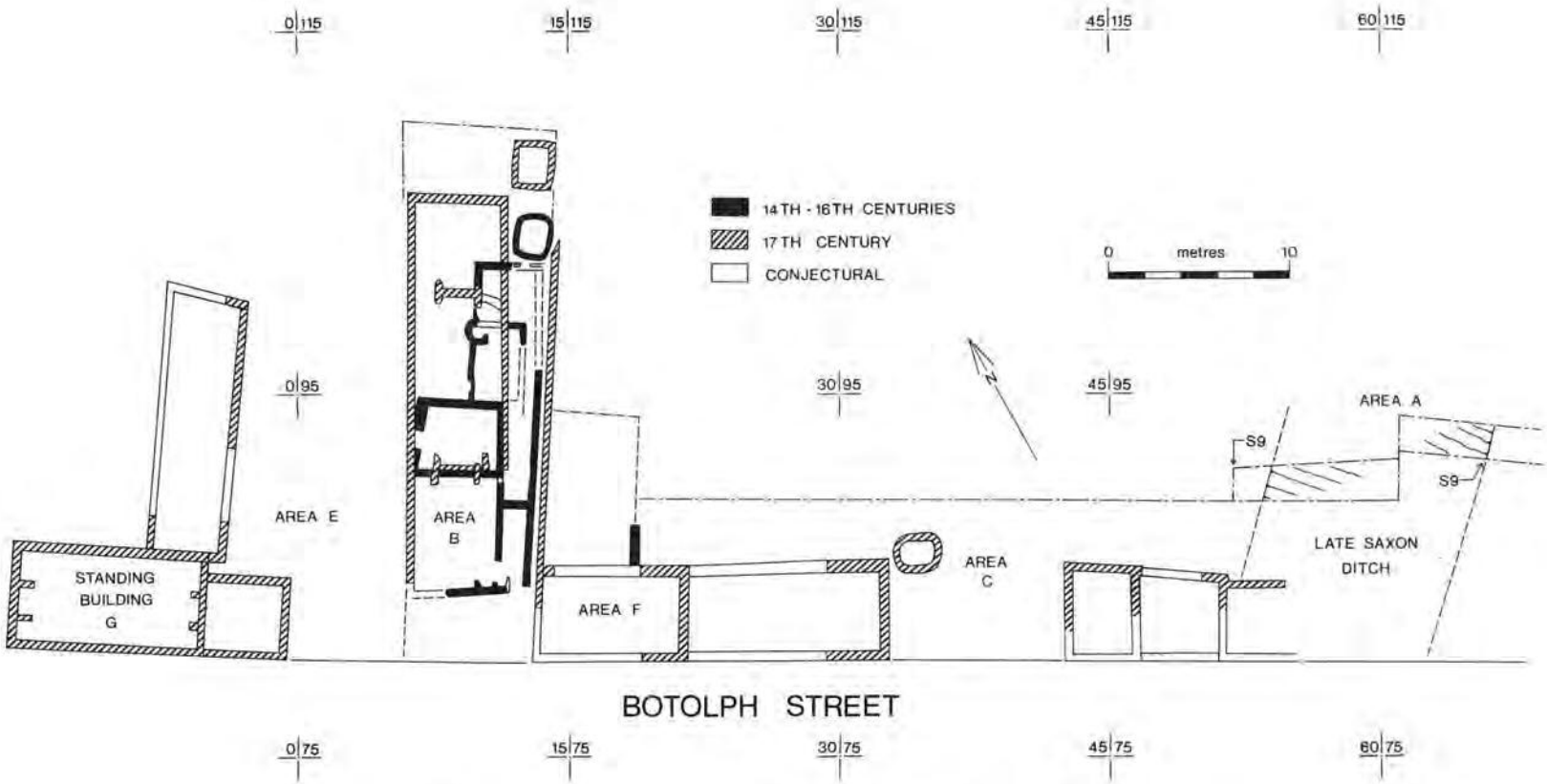

Fig.26 Site 281N. Location of the excavated areas. Scale 1:400

VIII. Excavations on 49-63 Botolph Street (Site 281N)

by Andrew Davison with D.H. Evans

1. Introduction

The excavation was carried out by J.P. Roberts, whilst employed by the Norfolk Museums Service, as part of the 1975 season of the Norwich Survey (interim report in Atkin *et al.* 1976, 196-201). A draft of this report was prepared by Andrew Davison, from the original field notes and drawings of Dr M. Baxter and J.P. Roberts, as part of a Diploma in Post-excavation Studies at the University of Leicester; the final text has been edited by D.H. Evans, who was also responsible for co-ordination of the report in its final stages.

2. Acknowledgements

We would like to thank the landowners and developers, Town and City Properties Ltd., for permission to excavate, their assistance in the process, and their donation of the finds to the Norfolk Museums Service (accession no. NCM 35.976). The work was financed by grants from the Department of the Environment, Norwich City Council, Norfolk County Council, and the Norfolk Research Committee. Post-excavation work and publication has been funded by the Department of the Environment. We are indebted to all the people who worked on the site, especially the site assistants, D. Bawden, M. Baxter and J. Thorp, and the finds assistants, H. Cool, M. Karshner and K. Parker. The site photographs were taken by J.P. Roberts.

Lastly, Andrew Davison would like to thank his colleagues in the Norwich Survey, in particular A. Carter and S. Jennings; and D. O'Sullivan, of the Department of Archaeology, University of Leicester, for much helpful advice and criticism.

3. The Site TG 2297 0944

Three main areas were examined. (Fig. 26)

Area A: at the extreme north-east of the site available for excavation a machine-cut trench located a large ditch, following its discovery on 284N to the south of Botolph Street (Atkin *et al.* 1976, 199). Although the ditch had been much disturbed by later pits and modern cellars, it was still possible to produce a reasonable section, and to recover suitable stratified samples for radiocarbon dating.

Area B: some 40m to the west of Area A was the main area of investigation, a trench approximately 30 x 10m running back from the street frontage, and apparently covering one property unit. Although the street-front building had been largely destroyed by later cellars and road-widening, its rear wall remained. Initial clearance of topsoil and modern debris was by machine, the total excavation of remaining deposits being by hand.

Area C: a further trench was opened along the street frontage between Areas A and B. Here, road-widening and post-medieval cellars had so disturbed the stratigraphy that little can be said in detail. Enough remained, however, to suggest that the development of this part of the site was generally the same as that of Area B, although the few walls found suggest that on these properties development took place only on the street frontage. Once again, initial clearance was by machine, with excavation of the majority of the surviving medieval deposits by hand.

Work on three further exploratory trenches was interrupted by the close of excavation. One of these lay at the extreme north of the site on the Edwards Road frontage (not shown on plans), the others to the west and east of the Area B frontage; these have been called trenches D, E and F respectively in the archive. A survey of a standing building to the west of Area B (G on Fig. 26) appears at the end of this report.

4. Summary

(Phases III-VII apply to Area B only)

Phase	*Description*	*Date*
00	Scatter of RB pottery, and a Hod Hill type brooch. No identifiable features.	1st-4th c.
01	Late Saxon ditch excavated *c.*AD 900 and subsequently recut twice.	10th-11th c.
I	Dense scatter of pits cutting natural. Evidence of early iron-working on Area C.	10th-12th c.
II	Ditch backfilled. Site used for iron-working: two hearths, and a number of pits containing slag, burnt daub and charcoal.	13th-early 14th c.
III	By the later 14th century construction of a building (B/1) which extended back into the yard. Occupation ended in a fire. *(Documentary evidence suggests a building on Area B by 1338.)*	14th c.
IV	Extensive rebuilding with a number of modifications. a. Levelling of the site for construction. b. New rubble-walled building (B/2), and new tenement boundary to the east of the yard. c. Building enlarged and modified (B/3) with a malthouse added to the rear, probably by the later 15th century. Yard resurfaced, and boundary walls partially rebuilt. d. Malthouse rebuilt and enlarged; construction and use of a series of kilns. Cesspit at rear of building in use into the early 17th century. *(Property probably being used for investment purposes.)*	*c.*1400-1625
V	Demolition of building B/3, and levelling of the site. Some pit digging.	*c.*1625?
VI	Construction of new building (B/4). Digging of new ? detached cesspits at rear of yard. *(Tenement possibly now divided into two holdings.)*	*c.*1625 onwards
VII	19th-century and later features.	1800 +

5. The Excavation

Area A: the Saxon Ditch (phases 01-VI)

The earliest feature found was a large ditch, which presumably represented a continuation of the length exposed on site 284N (Pl. XV, and MF 284N.1, A2-12). The excavated section on this site lay on an approximately south-west to north-east alignment, and had been recut on two occasions (Fig. 27, S9).

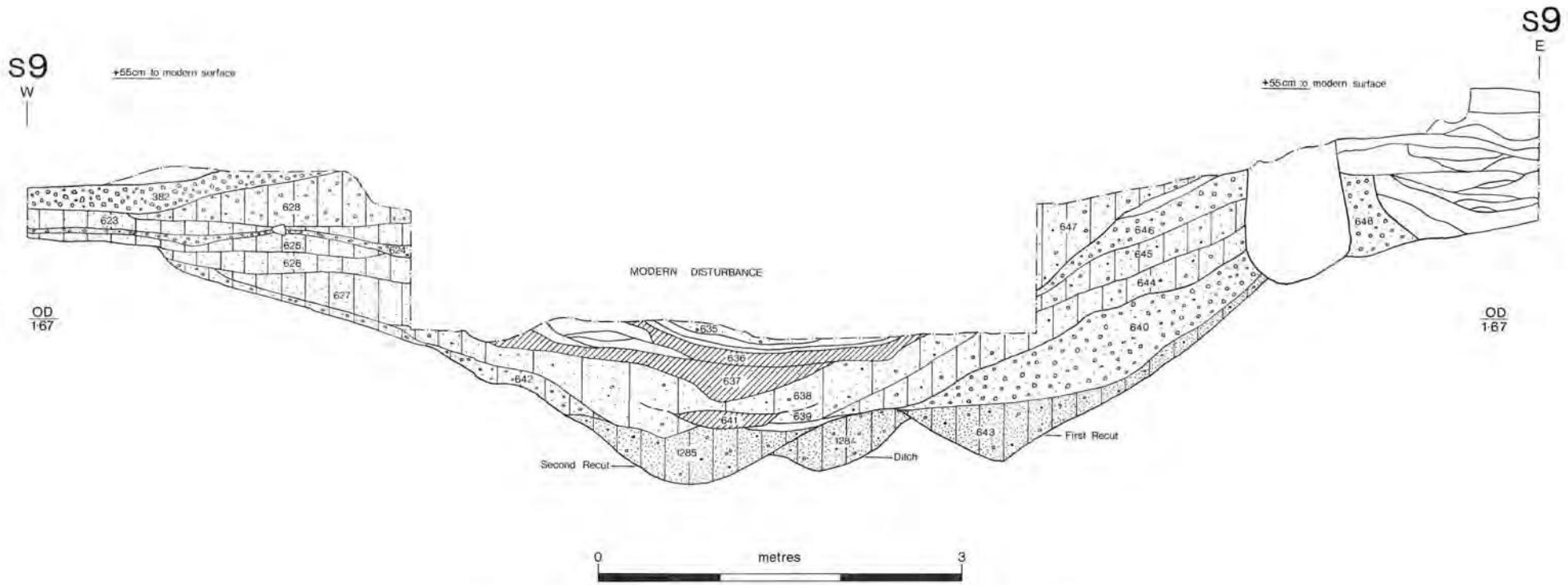

Fig.27 Site 281N, Area A. The Saxon ditch section, S9. Scale 1:50

Only the bottom of the original ditch cut remained, filled with a slightly dirty silt (1284). Enough remained of the first recut (643) to reconstruct the profile of the ditch at this stage: a shallow V shape, some 6m wide at the level of the contemporary ground surface, and at least 2m deep. Layer 643 was again highly silty, and relatively clean. A radiocarbon date of 1090bp ± 60 (AD 890 ± 60; Harwell HAR 2701) was obtained from a sample of bone in this layer. This recut was sealed by a thick layer of gravel in a dirty yellow sand matrix (640) which yielded a radiocarbon date of 1260bp ± 90 (AD 690 ± 90; Harwell HAR 2702). Associated with 640 was 648, a large dump of gravel and sand on the inner lip of the ditch.

The second recut of the ditch seems to have given it a slightly shallower profile, some 9m wide and 2m deep. The relatively clean primary silting (1285) was sealed by a series of mixed clay, sand and loam layers (625-7, 635-8 and 641). From the lowest of these, 641, immediately overlying the primary silting of the second recut, a radiocarbon date of 1190bp ± 70 (AD 780 ± 70; Harwell HAR 2700) was obtained. Sealing all these layers was 382, a hard gravel surface with much iron-pan.

The relatively clean silty nature of the primary fills of the original ditch and its recut suggests that in each case fairly rapid infilling took place. The gravel 648 on the inner lip of the ditch may represent the remains of a bank inside it. Given the nature of the material it is likely that the bank was revetted with timber, at least on its outer face, but it had been so damaged by later features that little can be said of its original form. The sand and gravel layer 640 may well have formed part of the bank which collapsed back into the ditch once the wooden revetment had either rotted or been removed.

The defences do not appear to have been kept in good order: after the original ditch had been dug it was allowed to silt up fairly rapidly. After the refurbishment of the defences they seem to have been neglected again, to the extent that the inner bank collapsed into the ditch. Once the ditch had been recut a second time it seems to have fallen into disuse, and to have been gradually backfilled.

The dating of the original construction of the defences and of their two phases of reconstruction must remain rather tentative, especially given the confusing nature of the radiocarbon dates. The date of AD 690 obtained from gravel 640, which sealed the primary silting of the first ditch recut, may be due to this material, forming part of the inner bank, having originally been dug from the original ground surface. Similarly, the early date of AD 780 from layer 641, which sealed the primary silting of the second ditch recut, may point to the origin of this infill material as being the adjacent ground surface.

The ditch found on both this and the St George's Street site 284N seems best interpreted as defining the northern limits of the late Saxon town (for a full discussion of the nature and date of this boundary, see the General Introduction). The evidence of the radiocarbon dates aside, the small amount of pottery in its lower fills is consistent with it having been in existence in the 10th century. The documentary evidence shows that long after going out of use as a boundary, it survived as a recognisable landmark and was converted into a lane — this use being represented in the archaeological record by the upper fills of compacted gravel and iron-pan.

Area B

Phase I (10th-12th centuries) (Fig. 28)

This phase is defined by the presence of Thetford-type and other locally made coarsewares, accompanied by occasional imports such as Stamford and Yarmouth-type wares. The earliest activity in this area was represented by a scatter of pits. The only structural evidence found was in the northern part of the site and consisted of a beam-slot (1095) and three post-holes (1139-40 and 1142); the structure to which they relate presumably lay to the west, largely outside the excavated area.

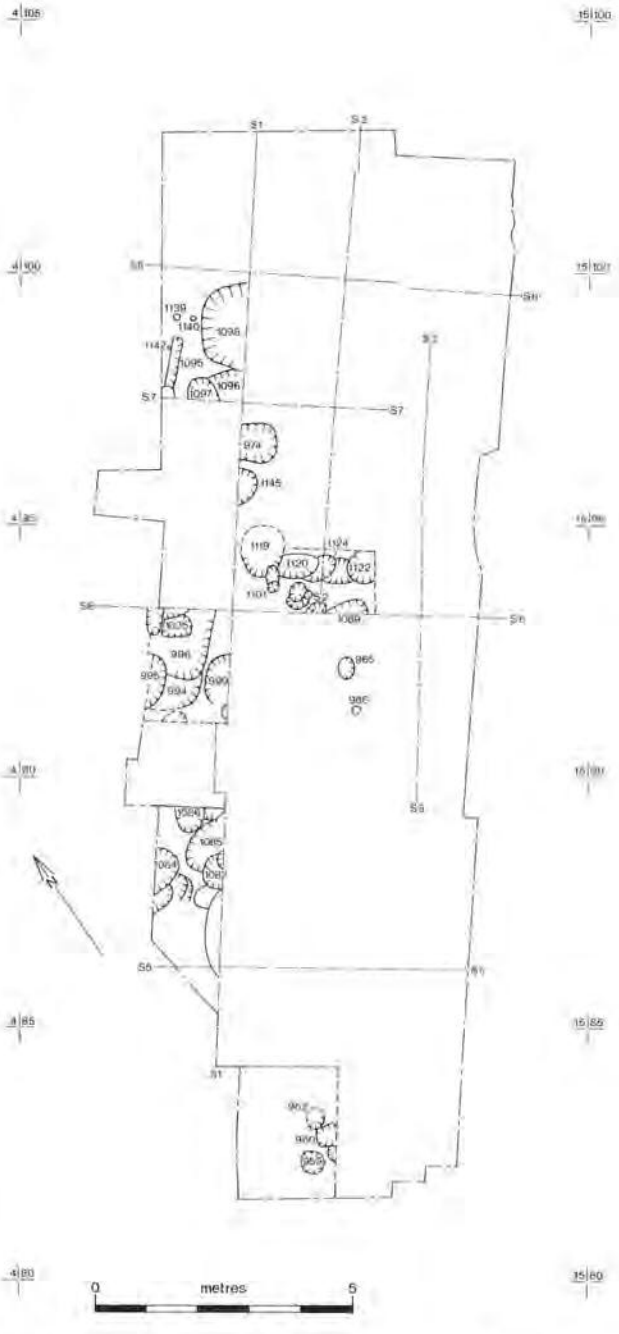

Fig.28 Site 281N, Area B. Phase I features. Scale 1:150

A series of relatively clean, very sandy loams covered the area. Some were small lenses, whilst others, notably 987, 1004, 1005, 1143, 1219 and 1221, were up to 30cm deep and covered a wide area (see, for example, Fig. 37, S1). These layers sealed a dense scatter of pits. Some of these were up to 2m across and 1m deep, and had generally sandy fills of a fairly clean nature, although most contained quantities of charcoal, some pottery and other domestic refuse, and a few had a distinctly ashy element to the fill.

Dating of this phase is to the 10th to the 12th centuries, on the basis of the pottery.

Fig.29 Site 281N, Area B. Phase II features. Scale 1:150

Phase II (13th-14th century) (Fig. 29)

It comprises those features which contain locally made coarsewares with small quantities of Grimston-type ware. The second phase of activity on Area B involved iron-working.

Two hearths (839 and 1081) were excavated, with associated surfaces and pits containing iron-working waste. A succession of surfaces of hard-packed flint gravel covered all or part of the area, 822, 1216 and 1218 being the major ones. These were interleaved (Fig. 37, S1) with layers of ash and charcoal (e.g. 816 and 844), layers of burnt silt (e.g. 841), and layers of silty loam. All of these were heavily charcoal-flecked, while layers 1129 and 1215 contained considerable amounts of iron slag and staining. Layers 816, 905, 977 and 1224 also contained burnt daub.

Associated with these layers were two hearths. The stratigraphically earlier one (1081) had a base of orange clay, set into a depression in the ashy surface 844 (Fig. 37, S1). It was roughly square, measuring *c.*1.10 x 1.10m. The later hearth (839) had a base of flints in hard yellow silt, the top of which was burnt. It was set into the ashy surface 841, and was roughly circular, measuring *c.*1.25m in diameter.

A number of pits were associated with this phase. All contained charcoal, some contained ash, and a few, notably 831, 838 and 988, contained iron staining, slag and cinders.

This phase of activity is dated to the 13th and 14th centuries, on the basis of the pottery. Evidence for structures is slight, but a possible building extending out of the excavated area could be represented by posts 904 and 828-30; moreover, the presence of burnt daub in several of the pits assigned to this phase suggests, at the very least, that the hearths had superstructures, and were probably associated with some form of buildings or covered working-space (however lightly-constructed) somewhere in the vicinity. Iron-working continued throughout the phase.

These hearths were probably used for ore-roasting, rather than for smelting. By mixing low-grade iron ore extracted locally from the underlying gravels (cf. the quarries on site 170N, above) with water, and heating to expel the sulphur, the ore could be turned into nodules with a fairly high iron content (see Dr Fisher's report on the iron ore from site 302N, below).

It seems possible that the ditch (above) on Area A was finally filled in during this period, since the uppermost sealing layer, 382, was heavily iron-stained, as well as containing quantities of disturbed iron-pan.

Phase III (late 14th century) (Fig. 30)

It is during this phase that the first firm evidence for a permanent building on the site was found. The dating evidence for its construction and use is slight, and rests principally on the presence of locally made coarsewares, and of reused ceramic building materials. Later disturbance had removed much of the evidence for the relationship between the walls and floor of the building, but the interpretation offered here seems plausible. As on site 170N (see above), all of the brick fragments used in the construction of the new building were introduced on to the site as reused rubble. No evidence for a tiled roof was found, and the building was presumably thatched.

Building B/1 had walls of roughly coursed flint and

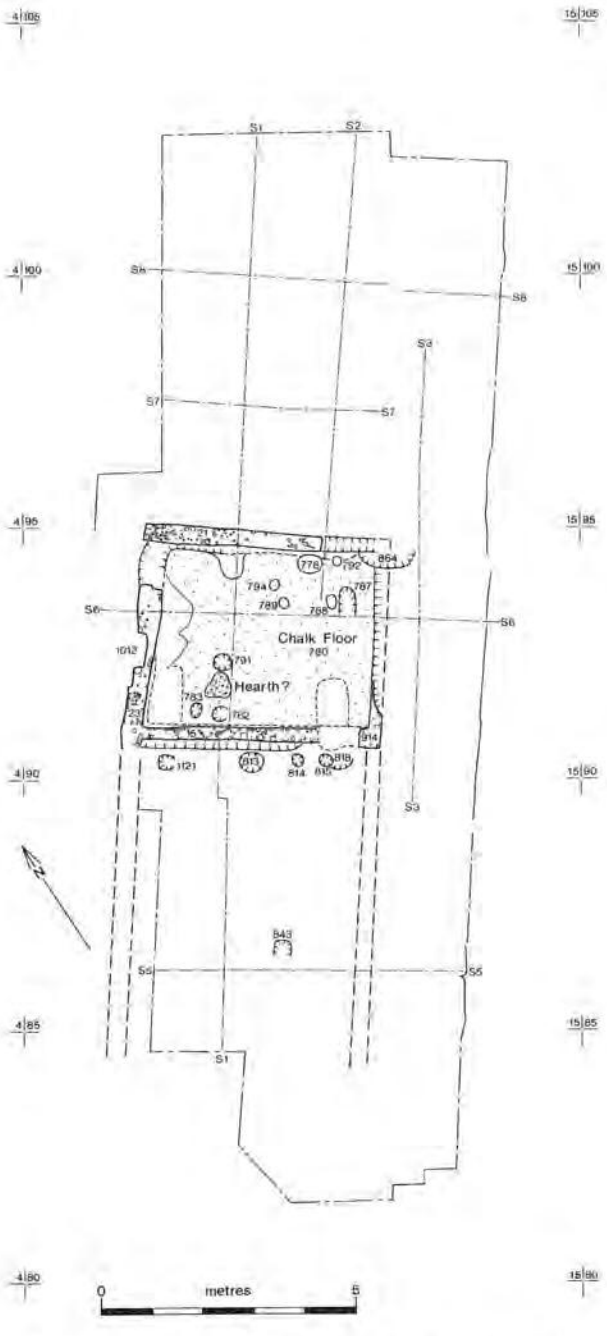

Fig.30 Site 281N, Area B. Phase III, building B/1. Scale 1:150

brick rubble in a course, soft sandy mortar, which varied in colour from pale buff to yellow, and were *c.*0.50m thick (15, 21, 23 and 914; Pl. III); all were trench-built (construction trenches 70/770, 750, 1013 and 908 respectively; Figs 37 and 40, S1 and S6). At the surviving junctions the walls were bonded to form a rectangular room, some 5 x 4.4m in extent (the junction between walls 21 and 914 had been destroyed by later foundation trenches). The room had a chalk floor (780), and appears to have had a hearth near the south wall, and a door in the south wall. A number of post-holes were cut into the floor: 782, 783 and 791 were probably associated with a structure around or over the hearth, whilst 778, 788, 789, 792 and 794 might represent the base of a staircase or even of a piece of furniture. A line of posts immediately to the south of wall 15 suggests that B/1 continued southwards towards the frontage (813-815, 818 and 1121). Interpretation of both these posts and of the building plan is difficult because the surviving remains probably form merely one element in a more complex plan, e.g. a rubble-walled, ?two-storied block at the rear of a ?timber hall; no evidence for rubble walling of this phase was found to the south, but it is possible that the remains of any timber elements would have been destroyed by the foundation trenches of the Phase IV walls (Fig. 31: 13 and 14).

Of the layers sealed beneath the Phase III building, layers 775, 817 and 835 represent gradual deposition through the later part of Phase II (Fig. 37, S1), whereas 819, 820 and 986 represent deliberate tipping to form the foundations for the new structure (Fig. 37, S1, and Fig. 40, S6). Outside the building, construction debris was present in layer 165, 774 and 790 (thin mixed layers of pale yellow, beige or buff mortar, with chalk and charcoal flecks), which spilled into the construction trenches, sealing the earlier levels (Fig. 37, S1).

The occupation ended in a fire, represented by ash layer 769 spread across the interior of the room (Fig. 37, S1).

Phase IVa (early 15th century)

This phase is dated to the first half of the 15th century by the presence of Late Medieval and Transitional ware, Langerwehe stoneware, and later Grimston-type and local unglazed jugs.

The remains of the Phase III room and the surrounding area were overlain with thin interleaved lenses of silt, ash and sand (768; Fig. 37, S1), and layers of loam containing relatively small amounts of charcoal, ash and burnt daub (901, 902; Fig. 38, S3), or gravel and mortar (166; Fig. 37, S1). The combined depth of these layers rarely exceeded 0.2m, and was usually much less.

These destruction deposits were sealed by compacted silty layers (767, 781 and 837), containing chalk and charcoal flecking. These either represent temporary abandonment of the site, or more probably the tipping of soil brought in from elsewhere to form a firmer foundation for the Phase IVb building (cf. a large tip of compacted flint gravel, 344, to the south of wall 15; Fig. 39, S5). Very few pits can be assigned to this phase (663, 665, 671, 673, 674 and 678), and the general impression is that it represents little more than a short break in the development of the site.

Phase IVb (mid 15th-later 15th century) (Fig. 31)

Dating evidence for this phase is slight, but the presence of Late Medieval and Transitional ware and Raeren stonewares in a new floor layer suggests that it did not begin before the second half of the 15th century.

In considering the evidence of this phase, two possible interpretations of the structures need to be borne in mind. In the interim report (Atkin *et al.* 1976, 199-200), it was argued that the excavated features represented various elements built around a courtyard; however, the interpretation offered here is that of a three-roomed building, and is based partly on a consideration of the successive Phase IVc buildings, and partly on the plans of other excavated buildings in the city. Neither interpretation is without its problems, and these are exacerbated by the fact that the crucial areas to the east and south of the putative yard/room *b*, lie outside the ex-

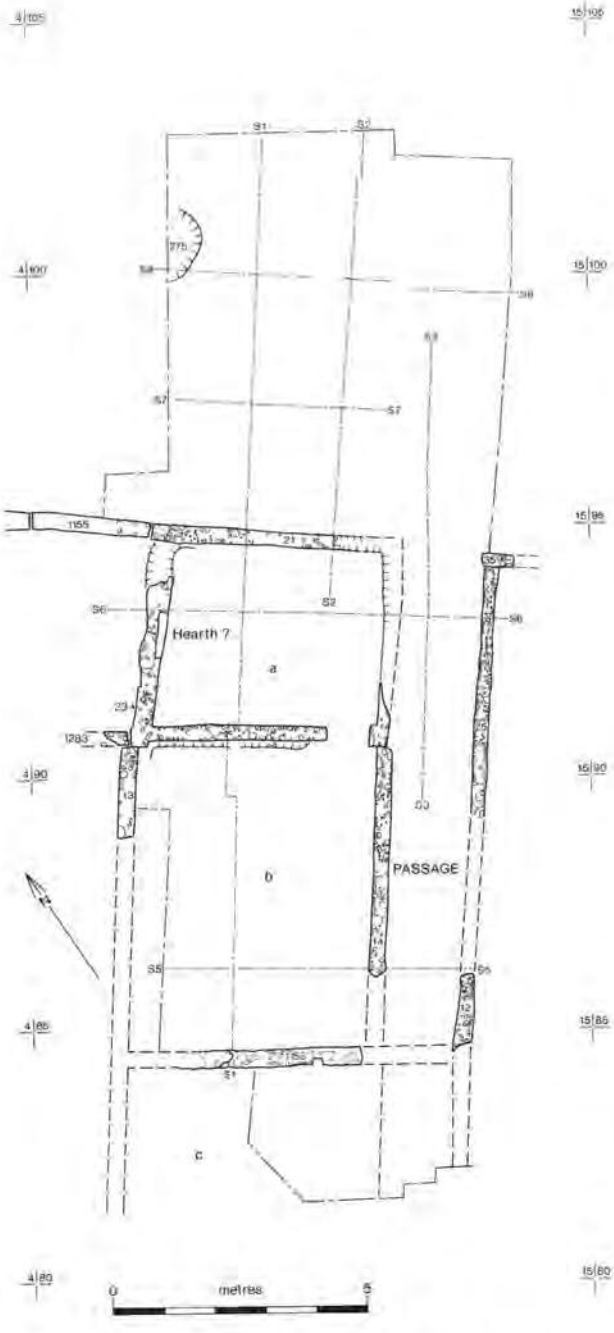

Fig.31 Site 281N, Area B. Phase IVb, building B/2. Scale 1:150

cavated areas. This has been further complicated by the later rebuilding and repairing of individual stretches of walling, which has often obscured the basic relationships between one wall and another.

The area to the south of wall 15 was levelled up with flint gravel, mortar and chalk (layers 8 and 1234; Fig. 38, S3) to form the footings for a new building (B/2). This appears to have had a three-roomed plan, similar to building *f*2 on site 149N (see above), and it is possible that it had a similar functional layout of a shop or parlour at the front, with a hall and a kitchen to the rear.

The Phase III room at the rear of the building *(a)* was rebuilt. It had a door in the south-east corner, and a recess, perhaps for a fireplace in the west wall (23). A new floor (69; Fig. 37, S1 and Fig. 40, S6) of dark grey silt containing some ash and charcoal was laid over the Phase IVa silting. To the south, room *b* was butted against the Phase III structure. Both the east and west walls (13 and 14) were trench-built, and constructed of roughly coursed, unknapped flints and brick rubble in yellow sandy mortar. To the south, a cross-wall (1153) separated this room from that on the street frontage *(c)*; its relationship to the main north-to-south walls and the position of its internal doorway had been removed by later disturbances. The interior of room *b* was floored with a thin, hard surface of grit and gravel in yellowish orange sand (163 and 1227; Fig. 37, S1).

To the east the property boundary was marked by a new wall, of which various sections survive; all are trench-built, and the slight differences in their bonding mortar may signify little more than periodic maintenance of ruinous stretches. Wall 25 was of roughly coursed flints and brick rubble in pale yellow sandy mortar, some 0.40m wide (Fig. 40, S6); wall 12 to the south, was of similar build, but with a much harder, gritty buff mortar. The area between the wall and building B/2 presumably served as a passage-way into the yard behind. There is a possibility that as in an excavated King's Lynn building (Clarke and Carter 1977, 88, and fig. 37), wall 12 supported the joists for a first-floor wall spanning a passage-way.

At some stage, three east-to-west walls were constructed. Wall 1155 was tacked on to the north-west corner of B/2; further south, and running parallel to it, wall 1283 continued the line of wall 15 westward. Both were constructed of roughly coursed flints in pale buff sandy mortar. They may represent a similar building on the property to the west, or an extension of the property around a courtyard (as excavation effectively stopped along the line of the west wall of building B/2, it is by no means certain that the property boundary lies along this line). Similarly, wall 35 may mark the rear wall of an adjacent building on the property to the east. Like the other walls, it was trench-built and constructed of roughly coursed flint and brick rubble, and bonded with a soft yellow sandy mortar. Its construction was associated with a thin layer of pale yellow and buff mortar.

During the occupation of the building, a section of the west wall of room *a* (23), behind the ?fireplace collapsed and had to be rebuilt; it is possible that this collapse might be related to a possible extension to the west. The repaired section (1012) consisted of brick and flints set in pale buff sandy mortar.

Phase IVc (later 15th-late 16th century) (Fig. 32)
Dating evidence for this phase is sparse, but it saw the introduction of both glazed red earthenwares and Frechen stonewares.

At some stage building B/2 was enlarged and substantially modified. The new structure (B/3) appears to have comprised a frontage roofed parallel to the street and covering a passage entry, with a two-roomed range extending back into the yard to form an L-shape; in addition, there was an outshot to the east encroaching into the area of the Phase IVb passage, and a building with ovens tacked on to the rear. This tenement appears to be the one which was owned in the later 15th century by Peter Mannyng, maltbrewer (see the documentary evidence for the Botolph Street sites, above); on this basis, it

seems reasonable to suggest that the outbuilding with its kilns was a malthouse.

In room *c*, the Phase IVb wall (1153) was replaced by a new one on the same alignment (11). It was trench-built of flint-and-brick rubble bonded with pale yellowish-buff sandy mortar; both the brick and flints were virtually uncoursed (Fig. 37, S1). The base of a staircase (799) was butted against its south face; this comprised coursed flint and brick walls bonded with a hard, pale beige sandy mortar, set in a shallow digging pit. On the north side of the wall, a fireplace was built into the south-east corner of room *b*, with a bread-oven set in the corner.

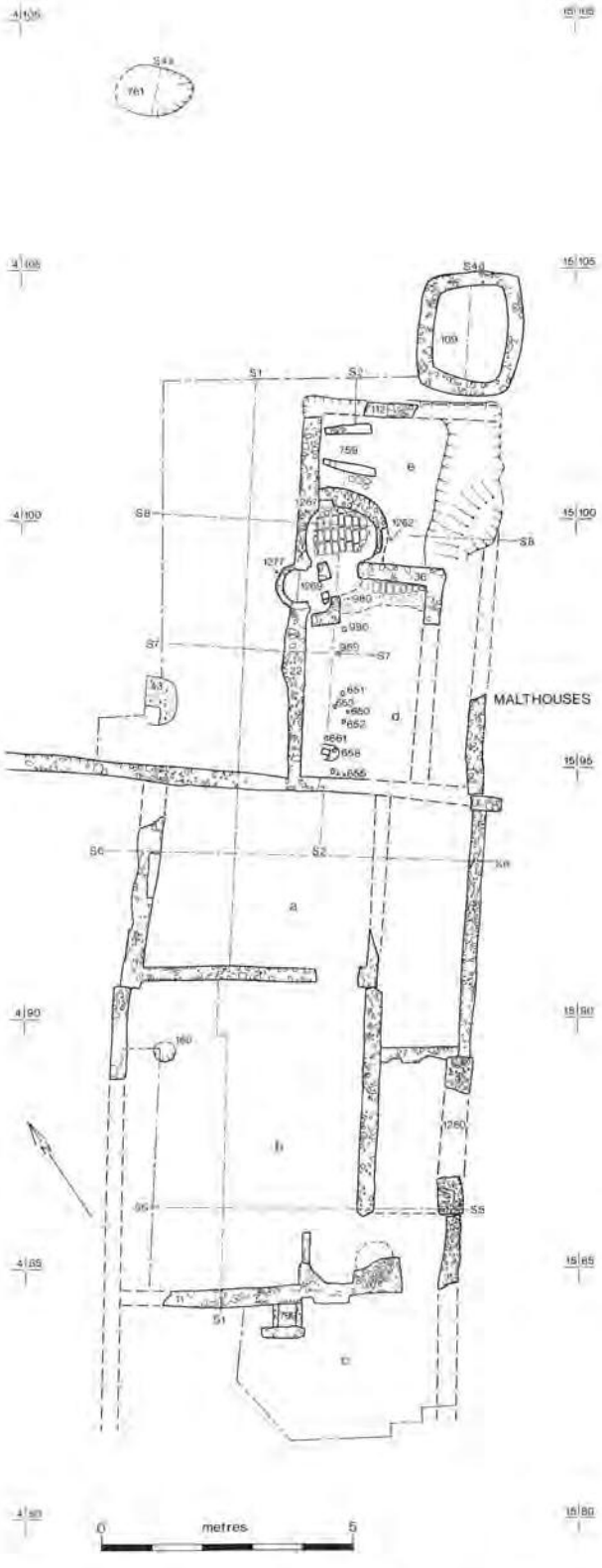

Fig.32 Site 281N, Area B. Phases IVc and IVd, building B/3. Scale 1:150

Later disturbance has obscured some elements of the plan, but the most economical interpretation is as follows: the west, north, and most of the east walls of the Phase IVb room *b* remained in use, but a new door appears to have been inserted at the south end of the east wall, giving entry from the passage around a projecting alcove for the bread-oven (with the stairwell turning and running over the fireplace). The consequent weakening of the corner was compensated by the construction of an outshot over the passage to the east; the principal evidence for this consists of the replacement of part of the boundary wall (12/25), with a wider, more substantial wall (1280), which was bedded in a shallow scoop dug from 1227 (Fig. 39, S5). This new wall was probably associated with a barrel-vault over the lengthened passage. Butted against its north end was a shallow foundation (27) set across the passage; this may represent a doorstep or threshold below an inserted beam, rather than a standing wall.

The architectural implication of this plan is that the upper part of the hall was floored for the first time, but it should be stressed that the first-floor rooms did not necessarily correspond to those below; the north wall of the hall/chamber rested on 168 and a beam which has been postulated above feature 27.

The rear room *(a)* of the Phase IVb building seems to have remained in use throughout this phase, but a rubble-walled malthouse *(d)* was constructed against its rear wall. Later robbing removed the evidence for the position of the entrance, but it is more likely to have been approached from the passage-way, or from the rear of the property, than via the main building, because of the problem of bringing in bulk loads of grain. The surviving fragment of the boundary wall at this point (20) appears to be contemporary with the construction of the malthouse, as both are associated with a thin layer of pale yellowish-buff sandy mortar (899), which contains construction debris (Fig. 40, S7); however, this may well be little more than a partial rebuild of the existing Phase IV boundary. The north end of the building was formed by wall 36. Set against this was a layer of heat-discoloured tiles set edgeways (981), which was overlain by a floor of bricks (979) set in heat-reddened mortar (980; Fig. 38, S3). A line of insubstantial posts set slightly off-centre (656, 658, 650-652 and 989-990), and a few others at the south end of the building (654-655, 661 and 653), probably represent racking on one side of what is assumed to have been a single-storied building. A layer of grey ash (903) over most of the floor probably represents little more than trample.

The incidence of roof-tile fragments in contexts of Phases IVc-V suggests that building B/3 was roofed with standard pegtiles (type RT4), if not initially, at a fairly early stage in its life.

Outside the building the rest of the yard was surfaced with flint gravel (46/277). The only other indication of industrial activity was a small hearth (43).

Phase IVd (late 16th-early 17th centuries)
(Fig. 32; Pl. XVII)

Dating evidence for this phase consists mainly of Frechen stonewares, West Norfolk bichrome and glazed red earthenware. A terminal date in the early 17th century is suggested by the appearance of iron-glazed wares.

In this phase the malthouse was almost doubled in size by being extended northwards and eastwards *(e)*. Once again, later robbing has removed certain elements of the plan, but it seems likely that as in Phase IVc, access was gained via the passage, rather than by the building; at the north-east corner, cesspit 109 (below) was probably incorporated into the building. Much of the rising ground at the north end of the yard was partially dug away to enable the floor levels to be kept constant throughout the whole Phase IV building.

The north and west walls survived (112 and 1267); both were only partially trench-built, inasmuch as the earlier levels to the north and west were cut into, and then revetted by the walls, whilst their other faces were freestanding. Both were constructed of roughly coursed flints in yellow sandy mortar. The robber trench clearly shows that the eastern wall of the malthouse ran along the line of the property boundary. A thin spread of pale yellowish-buff sandy mortar with grit and sand (1275) was spread across the enclosed area.

A series of kilns were enclosed by the new building; the first of these could be a secondary IVc kiln, but all of the others clearly belong to IVd. The first was built in the north-west angle of the Phase IVc malthouse, and had a trench-built retaining wall of mixed flint-and-brick rubble (1268), butt-jointed to the Phase IVc walls; it enclosed a roughly rectangular burnt floor area, which consisted solely of the underlying silt (1269), burnt dark red in colour, and blackened by soot and charcoal. Its floor had been removed leaving only a brick-built pillar (1276), of types EB6 and EB7.

It was replaced by a semi-circular kiln (1277) to the west; this was built of bricks bonded with light yellow mortar, set into walls 22 and 1267 at their junction with wall 36. This in turn was replaced by a much larger kiln to the north (1262; Fig. 38, S2; Pl. XVIII). Its trench-built retaining wall enclosed a brick floor of type EB7 (1263), which partially overlay the demolished Phase IVc wall, and the debris from its construction (1278) was tipped into the kiln which it replaced (1277). To its north, a large brick-lined flue (759) appears to have been in contemporary use and probably represents the base of an adjacent grain dryer.

At the north end of the building and probably once tied into it, was a large cesspit 109. Its walls were 0.30m thick and built of unknapped flints and brick rubble bonded with yellow sandy mortar; it was *c.*1.35 x 1.80m in extent, and was over 2m deep (Fig. 39, S4d). The homogeneous nature of much of the fill (124) and of the pottery suggests that it was infilled fairly rapidly, but material in the recut at the top shows that it was still in use in the early 17th century.

The interior of the building had been levelled with a number of layers of fine silt or silty loam (897, 898 and 1271) to form a floor; these were sealed by a layer of grey ash and charcoal (126) which represents the earliest working surface with trample from the kilns (Fig. 38, S3). Later floors, which are probably contemporary with the later use of cesspit 109, are represented by thin hard-packed layers of silty and clayey loam (101-103; Figs 38 and 40, S2 and S7).

A second possible cesspit (761; Fig. 39, S4a) was sited in the yard to the north.

Phase V (*c.*1625) (Fig. 33)

A *terminus post quem* of *c.*1625 for this phase is provided by the presence of iron-glazed wares in the preceding phase. This is supported by the pottery and clay pipes in the Phase V pits.

All of the Phase IV buildings were systematically demolished, and the entire site levelled to provide a firm foundation for the Phase VI structures. Most of the house walls were dismantled to a height of some 0.20 or 0.30m; the rooms which they had formerly enclosed were infilled with the demolition debris (67; Fig. 40,

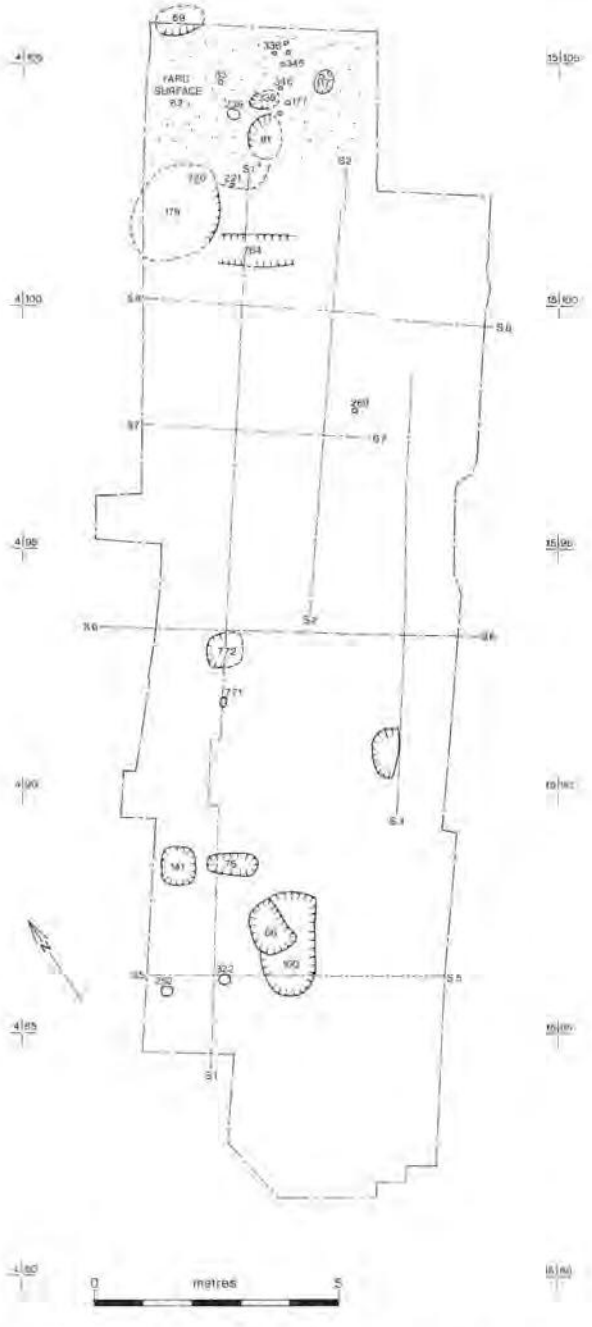

Fig.33 Site 281N, Area B. Phase V features. Scale 1:150

S6), topped with cleaner silt and loam layers, which were presumably brought in as topsoil from elsewhere (e.g. 39 and 41). As the malthouse had been terraced back into the slope (see Phase IVd, above), some of its walls survived to a greater height, and were incorporated in the new Phase VI foundations (see below); the rest were robbed (e.g. trench 113, Fig. 38, S2), and the interior of this outbuilding was infilled with rubble (89), and levelled in the same way as the rest of the Phase IV building (e.g. with 143 and 88).

To the north and west of the buildings, a thin hard-packed surface of flint gravel (82) may represent trampling during the levelling. A number of pits and post-holes which cut this layer or the levelling to the south, lie inside the area of the Phase VI cottages, and clearly precede their construction; pottery and clay pipe fragments from the fills of these features suggest that Phase VI cannot be earlier than the first quarter of the 17th century. It thus seems likely that the rebuilding is contemporary with that on the south side of Botolph Street (the earlier part of Period 4 on site 170N; see above), and that both represent a reaction to the increasing pressure on housing space caused by the rapid growth in population in Norwich after 1600.

Phase VI (*c.*1625-1800) (Fig. 34: Pl. XVI)

A *terminus post quem* of *c.*1625 for this construction is suggested by the finds in the Phase V pits.

The beginning of this phase is marked by the construction of a new two-storied building (B/4): it consisted of a part-cellared street frontage range, with a second range projecting at right-angles back into the yard, and it probably represents the division of this building into two houses, each with two ground-floor rooms. The first comprised the frontage itself, and room *d*, on the ground floor (the first-floor arrangements in both holdings are uncertain); the second holding comprised at least the remaining three ground-floor rooms *(a-c)* in the rear wing. As in all the preceding phases, the frontage lay mostly outside the area of excavation. The overall dimensions of the rear range were *c.*21.5 x 5.75m, and it was built of roughly coursed flint-and-brick rubble, set in a very hard white mortar — the internal face of the north wall (18) was partially knapped, perhaps to obtain a finer finish. This phase is characterised by the appearance of new late brick types, especially LB1. Both the east and west walls (16 and 17) were trench-built (Fig. 40, S6-S8), but the former also incorporated part of the Phase IVd malthouse's end wall (112: Pl. XIX).

Room *a* measured *c.*4.70m square internally, and had a fireplace set against its south wall (30). The room is perhaps best interpreted as a heated service room, *cum* kitchen. Wall 30 survived two bricks in width and was built of early bricks resting on flint and brick rubble footings in a hard, pale beige sandy mortar (720) which was bonded into wall 17 to the west. Its two projecting arms (24 and 31) to the north, also rested on flint foundations (Fig. 40, S8). The base of a staircase (74) was built against the west wall (Pl. XX); its foundations comprised a rectangular brick-lined pit, 0.60m deep and measuring *c.*0.90 x 0.40m, the base of which was floored with broken tile (type RT4), and backfilled with a mixture of loose brick-and-mortar rubble. The room was formerly floored with quarry tiles (53), type FT25, laid on a white mortar bed (54), but most of these had been robbed. A

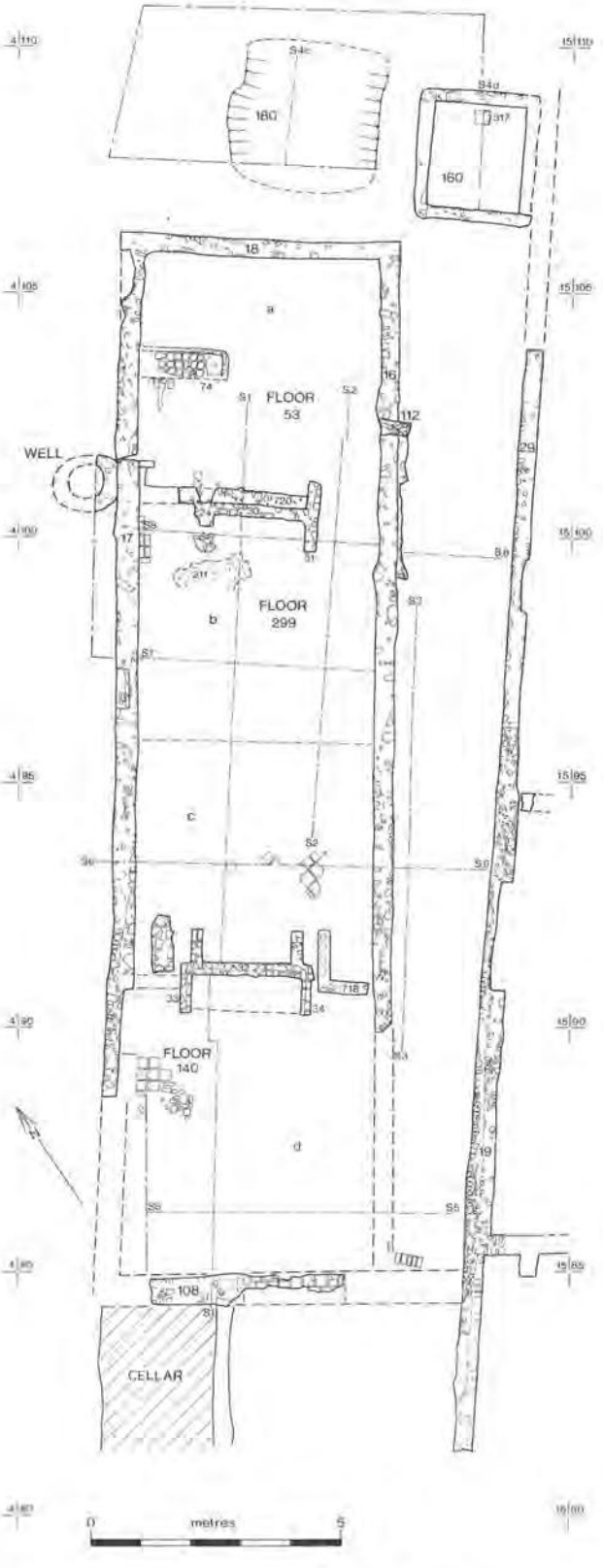

Fig.34 Site 281N, Area B. Phase VI, building B/4. Scale 1:150

complete glazed red earthenware pot (244) was found under the tiles overlying the base of the staircase, apparently *in situ*. Access to this room appears to have been by an external door in the north-west corner, and an internal one to the east of the fireplace, opening into the room beyond.

Room *b* was probably of similar dimensions, but the position of its south wall (perhaps an internal timber partition) has had to be inferred; the principal evidence for the existence of such a division is the difference in size of the floor-tiles in this area from those in room *c*. This room may perhaps be interpreted as a hall. A fireplace was set into the north wall, back-to-back with the one described above. Access into the yard was through a door in wall 17, at the south-west corner of the room; a doorway presumably existed in the south wall to allow access into room *c*. As in room *a*, the floor comprised unglazed quarry tiles (299) laid on a white mortar bed.

Room *c* was of similar dimensions, and had a fireplace built into its south wall. This shared a chimney with room *d*, to the south; in this case, unlike rooms *a* and *b*, the hearths on either side of the wall were of different sizes. Once again, the central spine (32), and projecting side walls (33 and 34) were built of brick set in hard beige sandy mortar (719; Fig. 37, S1). To its east, the trench-built foundation for a staircase (718) gave access to the first floor; to its west, a second trench-built foundation (766) may represent an earlier stairwell, which 718 replaced. The floor in this room was tiled with larger quarries of type FT21d, which were set diagonally to the line of the walls. The room is perhaps best interpreted as a parlour.

Room *d* probably belonged to the holding on the frontage. It was slightly larger than those to the north, measuring *c*.5 x 6m internally. It had a hearth set against its north wall, and appears to have had a tiled threshold in its south wall (108), giving access into the rooms on the frontage. As with all the other rooms in the rear range, the floor was tiled with unglazed quarries (140), here of type FT21a bedded on a thin layer of fine, grey silty loam.

The arrangements on the frontage are uncertain, as much of the area had been disturbed by deep cellarage, but it probably comprised a two-storied range, with a usable but unlit attic above; the rear range may also have had a usable unlit attic, but could well have still been open into the roof. On the east side of the building, the passage entry was bounded by a new property boundary (19), which lay some 0.50m to the east of the Phase IV wall. It was *c*.0.50m wide and built of roughly coursed flints set in pale beige mortar, and bedded in a foundation trench (Fig. 39, S5). The passage-way had been levelled with tips of clayey loam and construction debris (e.g. 9 and 68), and surfaced with a mixture of dirty charcoal-flecked loam (107) and broken tile rubble (50). At some stage, the northern part of the boundary wall was rebuilt with coursed bricks and flints, many of them knapped, set in hard white sandy mortar (wall 29; Fig. 40, S6).

The yard area was presumably shared by both houses, and the evidence of the entrances in the west wall of the rear range suggests that in this phase at least, it extended further westwards than the limit of excavations. At least one well was set against the west wall of the range, although as it was never excavated, it is uncertain whether it belongs to this phase. To the north were found two successive cesspits. The earlier of these (180/319) was an unlined pit, some 3m square and 2m deep (Fig. 39, S4b). It was in use for most of the 17th century, and was recut at least five times. Material from its lowest layers is consistent with deposition between the construction of the Phase VI buildings (1625+) and *c*.1640/50. Whilst the lower recuts were fairly drastic, 181 cleaned out less than half the pit; clay pipes within this fill would be consistent with gradual tipping between *c*.1660 and 1680. The top part of the pit contains pipe bowls of late 17th/early 18th-century date, and is contemporary with finds from the bottom layers of pit 160 which replaced it.

The new cesspit (160) was lined with 0.25m-thick walls of roughly coursed flint rubble bonded with hard white mortar (Fig. 39, S4c). It was rectangular in shape, *c*.2.70 x 2.35m in extent, and *c*.2.30m deep. It was infilled by gradual tipping, and was recut on at least five occasions; whilst the material in its lowest layers is consistent with deposition beginning at some date between 1680 and 1710, it clearly continued in use well into the 18th century — pottery in its upper layers suggests a date of *c*.1750/60.

The ceramic building materials from these two cesspits are of considerable interest, as they indicate a number of later 17th-century building repairs. The presence of large quantities of late brick fragments points to some major structural alteration or repair somewhere in the building, and the appearance of numerous pantile fragments (type RT10) shows that the roof had been retiled. Perhaps of greater interest is the incidence of high quality worn-out Flemish floor-tile fragments (type FT14), for it would appear that at least one of the rooms in building B/4 had initially been floored with a reused tile pavement which had been brought on to the site from a fairly prestigious building (some of these tiles must have been broken in transit, as fragments were incorporated into the spine wall of the southern fireplace, 32). At the end of the 17th century this floor was taken up and the tiles thrown out — perhaps to be replaced by floor 53.

Area C (Figs 35 and 36)

Any stratigraphy on the frontage in this area had been completely removed by late- and post-medieval cellars and subsequent road widening; moreover, the eastern half of this area was so badly disturbed by relatively modern buildings and service trenches (Fig. 36), that excavation was effectively restricted to a fairly small yard area. Very little evidence of the rear ranges of medieval buildings was found, and most of the earlier occupation is represented by extensive pit digging. The majority of the structural remains appear to date from the 17th century and later (Fig. 36). Although the finds reports refer to *'phases'*, these represent little more than an approximate attempt to equate sequences of activity in this area with the structural events recorded on Area B.

Medieval activity (Fig. 35; *phases I-IV*)

An early tenement boundary is represented by a shallow ditch, *c*.0.80m wide (414/415), running back from the street frontage; however, this clearly passed out of use at a fairly early date, as it is obscured by a mass of intercutting pits, which are clearly associated with adjacent iron-working, as they contain large quantities of charcoal and iron-slag. The pottery in their fills, though, is of 11th or 12th-century date, which suggests that iron-working in this area began at an earlier date than that on Area B (i.e. *phase I*, rather than *phase II*). Moreover, unlike Area B, there is a noticeable absence of 13th and 14th-century features.

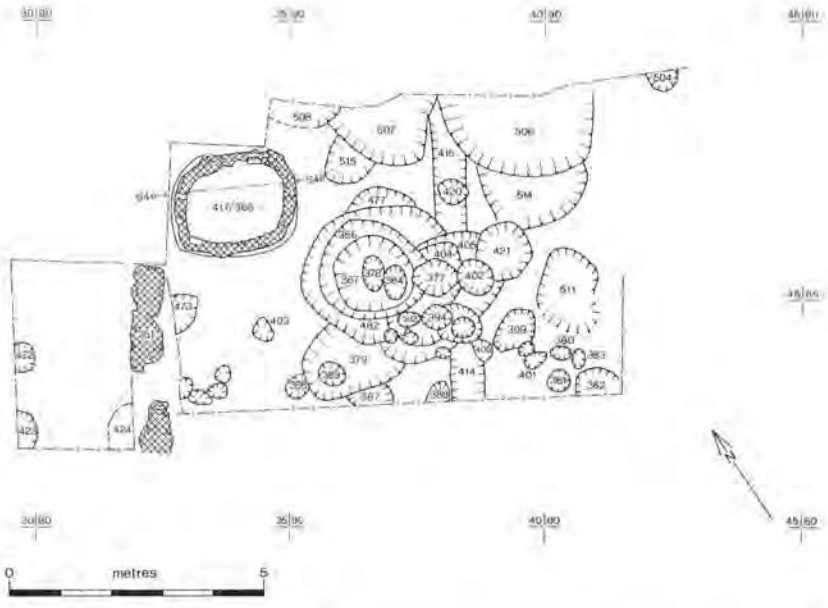

Fig.35 Site 281N, Area C. Medieval and late medieval features. Scale 1:150

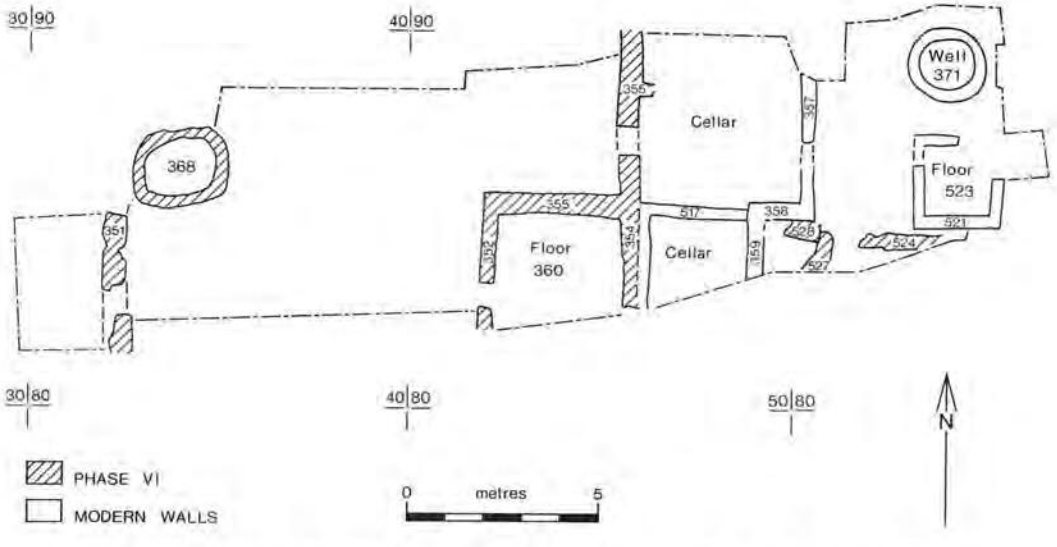

Fig.36 Site 281N. Outline plan of Area C. Phases VI and VII. Scale 1:200

The documentary evidence shows that the tenements in this area, as elsewhere in the street, were being rented for investment purposes during the 15th and 16th centuries, but the only archaeological evidence for occupation during this period is a handful of pits and an unlined cesspit 417 (Fig. 39, S4e). This underlines the fact that there had been a marked change in rubbish disposal methods at the end of the *phase I* deposition, and that almost all domestic rubbish from this area was being deposited off-site.

Post-medieval activity (Figs 35 and 36; *phases VI* and *VII)* As on Area B, the frontage was extensively rebuilt in the early 17th century. The new structures had ground-floor walls of brick and flint rubble bonded with white mortar, and were presumably timber-framed on the first floor (q.v. standing building G, see below). Most of the excavated area shown on Fig. 35 probably remained in use as a small yard between buildings on either side, but a large lined cesspit (368) was probably bonded into the rear of the building to the west. The new pit cut through the top of the earlier unlined pit (417), which it replaced. It was lined with flint-and-brick rubble walls, bonded with yellowish mortar (Fig. 39, S4e); traces of a domed capping (shown on archive sections), suggest that it was fed by a first-floor chute. Pottery in its fill was of similar date to that in pit 180 on Area B. It is reasonable to suggest that the late medieval cesspit which it replaced in an identical position, similarly served the rear range of a building, which is otherwise unrecorded.

The final phase of activity is represented by the construction of several 19th-century buildings on the frontage (Fig. 36; *phase VII*).

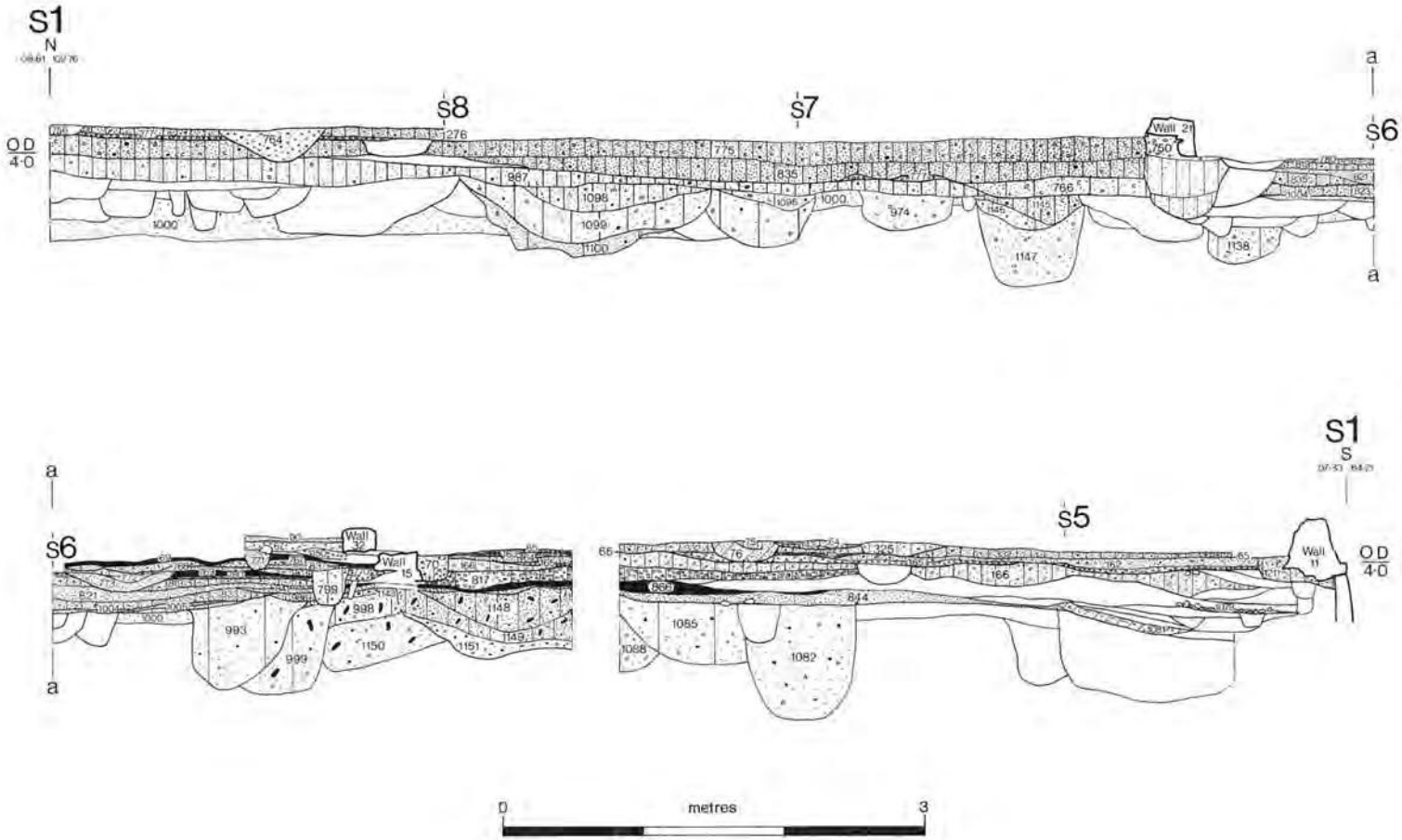

Fig.37 Site 281N, Area B. Section S1. Scale 1:50

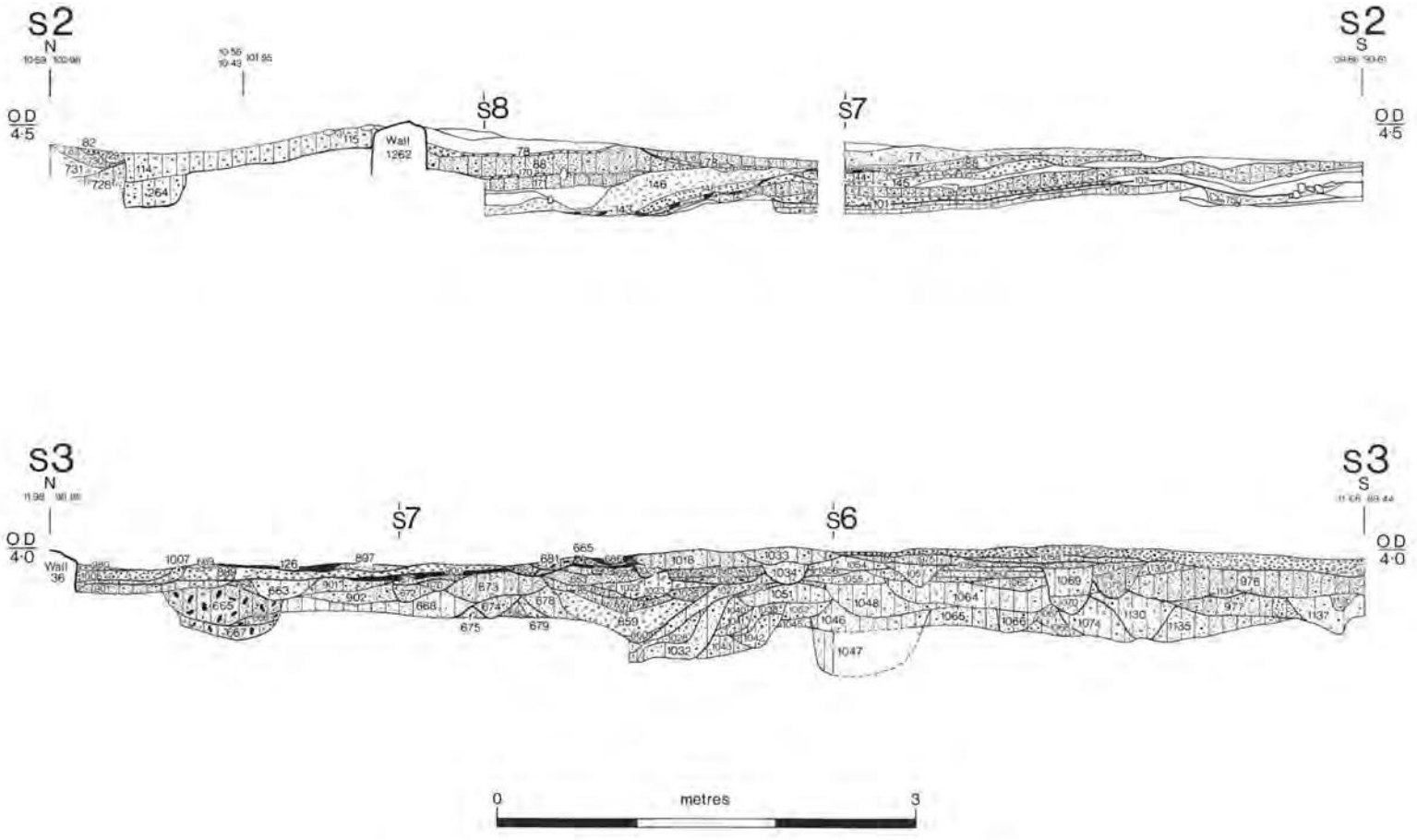

Fig.38 Site 281N, Area B. Sections S2 and S3. Scale 1:50

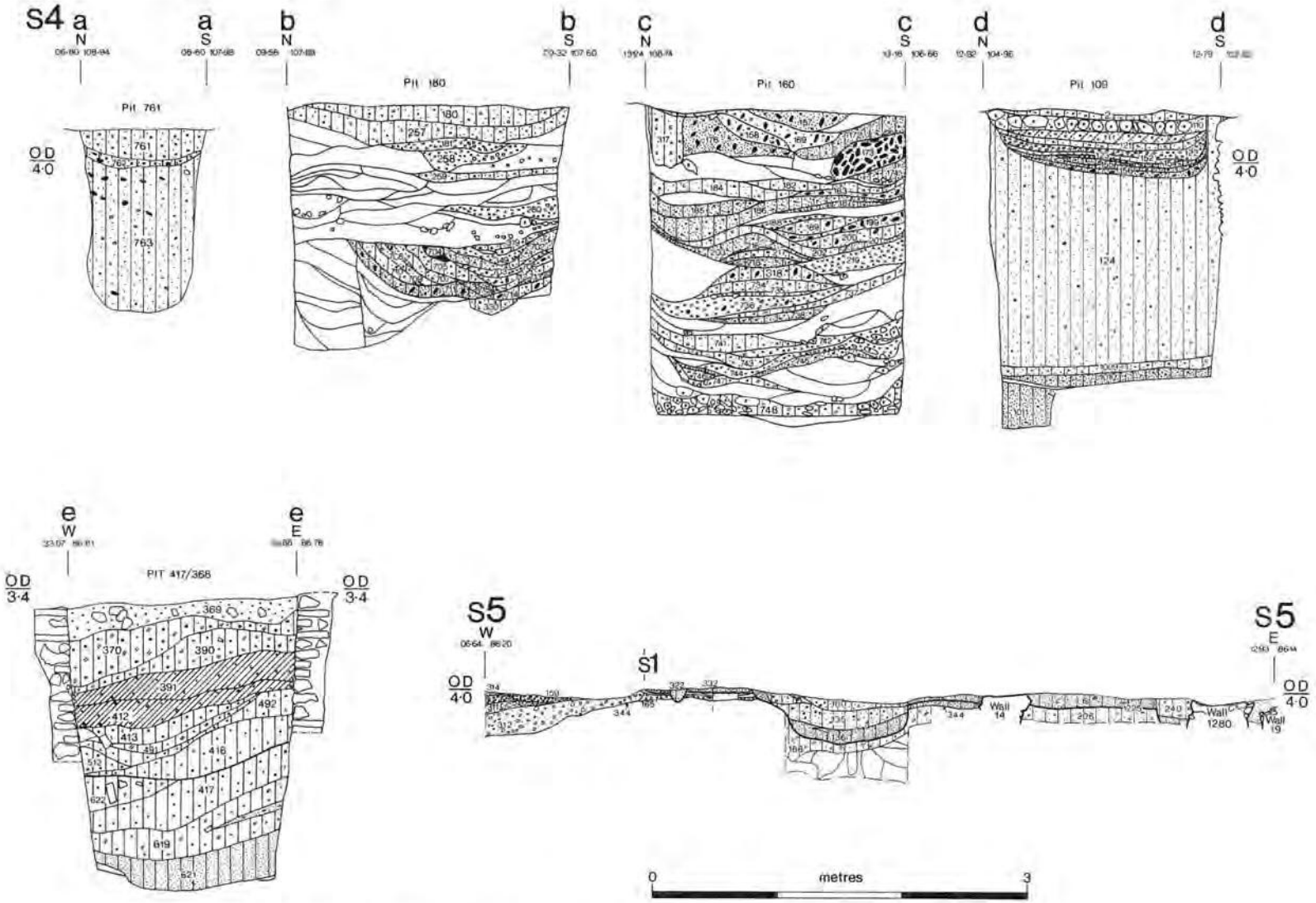

Fig.39 Site 281N, Areas B and C. Cesspit sections S4a-S4e, and section S5. Scale 1:50

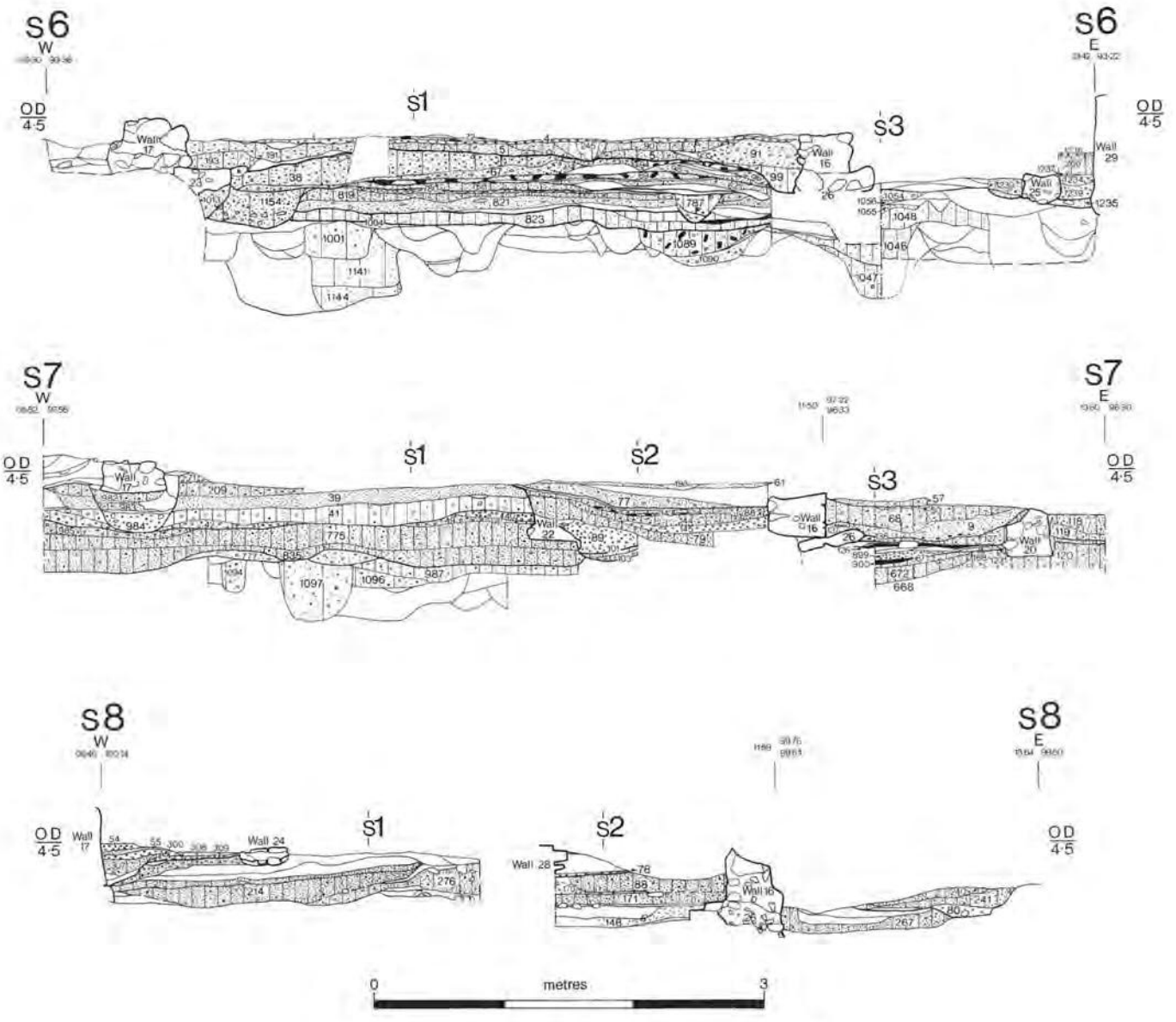

Fig.40 Site 281N, Area B. Sections S6-S8. Scale 1:50

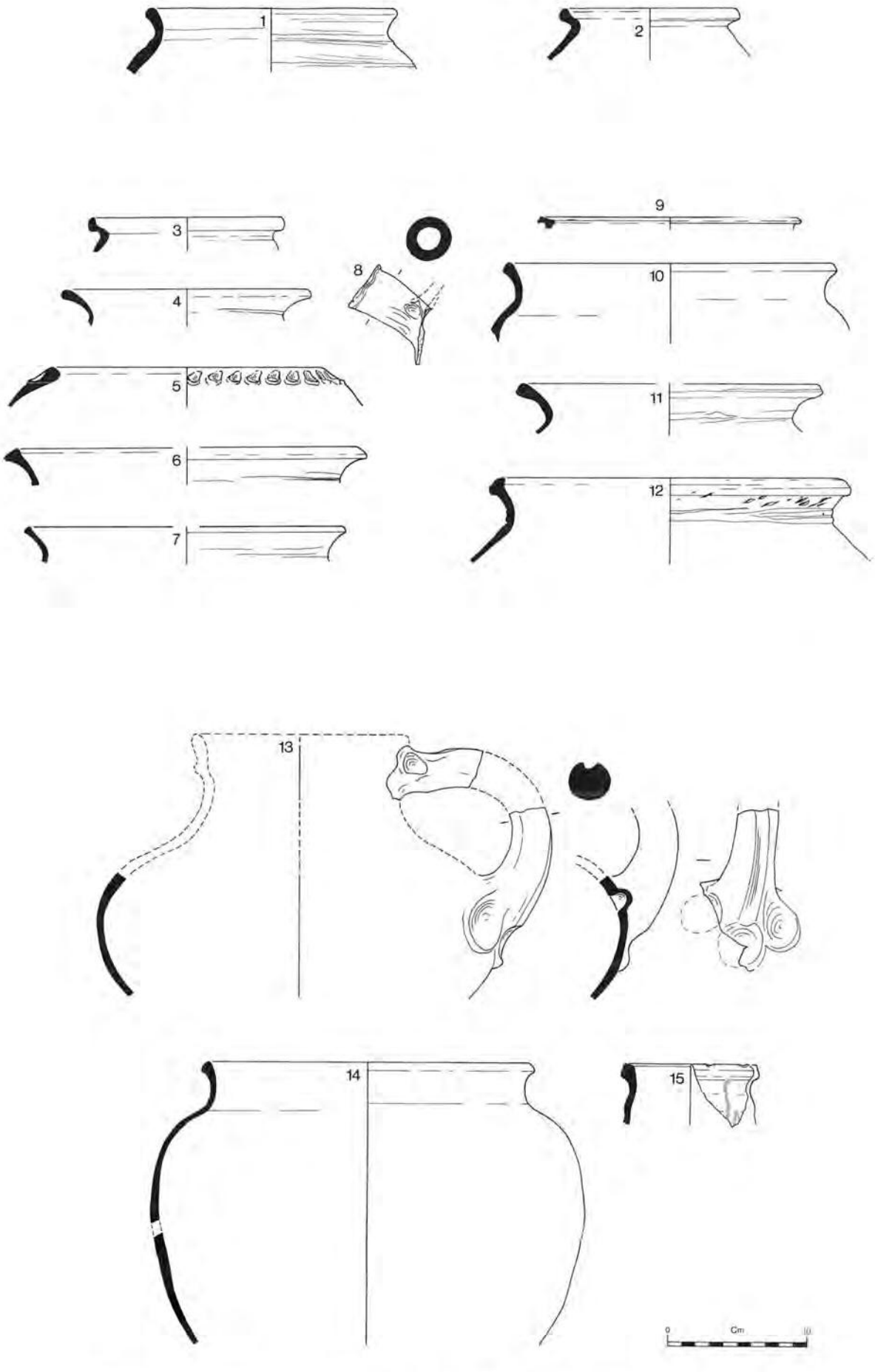

Fig.41 Site 281N. The pottery. Area A, phase 01; Area B, phases I and II. Scale 1:4

6. The Artefacts

The reader is referred to the General Introduction for an explanation of the basis on which material has been selected for illustration and publication, and a full list of the abbreviations used in these reports.

The Pottery

by Sarah Jennings

Area A: the Saxon Ditch (MFT.28)

Little pottery came from the ditch. Phase A 01 produced fragments of one Middle Saxon Ipswich-type ware vessel and two Norwich Thetford-type cooking-pots from layer 643 (the first recut), and fragments of two Norwich Thetford-type cooking-pots from silting above the second recut, layer 631. The two Norwich Thetford-type rims and the one flat base from this phase are typical of kiln products found in Norwich, and closely resemble those from the kiln group at 2-4 Bedford Street (Jennings 1983, 81-5). The recut of the ditch from which this material was found must therefore post-date the beginning of the Thetford-type pottery industry in Norwich. The beginning of this industry has been difficult to date, but a similar kiln at 27 Bedford Street (site 424N), was given an archaeo-magnetic date of AD 1000 +60/-40 (Atkin *et al.* 1983, 92). As so little pottery was recovered, it is impossible to say whether the absence of Early Medieval wares, which are thought to begin *c.*1000, is significant, but a date for the recut in the second half of the 10th century seems likely.

The only other pottery from Area A comes from the 12th-century build up on the edge of the ditch in Phase I (layer 649). This comprises featureless body sherds of a hollow-ware vessel (possibly a pitcher) of an unglazed Grimston ware, similar to earlier Grimston-Thetford wares, and dating to the 12th century (pers. comm. A. Rogerson).

Fig. 41

1. Middle Saxon Ipswich-type ware (pers. comm. C. Dallas). Layer 643.
2. Thetford-type ware. Layer 643.

Area B

Phase I (MFT.29)

Most of the pottery from this phase was found in a series of pits. It comprised Thetford-type ware and the locally-made 11th and 12th-century coarsewares. The individual pit assemblages contain too little pottery to make the absence of either Thetford-type or local medieval unglazed wares reliably significant (MFT.29), but the available evidence suggests that these pits were filled from the 10th to the 12th centuries. Pit 1141, amongst others, contained only Thetford-type ware, while pit 994 contained both Stamford and Yarmouth-type ware, as well as local medieval unglazed wares. The Yarmouth-type coarsewares (Mellor 1976, 172, fig. 57) occur in small but consistent amounts in Norwich assemblages of the 12th century.

An unusual fragment is the local medieval unglazed spout (Fig. 41, No. 8), probably from a pitcher, which is a form not previously known in this fabric.

Fig. 41

3. Thetford-type ware. Layer 974.
4. EMW. Heavily sooted on exterior. Pit 992.
5. EMW ginger jar. Grey fabric; dull brownish-red outer margin. Layer 1001.
6. LMUW. Sooting on exterior. Layer 987.
7. EMW. Sooting on exterior. Layer 1098.
8. LMUW. Grey core, lighter grey margins; grey to buff patchy surfaces. Layer 994.
9. Orange fabric, small red inclusions; thin darker surfaces. Layer 1098.
10. Yarmouth-type ware, fabric 3/1. Grey fabric, dense coarse quartz and calcareous grits; dull orange outer surface. Layer 1098.
11. LMUW. Layer 960.
12. LMUW. Layer 994.

Phase II (MFT.30)

The deposits in Phase II are associated with the iron-working taking place on the site and as in Phase I much of the material comes from pits. Except for that from the levelling-up layers for Phase III, the material is 13th century in date. Grimston-type ware occurs in small but consistent amounts, and includes fragments with applied scale decoration.

The levelling-up layers 776 and 835 and pit 1080 contained local unglazed jug fragments which date to the end of this phase, i.e. late 13th/early 14th century. Pit 1075 which cut hearth 1081 contained fragments of a vessel (Fig. 41, No. 13) which has been identified as having come from the Netherlands (pers. comm. F. Verhaeghe). Similar examples have been found near Rotterdam in contexts with a date of the first half of the 14th century.

Fig. 41

13. Netherlands. Orange fabric, small sub-rounded quartz inclusions; exterior surface mostly missing, otherwise dull red with occasional glaze spots. Thick lime coating on lower part of interior. Pit 1076 and layer 1078.
14. Yarmouth-type ware, fabric 3/1. As No. 10 above. Layer 1279.
15. Grey fabric, occasional quartz grains, many small black-grey and a few large red inclusions; grey-buff interior surface, light orange exterior with thin ?glaze runs. Vessel fired inverted. Layer 775.

Phase III (MFT.31)

This phase produced the first evidence for permanent buildings on the site. Most of the limited amount of pottery came from construction trenches, post-holes and pits. At least one-third of the diagnostic material is clearly residual and it is likely that the proportion is higher. There is a limited amount of 14th-century material but the decorated Raeren from layer 826, foundation trench 750 is clearly intrusive from later robbing.

Fig. 42

16. LMUW. Slight sooting on exterior. Layer 813.
17. LMUW, unusual rim form. Layer 909.

Phase IVa (MFT.31)

The layer overlying the remains of the Phase III building contained Late Medieval and Transitional wares and Langerwehe stonewares, as well as examples of later Grimston-types and unglazed jugs. These, with the lack of Raeren stonewares, date the phase to the first half of the 15th century. Only one of the pits associated with this phase contained LMT, but pits 859 and 864 both contained Grimston-type jugs with applied pellet decoration (Fig. 42, Nos 19 and 20). This style of decoration occurred in Period III (*c.*1350-1500) at King's Lynn (Clarke and Carter 1977, fig. 90, nos 12 and 14).

Fig. 42

19. Grimston-type ware. Grey fabric, orangey-buff margins and interior surface; decoration of small applied pellets covered by an underfired yellowish glaze. Layer 888.

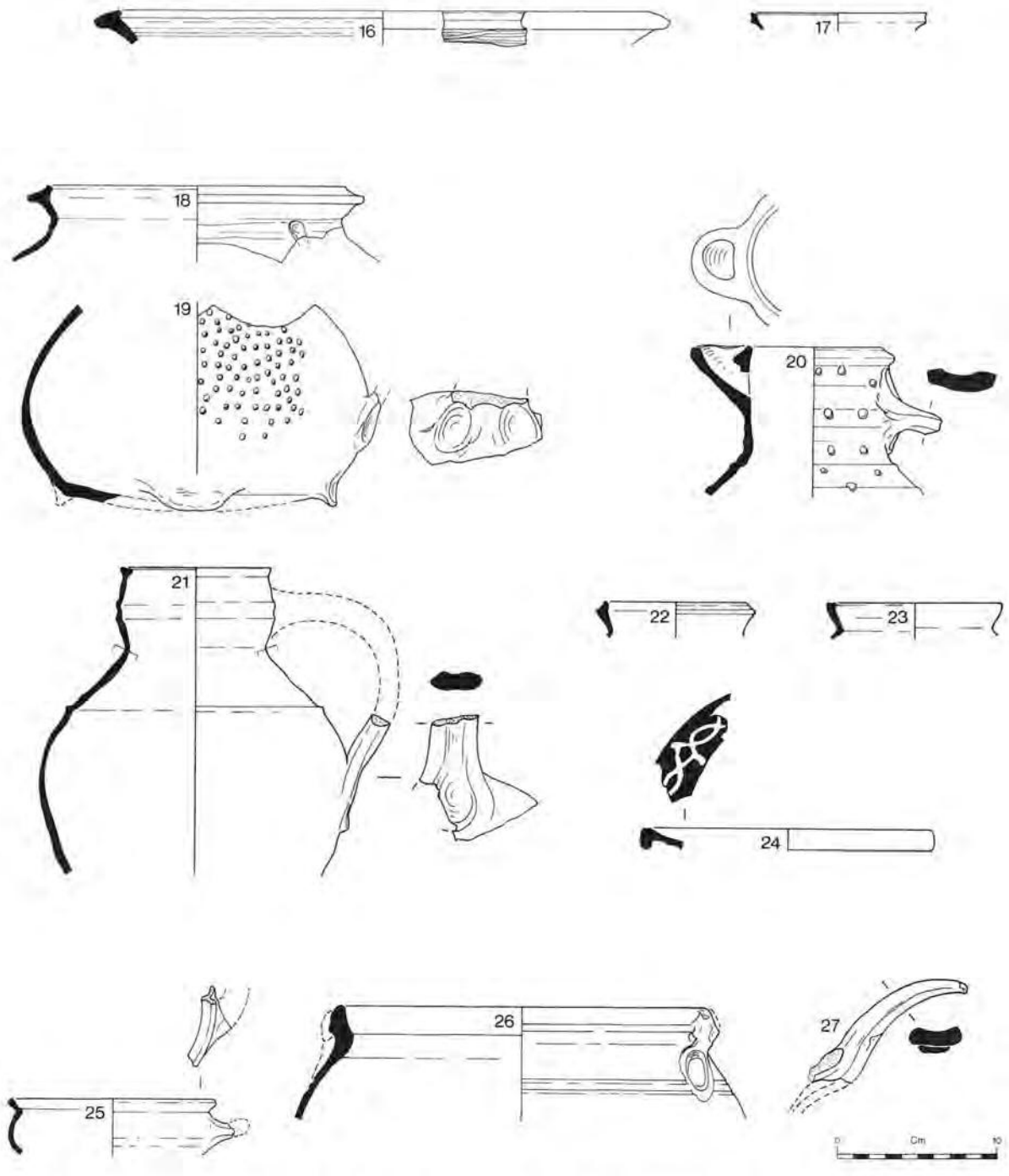

Fig.42 Site 281N, Area B. Pottery. Phases III-V. Scale 1:4

20. Grimston-type ware. Dark grey fabric, light grey outer margin; decoration of applied pellets, olive green glaze with pellets picked out in iron oxide. Vessel fired inverted. Layer 863, pit 859.

18. LMUW. Heavy sooting on exterior. Layer 863, pit 859.

Phase IVb (MFT.31)

Fragments of only fifteen vessels were recovered from this phase. One Late Medieval and Transitional ware vessel came from a levelling-up layer (1234), whilst fragments of a Raeren stoneware mug and three LMT vessels were recovered from the new floor (layer 69), of the rebuilt room at the rear of the building. The presence of Raeren stoneware would place this phase in the second half of the 15th century at the earliest.

Phase IVc (MFT.31)

The phase saw the introduction of both Frechen stonewares and glazed red earthenwares. Fragments of four Frechen vessels and a type I Martincamp flask were found in the shallow foundation (layer 27) which butted up against the secondary wall 1280. This would suggest that this phase persisted into the later 16th century.

Fig. 42

21. Late medieval Grimston-type ware. Dark grey fabric; even, green glaze to near base on exterior. Layer 206.

22-23. LMUW. Unusual rim sherds of ?small jars. No. 22 has sooting on the exterior. Layer 277.

Phase IVd (MFT.31)
Most of the late 16th/early 17th-century material from this phase comes from cesspit 109, which was recut at the top, and was in use until the early 17th century. This material includes North Holland slipwares and Dutch white wares.

The remaining layers from Phase IVd show an increase in the numbers of late 16th-century wares, such as Frechen stonewares, West Norfolk bichrome and glazed red earthenware, that continue into the 17th century. The presence of iron-glazed wares places the end of Phase IVd in the early 17th century.

Fig. 42
24. Slip-decorated ware, probably Dutch. Orange fabric; brownish-orange glaze over white slip decoration. Heavily sooted on exterior. Layer 230.

Phase V (MFT.32)
The levelling layers for the construction of Phase VI mainly contained residual material but layer 67 yielded both North Holland slipware and Dutch glazed red ware. The former usually dates to the early 17th century in Norwich. The increase of glazed red earthenwares, iron-glazed and speckle-glazed wares in this phase confirms the end date for Phase IV and places the beginning of Phase VI as 1625/30, when speckle-glazed wares seem to have been introduced.

Fig. 42
25. Dutch white ware. Off-white fabric; thick even copper-green glaze on both sides. Layer 66.
26. Early GRE. Orange fabric with partial grey core; brownish glaze on exterior, spots only on interior. Layer 340.
27. Late LMT, ?early GRE. Orange fabric; clear orange glaze on interior rim. Sooting on exterior. Layer 728.

Phase VI (MFT.33)
Relatively little pottery was recovered from building B/4 in Phase VI and a large proportion of this was residual. The bulk of the material from this phase came from two cesspits which are discussed separately (see below, p.133). Foundation trench 26 contained a fragment of Dutch white ware dating to the early 17th century. The material found in the other foundation trenches was all residual.

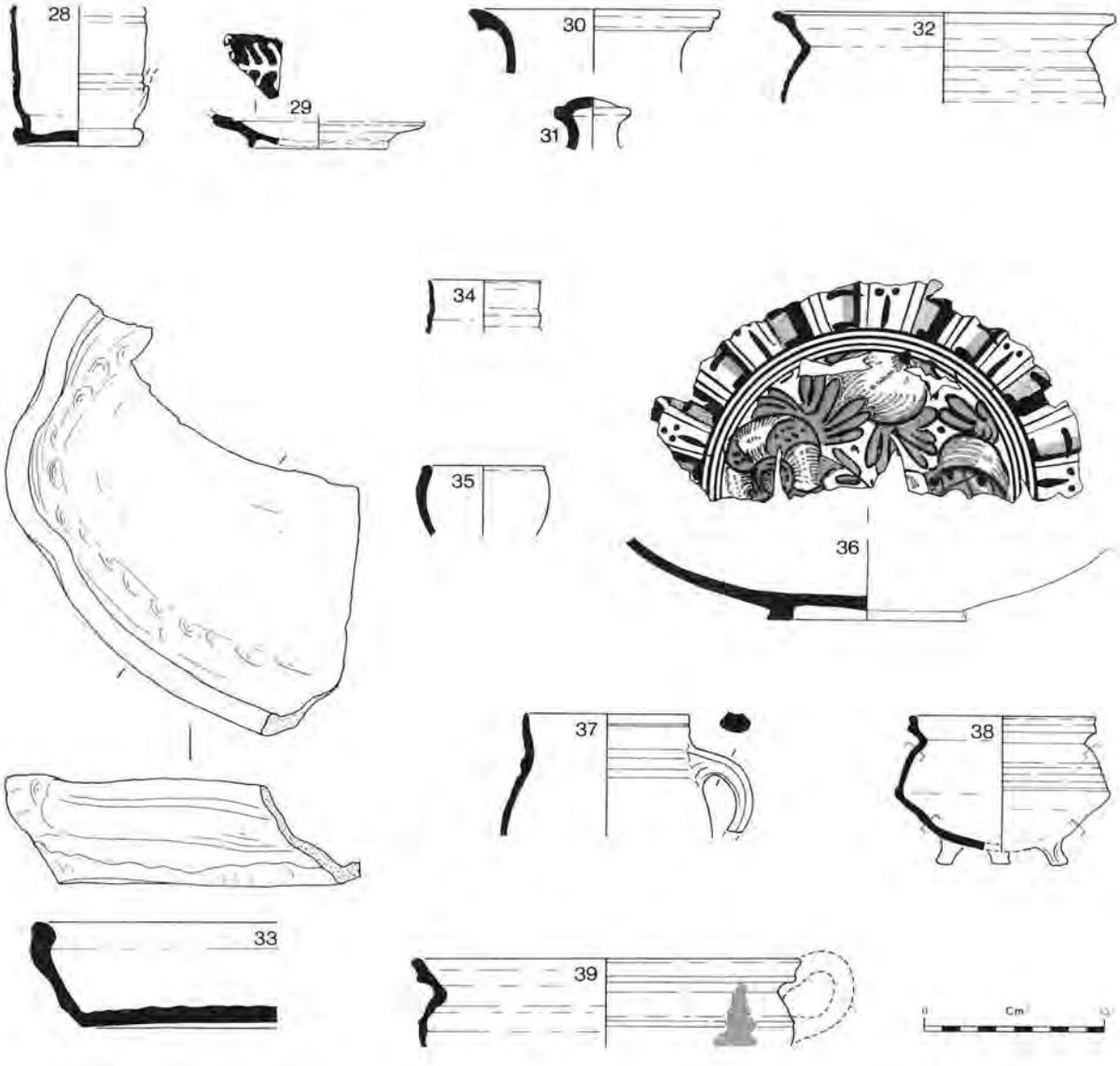

Fig.43 Site 281N, Area B. Pottery. Phase VI, construction levels and cesspit 180/319. Scale 1:4

Fig. 43

28. GRE-type. Orange fabric; greenish-brown glaze interior and exterior. Layer 292.

29. Dutch slipware. Orange fabric; brownish-orange glaze covering white slip decoration on the inner surface only. Layer 56.

30. Grey fabric; orange unglazed surfaces with grey patch. Layer 766.

31. Post-medieval Grimston-type ware, lid knob. Grey fabric with light grey outer margin; olive green glaze with brownish patches on exterior. Layer 766.

32. GRE. Layer 293.

Phase VI Cesspits 180/319 and 160 (MFT.34)

The pottery from Phase VI is dominated by the contents of these two cesspits. The earlier of the two (180/319) was unlined and comprised two distinct phases of use. Pit 319, the lower section of the cesspit, contained fragments of three Metropolitan slipware vessels, but no Surrey white wares. The slip-decorated wares from Harlow were made from *c.*1615 (Newton *et al.* 1960, 358-62) while the Surrey white wares are not generally found in Norwich until the second quarter of the 17th century. They are, however, found in the upper half of cesspit 180. The identifiable tin-glazed vessel from the lower part of pit 319 is undoubtedly Dutch and a similar shallow dish, also with squared decoration, has been dated to the beginning of the 17th century (cf. Korf 1963, 35, no. 47). The upper part of cesspit 180 contained German and North Holland slipwares, Surrey white wares, and a much higher proportion of tin-glazed earthenwares. There is also an increase in the numbers of Frechen stonewares. The top layer (180) contained fragments of three 18th-century vessels, and one white salt-glazed stoneware sherd from the layer below (181). These probably derive from gradual shrinkage at the top of the pit which was subsequently filled in at a later period. The contemporary material would give a date for the top of the cesspit of around 1650, which is confirmed by the clay pipe evidence (see below).

The deposition of two Werra and seven North Holland slipwares in an assemblage dating to the second quarter of the 17th century gives credence to the general pattern that in Norwich these highly decorated wares had a long survival, and are not often found in contexts contemporary with their period of manufacture.

The second cesspit, 160, was lined with walls of flint and rubble and, although narrower and not much deeper than pit 180/319 (see above, p.123), contained a much larger number of vessels. The presence of Continental slipwares and Surrey white wares and the generally similar assemblage at the bottom would indicate that this cesspit was constructed either towards the end of the useful life of pit 180/319, or very shortly after its abandonment. The top layer, 160, like that in 180/319, contained later wares, of the second half of the 18th century — probably for the same reason of subsequent shrinkage.

This cesspit remained in use until at least the end of the 17th century, if not the beginning of the 18th century, when the methods of rubbish and sewage disposal in Norwich radically changed (see above, p.4). Staffordshire slipwares are present from layer 186 (Fig. 39, S4c and MFT.34), and Westerwald stonewares, commonly found in the second half of the 17th century, were found from near the bottom in layer 216 (Cat. 840), and substantial amounts of two chamber-pots came from layer 185 (Cat. 844 and 851).

Large amounts of tin-glazed earthenware were found particularly in the upper half of the pit. Much of it was in small fragments, but the two dishes (Fig. 44, Nos 51-2) which were reconstructible, date to the second quarter of the 17th century (Korf 1963, pl. 8; 80-1). An extremely rare form (Fig. 44, No. 49) is similar to that of early syrup jars (Drey 1978, 119, no. 60B; 120, no. 61C) dating to the late 16th or early 17th century; these are attributed to the Netherlands and sometimes specifically to Antwerp. There seems little doubt that the 281N example, although not a true 'syrup jar' (as it lacks the usual legend identifying the contents) does come from the Netherlands. Certainly the style of decoration is one frequently found on Netherlands vessels of the first half of the 17th century.

The glazed red earthenwares found in both cesspits are typical of the 17th-century examples frequently found in Norwich. The majority are small bowls, dishes, chamber-pots and jars, with only a few jugs and pipkins, in fact, typical Norwich domestic assemblages for this period. The near total absence of small bowls with handles (cf. Cat. fig. 68) in pit 180/319, except in the upper layers, and the large numbers found in pit 160, confirm their introduction date of *c.*1640 (as suggested in Jennings and Atkin 1984, 17-19). Many of these small bowls from pit 160 were heavily sooted and burnt and must have played an important part in the preparation of food.

Neither cesspit contained much residual material; more than half of what there was came from the top layer of pit 160 (Fig. 39, S4c). This was apparently introduced in the mid to late 18th century, when a subsidence hollow was infilled.

The contents of both cesspits were extensively illustrated in Jennings 1981, and only vessels not previously published have been illustrated in this report. A list of the catalogue numbers of the previously published vessels, together with a brief form and fabric description, is given at the end of the list of illustrations below.

Pit 180/319 (Fig. 43)

33. GRE dripping-dish. Greenish-orange glaze on interior. Layer 261.

34. GRE. Unusually thin-walled and glazed on both sides. Layer 261.

35. GRE. Glazed on both sides. Layer 261.

36. Dutch TGE, early 17th century (cf. Korf 1963, 61, fig. 90). Fabric very pale pinkish-orange laminated with streaks of darker orange. White ground with a dark blue, light blue and orange border. Central design of leaves and pomegranates outlined in blue, with green, orange and dark blue details. Oatmeal-coloured lead glaze on back. Layers 287 and 703.

37. Speckle-glazed ware. Layers 711 and 716.

38. Dutch white ware. Yellow glaze on interior and top three-quarters of exterior. Sooting on unglazed base. Layers 710 and 711.

39. Dutch GRE cauldron rim with scar for beginning of a handle. Semi-translucent yellowish-orange glaze on both sides, streak of dark copper-green glaze on exterior. Layer 319.

Unillustrated:

Pit 319

Cat. 672 Metropolitan slipware mug or tankard. Layer 710.

Pit 180

Cat. 1098 Speckle-glazed ware jar rim. Layer 181.
Cat. 1242 GRE jar rim. Layer 181.
Cat. 1255 GRE storage jar. Layer 181.
Cat. 1105 GRE small shallow dish. Layer 287.
Cat. 1245 GRE jar rim. Layer 287.

Fig.44 Site 281N, Area B. Pottery. Phase VI, cesspit 160. Scale 1:4

Cat. 543 Werra ware dish with botanical design. Layers 262 and 287.
Cat. 1283 GRE jug. Layer 262.

Pit 160 (Fig. 44)

40. Local slipware. Orange fabric; applied slip decoration on rim edge, orange glaze on interior and exterior, patchy on rim edge. Layer 186.

41. ?Reduced GRE. Grey fabric; reduced-green glaze on both sides. Layer 185.

42. White salt-glazed stoneware, 1740-60. Layer 160.

43. GRE. Brownish-orange glaze on exterior and most of interior. Sooting on base. Layer 185.

44. Dutch GRE. Orange glaze on interior, heavily sooted on exterior. Layers 157 and 158.

45. English TGE fluted bowl. Pale cream fabric; white tin glaze with dark blue decoration. Layer 185.

46. TGE. Cream fabric; white tin glaze with mid blue and manganese purple decoration. Layer 169.

47. English TGE plate, late 17th century. Pinkish-cream fabric; plain white tin glaze, stacking marks on back rim edge. Layer 217.

48. TGE, probably Dutch, mid 17th century. Off-white fabric; white tin glaze with blue decoration, discoloured lead glaze on back. Layer 745.

49. Dutch TGE, rare 'syrup jar' form, early 17th century. Pale pinkish-cream fabric; white tin glaze with blue decoration. Layers 745 and 748.

50. English TGE. Cream fabric; very pale blue glaze with mid blue decoration. Layer 217.

51. Dutch TGE charger, c.1625; surviving elements of the central motif reconstructed as Korf 1963, pl. 8. Cream fabric with orange inclusions varying in size; white ground with blue, light blue and orange border. Central design has elements outlined in blue with blue, green, orange and manganese infill. Lead glaze on back. Layer 185.

52. Dutch TGE, second quarter 17th century. Light pinkish-orange fabric; white glaze with blue decoration, oatmeal-coloured lead glaze on back. Suspension hole through foot-ring. Layers 157 and 169.

Unillustrated:

Pit 160

Layer 158
Cat.1100 Speckle-glazed ware jug.
1120 GRE shallow dish.
1187 GRE small bowl.
1270 GRE jar, probably with two handles. Layers 158, 169 and 186.

Layer 157
Cat.1230 GRE pipkin.

Layer 160
Cat.1124 GRE large shallow dish.

Layer 169
Cat.1201 GRE small bowl.
1217 GRE small pipkin.

Layer 173
Cat.1196 GRE small bowl.

Layer 176
Cat.1121 GRE large shallow bowl.
1155 GRE small bowl.
1056 Iron-glazed ware jug. Layers 176, 185 and 186.

Layer 178
Cat.1272 GRE chamber-pot.

Layer 185
Cat. 851 Westerwald chamber-pot.
852 Westerwald jug.
1031 Bowl, ?Surrey white ware.
1154 GRE small bowl.
1161 GRE small bowl.
1146 GRE small bowl.
1168 GRE large steep-sided bowl.
1164 GRE small bowl.
1165 GRE small bowl.
1197 GRE small bowl.
1194 GRE small bowl.
1250 GRE straight-sided storage jar.
1251 GRE straight-sided storage jar.
1265 GRE chamber-pot.
1268 GRE chamber-pot.
1292 GRE chafing-dish.

Layer 186
Cat.1107 GRE shallow dish.
1133 GRE shallow dish.
1156 GRE fluted small bowl.
1157 GRE tripod small bowl.

Layer 189
Cat. 636 North Italian marbled ware, bowl base.

Layer 216
Cat. 837 Westerwald mug.

Layer 745
Cat. 646 Metropolitan slipware, large dish.
657 Metropolitan slipware, large dish.
1058 Iron-glazed ware base.
1063 Iron-glazed ware tyg.
1348 Unglazed orange ware flower-pot.

Layer 748
Cat. 918 Surrey white ware small bowl.

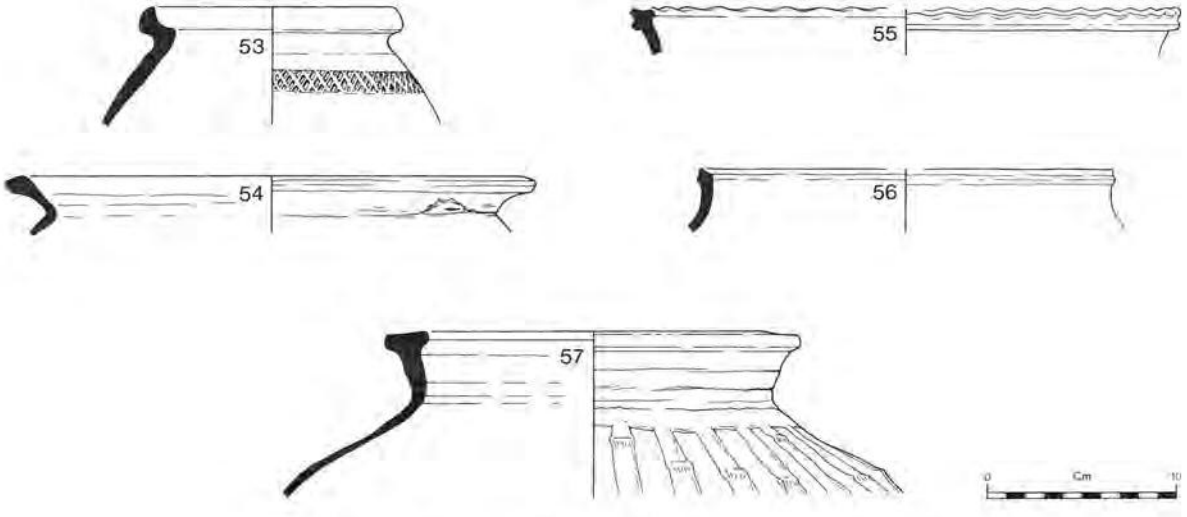

Fig.45 Site 281N, Area C. Pottery. Phases I and IV. Scale 1:4

Area C

Phase I (MFT.28)

The pottery from this phase came mainly from a series of pits and comprises almost entirely Thetford-type wares and early medieval local unglazed wares. The few fragments of imported wares, from Andenne and Stamford, together with the local wares, would suggest a date not later than the 12th century.

Layer 419 has no Early Medieval ware but contained a group of some fourteen Thetford-type vessels. These, together with fragments of four vessels from layer 362, conform in both fabric and shape to the material from a kiln site at 2-4 Bedford Street (cf. the material from Area A Phase 01: see above, p.130). With the exception of a saggy-based storage jar, the fragments are from cooking-pot forms, and several vessels show signs of sooting. Two have bands of rouletted decoration on the shoulder (Fig. 45, No. 53).

The pottery from this phase is closer in date to Phase I of Area B than Phase II. There is no material of 13th-14th century date, suggesting that this part of the site was not used for rubbish disposal at that time.

Fig. 45

53. Thetford-type ware. Layer 419.
54. LMUW. Pit 405.
55. Yarmouth-type ware, fabric 3. Layer 477.
56. Yarmouth-type ware, fabric 3/1. Layer 477.

Phase IV (MFT.28)

Apart from a small amount of residual material, the pottery from this phase is 15th-century in date. The Late Medieval and Transitional wares are all hollow-wares and date from the earlier part of the production period. The Grimston-type vessels are late medieval in date and include fragments of one of the smaller, simple jugs (cf. Cat. 382). An uncommon vessel form is a large unglazed storage vessel with indistinct applied thumbed-strips (Fig. 45, No. 57). The presence of Langerwehe stonewares and the absence of Raeren stonewares would suggest a mid 15th-century date for *phase IV*. The cesspit associated with this phase is discussed below, but the pottery from the bottom of it is slightly later in date than the rest of the material from *phase IV*.

Fig. 45

57. LMUW. Buffish-grey fabric, quartz inclusions; slightly darker surfaces. Layer 507.

Phases IV and VI, cesspit 368/417 (MFT.28)

Cesspit 368 seems to have been a reuse of an earlier and probably unlined cesspit (417) which would date to *phase IV*. The division of the two periods comes between layers 416 and 417 (Fig. 39, S4e), although occasional sherds were found in the upper fill which join to vessels from the lower fill.

The *phase IV* part of the cesspit contained fragments of thirteen Late Medieval and Transitional vessels, six Raeren stoneware mugs, and fragments of one vessel each of Cambridge sgraffito ware and of Siegburg and Langerwehe stonewares — mainly in layer 417. Four of the LMT vessels were found in substantial amounts (Fig. 46, Nos 58 and 61-3) and like the fragments of the other nine vessels are hollow-wares that had a domestic function. Fig. 46, No. 63, an LMT cooking-pot with a typical copper-spotted glaze limited to specific areas of the vessel, has sooting traces on the lower half of the body and the fabric of the base has been burnt. A jug which almost certainly had a bung-hole (Fig. 46, No. 58), has a phosphatic deposit which covers the whole of the inside nearly to the top of the rim and is particularly thick near the base (Peter Murphy kindly suggests that this deposit is likely to be of biogenic origin, derived from the organic contents of the pot). It is very similar in fabric to an example found in the cellar deposits of site 149N (see Pottergate report, Fig. 21, No. 82) which although smaller in size, did have a bung-hole, and also appears to be rather over-fired. There are also slight traces of a sediment from the base of the cistern (Fig. 46, No. 62), which, though it was well-made and decorated, was rather under-fired on one side.

The LMT wares and the Raeren stonewares from this earlier cesspit closely resemble those in the assemblages from the cellars of site 149N (see above) and a similar date of *c.*1500 would be appropriate.

The assemblage from the later cesspit (368) contained far less substantial amounts of individual vessels, and also included some residual medieval material (which is completely absent in the earlier phase). The latest pottery comprises mainly glazed red earthenware vessels, with two iron-glazed wares and a Surrey white ware rolled-rim dish (cf. Haslam 1975, fig. 3, no. 3). This material came from the top two layers, so the cesspit must have been in use until the mid 17th century. Fragments of eighteen LMT and ten Raeren stoneware vessels were found, but each vessel was represented by, at the most, only a few sherds. As these were all associated with the glazed red earthenwares, they must have been redeposited with the later material.

Phase IV (Fig. 46)

58. LMT cistern. Over-fired dull reddish-grey fabric; patchy partly reduced copper glaze on the shoulder. Layer 619.
59. Raeren stoneware. Layer 417.
60. Siegburg stoneware. Very pale grey fabric; patch of brown glaze. Layer 417.
61. LMT jug. Grey fabric with buff interior surface; exterior mainly dark grey, except for a copper-green bib of glaze opposite the handle. Layers 413 and 417.
62. LMT cistern. Orange fabric; copper-speckled orange glaze on inner rim edge, upper half of exterior and inner base. Decoration on shoulder above bung-hole of brown and dark brown iron oxide. Opposite side under-fired. Layer 417.
63. LMT cooking-pot. Orange fabric; copper-speckled orange glaze on inner rim edge and base, bright orange unglazed surfaces, lower part of vessel has sooting traces. Layer 417.

Phase VI

64. Early GRE. Brownish-glaze on inner rim edge, grey unglazed exterior surfaces. Layer 391.
65. Early GRE. Grey fabric with reddish-grey outer margin and exterior surface, reduced green glaze on interior. Layer 416.
66. Early GRE pancheon. Orange fabric; yellowy-brown glaze on interior. Traces of sooting on exterior. Layer 416.

The Clay Pipes

by Susanne Atkin

The majority of the pipes recovered from this site came from two major features, pits 180/319 and 160 in Phase VI. Ten other Phase VI contexts produced a total of only thirty-one fragments. There were also four intrusive stem fragments in two earlier phases (IV and V). All pipe fragments are listed by phase and context in MFT.35.

Pit 180/319, Phase VI

Pit 180/319 contained 219 fragments of which 37 are bowls. (Only 19 of those fragments came from 'pit' 319.)

The bowl-forms clearly show three distinct periods

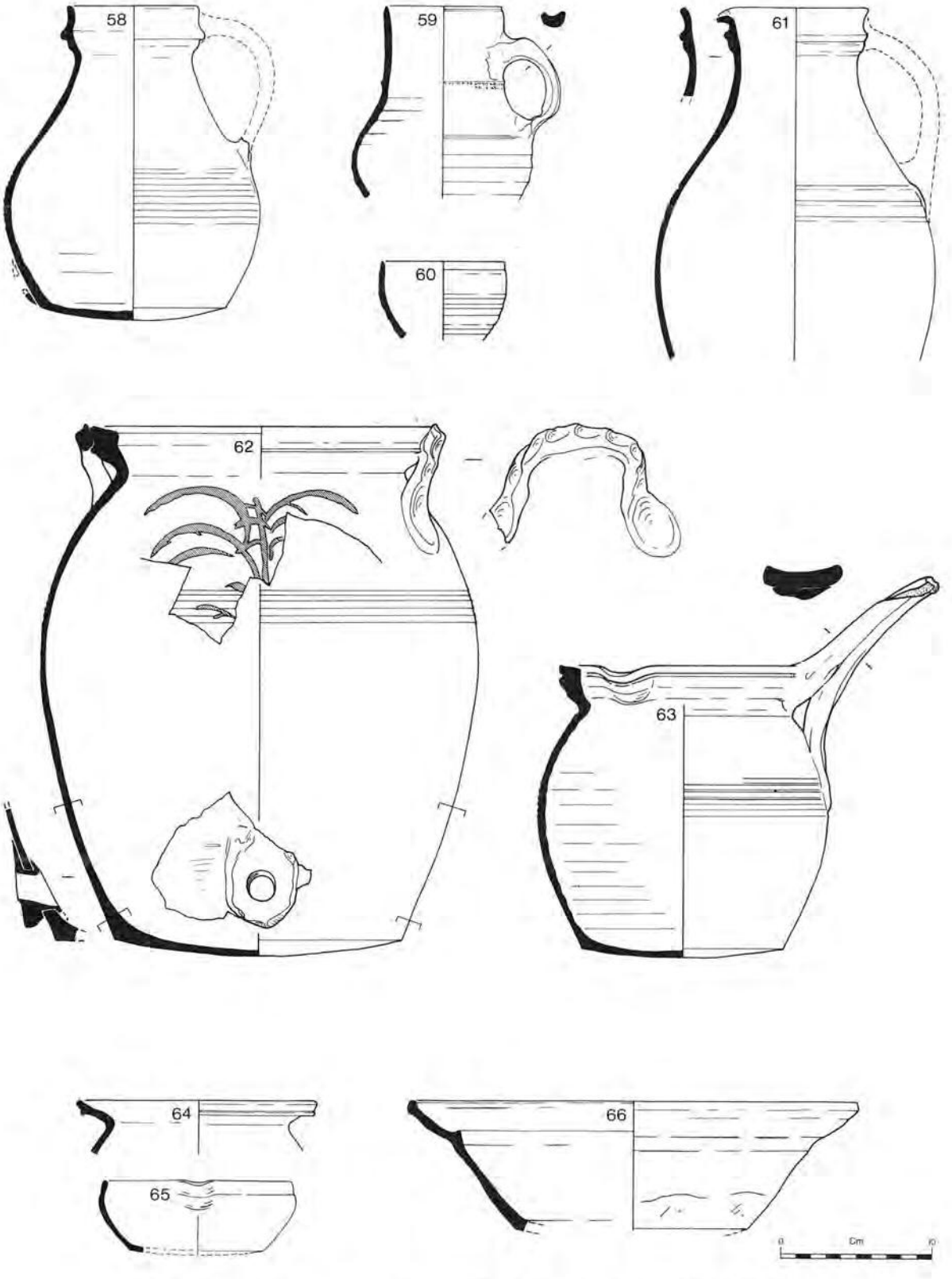

Fig.46 Site 281N, Area C. Pottery. Phases IV and VI, cesspit 368. Scale 1:4

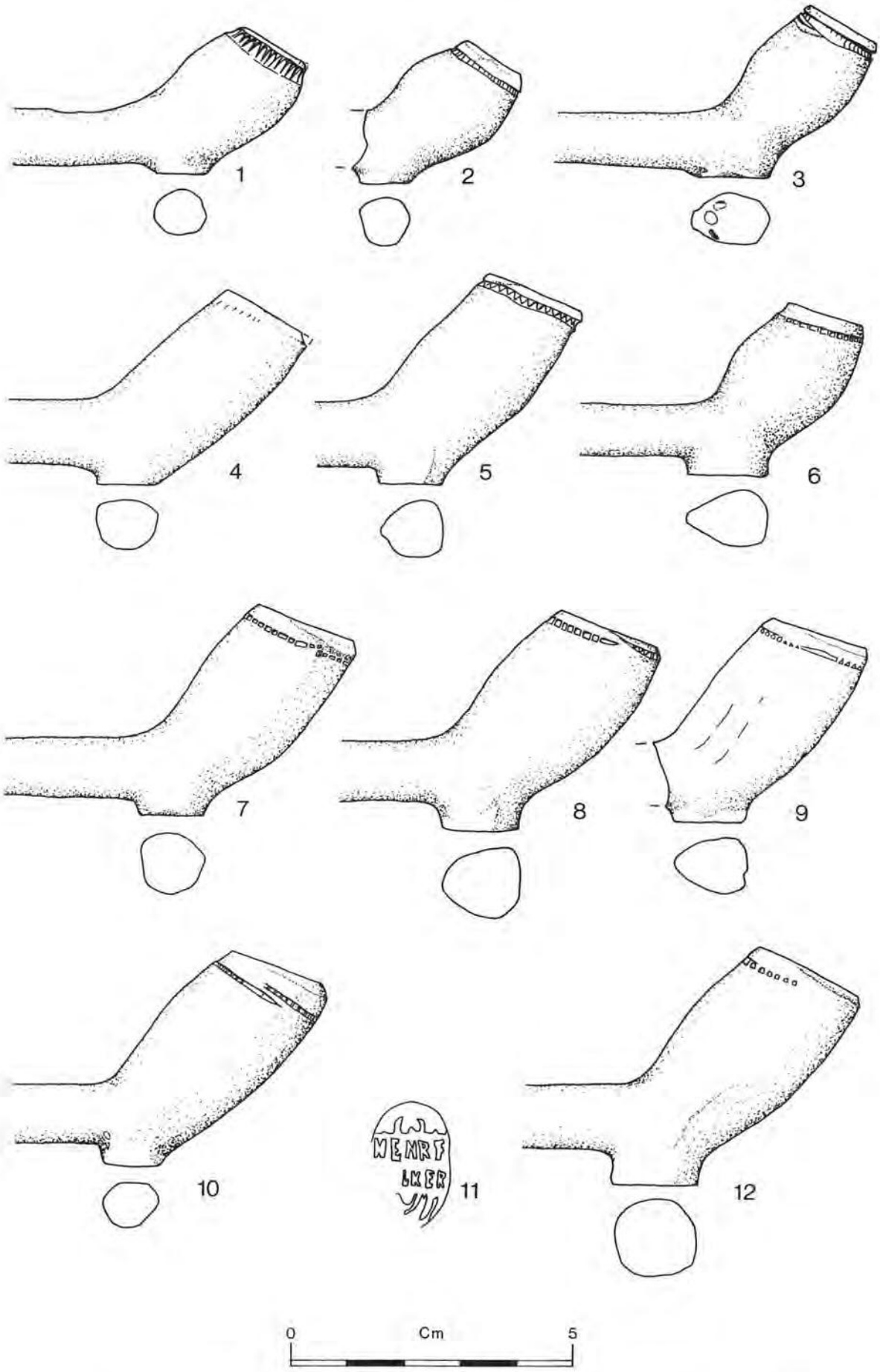

Fig.47 Site 281N, Area B. Clay pipes. Phase VI, cesspits 160 and 180/319. Scale 1:1

of pipe deposition (MFT.35). The first was in the early 17th century, and is represented by three bulbous and waisted bowls (Fig. 47, No. 3) and by four small swollen bowls, apparently from the same mould (Fig. 47, No. 1). A second period of deposition is indicated by twelve nearly straight-sided bowls in layer 181 which date from *c.*1660-80 (Fig. 47, No. 4). Two bowls contemporary with the earlier period were found with this group (Fig. 47, No. 2), and suggest a fairly deep clearing out of the pit. The topmost layer (180) included six slightly larger bowl-types, datable to *c.*1670/80-1710 (Fig. 47, No. 7).

Pit 160, Phase VI

This rectangular, lined pit was associated with a tenement sub-divided into two holdings, and there was access to it from the street, down a narrow lane. The pit contained a large number of pipe-bowls and stems, most of them from above layer 318.

A few residual types, *c.*1610-60 (in layers 745, 318, 189 and 185; Fig. 47, No. 6), suggest periodic clearings-out of the pit , and each bowl-type can be paralleled in layer 181, pit 180. The majority of the bowl-types are probably post-1670, and many are the same types of bowl as those found in the top layer of pit 180. This might represent an overlap in use — the larger pit being constructed as pit 180/319 became filled up — or simply an overflow of dumping into the settlement hollow developing in the out-of-use 180. The latest fragments are a mid/late 18th-century spurred bowl (in layer 160), and four intrusive narrow-bored stems (in layers 160, 172, 176 and 182).

The post-1670 bowls cannot be closely compared to the London typology of Atkinson and Oswald (1969, fig. 2, nos 20-21), and this suggests that they were locally made by an established Norwich industry (particularly Fig. 47, Nos 8, 9 and 12). The increased sizes of the bowls indicate that the price of tobacco had decreased and that a longer smoke was wanted, a situation known to have existed *c.*1670/80. Other bowls within the group have narrower bases (Fig. 47, No. 10), and seem to be the forerunners of the pedestal-based types post-1700 (e.g. AO 1969, fig. 2, no. 25). However, the absence of any bowls similar to AO 25 suggests that the pipes in pit 160 were probably deposited before 1710/20.

A post-1670 date is strengthened by the presence of a Gateshead maker's stamp on a fragment of stem in layer 185 (Fig. 47, No. 11). Henry Walker was recorded in the Gateshead parish register of 1674-99. The style of the mark was in use in Gateshead from 1675-1725 (certainly by 1684) and was used by Walker on Parson's type 4 spurred bowls dated to between 1650 and 1680 (Parsons 1964, 243, 254 and fig. 3). It was the only marked fragment recovered from either of the pits — the usual Norwich marks that are often found in late 17th-early 18th century assemblages are absent, for example, the initials IM or WA (see Pottergate, pp.49-51).

A number of interesting points about these pit groups have arisen. (1) About forty-eight of the bowls are unsmoked or only very lightly smoked, while others have been very heavily smoked. (2) Some have rough exteriors, as though hardened, but not fired (e.g. Fig. 47, No. 10). A bowl in layer 157 has an accidental coating of glaze, and another (layer 175) could be a waster. (3) Three bowls, with identical mould flaws, can be shown to have come from the same mould.

No kiln material was recovered from the site to indicate that a pipemaker was working on the premises, as might be suggested from the roughened and glazed bowls and the waster. However, the presence of a large assemblage of glass bottles and phials (of late 17th-century date) might indicate a link with a public house. A publican would probably have had a large fireplace/oven on the premises, capable of re-firing foul pipes to clean them (and perhaps to 'bake' newly-made ones?), which might account for the numbers of apparently unsmoked (or ?cleaned) pipes being thrown out with heavily blackened ones.

Further discussion of the pipes from this site will be included in the forthcoming clay pipe volume.

Pits 180/319 and 160 (Fig. 47)

1. Lopsided bulbous bowl; thick uneven stem, visible misalignment of mould join on back seam, high wide milling all around rim. 1610-40. Layer 287, pit 180.
2. Small, swollen bulb; milled all round, polished white exterior. 1610-40. Layer 181, pit 180.
3. Crude slender bowl; greyish clay, three-quarter milling, heavily smoked, crude base with (?kiln) scar. 1630-50. Layer 725, pit 319.
4. Nearly straight-sided; frontal milling, smooth seams. 1660-80. Layer 181, pit 180.
5. Curving sides; blackened exterior and interior, high all round milling. 1670s-1690s. Layer 181, pit 180.
6. Slender bulbous-waisted; all round milling, smoothed seams and exterior. 1640-60. Layer 745, pit 160.
7. Becoming more upright; smooth white (?polished) exterior, two bands of milling round rim. 1680-1710. Layer 180.
8. Smooth (?polished) exterior, all round milling. 1670-90. Layer 157, pit 160.
9. Chubby bowl; white burnished exterior, three-quarter milling. 1670s-1690s. Layer 180.
10. Bowl narrows to base, rough exterior with no finishing beyond trimmed seams, two bands of milling all round rim; stem section shows hard-fired, unsmoked; mould flaw on right side of base (similar flaw on bowl in layer 175). 1680/90-1700. Layer 318, pit 160.
11. Stem fragment, marked incuse HENRF: . . .LKER within oval frame. Henry Walker, 1674-99, Gateshead. Layer 185, pit 160.
12. Frontal milling, smooth exterior, thick stem. 1690-1700. Layer 176, pit 160.

The Small Finds

by Sue Margeson

As explained in the introduction to these sites, the key material will be published in full in the Small Finds volume, and what follows here is merely a contextual summary to be read in conjunction with MFT.36.

Evidence of Roman and late Saxon activity on the site may have been introduced from elsewhere: a Hod Hill-type brooch of the 1st century (pers. comm. D. Mackreth) and a late Saxon copper alloy pin with a decorated spherical head were both found in late contexts in Area B. The paucity of finds from the early phases is due to the fact that there was no domestic occupation of Area B until phase III. From phase IV onwards, cesspits dug in the yards were used for rubbish disposal; otherwise rubbish was deposited off-site.

Phase I (10th-12th century)

The few finds consist of a Norwegian ragstone whetstone from Area E and fragments of Rhenish lava from Area B. These may amount to no more than rubble, cleared from elsewhere and tipped here.

Phase II (13th-14th century)

The site was used for iron-working at this period. Numerous iron fragments and some iron bars may be evidence of this industry. Fragments of copper alloy

sheet may reflect small-scale industrial activity. The fragments of Rhenish lava may only be dumped rubble. The fragments of an iron back-plate from a heckle or woolcomb (Area B) is one of three such fragments from the site, possible evidence of the presence of textile manufacture. In general, the assemblages reflect the lack of domestic occupation, and furnishings and dress-fittings are probably only the result of casual loss. A copper alloy casket-key on a ring from Area B is probably of 13th/14th-century date. A bone pin with a decorated, perforated head and a barbed point (Area C) was probably in use in the early part of this phase (compare similar pins of *c.*1150-1200 from Castle Acre Castle, Margeson 1982 (a), fig. 47, 23-45).

Phase III (14th century)
Apart from copper alloy casting waste, the only identifiable finds are fragments of window-came, probably intrusive.

Phase IV (*c.*1400-1625)
The assemblages are domestic in character. Finds relating to buildings occur in all areas of the site, with deposits of window-glass, came and wall-plaster.

Area B
Important evidence of craft activity is provided by a 14th/15th-century limestone mould for casting leaf-shaped fittings, perhaps for ceiling or wall decoration (Biddle *et al.* 1959, fig. 20, nos 8-10).

Kitchen equipment includes an iron knife with a cutler's mark (from IVb) and another with a copper alloy guard (from IVd). A fragment of millstone grit quern/millstone, and a Norwegian ragstone whetstone (from IVd) may be related to domestic use. Some glass vessels are contemporary with the end of the phase, for example, the base of a drinking-glass of late 16th/early 17th-century date (from IVc). A 16th-century copper alloy corner mount from a book (residual in phase VII) belongs with this assemblage. Medieval dress-fittings include a buckle-plate with punched ornament in the form of a stylised animal (pit 279), belt-fittings and a belt-stiffener (from IVa). Of particular interest is a late medieval copper alloy pendant from horse-harness complete with its attachment stud (type 5; pers. comm. N. Griffiths and P. Robinson).

A farthing token of James I or Charles I (before 1635) is contemporary in the later part of this phase.

Area C
Domestic furnishings from the early 16th-century cesspit 417 include glass vessels (amongst them the base of a late medieval urinal), and an early post-medieval, turned antler ?chess-piece. A jetton of Edward I (lost in the 1290s, S. Rigold) was transformed into a brooch in the 14th or 15th century by the addition of a strip with ends curved over to form lug and catch-plate.

Phase V (*c.*1625)
The site was levelled following the demolition of building B/3. This has resulted in large deposits of window-glass (some painted) in Area B, especially in layers 81, 92 and 224. There are also two fragments of architectural stone, which suggests that some of the material may have come from the nearby churches of St Olave's or St Augustine's. Evidence of domestic crafts is provided by a bone parchment pricker from Area B. A pair of shears and some knife blades reflect the domestic nature of the deposits. Dress-fittings amount to a small number of pins and lace-tags. Pit 66 contained a Hans Krauwinckel jetton of *c.*1615 which must have been in use during this phase.

Phase VI (*c.*1625 onwards)
The construction of a new building (B/4) produced building ironwork (including keys and a sliding bolt for a door) and large quantities of window-glass. The cesspits. 160 and 180, contained some important assemblages with a large number of glass bottles, and vessels including phials, drinking-glasses (some with moulded decoration), and a spirit flask of *c.*1680.

Other domestic equipment found in the cesspits includes a pair of iron scissors and two pairs of shears, and an iron candle-holder. Personal belongings include three double-sided ivory combs (compare a similar comb from Alms Lane, 302N, see below, Fig. 36, No. 22). The only evidence of leisure activities is a domed chalk counter. Assemblages from elsewhere in Area B in this phase are similar in composition to those in the pit groups.

7. The Excavated Buildings in Area B

by Alan Carter

Building B/1 and its successors (discussed below), are among the few on these three sites about which anything sensible can be said. On 170N, for instance, although houses were probably ranged parallel to the street the walls lay largely outside the excavation; building C did have a rear wing but little detail of this survived. On site 281N (Fig. 26), to both east and west of Area B, the foundations of other buildings were found; but again the most that can be said is that simple blocks ranged parallel to the street seemed to predominate, and that rear ranges were uncommon. Even within Area B there were considerable problems in arriving at satisfactory interpretations: the street frontage was badly damaged and left unexcavated; while behind this a mixture of limited excavation and deep later disturbance left many critical points obscure. These problems are compounded by our ignorance of overall plot dimensions, particularly those of width. Initial machine excavation, for instance, showed that east-west walls apparently relating to Area B extended west of the site (Fig. 31, walls 1155 and 1283). It is unlikely, though, that these indicate a courtyard building (Smith and Carter 1983, 6-9) and at the most they probably represent the footings of a structure such as a stable. In attempting (Fig. 48) to reconstruct the approximate form of the Area B buildings, then, the assumption has been that the sequence of events was restricted to a 7m-wide strip running back from the street frontage.

With B/1 (Fig. 30) it seems likely that the basic plan established in the late 14th century may have survived into the 17th century. Nothing is known of the original street frontage but behind this a long, and perhaps low, block roofed at right-angles to the street was divided into hall and ?parlour. Whether the latter was two-storied or not is argued above (p.118), but it was clearly both structurally and functionally separate from the hall. With building B/2 (Fig. 48, upper: later 15th century) there is some evidence of the street frontage range. Whether this was roofed with the rest of the building or, as seems more likely, parallel to the street is unknowable. If the

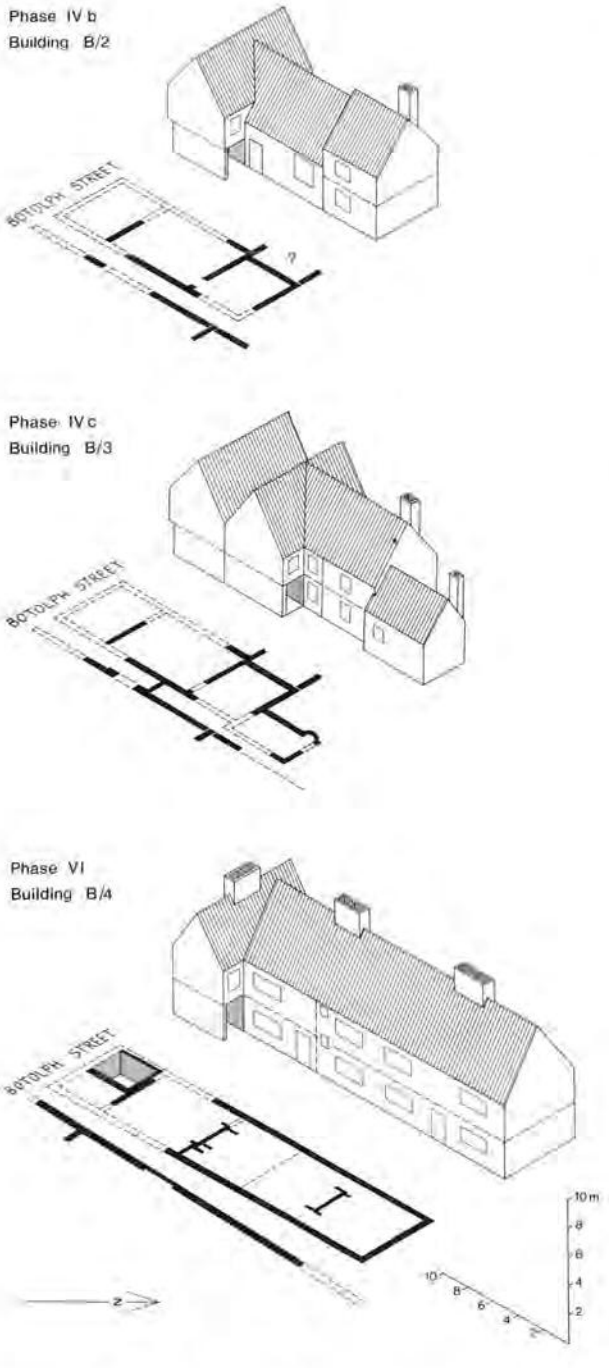

Fig.48 Site 281N, Area B. Sketch reconstructions of buildings

latter it was almost certainly two-storied, the upper floor extending over a tunnel entry passage. On the ground or entry floor there would probably have been a shop (i.e. a workshop from which goods might be sold). Away from this, at the 'upper' end of the open hall, a first-floor solar, heated by a side-wall stack, might have been located above a kitchen with its service adjuncts (?buttery and pantry). The Phase IVc modifications to form building B/3 are most plausibly explained in terms of creating a fully-storied house (Fig. 48, centre). This was exceptional both in terms of its early date (late 15th or early 16th century) and in the placing of the hall chamber athwart the building.

Reconstruction in *c.*1625 to form building B/4 probably produced a structure of quite different proportions (Fig. 48, lower). Within B/3 the first-floor rooms would have been open into the roof; now the house probably gained a usable, but unlit, attic (cf. O'Neil 1953, figs 1-3, 5, 8 and 12; Priestley and Corfield 1982, 116-19). The preferred interpretation of the building's sub-division (p.123) suggests two quite large houses, while the over-provision of fireplaces in rooms *a*, *b*, and *c* could indicate a non-domestic function for that at the rear.

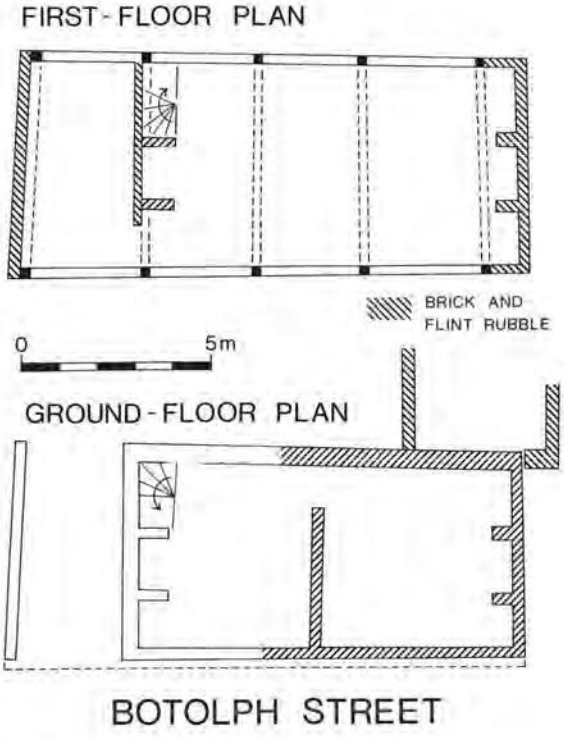

Fig.49 67-69 Botolph Street: standing building G, ground- and first-floor plans

8. The Standing Buildings — Area G
by Alan Carter

West of the excavation, at 67-69 Botolph Street, stood an originally two-storied, jettied, timber-framed building which was demolished early in 1976 (photographs: Norwich Survey negs. 76.17.2-20). A brief opportunity to examine the building allowed measured sketch plans and sections to be drawn but there was no time to undertake the stripping and detailed examination of the frame that should have occurred. This, and the major 18th and 19th-century modifications that the building had undergone, principally the destruction of the ground-floor front wall and the addition of a third storey (with the consequent loss of the original roof), make interpretation uncertain. The record (Fig. 49) is worth commenting on, however.

On the ground-floor, to the east of an original carriage entrance, were two equally-sized, heated rooms. It was clear, though, from the framing of the first floor that the west stack was not original. A tie-beam passed behind it against a partition wall, and this anomaly was accentuated by the provision at the east end of the building of a proper stack bay. The position of the stairs

as recorded must, then, be associated with the probably 17th-century insertion of this second stack and the digging of a cellar beneath the building (not shown on plan but restricted to its west end). Another inserted 17th-century feature was an ovolo-moulded window which cut through the first-floor frame. It seemed likely that there had originally been only a single ground-floor room but as the soffits of the joists were not exposed this could not be proved. Where the original ground-floor walls survived they were of brick and flint rubble, as were the first-floor gable walls. Otherwise the first floor was entirely timber-framed, the studs closely spaced at *c.*45cm (18in) intervals. Uniquely for a Norwich building not jettied in both planes the wall-posts of both the front and back walls were arch-braced to the tie-beams. This feature might have suggested an early date but was contradicted by another: the use of numbered deep-section joists, which is most easily paralleled in buildings of later 16th-century date, e.g. 132 Magdalen Street or the central range of the Gibraltar Gardens, Heigham Street (Norwich Survey Building Records). This date would be consistent with the plan as reconstructed, i.e. with one large heated room on each of two floors and a small unheated room on the first floor above the carriage entrance (cf. Smith and Carter 1983, fig. 8A). East of Nos 67-69, and broken into during its demolition, was an undercroft or cellar with a pointed barrel-vault. This is as likely to have been of the 17th or 18th centuries as earlier, but an unequivocally 15th-century undercroft, the only domestic example known north of the river (Smith and Carter 1983, fig. 1) still exists just to the west beneath Nos 71-73 Botolph Street. Butted against the north and east walls of Nos 67-69 and incorporated in its outbuildings were the fragmentary remains of apparently 16th or 17th-century walls which tied up on plan with those discovered in exploratory trenching (Area E) to the west of the excavation. It seemed likely that these represented a row of cottages in a yard.

IX. General Discussion (Sites 170N, 284N and 281N)

by D.H. Evans

Like Pottergate (site 149N, see above), the Botolph Street area was a peripheral one in both late Saxon and early medieval Norwich, and as such, it provided a suitable location for one of the town's more anti-social industries — iron-working. The local gravels were extensively quarried (as on site 170N) for their iron ore from the 12th century until perhaps the mid 14th century, when the expansion of domestic settlement into this area finally drove the smelting industry out of the town. Roasting hearths were found on all three sites, and the resulting iron-working debris (ash spreads, hearth lining and quantities of slag) was liberally scattered throughout the excavated areas. The earliest of these deposits was found on site 281N, Area C, and is of 12th-century date, but the industry appears to have quickly expanded along the street, and to have reached its heyday in the later 13th and early 14th centuries, when the earliest documentary records of smiths owning property in this area occur (see Section V, above). The enrolled deeds show that although most of the rest of the land in this area had also been parcelled into small blocks by the end of the 13th century, this was still a semi-rural backwater, with large tracts of pasture, such as Gildencroft (Hudson 1889, 78 and 81 ff.), smaller arable plots, pounds or 'Pynfaldes' (ibid, 78), and the occasional barn.

Specific references to housing in this area before the late 1330s are rare, but thereafter, the pattern of ownership appears to have changed from agricultural and industrial use; many of the new owners were small tradesmen associated with the building trade. By the late 1360s, the deeds record the presence of several cottages and shops on the south side of Botolph Street, and a similar pattern of development can be assumed on the north side. This initial expansion into the area appears to have also attracted the attention of more prosperous owners who began to buy property here for investment purposes, and this seems to have set the trend for most of the next two centuries. By the end of the 14th century, substantial buildings such as B/1 on site 281N were being erected on the north side of the street.

During the 15th century more and more of the frontages were rebuilt in brick-and-flint rubble (as on sites 170N and 284N), and the character of the area must have gradually changed as it was colonised by the textile industry. The earliest reflection of this in the enrolled deeds is the ownership of one of the properties on the south side of Botolph Street by John Chittok, a prosperous dye and cloth merchant in the mid 15th century; but thereafter, a succession of worsted weavers, calenderers, and latterly russell weavers appear as owners of many of the properties on both sides of the street throughout the later 15th and 16th centuries. Moreover, the number of textile workers in the area was probably far greater than suggested by the deeds, as many would have been too poor to own property, and would have been renting it instead. Some support for this suggestion can be found in the fact that although the Landgable returns might indicate that the number of holdings in the area doubled between 1490 and 1547, this is reflected in the archaeological record, not by more buildings, but rather by the extension of existing buildings back into the yards (e.g. C/1 of the early to mid 16th century on site 170N). In other words, existing properties were converted into multiple-tenancy holdings.

As the textile industry sank into the doldrums during the 16th century, the parish of St Augustine's increasingly became a haven for the poor, and it was to this area also that many of the new immigrants from the Low Countries were attracted. By the time of the outbreak of bubonic plague in the City in 1579-80, much of the housing in the area may have been fairly run-down and overcrowded, for 2,500 of the 6,000 Strangers died. Blomefield asserted that the plague originated with the visit of Queen Elizabeth I to Norwich in 1578 (Blomefield 1806, III, 354), but at the time of the outbreak in March 1579, one of the complaints (perhaps with more than a tinge of xenophobia) attributed it to the dirty habits of the aliens: *'for the corrupte kepinge of their howses and necessaries, and also for the great anoyance of the river by skowring their bayes and wasshinge them all alongeste the ryver to the greate infeccion of the same. And also for keaminge of woole in open shoppes and carrienge chambrewashe throughe the citye in the daye tyme, and for pouringe oute wasshe in theyr gutters, and not pouringe water after yt, wherebye it reasteth in the gutters and*

breadethe greate infeccions, and of manye other enormities lyke therunto' (Hudson and Tingey 1910, 335). The ensuing order prohibited the scouring of cloth in the river from New Mills to Whitefriars, amongst other measures — suggesting that the workshops of some of the Strangers were scattered throughout the parishes along the north bank (it also suggests that 'chambrewashe' was synonymous with 'skouring wasshe').

Another problem facing this area as it became more densely populated, was the increasing risk of fire breaking out. In 1570 the Assembly renewed its order that all new buildings over a certain size ('above the nombre of thre cople of new sparres') should be covered with tile, slate or lead (Hudson and Tingey 1910, 137), and introduced fresh requirements for fire-fighting equipment to be kept by the parishes (q.v. site 149N Section X). This was followed in 1577 by an order forbidding the erection of new maltinghouses, such as that on site 281N (Sachse 1942, 48). These measures were in part prompted by the influx of immigrants between 1570 and 1579 (particularly into the northern ward of *Ultra Aquam*) when the city's population rose from *c.*10,000 to *c.*16,000. The problems of overcrowding were temporarily solved by the plague of 1579/80, and did not re-emerge until the beginning of the 17th century. In the 1620s the fear of fire once again prompted the Assembly to prohibit the use of thatch, and rigorously to enforce the use of tile on all buildings. One of the worst areas for the contravention of the new order was St Augustine's, where at least five successful prosecutions took place between 1632 and 1635, for thatching houses, ladings, sheds and a stable (Sachse 1967, 28-9, 133 and 199). Not content with this, in 1632, the Mayor's Court drew up a list of maltinghouses which were considered dangerous, 'for fear of firing the neighbouring houses', and ordered the maltsters to use only coal, and not to have kilns 'that have any woodwork about them' (Sachse 1942, 236-8). One of the offending malthouses was that of Joseph Norgate, a *berebruer* in St Augustine's parish (ibid, 63), who was one of the people later prosecuted for thatching newly-built sheds and ladings. These examples illustrate the growing pressure on housing space in the parish in the 1620s and 1630s, which is reflected in rebuilding on all of the excavated sites; moreover, it is possible that the cessation of malting at the end of Phase IVd on site 281N is also a reflection of the authorities' attempts to clamp down on malting in densely populated areas.

The patterns of rubbish disposal on these sites vary enormously, except during the early iron-working phases, when domestic rubbish was universally scattered over the whole area (though where it was coming from is a moot point — perhaps from settlement further south?). On the south side of Botolph Street, the old gravel quarries provided a convenient site for the deposition of household waste into the later 16th and early 17th centuries; whereas, on the north side, domestic rubbish was clearly being deposited off-site from the later 14th century onwards — perhaps on the arable fields to the north. Increasing pressure on housing space in the mid 17th century led to the sub-division of properties on the south side of the street and the walling in of the yards. This was accompanied by the advent of night-soil collection, and the replacement of cesspits built against the rear of the buildings, with discrete cesspits at the bottom of the yards. The reasons for the earlier arrival of night-soiling, by some twenty years, in this part of the city, than on Pottergate, are not altogether clear; in part, it may reflect the proximity of the city gates, in part, practical necessity, in that the area was much more densely built-up, and that available yard space was now extremely limited.

Excavations on Alms Lane (Site 302N)

by Malcolm Atkin

I. Summary

An area of 30 x 25m on the junction of Alms Lane with St George's Street and Muspole Street, was excavated over a period of six months during 1976 by the author for the Norwich Survey (Fig.1; Pl.XXIII). An interim report has already been published (Atkin and Carter 1977, 287-92). The area excavated lay just outside the line of the late Saxon defences north of the river (General Introduction, Fig.01). The Saxon ditch was located under St George's Street, its west lip extending 2.5m into the excavation. Until the mid 13th century the site was waste ground on the margin of settlement and was used for quarrying and rubbish dumping. The site was first occupied in the late 13th century, by ironworkers and brewers. Both smelting and smithing were represented in excavated features and finds.

Documentary evidence for the division of the site into three, sometimes four, tenements (all with buildings on them) occurs from *c.*1300, and can be equated with an archaeologically-recognised division based on function. The tripartite division itself does not properly appear in the archaeological record for another hundred years. Thereafter there is frequent archaeological evidence for the sub-division of these tenements, probably into units of rental, but the site as a whole was often under single ownership. From *c.*1400 the site consisted essentially of six separate building plots, with a progression on them from single-storied to two-storied clay-walled houses; to a rebuilding after *c.*1500 in flint and brick rubble with timber-framed first floors; to a further rebuilding in brick in the late 17th century. An outline of the main archaeological periods is given below, followed by a stratigraphic summary of the building history in Table 2.

Period 1 (*c.*1000-1050) (Figs 3 and 57)	Digging of defence ditch; use of waste ground for dumping of industrial waste and domestic refuse; fragmentary evidence of a building.
Period 2 (*c.*1050-1150)	Slighting of Saxon defences; silting of the ditch and backfilling with iron slags to form the line of St George's Street.
Period 3 (*c.*1150-1275) (Figs 3 and 57)	Continued backfilling of the Saxon ditch, with alternating domestic rubbish and waste from iron-working. Quarrying of iron-pan from the natural sand.
Period 4 (*c.*1275-1400) (Figs 4 and 57)	Brewing site established on the Alms Lane frontage, with an iron-working complex over the rest of the site. Both were largely derelict before the end of the period.
Period 5 (*c.*1400-1450) (Figs 5 and 58)	Site physically divided into three tenement blocks, with a series of clay-walled houses built on each. Possible workshop built on to St George's Street.
Period 6 (*c.*1450-1500) (Figs 5 and 58)	Domestic occupation extends along St George's Street. First evidence of the insertion of upper storeys.
Period 7 (*c.*1500-1575) (Figs 6 and 59)	General replacement of clay walls with rubble plinths; built fireplaces added to houses. Overall increase in house size, appearance of L-plan and cellars.
Period 8 (*c.*1575-1600) (Figs 6 and 59)	Extension of the west frontage to the present line of Muspole Street. Medieval pattern of housing breaks down with the beginning of sub-division.
Period 9 (*c.*1600-1675) (Figs 7 and 60)	Widespread sub-division of properties due to increased population pressure. Possible alehouse on Muspole Street. Evidence for the presence of Low Countries immigrants on site.
Period 10 (*c.*1675-1720) (Figs 7 and 60)	Rebuilding of Muspole Street frontage. Reunification of buildings B7 and B8. Demolition of property on Tenement C.
Period 11 (*c.*1720-1750) (Figs 8 and 61)	Major replanning of site, with creation of large buildings of new types on the Muspole Street and St George's Street frontages, with warehousing behind.
Period 12 (*c.*1750-1800) (Figs 8 and 61)	Rebuilding of outhouses behind building A11 and extension of building C4.
Period 13 (*c.*1800-1942)	Alterations up to bombing in 1942.

II. Acknowledgements

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III. Method of Study

It was proposed, in 1976, to redevelop this site with housing and an underground car park. In view of the

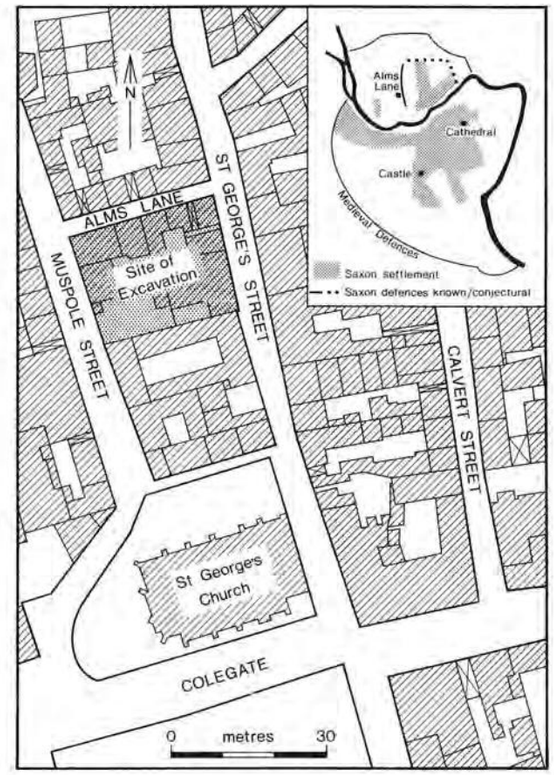


Fig.1 Site 302N. Site location based on 1885 OS map. Scale 1:1000. Inset, site in relation to Saxon Norwich

Period 1.1	(c.1000-1050)	A01						Ditch 2423		pp.145, 147
1.2								Iron Waste		
Period 2	(1050-1150)							Iron Waste		p.147
Period 3	(1150-1275)							Boundary		pp.147, 149
Period 4.1	(1275-1400)	A2 —	A1 —	P.1853 —	H.2226					pp.149-53, 256
4.2						H.559 —		C1i		
4.3								C1ii		
4.4								C1iii		
4.5						H.1406 —		Demolition		
4.6					H.1479	H.1404				
4.7		Demolition	Demolition			H.470				
Period 5	(1400-1450)	A4i	A3i	B1i —	B2 —					pp.153, 155-6, 256-8
		A4ii		B1ii					C2	
Period 6	(1450-1500)	Demolition	A3ii	B1iii		B3				pp.157-9
			A3iii	B1iv		B4				
			A3iv							
Period 7.1	(1500-1575)		A5i			B5i			C3i	pp.159, 161-3, 257-8
7.2			A5ii	B6i		—	B10i			
Period 8	(1575-1600)		A6	B6ii		B5ii —	B10ii		C3ii	pp.163-5
Period 9.1	(1600-1675)	H.731	A8 — A9	B7 — B8					C3iii	pp.165, 167, 257, 259
9.2		H.221								
9.3		Fence								
Period 10	(1675-1720)	A7	A10	B9i					Demolition	pp.167-8
Period 11	(1720-1750)		A11i			B5iii		C4i		pp.168, 170
Period 12	(1750-1800)		A11ii	B9ii				C4ii		pp.170-1, 257, 259
Period 13	(1800-1950)								C5	p.171

Table 2 Site 302N. Stratigraphic summary of building history

Fig.2 Site 302N. Layout of excavation and location of principal structures. Scale 1:150

possibility of defining part of the suspected line of the late Saxon defences thought to run along St George's Street, and with a good surviving range of medieval documentation, it was decided to mount a full excavation of the site. Excavation between July and September of that year was with an average workforce of twenty, and continued to December with a staff of three. Initial clearance was by a JCB III mechanical excavator, with all subsequent excavation being by hand. As a result of restrictions agreed with the developer it was not possible to strip the whole site in a single operation: the three street frontages were excavated separately, followed finally by part of the central yard area. Unfortunately this meant that two baulks (4 and 11) had to be left in what emerged as critical locations, in order to prevent collapse from already backfilled areas. This obscured a number of key relationships. In addition, a baulk had to be left along the immediate St George's Street frontage to prevent collapse along this busy, but narrow, street. The site was excavated throughout the hottest period of the summer of 1976. To lessen the effects of sun-baking, it was then excavated on a shift of 5am to 2pm and was doused as frequently as the emergency regulations would allow. Despite frequent spraying, the first signs of the clay-walled buildings emerged only after a rare downpour. The frequently ephemeral nature of such remains helps to explain their fragmentary record on the archaeological site.

Redevelopment eventually commenced in June 1984, and a watching brief was maintained on the site by Bill Milligan (Norfolk Museums Service) and the present writer. The finds recovered during the recent development mainly derived from the 1976 machine-dug spoil or from the standing baulks; these contexts have been numbered 2443 and 2444 (the latter almost certainly deriving from a previously unexcavated area at the very rear of Tenement C).

The description of the excavation follows the pattern established in the interim report (Atkin and Carter 1977), but detailed analysis of the stratigraphy and finds has led to an appreciation of an even more complex sequence than first suggested. This report can only summarise the development of those features (principally the buildings) that assist the interpretation of the site as a whole. Table 2 presents a concordance of buildings by period and also summarises the stratigraphic matrix (see MF 302N.1, E1-6, F1-6). As it will frequently be found necessary to refer to this table, it has been printed as a fold-out. Fig.2 shows the layout of the excavation and the location of the main buildings referred to in the text. The description of the excavation has been arranged by period, sub-divided as necessary (i.e. Periods 4.1 to 4.7). These have been determined on the basis of the stratigraphy, supported by dating evidence from the finds. In each period the building sequence is described within the three archaeologically-defined areas which are readily equated with the documented sub-division into tenements (A, B and C). The buildings themselves have been numbered within each tenement so that, for instance, buildings A3 and B3 are not of the same date. Phases of a building are distinguished as e.g. A3i or B3ii. References to rooms, where required, are as e.g. A3i*a*. For the relationship of buildings to tenements (and their sub-division into building plots) see Figs 2 and 62. Layers are numbered on the published sections (Figs 11-16) only when referred to in the text; fills within pits and other features are subsumed within the feature numbers. Plans of the whole site (Figs 3-8) are published at a scale of 1:150, with summaries of the main phases at 1:300 (Figs 57-61). There is not the space here to present the full detail of the stratigraphic argument for the dating of individual features or phases (in archive) although the basic matrix is contained in MF 302N.1, E1-6, F1-6, with an index to dug features on MF 302N.1, C5-10. Sections published only in microfiche are referenced as MFS; tables as MFT. The other microfiche sections are described in their parent sections and in the Index to Microfiche.

IV. The Site TG 2298 0909 (Fig.1)

The excavation was bounded to the north by Alms Lane, to the west by Muspole Street, and to the east by St George's Street (Fig.1 and Pl.XXIII). For convenience, the site is henceforth referred to simply as 'Alms Lane' (and all finds and documentation are referenced as such). To the south were a series of tenements extending back to the churchyard of St George Colegate, in whose parish the site lies. The natural subsoil was a coarse sand and gravel, its surface where undisturbed at an average height of 3.50m OD. West of the site the former (?11th-century) existence of marsh is indicated topographically by the eastward deflection of the Pitt Street line on to Muspole Street (General Introduction, Fig.01), and archaeologically by marsh deposits seen behind No.43 Duke Street (site 701N, unpublished), and is documented in the name 'muspool' to the south of the site (below, p.235). The natural sand on the west side of the site was noticeably water-stained. Above natural, an average 2m depth of archaeological deposits survived.

V. The Excavation

PERIOD 1 (*c.*1000-1050) (Figs 3 and 57)

Period 1.1 and 1.1/1.2 (building A01; Ditch 2423)

The natural subsoil was immediately overlain by a series of layers showing little sign of human activity.

Fragmentary traces of a building (A01, below) were found towards the Muspole Street frontage, with a possible clay floor to the east (layer 2417 on MFS14), and dumping of iron waste into the ditch beyond this. Those layers to the west (e.g. layer 966 on S11, Fig.12) were characteristically of loose, rounded gravel, stained black by water action. To the east the ground surface consisted of a clean sandy loam (layer 1700: Fig.12, S11) containing a single base fragment of Thetford-type ware (MFT. 3). Finds were sparse but as they included fragments of Early Medieval ware and local medieval unglazed ware (below, p.179) the period can be dated to after *c.*AD 1000. It was noted that there were no features at all of this period along the (?later) Alms Lane frontage. The only features definitely attributable to Period 1.1 (below) were those which could be related to Ditch 2423 (others are recorded as Period 1.1/1.2).

Building A01 (Fig.3 and MFS8)

There was fragmentary evidence of occupation on the Muspole Street frontage (but no indication that the street existed at this date). A possible hearth was represented by a spread of rammed chalk (layer 974), filling a hollow in the natural sand and containing fragments of burnt

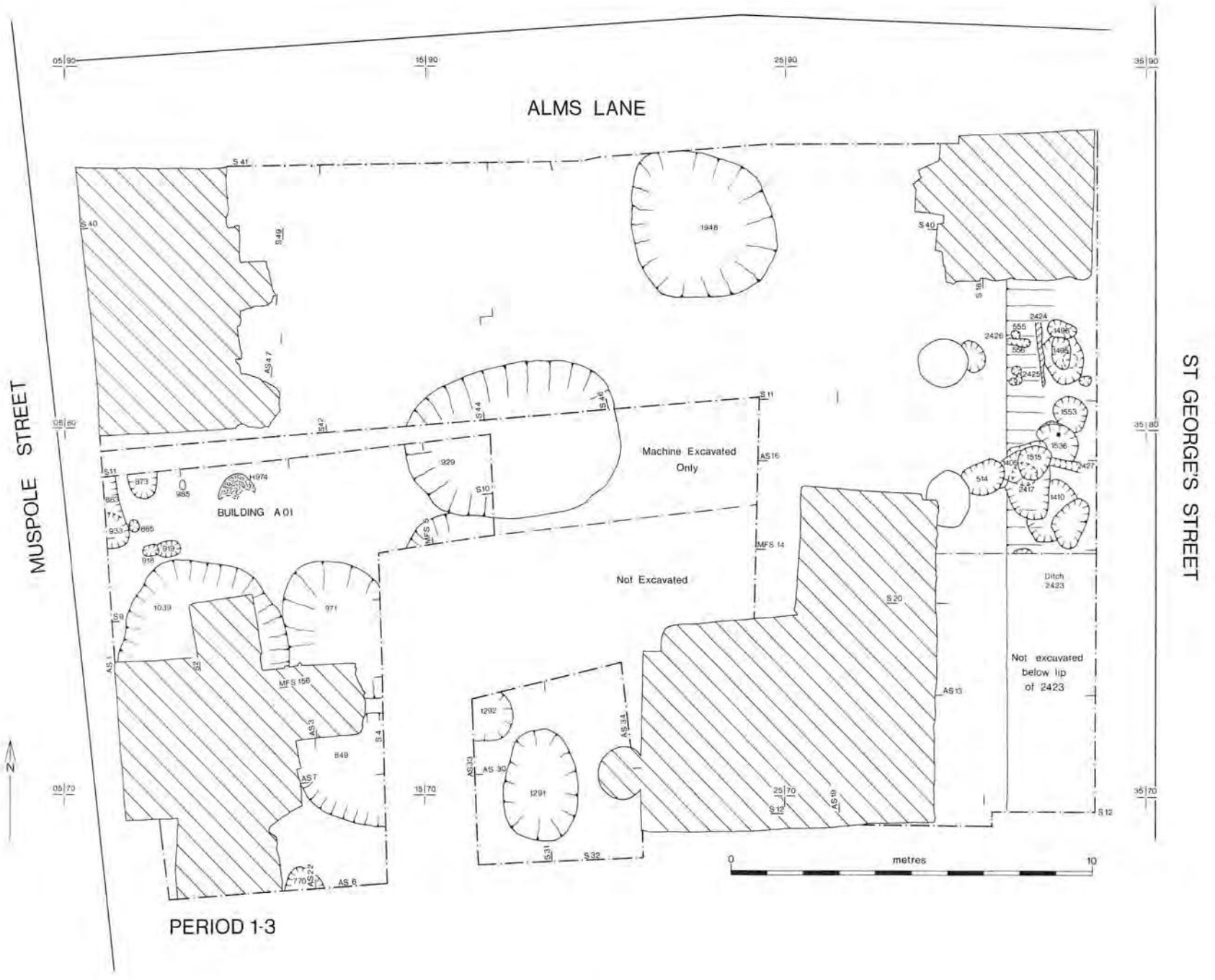


Fig.3 Site 302N. Plans. Periods 1-3. Scale 1:150

clay. Pits 918 and 919 occupied the same stratigraphic position and absolute level, and may have been post-holes (MFS130). These features were then sealed by layer 966 which contained fragments of possible burnt daub, indicating the presence of a structure. Its full plan was destroyed by the excavation of gravel quarries to the south in Period 3. To the south of the structure and also sealed by layer 966, was pit 770, containing both Thetford-type and Early Medieval wares dating to post-1000 AD (AS6). Layer 166, dating the demolition of the structure, contained only small, abraded sherds of Thetford-type ware of up to *c.*1050 (Fig.18, Nos 3 and 4), together with a copper alloy hooked tag of possible 11th-century date (Fig.36, No.13).

Ditch 2423 (Fig.3; Fig.12, S11; MFS14)
The west lip of a ditch was seen along the whole length of the St George's Street frontage, extending 2m west into the actual excavation. The total width of the feature is unknown as it extended under the street itself, but excavation of what was almost certainly its continuance on Botolph Street suggested a width of 7 to 8m (site 281N, this volume; see also General Introduction, Figs 01 and 02). The difficulties of excavating close to a road in current use meant that only a limited section could be fully excavated. Thus it was impossible either to ascertain the status of the ditch (original or recut) or to obtain material to date it confidently. Section S11 (Fig.12) and MFS14 show somewhat different profiles (indicating locally different weathering) but the basic profile was that of a V-shaped ditch at least 2m deep and with the west face as a series of steps. The ditch cut the Period 1.1 layer 1700 with initial silting from Period 1.2.

This feature is interpreted as being part of the late Saxon defence ditch around Norwich north of the River Wensum, following the line of St George's Street, Botolph Street and Cowgate (Fig.1, inset). Further discussion of this in relation to the later settlement pattern of the site follows on p.240. Foreshadowing later activity on the site were finds of tap slag and indeterminate smelting/smithing slag in the fill. This suggests that the site, beyond the boundary of the Saxon town, was already starting to be used as a rubbish dump.

The earliest datable context was 1700, containing a sherd of Thetford-type ware (Fig.12, S11). Although Ditch 2423 only contained a single sherd of this ware (in a Period 1.2 context—layer 1373) the other finds from Period 1.1/1.2 (from features that could not be more tightly defined), suggest a date range within the 11th century for the deposition of material (Thetford-type wares, Early Medieval wares and local medieval unglazed wares: MFT.3). The date of the original cut of Ditch 2423 remains unsure, but there was no evidence of activity prior to the 10th century, which accords with the suggested date from Botolph Street of the 10th century for this feature (above, p.116).

Period 1.2
Ditch 2423 (Fig.3; Fig.12, S11; MFS14)
The primary fill of the ditch as observed (layer 1381) was of dirty sand, presumed to represent erosion from the sides. There was then at least one major re-cut followed by a series of thick, organically stained, silt layers (1375, 1378, 1379, 1380, 1680). These may simply have derived from some ponding in the fill of the hollow, rather than suggesting any flooding from the 'muspool'. Along the west lip of the ditch (Fig.12, S11) was a low bank, 1699, surviving to a height of 40cm. It was built up of thin, alternate layers of sandy loam and clay or clay loam. Rather than being a purpose-built counterscarp bank, it is felt that this is more likely to have accrued from the repeated cleaning-out of the ditch bottom.

Other than the dumping of waste there was little activity over the rest of the site. Again, though, there were frequent finds of tap slag (MFT.10), including possible furnace lining from layer 822 (Fig.11, S4). The fragments of pottery were all small and abraded, dating up to *c.*1050 (Fig.18, Nos 6-9), including the earliest dating evidence from the fill of the ditch (a Thetford-type ware sherd—unillustrated—from layer 1378: Fig.12, S11).

PERIOD 2 (*c.*1050-1150) (Figs 3 and 57)
Activity during this phase was almost entirely taken up with the various infills of Ditch 2423.

Following the natural silting in Period 1, the ditch was first deliberately filled with dumps of dirty sand and sandy loam (layers 1373 and 1375: Fig.12, S11). These may have derived from a slighting of a presumed bank on the east side of the ditch. These were then sealed by a 20cm-thick deposit of clean sand and gravel (layer 1697: Fig.12, S11). This appeared to have been freshly excavated and may have come from the digging of quarries for iron-pan nearby (as suggested in the subsequent history of the site). The presence of iron-working in the vicinity is shown by the sealing of layer 1697 in Period 3 with a series of layers containing large amounts of iron slag (MFT.10). The dating evidence is slight, but is based on the presence of late Thetford-type ware rims (Fig.18, No.13 and MFT.3) which may date up to the mid 12th century (Jennings 1983, 87).

The area to the west of the now largely infilled ditch seems to have been left as waste ground with no features from this period.

PERIOD 3 (*c.*1150-1275) (Figs 3 and 57)
The phasing of this period is based on interruptions in the sequence of deposition in Ditch 2423 and dated on the pottery evidence. Although these breaks may not have any great chronological significance, they are described here for the light they shed on the emergent settlement pattern over the site.

Period 3.1
Evidence of iron-working in the vicinity was provided by a series of layers (e.g. 1370 on Fig.12, S11) which contained considerable quantities of iron-smelting slag and other burnt material within the continuing fill of Ditch 2423. A temporary pause in this activity was represented by the accumulation of layer 1396, which contained oyster shells and other burnt organic matter and would seem to represent the redeposition of domestic waste. This was followed by a further dump of waste from iron-working, represented by the smelting slags in layer 1695 (Fig.12, S11). This was cut by pit 1538 (MFS14). The function of the latter is not known, but it was filled with clean sand, again possibly from iron-pan quarries. In turn, this was sealed by a series of ashy layers occurring over the fill of the ditch.

To the west of Ditch 2423 was a series of thick soil deposits (e.g. 884 on Fig.11, S9 and Fig.12, S11),

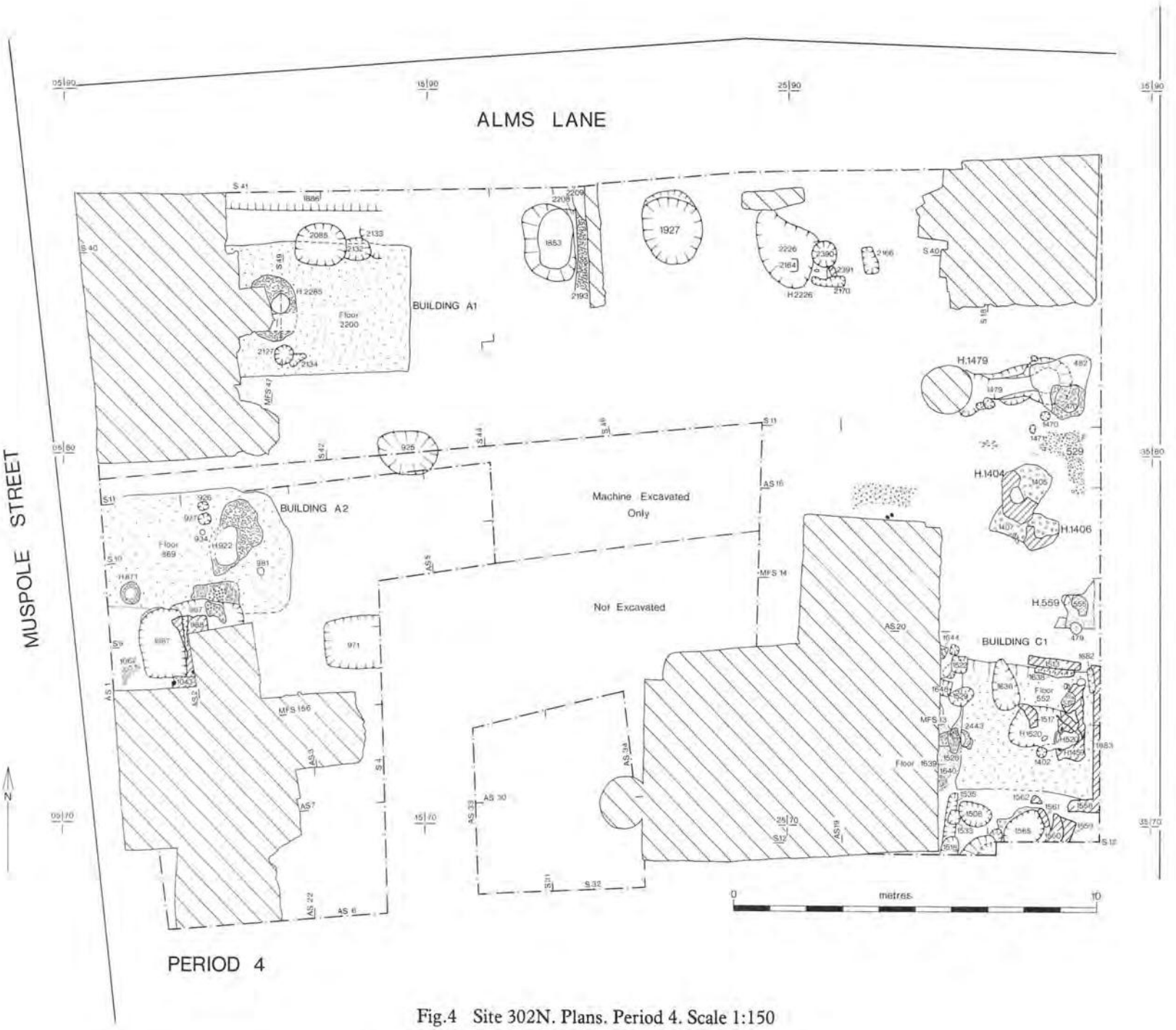


Fig.4 Site 302N. Plans. Period 4. Scale 1:150

dumped as artificial make-up. These may have been scraped up from elsewhere as, with the exception of a 13th-century sherd from layer 866 (AS6) and a fragment of Rouen ware from layer 990 (Fig.11, S9; Fig.19, No.26), all the material was 12th-century (MFT.3). The overall surface of this dump (layer 884) contained fragments of slag blocks from tapping hollows, together with vitrified furnace lining. Like the pottery, they might be residual but seem more likely to have been trodden in during Period 4 activity.

Period 3.2
A few indeterminate pits (seen in section but not shown on plan) could be dated to this period. Soil levels continued to accumulate over the rest of the site, but there were no datable finds.

Period 3.3
A thin spread of clay (layer 2424: Fig.3) running north-to-south along the fill of Ditch 2423 was associated with two shallow, angled, post-holes (2425, 2426) 50cm to the west. Although amorphous, a possible interpretation for them is as a wattle and daub screen, supported by raking struts. To the south was a gully, 2427. Further investigation of these features was, however, prevented as it was not possible to excavate the whole length of the St George's Street frontage to this depth.

The site now seems to have reverted to use as a rubbish tip, with clay spread 2424 being sealed by the iron slags of layer 1512 (with possible furnace bottom and vitrified wood ash) and a further alternating sequence of industrial and domestic rubbish disposal to the level of layer 1478 (Fig.12, S11 and Fig.13, S18). The latter was associated with the digging of a series of small pits along the St George's Street frontage (as 1495 and 1496 on Fig.3) which may represent increasing activity in the immediate vicinity of the site. Unrelated to this were a series of large quarry pits over the west part of the site (849, 929, 971, 1039, 1291 and 1948). Although these had been dug in this period, many (as 971 on Fig.11, S4) were not, in fact, backfilled until the end of Period 4. Characteristically, they were oval or sub-rectangular in plan, and up to 1.20m deep, with flat bottoms. Although the nature of their fills indicated a secondary function as rubbish pits (with a variety of pottery types—MFT.3), it seems likely that they had originally been dug to extract gravel or iron-pan. A report of a sample from one such pit is on p.219.

Analysis of the pottery reveals a general increase in the size of surviving sherds within Period 3, as well as a wider range of fabrics. This probably reflects a decline in redeposition of waste from elsewhere and an increase in contemporary disposal from the immediate vicinity by the end of the period. Diagnostic material includes the earliest occurrence of Grimston-type ware on the site (Fig.20, No.27) and a 13th-century local medieval unglazed ware rim (Fig.20, No.39).

PERIOD 4 (*c.*1275-1400) (Figs 4, 57 and 63; Table 2)
The first clear evidence of occupation moving on to the site occurs from the late 13th century. The features of this period overlay the now completely backfilled Ditch 2423 and on the surface of the waste ground occupying the rest of the site (as layers 884 and 990 on Fig.12, S11; Fig.11, S9). This complex period may be sub-divided into a number of distinct sub-periods (4.1 to 4.7) on the basis of the stratigraphy (Table 2). The deposits of this period as a whole were sealed by the demolition levels of buildings A1 and A2 (see below) and by subsequent spreads of soil accumulation (as 275 and 2125: Fig.12, S11).

In view of the regular occurrence of waste from iron-smelting that has been noted from Periods 2 and 3, it is perhaps not surprising that one of the earliest signs of activity is also connected with iron-working (Fig.55). The industrial nature of the site at this time is also seen in the presence of a probable brewhouse. The archaeological evidence is of a functional separation between brewing on the Alms Lane frontage of both A and B, and iron-working on A/C, the south part of B, and on C. This is probably to be explained in terms of ownership having been in single hands (as under John de Shotesham and ? Peter Qwyk). The excavation text follows this perceived division, rather than the formal division of ownership as suggested by the documents (Fig.51).

Period 4.1: buildings A1, A2
The features ascribed to this sub-period are defined as immediately overlying Period 3 deposits. Although none were tightly sealed by other than Period 5 features, the evidence of the pottery suggested a date earlier than features of Period 4.2.

Alms Lane frontage: building A1 and Yard
Building A1 (Figs 4 and 57)
This structure was represented by the remains of a rectangular burnt clay floor, layer 2200, 2cm thick (Figs 14-16, S40, S41, S49). Later cellarage meant that the full extent could not be determined, but it measured at least 5.10 x 3.65m. The well-defined edge to the floor suggests, in the absence of post-holes, wall trenches or clay walling, that it abutted timber-framed walls set on timber sleeper-beams. Section S49 (Fig.16) shows floor 2200 extending up to the post-hole of an internal support (feature 2286), sealing its actual post-pit. There was a large oval central hearth (2285 on Fig.4; Fig.16, S49), consisting of an area of fire-reddened rammed chalk partly destroyed by the insertion of cellar 1721. The floor was surfaced with ground-in charcoal and ash, including large quantities of germinated, burnt barley (see below, p.232 and Fig.49). There was no specific evidence of use although the presence of a large hearth associated with finds of germinated barley, taken in conjunction with the interpretation of other features along this frontage (see below, p.241), suggest that it might have been a brewhouse.

The building was set back *c.*2m from the present frontage of Alms Lane with a gully (feature 1886: Fig.16, S42) running parallel with it along the frontage itself. The gully had been filled with a very clayey silt before being re-cut and finally re-lined with rammed chalk (layer 2084). How long the building survived cannot be established, although there was a notable absence of the later medieval wares (cf. building A2) but both it and gully 1886 were cut by a series of pits (2084 etc.) in Period 4.7 (Fig.16, S42). These contained iron-working waste, perhaps from the demolition of building A2 to the south.

The Yard — pit 1853, floor 2193, oven 2226 (Figs 4, 14 and 15, S40 and S41)
Pit 1853 (Pl.XXVIII): the pit was roughly rectangular, flat-bottomed and 40cm deep, with part of a burnt,

orange-grey clay lining (layer 2192: Fig.15, S41) still *in situ*. It was cut from the level of layer 2321, in the same stratigraphic relationship as building A1 (Fig.14, S40).

The backfill consisted of a series of heavily burnt ash layers (but no slags) and contained the fragments of a virtually complete millstone, broken, presumably close-by, before disposal (see below, p.212 and Pl.XXXV). The pit probably remained open to the latter part of Period 4, and the backfill contained local medieval unglazed ware, East Norfolk glazed ware and early Late Medieval and Transitional ware (see below, p.182 and MFT.3).

The interpretation of this feature has to be undertaken in the light of the other features on the Alms Lane frontage at this time. The uneven firing of the pit lining seems accidental, a consequence of burning ashes having been deposited in it. In origin it was probably used to collect water, and possibly to soak grain in the initial stage of the brewing process. The grain would then have been laid out in a heap (the 'couch') on a malting floor, represented here by rammed chalk floor 2193 (largely destroyed by the later insertion of wall 1745) immediately to the east. Floor 2193 was sealed by the backfill of pit 1853 within Period 4 (overlain by the building levels of A3i in Period 5: Fig.14, S40).

Oven 2226 (Fig.4; Fig.14, S40): this consisted of a 40cm-deep pit, 1.50 x 1.70m in diameter and cutting the Period 3 fill of quarry pit 1948 (Fig.3). In contrast to feature 1853, its 2cm-thick lining of clay (layer 2226) was heavily burnt. It had been heavily disturbed by later building activity and appeared irregular in plan, but was possibly associated with a small surviving length of clay wall to the east (2391). Like pit 1853, feature 2226 was filled with a series of ash layers (2229-2232) containing no slags, but it did have fragments of possible furnace bottom that may have been reused as part of an internal baffle. The feature had been left open to the start of Period 5 (when it was sealed by a thick clay layer, 2195, as part of the foundations for building B1). This was clearly an oven with a flue to the north, so that the occurrence nearby of large amounts of carbonised grain (layer 2166, sample 287, see below, p.232 and Fig.49) has led to an interpretation as a malting oven. To the west, pit 1948 may have remained open as a rubbish pit, as its upper fill contained fragments of Late Medieval and Transitional ware. It was finally re-cut as pit 1927.

Other Features: six metres to the south of pit 1853 was a thin spread of black, oxidized organic matter, concentrated in and around the fill of a shallow pit, 925 (cutting layer 928). The environmental evidence from this feature (below, p.231) suggests an unprocessed grain crop (principally barley). Pit 925 lay along the south edge of the putative boundary of the brewing complex (Fig.4 and AS5) and has therefore been interpreted as representing the remains of a grain store, accidentally burnt at some time.

St George's Street and Muspole Street frontages: building A2 and Yard

Building A2 (Figs 4 and 57)

The remains of this structure lay against the north edge of the series of large gravel quarries dug during Period 3, and overlying layer 884 (in the same relationship as building A1). The building consisted of a burnt clay floor (869: Fig.12, S11), measuring at least 5 x 3.3m and *c.*3.5cm deep. Later disturbance had produced an irregular outline to the plan but the finds of iron door-furniture (MFT.4) suggest that this was indeed a building (rather than simply a working-floor of the type described by Tylecote as being associated with iron-smelting sites: Tylecote 1967, 192). On the floor, hearth 922 consisted of an irregular area of rammed chalk discoloured by heat in a similar fashion to hearth 2285 in building A1 (Fig.10). The central area had been eroded away. There is no obvious function for this hearth, and no definite association with any iron-working activity at this stage.

Floor 869 was patched with layer 986 (both similar in composition), and the latter was further compacted by the inclusion of broken flints (2-5cm dia.) as rough cobbling. Layer 986 had a sharp edge on the north side, suggesting that this may have been the base of a definite feature (? a hearth). Part of this had then collapsed into pre-existing feature 987 (as layer 1078). The lack of any intervening occupation debris suggests that this patching had taken place quite quickly. These alterations were associated with the construction of hearth 871, which was of quite different form to hearth 922 and has been interpreted as a small smelting furnace (Fig.10). It consisted of a 62cm-dia. area of burnt clay, set on a burnt sand base with spreads of tap slag around it. The patched surface of floor 869/986 also contained considerable amounts of crushed smelting/smithing slag and tap slag over its whole area.

A fragment of worked sandstone block (SF302N/*2426*) was found set into floor 869. This had been broken before being subjected to fire, but was possibly originally a grinding/finishing stone associated with the iron-working (and was the only piece of sandstone from the whole site: MFT.4).

Immediately to the south of, and abutting, building A2 was a large rectangular pit 1087, 90cm deep (Fig.11, S9). This was possibly originally clay-lined (layer 1090) and was sealed by layer 1083 in Period 5. It was surrounded by the vestigial remains of a clay-walled structure, with walls 988 running north-to-south and 1043 running east-to-west. These probably only acted as plinths to a timber structure, there being a slot along the inner edge of wall 988, and small stake-holes along both walls. Again there was no evidence of specific use, although it may have acted as a water storage pit (cf. pit 1565 in building C1) added at the same time as the change of use to a smelting floor (furnace 871).

Building A2 lay within the documented bounds of Tenement A/C, on which in 1307 (Fig.51) there is documentary evidence for a 'cottage with a courtyard' (below, p.235). The pottery from the building is consistent with a construction in the late 13th/14th century (Fig.22, Nos 55-60). Floor 869 may therefore represent the remains of the cottage present in 1307, but which soon became derelict (or was partly demolished). It was then used as a convenient wind-break for a smelting furnace (feature 871) set into the south-west corner of the relaid floor. This secondary use resulted in slags being ground into the surface of the pre-existing floor. Building A2 may therefore represent the first stage of the development of the iron-working industry, which then occupied a large part of the site south of the Alms Lane frontage. This building/floor probably continued in use after the demolition of building A1 (described above,

p.149), but was derelict by Period 4.7. The backfill of post-hole 926 contained Late Medieval and Transitional pottery and Tudor Green. The slumpage of pit 1087 may well have encouraged the siting of later oven 221 (Period 9, below, p.167 and Fig.7) on the same spot by creating a natural hollow.

The Yard: a small length of a clay wall (1139) running north-to-south survived against section S11 (Fig.12), just to the east of later boundary wall 2119/1138, but did not appear on the Alms Lane frontage. It was not associated with any recognisable floor surfaces and has been interpreted as a north-to-south boundary division between Tenements A/C and B (plots 3 and 4), but with the Alms Lane frontage remaining intact. The series of large quarry pits of Period 3 were probably used as rubbish pits throughout this period, being backfilled at the end of Period 4 and into Period 5.

Period 4.2: building C1i

Subsequent Period 4 activity largely concerned the sequence of features on the St George's Street frontage (Table 2). The principal events of Period 4.2 are the construction of building C1i and of hearth 559. These are related stratigraphically (see below) and are dated on the evidence of pottery and the subsequent building history of building C1i-iii.

Building C1i (Figs 4 and 57)

The lack of secure stratigraphic links between buildings A1 and 2 with C1 means that this building has been dated slightly later than the activity of Period 4.1, purely on the evidence of the pottery (below, p.184). The building was of a quite different character and went through at least three defined building phases (C1i-iii). It was originally constructed as a two-roomed structure at right-angles to the St George's Street frontage, with room *a* on the frontage itself (Fig.57). Only this could be excavated, the rest having been destroyed by later cellarage.

Room *a* was defined by clay walls on all but the west side (walls 1513, 1683 and 1558). A large post-hole (feature 1682) set in the angle of walls 1513 and 1683 may have been an original feature (see below, p.250) suggesting that the clay walls were basically to support a timber superstructure (see below, p.250). The line of the west (internal partition) wall was marked only by the edge of the dirty grey clay floor (layer 1639) and was probably only a light screen, partly supported by post-hole 1522 (MFS14). Towards the east, the floor was represented by orange clay spread 552, probably derived from the trampled construction surface of the building of the clay walls.

Neither floor layers 1639 nor 552 bore any of the marks of heavy burning seen in building A1 or A2. This is despite the fact that much of the interior had been taken up by the construction of hearth pit 1520 (Fig. 10; Fig.13, S18). This was trapezoidal in plan and loosely filled with ash, large quantities of smithing/smelting slag (the only context producing slag from Period 4.2), charcoal and possible hammer scale. Its shape is paralleled by smithing hearths from Ramsbury (Haslam *et al.* 1980, 12-13) but, unlike building C1ii (see below, p.152), there was no unequivocal smithing slag from the phase. It is quite likely that the feature had been cleaned out and reused as a domestic hearth as the body of a large Grimston-type jug (Fig.23, No.63) was found set into it. This showed no evidence of burning, but did contain a remarkable concentration of fish bones (see below, p.226) and is interpreted as having been used for salting fish. The fill around the pot may have derived from the use of nearby hearth 559 as it had similar characteristics to the spreads around that hearth.

Room *b* had been almost totally destroyed, but was represented by a thin clay spread (layer 1640—interpreted as being the east end of the south wall), post-hole 1522 at the east end of the north wall, and floor levels 1641 and 1642. A setting of tiles on a flint plinth (2443) may represent the remains of a waist-high smithing hearth.

Evidence from the destruction levels of building C1 (Periods 4.5 to 4.7) suggest that it may well have had a tiled roof (type RT2). Fragments of this type then reappear in secondary contexts during Periods 5 to 7 in this area. The presence of two possible smithing hearths (1520 and 2443) and the unusual provision of a tiled roof suggest that this building was constructed as a small smithy. Its location marks the earliest possible indicator of the later east-to-west boundary between Tenements B and C.

Among the surrounding debris was a considerable quantity of window-glass and this, with the occurrence of a noticeably higher quality of finds and pottery than found elsewhere on the site during Period 4, suggests that much of the material may have derived from a more substantial property to the south of the excavation. The fill of hearth pit 1520 also contained the earliest tightly-sealed occurrence of Dutch glazed red earthenware, in association with East Norfolk glazed ware (MFT.3).

The Yard

Hearth 559 (Figs 4 and 10): this hearth lay just north of building C1 and parallel to it, against the St George's Street frontage. It consisted of a thin spread of yellow clay (layer 559), banked up 12cm on the east side. In the centre was an area of red-brown fine ash (layer 555). As the east edge of the feature lay outside the excavation, and the north and south edges were heavily eroded, the exact form of the hearth was not clear. The foundations of part of the south edge survived as a tight packing of small flint pebbles set into 559 and, extending from this, rectangular patch of rammed chalk (layer 560). Clay base 559 did appear to have overlain post-hole 1401 (MFS134), but this may, in fact, have been contemporary, sealed by part of the demolition spread of 559. The foundation spread was then cut by post-hole 479 (MFS108), but this again may have been contemporary with the use of the feature.

The hearth was associated with a working surface around it of red-brown iron fines (layer 556), with small surviving patches of a denuded yard surface composed of rammed chalk and scatters of unknapped flints. This surface was covered in places by spreads of ash and charcoal. Although the ash within hearth 559 was itself undiagnostic (containing in flotation only a small quantity of small bones of fish and mammals) the base of the hearth did include small quantities of slag. The association of iron fines suggests that this was a roasting hearth.

There were no datable finds from the feature, but stratigraphically it was built over the construction debris (layer 552) of building C1 and, on the evidence of its alignment, was evidently in use during the operation of that building. It was, however, only sealed by layer 472

(Fig.13, S18) of Period 5, and could have remained in use up to Period 4.5 (and the demolition of building C1).

Period 4.3: building C1ii
This sub-period is defined purely on the basis of the building developments in building C1ii.

Building C1ii (Fig.4)
Building C1i was now substantially rebuilt, with a further room (*c*) added to the south. The backfill of hearth-pit 1520 was now sealed with clay loam layers 1527 and 492 (the latter contained coal as well as tap slag, but this is unlikely to have been used in smelting). Together they formed the base for a new rectangular hearth which consisted of a thin bank of clay (1459), with area 1460 as the central, heavily burnt area (Fig.10). Wall 1513 to the north was reinforced by the building of wall 1638 alongside, probably to support some form of hood over the hearth. There was no direct evidence for function although, on typological grounds, it is suggested that this was a smithing hearth, of surface type (see below, p.243).

Room *b* was narrowed by the demolition of wall 1640, and its replacement by wall 1649, 1.15m to the north. The change in plan was probably occasioned by the building of room *c* to the south when the axis of the derelict building was changed through 180 degrees and *b* probably converted to an outshut. No evidence survived for the construction of the east wall of room *c*, but the west one was represented by foundation slot 1535 (again containing quantities of tap slag in its final backfill) and was therefore of timber. The original south wall of room *a* (1558) was largely removed by a pit (feature 1565). Part of it, however, survived intact at the frontage; the gap to the south suggests that it was retained to flank a doorway on to St George's Street. Pit 1565 was oval and 30cm deep, lined with unfired yellow-brown clay. Although this contained fragments of smithing/smelting slag and tap slag, as well as a fragment of smithing furnace bottom, it is likely that the pit was for water storage (possibly as the cooling tank of the smithy).

Building C1ii, like C1i, was interpreted as a smithy, with a hearth (1459) and a possible water-bosh or cooling tank (1565). In contrast to building C1i, unequivocal finds of smithing slags were associated with the operation of the structure. The smithing slags were found with possible furnace lining and a mixture of coal, shale and wood in layer 1491 within the building. The occurrence of slags of all types was noticeably concentrated around building C1 in this phase. The pottery assemblage showed little difference from that of building C1i, implying that the alterations took place within a short time span.

Period 4.4: building C1iii
This sub-period is defined purely on the basis of the alterations to building C1ii.

Building C1iii (Figs 4 and 57)
Alterations were relatively minor, being confined to the replacement of the west wall of room *c* (foundation slot 1535) by a post-built wall set in post-holes 1518 (MFS144) and 1533 (MFS149). There were not enough finds to make any comment on the dating.

Period 4.5: demolition of building C1iii
This sub-period is defined by the demolition of building C1iii and occupation on the surface of layer 427 (Fig.13, S18), sealed by the subsequent activity of Period 4.6.

Building C1iii (demolition) (Fig.4)
Building C1 was again allowed to become derelict, with the suggestion of an interval before final clearance. The construction of hearth 1528 across part-demolished wall 1649 indicates that the outshut was first demolished. The building itself was then demolished and the remains sealed by soil level 1427 (Fig.13, S18). This was almost sterile of finds, and the later soil accumulations over the remains of the building prior to the construction levels associated with Period 5 mean that the final date of demolition cannot be securely ascertained. This is dated here on the basis of likely association with the other activity of Period 4.6 and the obvious long period of dereliction before Period 5.

The Yard
Furnace 1406 (Figs 4 and 10; Fig.13, S18): this feature, lying 90cm to the north of building C1, consisted of a very worn crescent of yellow clay, partly overlain by hearth 1404 (Period 4.6) and built from the surface of layer 427 (patches of clay in a clay loam, containing both tap and smithing slag). Surrounding the hearth on the north and west sides was a spread of weathered clayey silt (layer 1407) which probably resulted from the demolition of the feature.

In plan-form feature 1406 was very similar to the smelting furnace from West Runton, Norfolk (Tylecote 1967, 192-3 and fig.9). Fragmentary finds of thin sheets of tap slag around the hearth suggest that 1406 was a simple bowl furnace with a shallow (and now eroded-away) tapping hollow. Fragments of tiles (including a fragment of Hempstead-type of *c.*1350 from layer 427) were found around the furnace and may suggest that it originally had a tiled floor, although none was found *in situ*. Other dating evidence included fragments of Aardenburg-type ware (Fig.24, No.89) and a French jug (Fig.24, No.91) as well as local medieval unglazed ware.

Other Features (Fig.4): a cobble path (layer 529) ran off towards the centre of the site, with post-holes 1470 and 1471 (MFS139 and 140) cut from the same level, south of oven 1479 and probably along the line of the putative division between plots 2 and 4, and dividing the brewery from the iron-working complex (Fig.13, S16).

Period 4.6
With evidence only of a hearth and a malting oven there was a marked decrease in activity; this followed the dereliction of building C1 and the likely dereliction of both buildings A1 and A2 (with layers 478 and 424 on Fig.13, S16 and S18, remaining open until Period 5) and foreshadowed an almost complete reversion to wasteland in Period 4.7. These final phases of Period 4 mark a pause between the decline of industrial use and the emergence of domestic settlement on the site, and are also notable for the first sealed occurrence of Late Medieval and Transitional pottery.

Alms Lane frontage: oven 1479
Malting Oven 1479 (Figs 4 and 10; Fig.13, S18; Pl.XXVII): this represents the first evidently new feature associated with the activity on the Alms Lane frontage since Period 4.1, although it must be stressed that the sub-divisions of this period probably represent a very rapid sequence of events within the iron-working complex.

Oven 1479 was aligned east to west and consisted of a 1.20m-dia. and 60cm-deep oven chamber, linked to a partially surviving firing chamber by a 1m-long flue. To the east, the stoking-pit had largely been destroyed by the insertion of later well 325. The oven chamber had a 2cm thick burnt clay lining (layer 1492: Fig.10) and had then been backfilled with a succession of clean loam layers that provided no clear evidence of use. The concentration of large quantities of carbonised grain around the feature (pp.231, 234) did, however, suggest that it was an oven for roasting barley in the brewing process. As such it may have served as a replacement for oven 2226. Stratigraphically it cut layer 427 (Fig.13, S18) and was itself sealed by furnace 470 in the following phase, and so may clearly be associated with this sub-period, although there were no particularly distinctive finds.

St George's Street frontage: hearth 1404

Hearth 1404 (Figs 4 and 10; Pl. XXIV):

this was apparently of similar type to furnace 1406, which it partly overlay (Fig.13, S18). It was, however, better preserved and consisted of an open-sided bowl of yellow-brown clay (1404) with a central fill of iron fines and considerable quantities of ash (layer 1405). Again there was a construction spread of clay running off the hearth for a distance of 90cm to the north-east. The absence of smelting slags suggests that this was only used to roast ore. J. McDonnell, though (pers. comm.), notes that the absence of slags *in situ* on a furnace is typical and that therefore this argument cannot be taken as being conclusive. The primary fill of the hearth (405) contained a fragment of Late Medieval and Transitional pottery (suggesting a late 14th-century date), and was sealed by layer 478 (iron fines and blown silt) and then layer 424. This remained open until Period 5 and also contained fragments of Late Medieval and Transitional pottery (Fig.26, No.130).

Period 4.7

Alms Lane frontage: the Yard

A circular flat-bottomed pit (feature 2390 on Fig.4) was dug to the east of feature 2226 and north of 2170 to which it was possibly related at a late stage. This may represent the foundations for some form of structure. It cut layer 2195, with a final fill of 2194.

St George's Street frontage: the Yard

Furnace 470 (Figs 4 and 10; Pl.XXV): this overlay the fill of oven 1479 and consisted of a circular setting of compacted chalk lumps set in puddled clay, on a base of burnt clay. One tile remained *in situ* from a possible tiled surface. The hearth was surrounded by thin bands and lenses of red and black ash (layer 482), ground into the general ashy layer 1481 (Fig.13, S18) from Period 4.6. This was not recorded in any detail but it was, superficially at least, similar to the working waste associated with the smelting furnace at Ramsbury (Haslam *et al.* 1980, 14). A lack of slags around the feature suggested, however, that this might have been a roasting hearth. This argument, though, is not conclusive and if it was indeed a smelting furnace then it would provide a context for the conversion of smelting furnace 1406 to roasting hearth 1404 in Period 4.6, with smelting now carried out on furnace 470.

The vast majority of slags from Period 4.7 came from the west part of the site (i.e. away from the place of processing) around the site of building A1 (see above, p.149 and Fig.4). They were almost exclusively from smelting (only pit 2098: Fig.16, S42 had even possible smithing slags from this phase), but other residual finds connected with iron-working included a possible smithing bottom (SF302N/*1259*) and a crucible lining from layer 1883 (Fig.14, S40).

Fragments of two possible drainpipes (see below, p.182) found between the sites of buildings A1 and A2 in Period 4.7 (layer 275: Fig.12, S11) may well have derived from the earlier brewing activity (note the presence of gully 1886).

The general absence of features associated with this sub-period, and the great quantity of residual finds in the soil accumulations that characterise it, suggest that the site had reverted to waste ground by the end of the 14th century, although there was still some activity in the iron-working industry along the St George's Street frontage. A number of pits (2085, 2132, 2133) all cut layer 2125 which was a 25cm build-up of soil over floor 2200 in building A1 (Fig.16, S49). These contained distinctive Grimston-type ware sherds that can be shown to have derived from a scatter within layer 2125 (as well as East Norfolk glazed ware and early Late Medieval and Transitional pottery: Fig.25, Nos 116 and 117). The soil that accumulated during Period 4.7 as rubbish was then worked-over well into Period 5 when it formed the construction level for the first of the domestic houses on site. This has led to a considerable overlap in the dating of the end of Period 4 and the start of Period 5, with the majority of the pottery from Period 4.7 also being residual. The occurrence of fragments of brick from Period 4.1, and especially from 4.5 onwards (including moulded brick from layer 272: Fig.12, S11), without any evident brick building on site, suggests that much of this soil had been imported (Fig.44). The use of brick elsewhere in the city is known from the late 13th century (i.e. Wilderness tower of 1270-1300).

PERIOD 5 (*c.*1400-1450) (Figs 5, 58 and 64; Table 2)

This period is defined by those buildings constructed on the surface of the Period 4.7 occupation (as layers 272, 1881 and 2125). The pottery then suggests a general period of rebuilding from the later 15th century.

The site was used for domestic occupation from this period although large quantities of iron-working waste continued to be redeposited in secondary contexts. This included significant quantities of coal which is more likely to have come from smithing activity (see below, p.244 and Fig.54). The material may have derived either from earlier deposits on site or from imported soils (see Fig.17 for the degree of residuality in this period). It is during this period that the earliest recognisable boundary features survived, although, as will be discussed below (pp.156 and 254), these may have fossilised earlier land divisions.

Tenement A: buildings A3i, A3ii, A4i and A4ii

Building A3i (Figs 5, 56 and 58; Pl.XXIX)

This was a two-roomed, clay-walled structure measuring 6.70 x 3.30m internally and set parallel to the Alms Lane frontage, 5m to the east of the present Muspole Street frontage. This would have allowed space for the presence of a single-cell structure to its west (cf. building

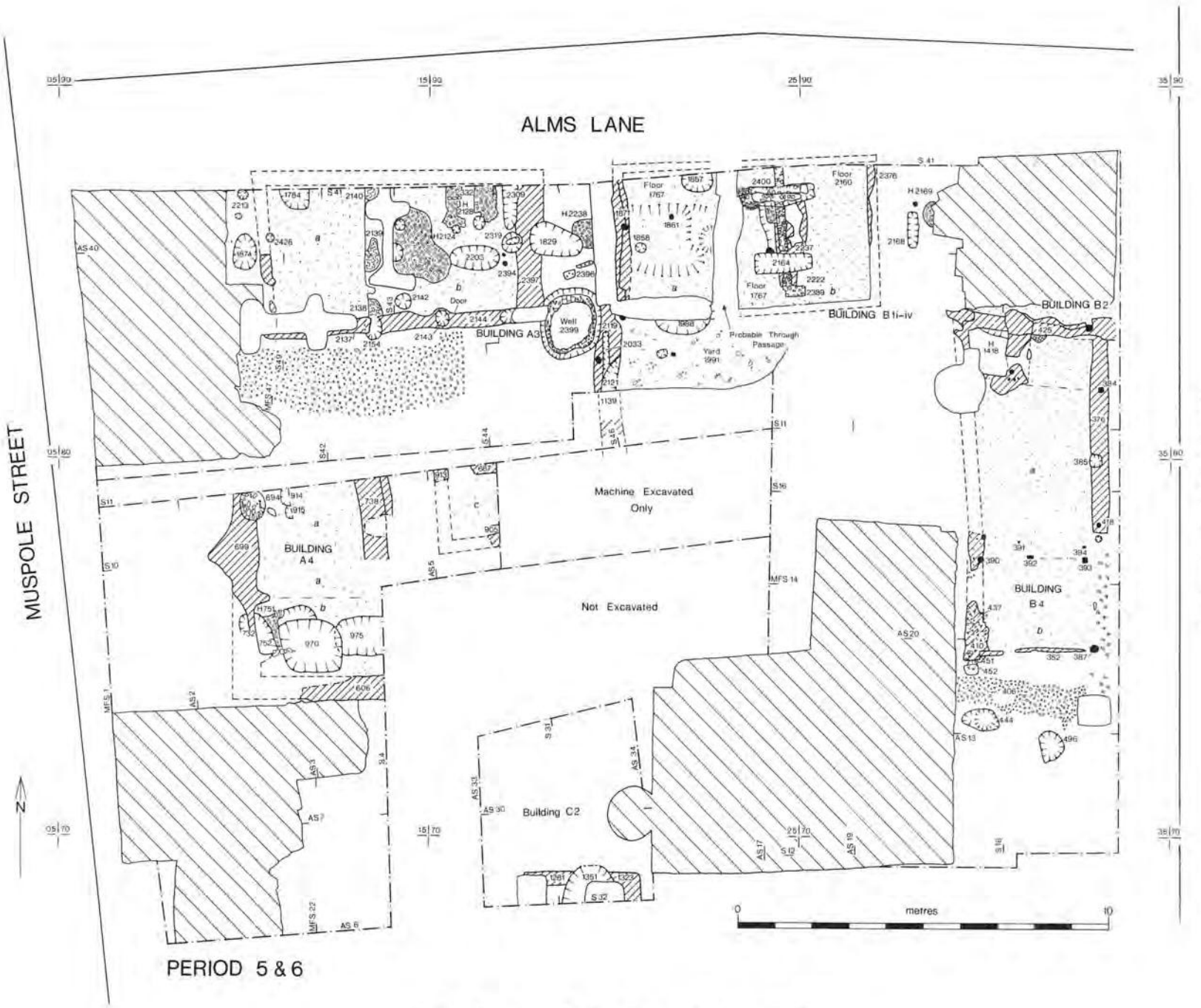


Fig.5 Site 302N. Plans. Periods 5-6. Scale 1:150

B2, this period), which could have been destroyed by a Period 8 cellar (Figs 58 and 59), although this must remain purely speculative. Building A3i was built from the level of soil layers 2132, 2201 and 1881 in Period 4.7 (Fig.14, S40).

No evidence of walling survived in room *a*, the extent of which was defined by a floor of rammed chalk (layer 1802 on Figs 5, 14 and 15, S40 and 41). (An extension to the west may represent a pathway or rammed fill of a hollow: layer 2213 on Fig.15, S41.) The walling may be assumed, however, to have been similar to that in room *b* and its replacement in building A3ii*a*. The line of the partition wall was represented by a series of post-pads (features 2138, 2139 and 2140) consisting of pits *c.*10cm deep, filled with rammed chalk. A protrusion around pad 2139 may have marked the position of the connecting doorway.

No laid floor survived in room *b*. The east wall survived only as a wide but thin spread (layer 2397). The south wall (2144), however, survived to a height of up to 30cm and was built of apparently unlayered clay. It incorporated a series of post-holes (2143, 2145 and 2154) along its length, none of which cut into the existing ground surface. They are likely to have been original features, with 2145 and 2154 projecting laterally through the clay wall, but with 2143 clearly enclosed by a thickening of the wall around it. Post-hole 2154 was partly sealed by the fill of post-pad 2138 and so could not have been a secondary feature. This method of construction, interpreted as that of a timber-laced clay wall, is discussed below (Fig.56 and p.245). Just off-centre of the east wall was a post-hole (2319), packed with fragments of burnt clay around a triangular-plan post-pipe. This may have carried the central support for a piece of built-in furniture (such as a bench) against the east wall. It is unlikely that it would have acted as a support for a ridge-piece (a single-rafter roof being the most likely for a building of this scale at this date).

There was no evident form of internal heating during this phase but an external hearth had been constructed against the presumed east boundary of the tenement (see below, p.156). Hearth 2238 appeared to consist of a sub-rectangular area of burnt clay, cut by later wall 1745 and pit 1829, and with no evidence of any supports for a superstructure. In position it is very similar to that associated with contemporary building B1 (see below, p.156).

The pottery assemblage represents a continuance of the forms seen in the latter part of Period 4, with the first instances of late medieval local unglazed ware and East Anglian white ware from the site (layer 2031: Fig.26, No.127).

Building A4i (Figs 5 and 58)

The remains of this building were fragmentary and heavily disturbed. Despite the occurrence of many intrusive finds of Periods 6 to 8 (when, after prolonged decay, the building's site lay open), this structure is firmly attributed to Period 5. Not only was it constructed immediately over a Period 4.7 deposit (layer 275) but also its plan conformed closely to those of the other Period 5 houses. Diagnostic material was provided by late medieval unglazed ware from layer 732 (Fig.26, No.129).

The main structure was of two rooms and lay parallel to the present Muspole Street frontage but set back 3.5m from it. There was a detached room (*c*) to the rear. The north wall (which lay below baulk S11) was not excavated, but the others consisted of spreads of the original clay walls, with those of the main block averaging 65cm in width. Set just within the north end of the west wall (699) and its presumed junction with the north wall was a large post-pit (feature 694) packed with unknapped flints. There is no clear function for this feature. Wall 208 (foundation 606 shown on Fig.5) was plastered internally (cf. building C4 on Heigham Street, Atkin forthcoming (a), for a similar internal treatment of clay walls), with layer 795 interpreted as construction waste from this process (Fig.11, S4). There were patchy remains of a clay floor, but otherwise the only evidence of internal features to survive was the base of a hearth (feature 751) in the north-west corner of room *b*. This lay just to the south of a small stub of wall that is interpreted as marking the partition between rooms *a* and *b*. The hearth itself consisted of a rectangular area of burnt clay set over a hollow in layer 1012 and with an edging of unknapped flints on the north and south sides. Wall 699 had been strengthened above the hearth (presumably to allow it to carry a hood) by being thickened and set over a gravel-filled foundation pit 752 (Fig.11, S9).

Room *c* lay 1.5m to the east of room *a*. Only small lengths survived of its clay walls (687, 905 and 913), together with patches (806) of its clay floor. Contemporaneity with the main building was shown by it being built from the same level, i.e. layer 275. Its scale suggests a possible use as a storeroom.

A number of roof-tiles were found in pit 742 (Fig.11, S4) and in layer 1083 (types RT5 and RT2 respectively) in the yard associated with the house, but not in sufficient quantity to suggest that building A4i actually had a tiled roof. There was no evidence of road metalling between the frontage of A4 and the modern line of Muspole Street to suggest an earlier line to this street frontage.

Building A4ii (Fig.11, S9)

The modification to the building was purely concerned with a rebuilding of hearth 751 as hearth 729 (Fig.11, S9). The hollow containing 751 was sealed by layer 670, with the new hearth built above and set even further back into the face of wall 732.

Tenement B: buildings B1i, B1ii and B2

The pottery evidence suggests that building work on this part of the site occurred *c.*20-25 years later than similar events on Tenement A, though within the same period (see below, p.188). This may, however, merely reflect the continuing alterations on Tenement B throughout Period 5, in particular the disturbance of garden soil.

Building B1i (Figs 5 and 58)

This was again a two-roomed, clay-walled structure (6.40 x 3.80m internally) set along the Alms Lane frontage, 6.80m from the junction of the latter with St George's Street. The complex series of later building operations on the same lines had removed much of the evidence of the walls and the building was defined primarily by the extent of the floors. That in room *a* survived to a remarkable degree and consisted of a compact clay layer, 1767 (10cm thick) which had slumped into the fill of the Period 3 pit 1948 (Fig.14, S40) soon after it had been laid. The position of the doorway into the

building had probably been destroyed by the line of a later sewer trench. The floor in room *b* was represented by a more heavily worn layer of clay loam (2160), and it was divided from *a* by the remains of clay partition 2237 (Fig.14, S40). There was no evidence of heating in either room. As with building A3i (with which it was remarkably similar), there was an external hearth (feature 2169) built 1.40m to the east of room *b*, adjacent to building B2. Most of the hearth had been removed by the later cellar but appeared to have consisted of a circular setting of burnt clay. Foundation slot 2168 may have carried some form of superstructure.

To the south of building B1, but divorced from it by the foundation trench of later wall 1962, was a yard (layer 1991) which ran eastwards from boundary wall 2119. The yard had apparently a mortar surface, with no surviving evidence of any tiled covering. It is likely that this yard was laid in this phase and survived into Period 6 (Fig.16, S46).

Any direct stratigraphic link between the construction of this building and buildings A3 to the west and B2 to the east had been destroyed by the insertion of wall 1745 and the cellar of building B6ic in Period 7. It is assumed to have been basically contemporary on the basis of general level, construction technique and subsequent history. The pottery was principally local medieval unglazed ware, with sherds of Late Medieval and Transitional ware and late medieval Grimston-type ware (MFT.3).

Building B2 (Figs 5, 58; Fig.13, S18)
Building B2 has been defined as a detached structure on the junction of Alms Lane and St George's Street. Its shadowy existence hinges on the interpretation of clay wall 425, for much of the area had been destroyed by the insertion of later cellarage. Slight traces did survive, however, for the existence of a clay floor to the north thus suggesting the use of the wall at this time as the south wall of a structure at the street junction. Wall 425 was demonstrably reused as the north wall of building B4 (below), with the construction level of wall 425 (as represented by layer 1482) pre-dating the other features of B4, and only garden soils accumulating to the south.

The location, in a prominent position on the street junction, suggests that this is more likely to have been a single-cell house (or possibly shop) than an outhouse to building B1. Finds of tile (RT2) in the garden soil around are to be explained as strays on to the site rather than representing structural activity.

The pottery assemblage from this building included both Langerwehe and Langerwehe/Raeren stoneware, thus slightly post-dating comparable activity on Tenement A.

Building B1ii (Fig.5)
To judge from its lack of wear, floor 1767 of building B1*a* soon slumped into the fill of pit 1948 (Fig.14, S40). This collapse appears to have caused a general rebuilding in room *a*. The west wall was rebuilt in clay as 1871, with make-up now piled against it and used to fill the hollow in the room. Partition wall 2237 was probably also rebuilt at this time (as wall 2227) although the later insertion of fireplace complex 2000 and 2400 obscured the direct relationship (Fig.14, S40; Fig.15, S41). There was a single sherd of Langerwehe/Raeren from layer 1765 (Fig.14, S40).

Tenement C: building C2
For the reasons described above (p.145) this part of the site could not be completely excavated. It was possible to demonstrate, however, that apart from the digging of quarries in Period 3 there was very little activity on the central part of the tenement (west of building C1) until Period 5. Above 1291, layers 1272 and 1340 represent a gradual and regular build-up of soil during the 13th and 14th centuries (Fig.14, S31). Overlying these deposits were the disturbed remains of a building (C2). There was no direct stratigraphic link to the other building activity on the site but there were correspondences in general level, finds and building technique.

Building C2 (Fig.5; Fig.14, S31 and S32)
Clay walls 1323 and 1281 represented the north-east corner of a building. The walls were *c.*40cm wide, built of clean sandy clay, packed into shallow foundation trenches (the only examples found on site in buildings of this type), and not surviving more than 10cm high. In further contrast to the other clay walls that survived to any degree, there was no evidence of internal timber lacing. Alongside the south side of wall 1281, a narrow strip of clay floor was found, sealed by possible occupation debris, layer 1270. The surviving evidence was obviously too restricted to allow the confident reconstruction of any plan. Nevertheless it may be suggested from the permanence of other similar boundary lines on the site that the original south wall of such a building is likely to have lain directly beneath the present south boundary of Tenement C. This would give a similar width to the other buildings of Period 5. If this argument is taken further then the west wall of such a building, if the same size as buildings A3 and A4, would pass through the large area of modern disturbance in the south-west corner of the site in the angle of sections S4 and AS6. It has been reconstructed as such on Fig.58.

Of particular interest was the recovery of several fragments of a possible distilling vessel from this part of the site (see below, p.188 and Fig.26, No.138). Whether this derived from a domestic or industrial context (see below) is unknown. Layer 1293 contained a rim sherd from a Siegburg jug (Fig.26, No.125).

Boundary features (Figs 5 and 58)
This was the first period in which definite evidence of boundary features within the site survived, though these may have derived from the functional divisions of Period 4. The only physical feature was wall 2119, between Tenements A and B (plots 1 and 2). This survived to a height of 40cm and had a 12cm-deep slot set into the top. It ran from the Alms Lane frontage to at least the north face of section S11 (as wall 1138) but the area had been greatly disturbed on the south side and it could not be followed further. It is interpreted as the plinth of a timber fence (represented by the slot). Originally the clay plinth may have been weather-protected by tile or thatch, but no evidence of this remained. To the west of wall 2119 was the earth yard of Tenement A, and to the east the mortared surface of yard 1991 in Tenement B. The south wall of building A4 was on the same alignment as that of the Period 6 building B3 (Fig.58). Another contemporary boundary feature, defining the north limit of Tenement C, may have crossed the disturbed/unexcavated area in the centre of the site.

PERIOD 6 (*c.*1450-1500) (Figs 5, 9 and 58; Table 2)
The periods of development on the site from the late 15th century are determined by the history of each building (Table 2). Those attributed to Period 6 are dated on the basis of the pottery to the second half of the 15th century.

The increasing quality of contemporary pottery and other finds would suggest that there was a distinct increase in the status of the inhabitants during this period. This is also reflected in the development of housing types—particularly in the addition of upper storeys (building A3ii) and the first introduction of rubble fireplaces (building B1iii).

Tenement A: buildings A3ii-iv
Building A3 continued in use during this period (modified as A3ii) but the evidence suggests that building A4 was allowed to become derelict and collapsed.

Building A3ii (Figs 5, 58 and Pl.XXIX)
The major alterations to building A3 in this period concerned the rebuilding of room *a*. The north wall (under the present frontage of Alms Lane), could not be excavated, but both the west and south walls of room *a* were now rebuilt. The west wall survived only as isolated spreads of yellow-brown clay; set just within its line was a small post-hole, 2428, which is interpreted as possibly the support for a samson post for a part-loft (see below, p.253). The newly-rebuilt south wall, 2137, was almost completely destroyed by the insertion of foundation trench 1969 (Period 7) but was of similar character (though without internal posts) to wall 2144 of building A3*ib* in Period 5. It partially sealed post-pit 2154 of Period 5, suggesting that it was built up to the *in situ* post and therefore only represented a partial rebuilding. A new clay floor, 1801 (5cm thick), was then laid over floor 1802 and the original post-pads of the partition between rooms *a* and *b* (features 2138, 2139 and 2140). The new partition wall was set in post-holes (2141, 2142 and 2131) 80cm further to the east, and averaged 20cm in depth.

The rebuilding of the west and south walls, and the use of more substantial post-supports, are interpreted as supporting an inserted loft. The south wall may then have been demolished to allow the insertion of the new floor joists across them at first floor level. Unlike those of building A3i in Period 5, there was no surviving evidence for the presence of internal timber supports to the new walls of this period.

Alterations within room *b* at this time were purely internal but significant in providing the earliest surviving evidence of heating to the building. Overlying the occupation surface of the Period 5 building, A3*ib*, were a series of ash spreads (layers 2205 and 2126) which formed the floor level (?burnt rush matting) associated with a hearth built into the north-east corner of the room (feature 2128). This consisted of a sub-rectangular bowl of burnt clay with post-holes 2130 and 2319, which, together with slot 2309, probably represented the foundations for a timber chimney or hood.

A flint-lined well (feature 2399), with a diameter of 1.1m, was dug just outside the south-east corner of room *b*. Its foundation trench (feature 2398) just clipped the corner of wall 2144 and was sealed by the demolition spread of that wall. The well was 2.5m deep, and initial debris at the bottom (layer 2117) contained Late Medieval and Transitional pottery (Fig.27, No.149), together with Langerwehe and Raeren stoneware, Dutch glazed red earthenware and Low Countries unglazed ware (MFT.3), which provide the main dating evidence for this building. Most of the fill dated from the time of its backfill in the 17th century (after conversion to a cesspit).

The amounts of imported pottery from this and the succeeding phase were not large enough to suggest the presence of immigrants, although this property was apparently occupied by them during the 17th century (see below).

Building A3iii (Figs 5, 58 and Pl.XXIX)
After a very limited period of use hearth 2128 was replaced by a large, central, hearth of baked clay (2124). This was built against the partition wall, which may therefore have supported a fire-hood. It was associated with earth floor 2204.

Building A3iv (Fig.5)
In room *a* at this time, the floor level was raised by soil layer 1788 and sealed by a new clay floor 1787, sealing pit 2050 of unknown function (Fig.14, S40; Fig.15, S41).

After its temporary location against the partition wall (A3iii) the hearth in room *b* was now transferred back to the north wall (possibly because of a change in the position of the doorway on the north wall). Hearth 2124 was sealed by a capping of clean clay (2044). The new hearth consisted of a setting of red bricks (2332) on a clay base (2302) and was associated with a series of burnt layers around it (e.g. layer 2045 on Fig.14, S40). The whole was then sealed by a general level of burning (layer 2043). There was no particular evidence (e.g. in the character of the walling) to suggest that this building had actually burnt down at any stage. To the west of the hearth was a setting of tiles on a block of limestone (2331 on Fig.15, S41) which may indicate the position of the threshold of the door to the street. There was no indication of the location of a doorway at any earlier phase. Of particular interest is the earliest occurrence of window-glass associated with any building on site (layer 1781: Fig.16, S42).

Just before the building was finally demolished, a pit (feature 1829) was dug into the line of wall 2397. This was then sealed by the demolition spread (layer 2021) of that wall.

Dating evidence is provided by a small bowl of Low Countries unglazed ware (Fig.27, No.152), and a sherd of Siegburg, both from make-up layer 1788, and Dutch glazed red earthenware from layer 1781 (Fig.27, No.150).

Building A4 (Fig.5)
In contrast to what will be argued for the rebuilding of building A3 into A5 (see below, p.159), the amount of clay spread around the walls of building A4 suggest that this was left upstanding and in decay for some time. Indeed, part of the south wall (606) survived to act as the foundation of boundary wall 77 in Period 11 (Fig.11, S4). The area was generally levelled with layer 116, and layer 1028 then accumulated as a very silty soil, possibly representing wind-blown soils (Fig.12, S11). The latter was cut by a series of isolated pits (e.g. 970) which probably reflect continuing activity from occupation in nearby building A3.

The date of the pottery from within the soil accumulation and pits is consistent with the date of that

from the upper levels of building A3iii-iv, so confirming the dereliction of this property within Period 6.

Tenement B: buildings B1iii-iv, B3, B4

Building B1iii (Fig.5)

Clay partition wall 2227 was demolished and replaced by a wall that incorporated the foundations of a back-to-back fireplace (2389). This consisted of an 'H'-shaped flint rubble feature, its north arm set over a deep foundation trench (2175). There was no evidence of any such foundation trench to the south arm where the side of the fireplace was built directly on to surface 1825 (Fig.14, S40; Fig.15, S41). This difference may be explained by the presence of a connecting passage to the north which needed (or was thought to need) structural reinforcing. The replacement of 2227 with 2389 was associated with the laying of the new, rammed chalk floor (layer 2222) in room *b*, whilst at the same time a thick occupation level accumulated in room *a*, probably over a beaten earth surface.

The only finds were from the fill of foundation trench 2175, and therefore of limited value for dating, although they did include Late Medieval and Transitional pottery.

Building B1iv (Fig.5)

As with building A3, there was a rapid sequence of alterations concerned with the heating arrangements. Fireplace 2389, with a solid partition to the north was rebuilt in flint rubble as fireplace 2400, but on a narrower plan, and with the connecting passage moved to the south. The new north arm of fireplace 2400 was built just to the north of that of 2389 (?while the latter was still standing) and shared the earlier foundation. A foundation trench (feature 2164), similar in plan and depth to trench 2175, was built to support the new south arm, cutting through fireplace 2389. There was no evident explanation for the rapid replacement of fireplace 2389, but it may have occurred because of the structural failure of the original design.

Building B3 (Figs 9 and 58)

This consisted of a 3m-square placement of post-holes on the St George's Street frontage, built from the level of 472 and 429, i.e. the garden soil levels believed to have been dumped against the south wall of B2 (Fig.13, S18). Fragments of early bricks in both 429 and 472 suggest that these soils had been imported, as there was no actual brick building (apart from details of hearths etc.) on site to suggest a source. A timber stain between post-holes 421 and 433 suggested the possibility of planked walling. There were also slight traces of a daub screen running off a re-cut of 421. At the north-west corner of the room was a trapezoidal-plan clay feature (525), set into an oval construction pit. There was no sign of cess-staining on the clay lining and the fill consisted of clean loams, so it may have served as a water collection pit. The triple setting of post-hole 433 suggests the presence of an entrance here. There was no evidence of any laid floor.

There was no sign of a hearth in this room, and no conclusive proof of any domestic function. It may have been no more than the front room of a building running back at right-angles from St George's Street along the boundary with Tenement C, the rear room destroyed by the insertion of cellar B5*c* in Period 7. The structure probably had only a short life, being replaced in the same period by building B4, which was set on the more usual parallel alignment to the street.

Stratigraphically, the building can be shown to have post-dated the accumulation of layers 429 and 472 against building B2 (containing Dutch glazed red earthenware and Late Medieval and Transitional ware: Fig.27, Nos 139-146; and a 15th-century copper alloy nail cleaner from layer 472: Fig.36, No.20). The latest pottery (Raeren) came from the backfill of post-hole 437, dating the demolition, at least of that building, to post-1475 (Fig.27, No.159).

Building B4 (Figs 5 and 58)

Buildings B2 (Period 5) and the short-lived B3 were evidently demolished to make way for the construction of this house, which was built as a two or three-roomed, clay-walled structure parallel to the St George's Street frontage. As mentioned above (p.156) this utilised what had been the south wall (wall 425) of building B2 as its new north wall, and cut through the latest accumulated soil levels against the south face of 425 (layers 402 and 1429: Fig.13, S18). In doing so, it also sealed the building levels of building B3 and the evidence suggests that the latter was demolished immediately prior to the construction of the new building. Post-hole 451 of B3 had actually been backfilled with part of the base of the new west wall (wall 410) after its post had been withdrawn (MFS103). Of the other post-sockets that had formed the west wall-line of building B3, features 437 (MFS101), 452 (MFS104) and 465 (MFS105) were filled with very loosely-packed flints to support the construction of wall 410 which was then built directly over them. The fill of these was too loose ever to have served as post-pads contemporary with the use of B3 itself. In addition the backfill of post-hole 437 contained seventy-nine fragments of worked stone (mullions etc.) which might conceivably represent debris from contemporary building work on nearby St George's Church. The east wall of building B4 lay outside that of the now-demolished building B3 and therefore no special provision was made in backfilling (with soil) the post-holes of that wall.

The reused north wall of room *a* had been partially rebuilt to incorporate a large rectangular oven (feature 1418). Analysis of the ash in its fill could not suggest any particular use. A setting of stake-holes in the south-east corner is presumed to have supported some form of hood arrangement. At the centre of wall 425 was a setting of tiles and flints, apparently matching a slight setting in the south wall of room *b* (wall 352). As above (p.157), the most likely interpretations are of samson posts to support the axial joists of lofts, or some form of fixed furniture. The east wall of room *a* (wall 376) was extremely well-preserved, having been sealed by later floor make-up associated with building B5 (Fig.12, S11). This had prevented much of the weathering usually associated with the surviving remains of clay walls. Wall 376 was of dark orange clay and 46cm wide, standing to a height of 20cm. Set into it were post-holes (384 and 385) and a smaller stake-hole (418). These were similar to the post-holes set into the top of wall 2144 in building A3i and are thought to have had a similar function as internal lacing (see below, p.245), although the clay was less obviously wrapped around extant posts. The post-holes

were noticeably out of alignment. A 'scarf' joint between two courses of slightly different coloured clay was accentuated where small fragments of chalk had slipped into the interface.

In contrast to this degree of preservation the line of the west wall had to be inferred from the later line of wall 335 (stairturret of building B5ii in Period 8) which replaced it. The floor of room *a* was of packed clay and although there was no definite evidence of any room division its proportions would suggest that there may have been an intermediate division (?forming a pantry or closet) on the line of post-hole 384.

The partition between rooms *a* and *b* was marked by a line of rectangular post-holes (390, 392, and 393; MFS88 and 89) which would have supported 8 x 4cm and 8 x 6cm timbers driven directly through the floor. The spacing between post-holes 390 and 392 suggests the position of the connecting door (door openings rarely being wider than *c.*60cm). Room *b* itself was far less well-preserved. The construction of wall 410 over building B3 (Period 6) has already been discussed (p.158). Although built of clay, the wall contained fragments of unknapped flints as well as the ubiquitous chalk flecking. The presence of flint suggests a link with the material used to backfill the post-holes of the demolished building B3. A gap in the middle of wall 410 may represent the location of the rear door to the yard. The east wall (wall 419) was represented only by a thin and patchy spread of clay (also with traces of flint inclusions), and was cut by a post-hole at its south end (387: MFS14) which cut into the soil below the wall.

Both the east and west walls of room *b* projected 50cm beyond the line of the south wall (wall 352) suggesting the possibility of some form of buttressing (?or pentice) to the apparently flimsy gable wall. There was no evidence that the building had at any time extended further to the south. Wall 352 itself was represented only by a 10cm-wide spread of orange-red clay, containing occasional charcoal flecking. An indentation in the centre may have marked the location of a bench support or similar. The floor was again of packed clay (layer 405), overlying layer 402 which may be interpreted as a make-up to level off the surface following the immediate demolition of building B3 in Period 6 (Fig.13, S18).

Finds were again scanty, but layer 402 contained small fragments of EB3-type brick, a jetton of 1360-80 and a 14th/15th-century finger-ring (Fig.35, No.2). The bulk of the pottery was Late Medieval and Transitional, but layer 402 also contained sherds of Siegburg and Raeren pottery which suggests a construction date towards the end of this period (following the demolition of building B3 *c.*1475—see above).

Tenement C

The lack of characteristic spreads of clay around the line of the walls (cf. building A4) suggests that C2 was deliberately demolished rather than being allowed to become derelict. The remains were then sealed by thick deposits of soil that were used to level off the building plot in the latter part of Period 6. (See Fig.14, S31 for the sequence of soil accumulation from layer 1247 to 1244. These included frequent fragments of early bricks, suggesting that the soil had been imported from elsewhere.) The absence of Raeren pottery in contexts associated with the immediate demolition of C2 suggests that building C2 was abandoned early in Period 6 (see below, p.190).

A cobble pathway was laid immediately to the south of building B4. This may have led to building C2 when it was still standing, but was relaid (406) after C2's demolition. This was cut by the later cellar of C4, room *e*, and did not reappear to the west of the latter.

PERIOD 7 (*c.*1500-1575) (Figs 6, 59 and 64; Table 2)
This period, dated on the pottery to no later than the third quarter of the 16th century, is defined by a general rebuilding of houses across the site (Table 2). Whilst some elements of the medieval plan were retained there was a sharp break in the materials used (see MFT. 32) with the replacement of clay walls (or plinths) by flint, and flint-and-brick rubble walling (or plinths). The rebuilding programme also involved the large-scale digging of foundation trenches for the first time in the history of the site. This increased the proportion of residual pottery that was disturbed and cast across the site at this time and has inevitably complicated the interpretation of the dating evidence (with Late Medieval and Transitional pottery appearing in both residual and contemporary contexts).

Tenement A: buildings A5i-ii

The plan of the first phase of building on Tenement A (building A5i: rooms *a*, *b* and *a/c*) indicates that there was a breakdown in the stability of the north-to-south boundary through the site (i.e. the one between the then jointly-owned Tenements A and B: see Fig.59 and Section IX). The south part of the tenement (plot 3) still remained vacant, following the demolition of building A4 in Period 6. It presumably formed part of the yard to the building on the Alms Lane frontage, as evident activity was confined to the deposition of garden soil (layer 688) and the digging of a series of large irregular pits. These had no evident function, but were presumably filled with rubbish (?after excavation for building make-up etc. had been extracted from them). They continued to be dug on this part of the site into Period 9 and are not easily ascribed to a phase.

Building A5i (Fig.6)

Before building A5i was constructed, the site of the Period 3 building, A3, had been substantially cleared. There was little identifiable demolition material (apart from clay spread 2021 over the remains of wall 2397 in room *b*: Fig.14, S40) which suggested that the bulk of the debris had been carted off the site. Layers 1781/1786 and 1919 (rooms *a* and *b* respectively) represent levelling layers (Fig.14, S40).

Work associated with this building represents, in all probability, only a very short-lived phase: the construction of building A5ii representing a change of plan before A5i was actually completed. The intention would seem to have been to build a large right-angled plan building on the Alms Lane and Muspole Street frontages. Room *a/c* extended over the area previously occupied by room *a* of the house on the Alms Lane frontage of Tenement B. This is suggested by the fact that wall 1780 in room *b*, which was bonded with cesspit 2421 (a rebuilding of well 2399), itself forms the south wall of room *a* but with no evidence of a gable wall (cf. wall 1745 in building A5ii). There was a gable wall on the line of fireplace 2029 (which was converted back to being a partition wall in building B6i).

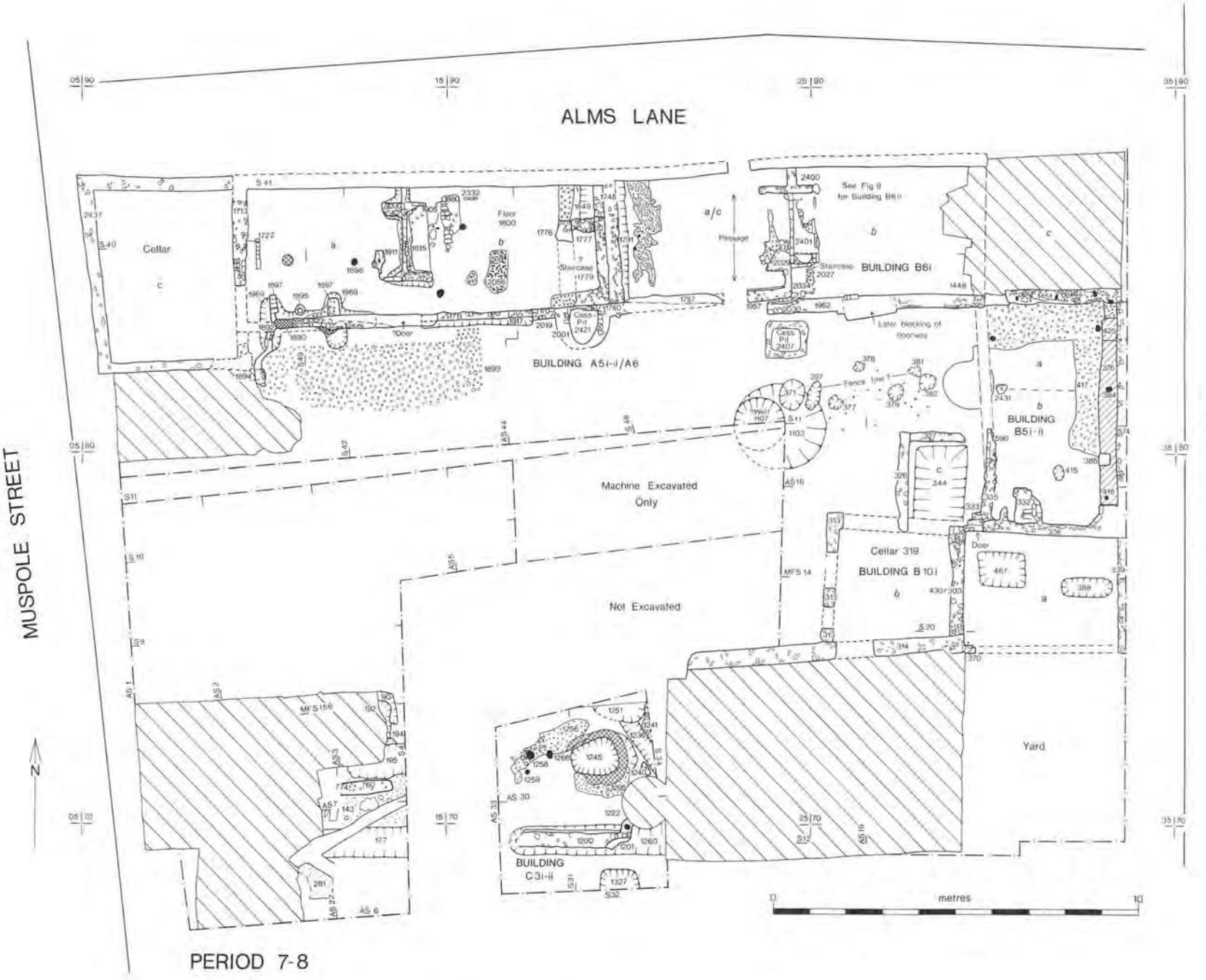


Fig.6 Site 302N. Plans. Periods 7-8. Scale 1:150

In room *a*, hearth 2076 probably reflects the presence of an occupation level associated with the first stages of construction work (?a workman's brazier). This setting of burnt clay, associated with a spread of ash (layer 2073) to its west was sealed by soil layer 1772, which was interpreted as resulting from the excavation of trench 1969 in room *a* (Fig.14, S40; Fig.16, S42 and S49; Pl.XXXII). Comparison with similar features found elsewhere (notably trench 1870 in the succeeding phase of building A5ii, shown as a disturbance on Fig.5) suggests that feature 1969 was intended as the foundation for a substantial back-to-back fireplace; the fill of thin layers of alternate loam and mortar was particularly characteristic. There was, however, no evidence that this was actually built upon, nor for the existence of any range to the south that such a fireplace could have served. A gap between the east end of foundation 1969 and the west end of the original foundation for wall 1711 (see below, p.161) probably marks the site of the intended doorway into the putative range. Wall 1892 may originally have served as the threshold of a porch or similar (with a capping of EB7 bricks on a flint foundation).

Outside room *b*, the pre-existing well (feature 2399) was converted to a cesspit (feature 2421). Slight evidence remained for the springing of a dome, suggesting that it was built to serve an upper storey (although there was no evidence of any staircase during this phase). The upper 40-60cm of the well-lining (2001) was rebuilt in flint rubble and brick (type EB3) and was clearly bonded with the new south wall of room *c* (wall 1780), itself built of flint with occasional brick. To the west the new well-lining incorporated a stub of flint-and-brick walling (2019 on foundation trench 2146). This was butt-jointed to the south wall (1711) of room *b*. Wall 1711 was built of flint rubble (knapped and nodular) set in foundation trench 1917 which was double the width of the actual wall.

The original partition between rooms *a* and *b* had been destroyed by the insertion of later trench 1870, but was represented by a disparity in the finished levels between the two rooms (layers 1871 and 1919 on Fig.14, S40). The division between rooms *b* and *a/c* had been even more completely removed by the insertion of wall 1745. Room *b* had a floor of beaten earth and, whilst there was no definite setting for a hearth, the concentration of ash (layer 2056) around a setting of small stake-holes suggests that this may have been the site of one.

The reasons for considering room *a/c* as being part of this building have been discussed above. The remains of the floor of the Period 5 building, B1, and a surviving stub of clay wall 1871, were covered by a 10 to 15cm-thick dump of soil make-up (layer 1825: Fig.15, S41). (There was no other sign of the demolition of building B1.) There was, therefore, a difference of 10cm between the floor levels of rooms *b* and *a/c*. Much of the south wall of the room (1780) had been destroyed by the later insertion of wall 1759. However, the alignment, character (flints and small brick rubble in a grey mortar), and relative stratigraphic relationship, suggest that it was continued to the east by wall 1957, but this could not be proved conclusively. Wall 1957 was bonded to the gable wall which incorporated end-fireplace 2029 (the only example of its type on the site). This was floored with 6 to 8cm-diameter flint cobbles.

Outside the building, cobbled yard 1899 continued in use although the threshold was made redundant by the shift in door position.

Most of the finds were residual, but with the addition of post-medieval Grimston-type appearing in the fill of trench 1969 (MFT.3).

Building A5ii (Figs 6 and 59)

There was little sign of actual occupation on the site of building A5i. It appears that the original plan was soon aborted. Building A5ii was therefore completed on a two-roomed plan which respected the tenement boundary. (Room A5i*a/c* reverted to Tenement B.) The west end of wall 1711 was rebuilt and wall 1890/1892 built over the backfill of trench 1969, resting on mortar spread 2089 (Fig.16, S42). Wall 1892/1889 (Pl.XXXI) survived to a height of 45cm and appeared to be capped by a course of bricks (type EB7). This had the appearance of a threshold (but with no obvious signs of wear). It appears to have been associated with a stub of flint and brick walling (1887) and post-setting 1895 within room *a*; and with very fragmentary remains of a narrow flint rubble wall (1893/4) outside. These features are not easy to interpret but may have been the lower courses of a stair-turret or other staircase arrangement (or possibly a bay window). Within room *a*, a series of make-up levels appear to have been laid to level the surface after the construction of building A5i (2086 to 2088 shown on Fig.16, S42). No actual floor levels survived.

Similar make-up layers were also deposited in room *b* but before the construction of wall 1745. This was one of the most substantial walls encountered on site, and was built of flint rubble, 42cm wide, set in a 55cm-deep foundation trench (feature 1791). This had been dug from the east of the boundary and therefore marks the conversion of an internal partition into a fireproof boundary between two properties.

As a second stage in the building process (but with no evidence of intervening occupation) a possible staircase was built against the west face of wall 1745 and against cesspit 2421. This consisted of a right-angled wall 1779 and was constructed from the level of a thin working surface 2059 (Fig.14, S40). This sealed part of the original mortar facing of wall 1745, but there was no intervening occupation level. A further series of make-up levels (e.g. 1760, 2046, and 2067 on Fig.14, S40) were then cut by the digging of an H-shaped trench (feature 1870 on Fig.5) as the foundation for a back-to-back fireplace on the partition line of rooms *a* and *b* (Fig.16, S43). The fireplace itself, 1815, had a brick back wall with side arms of brick and brick-and-flint. The fireplace in room *a* incorporated a brick inglenook at its south end (feature 1911), floored in white mortar. Again, no actual floor levels survived from this phase.

The bulk of the finds were again residual (in greater quantities than those associated with building A5i, reflecting the completion of floor make-ups etc.), and there was no evidence from the pottery to suggest any time interval between the two operations (MFT.3).

Tenement B: buildings B5i, B10i and B6i

Building B5i (Figs 6 and 59)

In this period, building B4 was demolished and replaced by buildings B5i and B10. Although the absence of connecting doors suggests that these were indeed separate

dwellings, they were clearly built within a cyclical building campaign as a single unit.

Stratigraphically, the earliest was B5i, which was constructed as a two-roomed building parallel to the street frontage. Firstly, the north gable wall and west wall of building B4*a* were demolished, but the east frontage wall (376) was left standing (at least to the level of the excavated remains) and extended up to pre-existing wall 1451 (building B6i). This left a small length of the east end of wall 425 still standing, but the rest was spread across rooms *a* and *b* as layers 337 and 420. (Despite this demolition work, it seems possible that B4*b* was left intact at this stage: see below, p.000.)

A new south gable wall (336) was then built on the line of the post-built partition in building B4 (Fig.5). Wall 336 was built of flint-and-brick rubble (including RT4 pegtiles), set on a clay-filled foundation trench, 416, that cut layer 402 (Fig.13, S18; MFS73). It incorporated a wide fireplace and the base of an oven (332). Make-up level 568 was spread within room *b*, sealing the foundation trench of wall 336. A trench, 417, was then dug around the sides of walls 376 and 1451, and filled with gravel over a base of iron slag (Fig.13, S18). It was, perhaps, intended as a crude damp-course. Further dumps of make-up (375, 459, 463 and 570) were then laid down.

Only now was the west wall (376) demolished down to the level of make-up 587. It was replaced by flint-rubble wall 574, set in a shallow foundation trench, dug from the level of 570. This phase of building was sealed by clay floor 476, with occupation level 455 overlying it.

The line of the west wall remains problematical, largely destroyed by the insertion of the 18th-century well, 325, and a 19th-century passage-way. The south end consisted of wall 335 and it probably abutted wall 1451 which was later destroyed by the insertion of wall 1450. The small stub of walling (2431) within the building is interpreted as marking the possible north jamb of a door into the yard and the line of the internal partition.

The pottery contained a range of stonewares, including Raeren and Frechen, together with post-medieval Grimston-type ware (Fig.29, Nos 183, 184 and 189; MFT.3), dating construction to the early 16th century.

Building B10i

The absence of any intervening soil accumulation suggests that the construction of B10 as a two-roomed building set at right-angles to the street frontage also followed closely on the demolition of building B4. As its east wall (339) butted that of the gable wall of B5i (wall 336) it must however post-date the latter. The construction of B10, though a subsequent operation, is, however, considered to have been part of the same building campaign, as its north wall in room *b* continued that of wall 336. It also had an entry into the yard of B.

Construction again took place in a number of distinct stages. A 1.90m-deep cellar (319) was dug just to the west of the Period 6 wall 410 (Fig.5), which may have been still standing (as the east cellar wall clearly respected the line of 410). Only the east wall of the cellar (wall 430) survived intact; this was built of flints and occasional brick set in yellow mortar. The wall contained a set of vertical voids for timber lacing which had been tied together with a horizontal ground-level sill-beam. The impressions of the 10 x 3cm timbers were clearly preserved in the surrounding mortar. (See also wall 1451, building B6i in Period 7, for a similar example of cellar construction: p.163.) The modified west wall (313) was of similar construction (type EB8 bricks) and had two original window chutes. The flint rubble south wall (314) had been completely refaced in the 17th century, and the north wall completely rebuilt in the 18th century.

The walls of room *b* of building B4 (Fig.5, walls 352 and 410) were then demolished and make-up layer 349 deposited over the remains. An 80cm-deep rectangular pit (Fig.6, feature 467) was dug, filled with a green-tinged clayey loam (MFS14). Its purpose is not clear, being awkwardly placed in relation to the door and not related to any laid floor, but was perhaps a temporary cesspit. It was cut by pit 562 (not shown on plan) and was finally sealed by clay floor 340 (MFS14). Preparatory to the building of the superstructure of the cellar (room *c*) and the rebuilding of room *b*, the upper part of the east face of the newly-built cellar wall (430) was exposed in a clearance channel (MFS14, feature 564). Wall 303, of rounded flints in yellow mortar, was then built on 430 to divide rooms *b* and *c*. Only two bricks survived of the presumed line of the new south gable wall (370). The east wall of building B4 was also demolished, and replaced by wall 339 which lay just to the east of the former line and butted against wall 336 of building B5i. Room *b* was then floored with a layer of clay (340), soon replaced by mortar floor 566 (Fig.13, S18). Floor 340 was cut by a shallow (10cm deep) slot (feature 388 on MFS14) filled with loose ash. This was not securely sealed until Period 11 and its most likely interpretation is as the base for a timber staircase.

Building B6i (Figs 6 and 59, Pl.XXXIV)

This building was constructed following the re-establishment of the tenement boundary between A and B (above, p.161) on the completion of building A5i as A5ii. It incorporated room *a/c* of the former and overlay the remains of building B2 (Period 5). The relationship of its south wall (1451) in the cellar of room *c* to that of building B5i, means that B6i must pre-date or be contemporary with the northward extension of B5i (see above, p.162, and below, p.163). In its finished form the building had a three-room plan with a cellar, and was probably of two storeys.

The west gable of the building consisted of the massive wall 1745—its foundation trench dug from the east side of the tenement boundary (Fig.15, S41). The construction debris was sealed by a beaten earth floor (layer 1758). The original east gable wall to building A5i was converted into a partition wall to the newly built room *b* by the insertion of an entry to the north of fireplace 2029. The fireplace itself was rebuilt to act as a back-to-back fireplace serving both *a* and *b*. Fireplace 2150 was built entirely of brick (type EB7), set in a yellow mortar (Pl.XXXIV). This was the first occurrence of brick construction. It had a white mortar floor (layer 2401) with a shallow slot on its outer side for a tile kerb. There was a brick inglenook built within the south arm. The line of a modern sewer-trench probably marks the position of a through-passage in room *a*, just to the west of the fireplace. Only the south wall of room *b*

could be excavated (wall 1962), built of flint-and-brick rubble (type LB1) set in a white mortar. This included a door into the yard. The wall was 'wrapped around' the pre-existing gable wall (south-east corner of building A5i) and incorporated a circular stairturret at this point (feature 2034). The latter was built of flint with an inner brick facing. It had an entry from room *b* marked by a band of flint cobbles set in creamy mortar (layer 2027) and contained fragmentary remains of a tile floor. The rest of room *b* had a rammed chalk floor, 1979 (Fig.15, S41).

The dividing wall between rooms *b* and *c* was destroyed when the cellar was later extended, but may well have lain on the east end of wall 1962. As with the Period 7 cellar (room *c*) of building B5i, the south wall of room *c* (1451) was built over a separately constructed sub-surface wall (1452). This was built of flint in a white mortar and contained voids of timber lacing. The south wall of room *c* lay on a slightly different alignment to room *b*, reflecting its construction as a distinct operation (with a doorway cut through it in Period 12).

There were no datable finds, and the building is attributed to this period on the evidence of stratigraphy and building history.

The Yard

A well (1107) was dug in the yard of Tenement B. This was evidenced first by construction pit 1103 (Fig.12, S11). Within this there had probably been a timber-lined shaft, although no trace of this remained. It had probably rotted before the well-shaft had been backfilled. The feature could only be partially excavated, using a machine. Within the yard of Tenement B were a series of garden soils which, although they contained a small amount of intrusive material, were clearly related stratigraphically to this period. The latest of these (338 on Fig.12, S11) actually sealed the backfill of the well and contained fragments of late brick-types (late 16th-century) and RT1-type tiles. There was no evidence of a boundary between building B5i and B6i, which may therefore have shared the use of the well.

Tenement C: building C3i

Building C3i (Figs 6 and 59)

The remains of the building were to be largely robbed out in Period 10, and only wall 1200 survived to any degree. It is therefore not possible to reconstruct a plan with any degree of confidence, and that shown (Fig.59) was attempted simply to give an idea of the likely extent of the building.

Wall 1200 ran east to west just north of building C2 (cf. Figs 58 and 59). It was built of flint and brick, set on a bed of clay within foundation trench 1260 (Fig.14, S31). The latter appeared to terminate with a deliberate rounded end (as shown on plan) but the line of the wall was then carried on by robber trench 177 (Fig.11, S4). It appears that, although interrupted foundations are rare, there may have been an entrance at this point. The wall was 45cm wide, comparable therefore to wall 1745 in building A5ii, but of far neater quality. The north face of wall 1200 was chamfered and clearly external; the south face contained an inset for a large, but not necessarily domestic, oven (feature 1201), which was itself set in a substantial foundation trench. The lines of two further walls were marked by Period 9 robber trenches 1206/1231 (north-to-south) and 195 (east-to-west) shown on Fig.7. Although stratigraphically similar, the latter is considered to have been from a later wall and is discussed below.

The north-to-south robber trenches thus mark a substantial partition between two rooms, *a* and *b*, with the latter as some kind of dyehouse, brewhouse or kitchen and therefore requiring a more fire-proof partition. To the north of the building was a small yard, enclosed on the east side by walls 1240 and 1241. The entrance to the yard may have been through the gap in wall 1200. Originally the yard had a mortar surface (layer 1256) with a sub-rectangular pit set in the centre (pit 1245). This was vertical-sided and 1.10m deep, with a mortar surround at the top, but there was no sign of internal lining, and it was probably a storage pit. The excavation of the pit could be shown to be subsequent to the laying of wall 1200 as it cut layer 1237 which had been itself lain against that wall (Fig.14, S31). The pit was then deliberately backfilled and the yard resurfaced with a layer of rammed chalk (layer 1234) which subsequently slumped dramatically into the fill of the pit.

There was a noticeable paucity of finds from the tenement in this period. This is more likely to reflect the nature of the yard surface than any difference in social status. The hard yard surface would have facilitated a more efficient disposal of rubbish off site. It also prevented the continued re-emergence of residual finds, and this is of significance for the following period. Dating evidence was provided by isolated sherds of Frechen and Raeren stonewares (MFT.3), as well as late Late Medieval and Transitional pottery (Fig.29, No.196).

PERIOD 8 (*c.*1575-1600) (Figs 6, 9 and 59; Table 2)
This short period is defined as consisting of those buildings constructed or modified after the major building operations of Period 7 (Table 2), but where the pottery suggests that the work was completed before the 17th century.

Tenement A: building A6

For the first time since Period 4 there is evidence of occupation extending to the Muspole Street frontage. This, however, was in the form of a cellar *(c)*, which could have obliterated the remains of earlier structures (see above, p.155). No evidence of road metalling was found to its south which obviates the possibility of Muspole Street having been widened in the period 1400-1500. Building activity was confined to the north part of Tenement A (plot 1). The documentary evidence is clear in stating that Tenement A/C (plot 3) had a distinct entity at this date and contained 'stillicidiis' but this does not necessarily mean that there were other buildings on this part of the site and may simply refer to drains. There was no archaeological evidence for any occupation of note.

Building A6 (Figs 6 and 59)

Alterations to building A5ii principally concerned the addition of another, cellared, room to the west (room *c*). Measuring 3.7 x 4.7m, this projected beyond the existing south building-line. The walls were built of flint with some brick rubble set in yellow mortar and were 43cm wide. It should be noted that there was no evidence of internal timber lacing as has been noted above in buildings B5i and B6i. The inside faces of all walls were plastered. The entrance to the cellar was from the south-west corner of room *a*, where the construction

of a stairwell (1897) involved the partial demolition of wall 1892. The stairwell, where it had escaped rebuilding, was lined with brick (type LB1). On the east face of wall 1713 in room *a* was a rectangular emplacement (feature 1722) partly built into the wall itself and consisting of a rectangular setting of bricks, with a mortared base and covered in ash. The south side had been destroyed by the later stairwell but it probably had a length of *c.*45cm. The nearest parallel to feature 1722 on site was the coal-burning hearth (feature 308) from building B5iii (Fig.8), and this might be a likely interpretation. It would, however, be the only known example in Norwich of a room provided with two hearths (as fireplace 1815 remained in use). Found in the yard outside, and associated with this phase, were parts of a rare North Holland slipware firecover (Fig.30, No.202) which was probably used with this hearth.

The digging of the cellar was associated with a general spread of clay loam (layer 1771) across room *a*, which pre-dated the construction of feature 1722 and was cut by a repair of fireplace 1815. The back wall of the latter was rebuilt in brick (type LB1) as wall 1794. Layer 1763 was then spread as a final levelling deposit, cut by post-hole 1896 (Fig.14, S40).

The east end of room *b* was closed off by a partition surviving as wall 1776. A cross wall (1777) butted against the foundations of pre-existing staircase 1779. This was possibly to allow a new staircase in the north-east corner of the room, with a closet to the south (Pl.XXXIII). This was later rebuilt as a fireplace in building A10, but there is no evidence for such a use in this period.

The North Holland slipware firecover, dating from the late 16th century into the 17th century, provides the most notable dating evidence for this phase (see above). In addition, a Late Medieval and Transitional pipkin was recovered, of a type that went out of use towards the end of the 16th century (Fig.30, No.201).

Tenement B: building B6ii, B5ii and B10

Building B6ii (Figs 9 and 59; Pl.XXXIV)

The rebuilding of building B6i centred on alterations to the partition wall between rooms *a* and *b*. These included both the rebuilding of the fireplace itself (2029) and a replacement of stairturret 2034 (Fig.9). The new fireplace, 2000, was built of a single row of red bricks (type EB6) (Pl.XXXIV). The connecting passage between the two rooms was again on the north side. The new fireplace extended right across to the south wall of the building (wall 1962), necessitating the demolition of stairturret 2034. In room *a* fragmentary remains survived of the south arm of the fireplace, with would have allowed sufficient space to have inserted a new staircase between it and the south wall of the building. The position of the south arm in room *b* was much less well-preserved (?because it did not serve such a structural purpose) but was suggested by the northern edge of a disturbance in mortar floor 2403, with an inglenook to the south.

The floors of both rooms were replaced following this construction work in a very rapid sequence. There was particularly heavy activity in room *b* where a new clay floor (2372) was then sealed by make-up 2382, followed by a further clay floor 1974 (Fig.15, S41). The latter was continued into room *a* at the same level as floor 1757. Unfortunately this make-up was entirely devoid of finds, and the phase was dated purely on stratigraphic grounds.

Although there was no direct stratigraphic link and no clearly datable finds, the construction of cesspit 2407 in the yard (Fig.6) has been assumed to belong to this phase. This lay on the line of the room partition, just to the east of the presumed entry into the yard from B6ii, and marks a further possible sub-division of the yard with building B5ii.

Building B5ii

Building B5i (Period 7) had been provided with no obvious staircase arrangement. A pit (feature 344) for a new stairturret was dug 60cm outside the line of the south wall of room *a*, and walls 326 and 327 were then set against its edge (Fig.13, S16). The walls were of cut and rounded flints, set in a yellow mortar and with occasional fragments of yellow brick. The method of construction has clear parallels in the manner of construction of the cellars in Tenement B and again was designed to cause minimum interference with the standing structure. The north part of wall 335 was then demolished to open entry into the stairturret and the first step built over its surviving north end (590). This would have continued to leave an entry into the yard north of wall 327.

This activity was probably contemporary with the laying of floor 322 in room *a* although there was no satisfactory direct stratigraphic relationship on which to base this assumption. Two small post-holes (features 462 and 597) at the north end of the building may represent the settings for built-in furniture, as may the larger post-hole 415 towards the south end of the room. All three post-holes cut floor 322 and were sealed by the floor of the succeeding phase.

Apart from isolated intrusive sherds of Nottingham and Staffordshire salt-glaze stonewares, the latest pottery from this building was glazed red earthenware and Frechen stoneware (MFT.3).

Building B10ii (Figs 6 and 59)

The door from building B10i to the yard of Tenement B was blocked as part of the construction work associated with the new stairturret in building B5ii. This was the last intact stratigraphic phase to this building before the clay floors of room *b* were sealed by further make-up levels 316 and 317 in Period 13 (Fig.13, S18). There was no surviving evidence for access, although this is presumed to have been from the street frontage, by a passage along the south side.

The Yard (Fig.6)

A row of post-holes extending over the backfill of well 1107 probably marks the line of a fence, sub-dividing the yard of Tenement B for the first time. (The line of this fence was continued in Tenement A during Period 9: Fig.7.)

Tenement C: building C3ii

Building C3ii (Figs 6 and 59)

The partially surviving evidence suggests that this building was reconstructed on a larger scale. To the west of robber trenches 1206/1231 (Fig.7) an area of burnt clay floor (layer 746: Fig.11, S4) and a further small area of floor on to the Muspole Street frontage itself (AS1) suggests an extension of C3 in this direction. (It is in this area that the 'woodhouse' documented in 1576 should be

expected: below, p.235 and Fig.52.) Although there was no direct stratigraphic link, the floor may be linked to this phase on the basis of the same horizontal level. Most of this area had been destroyed by the 19th-century insertion of the cellar of building C5, but a marked increase in residual pottery (suggesting large-scale disturbance) indicates that the front room might have been part-cellared (MFT.3). The front extension may have been built parallel to the street but a simple lengthening of the original building westwards is as likely. Even more problematical is the northwards extension (room *d*) that is suggested by a robber trench (195) lying parallel to robber trench 177, but only to the west of trench 1206/1231. A sequence of floor levels was found between the two, and may have formed a passage entrance. A shed was built against the angle of walls 1200 and 1240, with a chalk yard surface outside (layer 1234). The latter had slumped into the fill of pit 1245.

On the St George's Street frontage the appearance of trench 356 in Period 11 (Fig.8) probably represented the demolition of a boundary wall of this phase.

Much of the dating evidence for this building came only from the demolition levels, and the absence of glazed red earthenware and Frechen suggested a date for the latter by the end of the 16th century.

PERIOD 9 (*c.*1600-1675) (Figs 7 and 60; Table 2)
This period was defined by those alterations to the Period 8 buildings (Table 2) which could be dated by associated pottery and finds to the first three quarters of the 17th century. Although there was little sign of external structural change in the buildings of this period, there was a radical change in the pattern of occupation.

Tenement A: buildings A8, A9; ovens 221 and 731
There is now evidence for the sub-division of building A6 (to form buildings A8 and A9) on the Alms Lane frontage (plot 1), but no evidence to suggest any yard division inserted between them. In contrast, both the documentary evidence and the pattern of usage suggests that the south part of the tenement (plot 3) was now fenced off during a temporary association with the activity on Tenement C. This area, which is dealt with below, has therefore been defined as Tenement A/C.

Building A8 (Figs 7 and 60)
The building of a solid partition wall (1798) between rooms *a* and *b* marks the division of building A6 into A8 and A9. Wall 1798 was built of flint rubble in a yellow mortar and was bonded to a partial rebuilding, within A8 only, of the south wall (as wall 1735). Hearth 1864, which was set within an offset of wall 1798, was unusual in its scale (the only comparable feature on site being the Period 6 hearth, 1418, in building B4). It was set south of a rebuild (1813) of the south arm of the fireplace (built of a mixture of brick types EB3, EB4 and LB1). Two bricks remained of the outer kerb. The hearth had a base of burnt clay with a fill of undiagnostic ash (layer 1774), subsequently cut by a series of small stake-holes. There was no specific evidence for the use of this feature but it may have served as a large baking oven (see below, p.253).

There were very few finds, but these included a sherd of iron-glazed ware, which first appears in the 17th century (MFT.3 and p.193), and clay pipes with a date range of *c.*1640-80 (see below, p.213).

Building A9 (Figs 7 and 60)
Other than the evidence of sub-division, no evidence of ground-floor alteration associated within this building was detected (but see below, p.252, for a discussion of the implications of this).

Backfilling of the Period 7 cesspit 2421 attached to building A9 can be dated to the later 17th century (Period 10) on the basis of finds (layer 1762: MFT.3). It was, however, probably replaced by the construction of a cesspit, 1835, outside in the yard in Period 9 (adjacent to what will be interpreted as the boundary with Tenement A/C). The sides of the pit were lined with flint and occasional brick rubble set in a yellow mortar. A shallow service drain led into it; it lay between flint walls (1876, 1877 and 1878) running parallel to the rear wall of the house and possibly defined the edge of a pathway. The provision of a drain is an unusual feature in Norwich. It was presumably intended to dilute the contents of the cesspit, allowing them to soak away through its unlined bottom. All of the material from within the pit dated from the time of its backfill in Period 10 rather than from contemporary use (with a noticeable absence of clay pipes, as found in the pits of Period 10). It was not possible to determine whether the cesspit served only A9, or A8 as well, although the west end of the drain appeared to respect the division between the two houses.

Close to the west side of cesspit 1835 was a thick deposit of organic loam (layer 93), up to 1m deep against section S11 (Fig.12). This immediately overlay the remains of demolished wall 687 from the Period 5 building A4ic. It is interpreted as a long-standing domestic midden ?in an outer yard, banked up against the boundary with A/C. The concentration of broken pottery and clay pipes (see below, pp.193 and 213) clearly points to its function as a rubbish tip. A wide range of 17th-century finds was found associated with this building phase, including small glazed red earthenware bowls that were in use throughout this period (Fig.30, Nos 205-211, and p.193), and clay pipes of *c.*1630-80 (Fig.41, No.4, and p.213).

Tenement B: buildings B5ii, B7 and B8
Building B5ii and B10ii remained basically unchanged during this period. There is, though, evidence for the further sub-division of the property on the Alms Lane frontage where building B6ii was modified to form buildings B7 and B8. Some indication of the joint speculative nature of this is given by the symmetry of the partition walls (clay spread 2023, and brick wall 1960) which provided a closet on opposing sides (Fig.60). To their rear, the division of the yard interpreted as originating in Period 8 (see above, p.164) was probably maintained, although there was no direct evidence to support this.

Building B5ii (Figs 7 and 60)
A series of make-up layers (e.g. layer 344 on Fig.13, S16) were dumped inside the foundation of the stairturret to complete the work begun in Period 8. Although much of the pottery was residual, the operation has been dated later than the construction of the walls on the basis of pottery, which included Weser slipware, Dutch tin-glazed earthenware, glazed red earthenware and Surrey white ware (Fig.32, Nos 245-248).

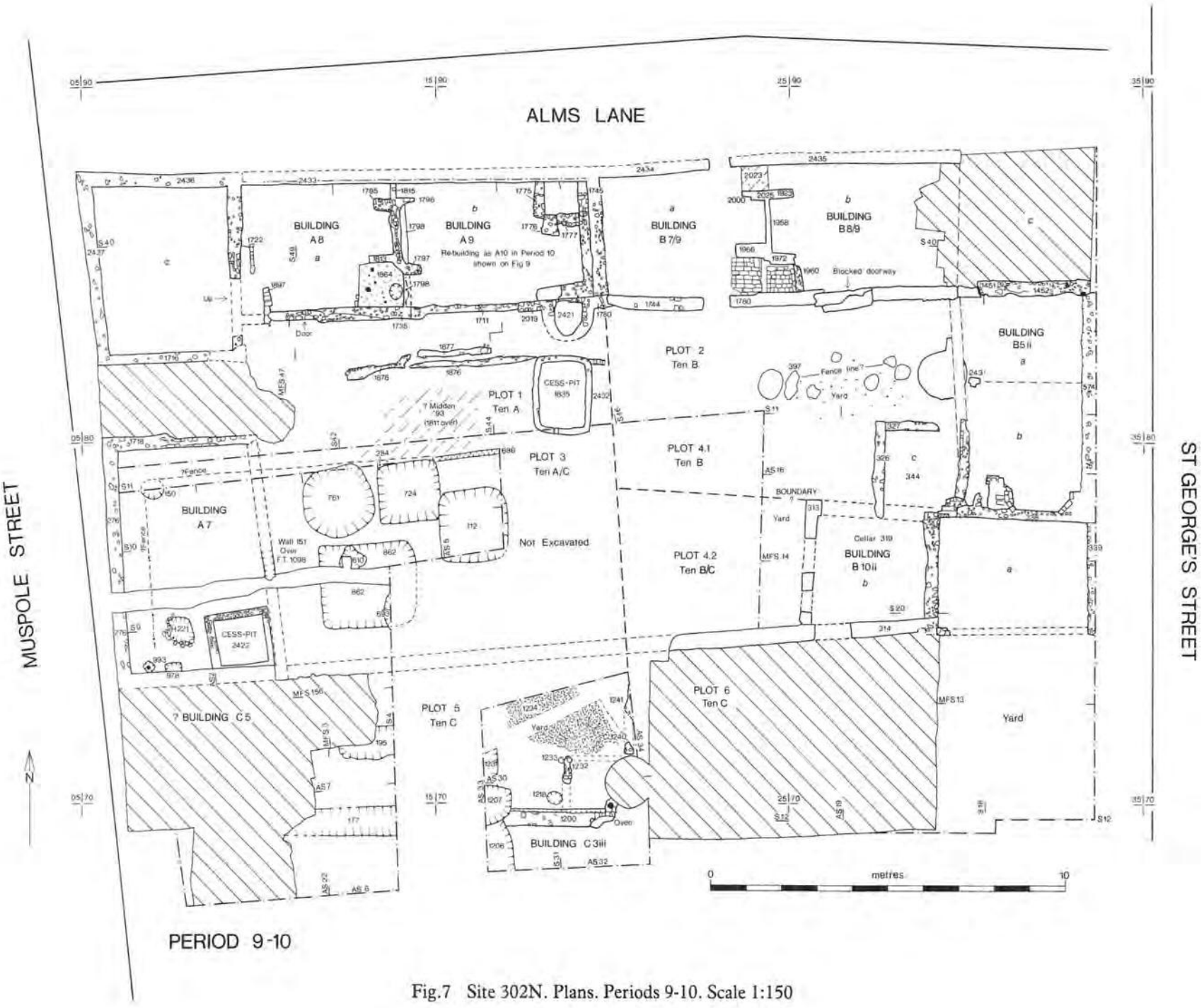


Fig.7 Site 302N. Plans. Periods 9-10. Scale 1:150

Building B7 (Figs 7 and 60)
The back-to-back fireplace between rooms *a* and *b* of building B6ii was rebuilt at this stage, and the connecting door blocked. Fireplace 1958 was built in brick, sealing the demolition layers of the preceding phase. The north arms and back of the fireplace were on the same lines as before but the south arm of the fireplace in B7 was realigned on a substantial brick plinth (1966) with offsets. This suggests an additional structural purpose and may have been associated with a staircase on this side. North of the fireplace the connecting passage was blocked by a screen, represented by a wide, but thin spread of daub (layer 2023). Fragments remained of a brick floor against the fireplace (layer 1968, with type LB1 bricks).

Building B8 (Figs 7 and 60)
The only visible structural alteration here was the partition from room *a* referred to above.

Tenement A/C: ovens 731 and 221
Both the archaeology and documentary evidence suggest that the south part of Tenement A was now fenced off and used in association with Tenement C. This area is defined here as Tenement A/C.

Activity on the Muspole Street frontage during this period centred around two successive ovens, 731 and, immediately overlying it, 221 (MFS155). This area had not been occupied since the end of Period 5. Stratigraphically, the earlier oven (731) directly cut the soil dumped here in Period 3 (layers 990 and 992) while the later oven 221 was cut by the building activity of Period 10 (building A7). They are dated to Period 9 by associated finds (principally clay pipes).
Oven 731: only a small segment survived, cut by oven 221. Both features were very similar, with 731 consisting of a vertically sided pit, 45cm deep. There was a 10cm-thick clay lining on the bottom (989), filled thereafter with silt (layers 731 and 1047). The pit had been re-cut and re-lined with burnt clay (1046) before being finally cut by the foundation trench (1041) of its successor, oven 221. Most of the pottery was residual, but did include small amounts of glazed red earthenware and Frechen.
Oven 221 (Fig.11, S9; MFS155; Pl.XXVI): this consisted of a 65cm-deep, vertically sided pit which was sub-rectangular in plan and located within the subsidence hollow of pit 738 from Period 5. The fill suggested a number of phases of operation (detailed on MFS155). It had an initial lining of burnt clay (layer 910) on the floor of the pit, which was sealed by a succession of sand and loam layers. Trench 911 possibly represented the foundation for a vertical lining (? of tile) that was subsequently extracted. This may have served as some form of internal muffle (cf. 17th-century clay pipe kilns: Peacey 1982, 13). Trenches 856, 857 and 1041 may then represent further foundations for lining, filled with a succession of burnt accumulations and clay floors until the final clay floor of 279 was laid down. This was associated with the excavation of a foundation trench around the south side of the feature to take a lining composed of fragments of flint, brick and tile (1050) together with a partially surviving facing of edge-set orange tile (RT2). When building A7 was constructed over the site of this oven, the floor (layer 95) partially collapsed into the slumpage of the fill, suggesting that it had not long been backfilled before the new construction commenced.

There was no particular evidence for the use of these ovens, although the presence of quantities of carbonised, germinated barley suggests the possibility of roasting ovens. A conspicuous feature was the number of clay pipes found in the vicinity (though few were in the actual backfill). 73% of the clay pipes from this period as a whole (some heavily burnt) came from a 5m-radius around the hearths, particularly from pit 862 which may have served as the principal rubbish pit of the activity on the frontage. It is possible that pipes were being cleaned out in these ovens as a secondary function. The clay pipes within 221 dated the disuse of the ovens to *c.*1650-80. Other dating evidence consisted of Surrey white ware and Westerwald stoneware (Fig.31, No.234) which also suggested a mid 17th-century date at the earliest.

Behind the Muspole Street frontage was a noticeable concentration of large pits. This is in contrast to the activity on the street frontage at this time (which had far fewer, and less substantial, pits and far more clay pipes). None of the pits referred to above were lined or had distinctive cess deposits, although all had a high organic content and their form would suggest that they were dug as deliberate features rather than being merely extractive. Pit 761 had at least two major re-cuts (Fig.11, S10), perhaps best interpreted as rubbish pits. It was cut by the vestigial remains of pit 690 (not shown on plan); then sealed by spread 691, which was itself cut by pit 724 (cut in Period 10 by pit 112). Pit 112 was backfilled in Period 10 (*c.*1700), but clearly forms part of the same pit sequence and may actually have been dug right at the end of Period 9. It was particularly noticeable that the pits contained a high degree of residual pottery (in contrast to those features on the frontage) reflecting probable backfill with the originally excavated material. More contemporary finds included glazed red earthenware, small quantities of tin-glazed earthenware and Surrey white ware (Fig.31, Nos 236-243; MFT.3).

The north edge of pits 761 and 724 seem, with slot 686 and post-pit 150, to represent an east-to-west boundary line against Tenement A. If so, the boundary may have abutted the suggested sub-division of Tenement B, dating from Period 8 (Figs 59 and 60). Feature (?midden) 93, attached to Tenement A would then seem to lie against this boundary on the north side. In addition the differing character of the excavated deposits suggest a division of function between the Muspole Street frontage of area A/C and the pitted area to its rear (Fig.60).

Tenement C: building C3iii
Building C3iii (Fig.7)
Building C3 was to be demolished in Period 10, but there is the possibility that alterations occurred just prior to this. The partition wall between rooms *b* and *c* (Fig.60) was demolished in two stages (robber trench 1231 being the earliest: Fig.7) which suggests some alteration of the internal arrangements.

PERIOD 10 (*c.*1675-1720) (Figs 7, 9 and 60)
This period is defined by the construction of building A7 in Tenement A, the demolition of building C3iii and internal alterations within the other, pre-existing, buildings (Table 2). All of these operations can be closely dated by the pottery.

Tenement A and A/C: buildings A7 and A10
Building A7
This building represented the first definite use of plot 3

(Tenement A/C) for domestic housing since Period 5. Few elements survived the wholesale rebuilding of the later 18th century: the still-standing west wall (276) and part of the foundation of the east wall (151), both constructed of flint set in a white mortar; an internal cesspit (feature 2422); and a small area of floor (layer 95) that had subsided into the fill of oven 221 (Period 9).

Pit 2422 had been set in the south-east corner of the building (Fig.11, S9); it was rectangular, with a flint rubble lining. In all it was 1.25m deep, cutting through to the natural sand and leaving a sloping shelf below the level of wall 256. The initial, very organic, fill (287) almost certainly represented accumulation during use, but subsequent fills from layer 286 upwards represent backfilling from Period 11 (up to *c.*1760 on the basis of the clay pipes in the fills 34 and 212, although all of the limited pottery evidence was residual). There was a noticeable concentration of Dutch pottery in the fills which may suggest that the house had been occupied by immigrants. (There was also a group of five Charles I farthings, post-1635, in the upper fills.)

There was a series of amorphous small pits and scrapes in the yard behind building A7, but they did not form any coherent pattern. The only major feature was the backfill of pit 112 (Fig.11, S10) which had probably been dug at the end of Period 9 as a rubbish pit at the rear of Tenement A/C.

The construction of building A7, clearly respected the property division with Tenement C, and was probably in the same ownership as Tenement A. Although the physical unity of Tenement A may have been restored, the evidence from the frontage does suggest that it had now been broken up into a more diverse pattern of rental with three units, and the yard divided into two. The only finds from within the building came from the later fill of cesspit 2422, but the construction of the building was fixed stratigraphically by it sealing the remains of oven 221 towards the end of Period 9, and by being demolished in the rebuilding of Period 11 (building A11i).

Building A10 (Fig.9)
The south wall (1711) and partition (1798) of building A9 were demolished and replaced by walls 1747 and 1734 respectively. Wall 1747 lay to the south of the previous south wall and was angled to incorporate the remains of the now disused cesspit 2421 (filled as 1762).

The new rear wall probably served to underpin the existing jetty. This was the first time that alterations of such a radical nature had affected only one part of the building(s) of Tenement A along the Alms Lane frontage, and may suggest that the properties had now passed into separate ownership. Wall 1734 had cut across the line of the back-to-back fireplace and this may have been the occasion for a rebuilding of the staircase arrangement (1779) against wall 1745 to include a fireplace, 1710 (Pl.XXXIII), although this could not be satisfactorily proved. Wall 1747 incorporated settings for three, brick dwarf-walls, 19cm high and set on flint foundations (surviving as wall 1702, and as fragments of 1778 and 2408) to support a planked floor.

Outside the house was a thin deposit of loam, layer 1811 (AS44), possibly a midden replacing context 93. It contained a distinct concentration of 17th-century Low Countries domestic pottery, suggesting that, as with building A7, this was the home of an immigrant family (Fig.33, Nos 253-261). The vessels had obviously been used over a considerable period (below, p.196).

Tenement B: building B9
There were no visible alterations to B5ii or B10 during this period.

Building B9
This represents a re-unification of buildings B7 and B8. The south part of fireplace 2000 was demolished and a set of two steps cut through the cupboard to link rooms *a* and *b* again. These steps were floored with brick (types EB6 and LB1) as layer 1743. Partition wall 2023, to the north of the fireplace, was rebuilt in brick as wall 2359, lying to the east of the entry from Alms Lane. The north wall of the fireplace in room *a* was rebuilt and strengthened as 2025.

Tenement C
The final demolition of building C3iii was marked by the presence of robber trenches 177/1200 and 1206. The site of the building was then sealed by spread 1314 (Fig.14, S31). A large rectangular pit, 1204 (Figs 8 and 60), was subsequently dug (probably as a rubbish pit), associated with chalk yard surfaces 1228 and 1212 (Fig.14, S31). This area was to serve as the back yard of the building C4, built in the following period. Dating was provided by clay pipes of 1650-80 and early creamware in the fill of the robber trenches (MFT.3).

PERIOD 11 (*c.*1720-1750) (Figs 8 and 61; Table 2)
This period is defined by the last major structural changes that were recognised on site (Table 2). Throughout this period there is a marked absence of contemporary artefacts and a high degree of residual finds (Fig.17). This seems (below, p.255) to be associated with a more widespread disposal of night-soil off the site.

Tenement A: building A11i
Building A11i (Figs 8 and 61)
The three disparate units of Tenement A were now united to form a single L-shaped building. The rear walls of buildings A8 and A10 were demolished, though possibly not until the new walls 1746 and 1750 (built of brick with some flint) were substantially complete. Wall 1746 was built against the south face of its predecessor (1747) which was then demolished to leave a ledge that would have supported a planked floor. Wall 1750, which butted wall 1746, was angled off at its west end to include an entrance corridor (?and staircase) to the rebuilt range along Muspole Street. A passage-way south of the fireplace was inserted to link the two rooms built over the now demolished south wall.

Along Muspole Street, building A7 was almost totally rebuilt and linked to the Alms Lane range by the insertion of a further cellared room (room *d*). This exposed the trench-built south face of the south wall (1716) to room *c*, while the north wall of building A7 was rebuilt in brick as a cellar wall (1718). An entrance between the two cellars was cut at the east end and floored with tile. The plank floor to the room above (ground floor) was supported by brick pier 1717. The east wall of room *d* (1720) was bonded both with wall 1750 (the new south wall to room *a*) and with wall 42 of rooms *e* and *f* (a rebuilding of building A7). Wall 1720 also incorporated

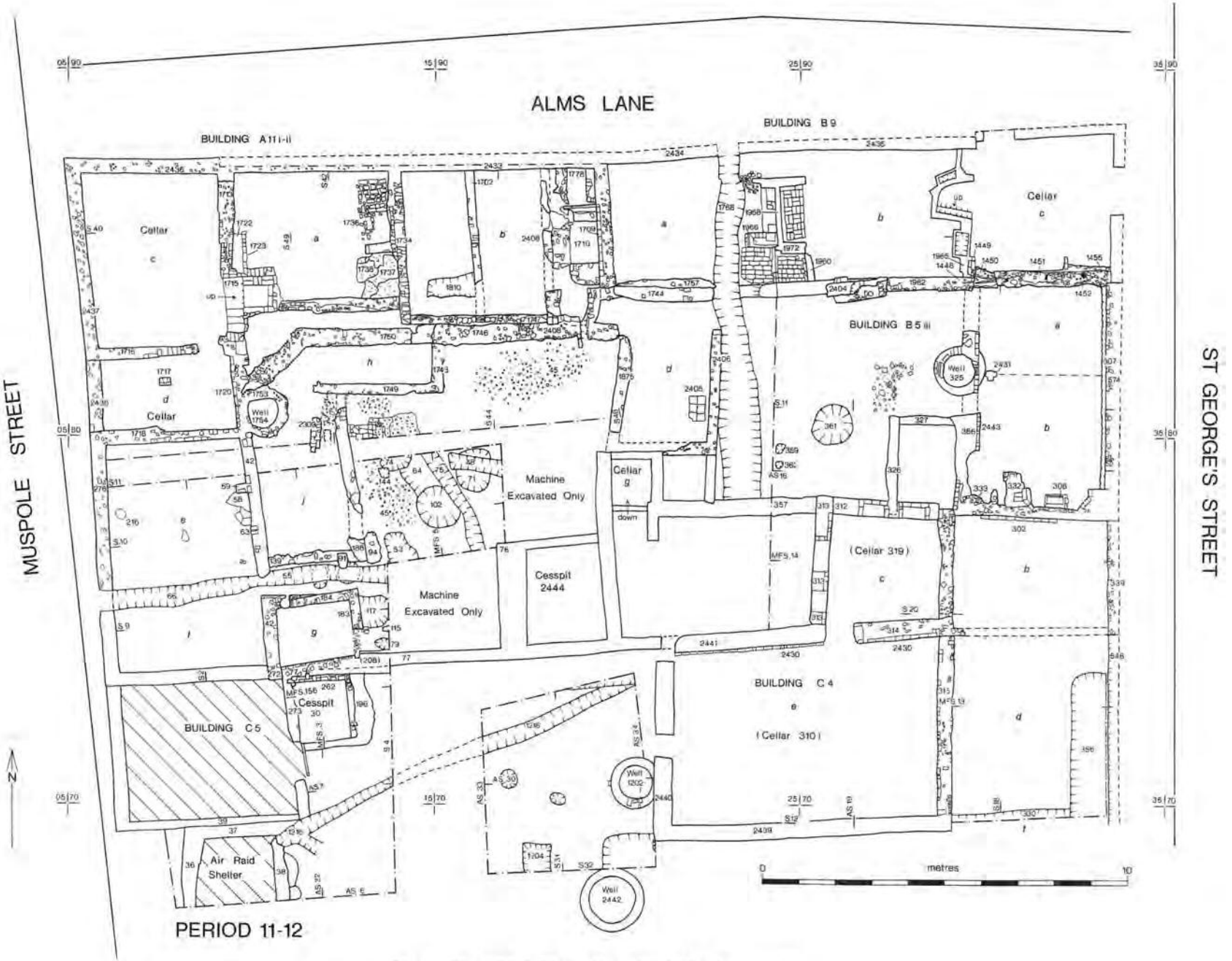


Fig.8 Site 302N. Plans. Periods 11-12. Scale 1:150

the surround to a flint-and-brick-lined well (feature 1753) which had been backfilled in the 19th century.

Only the west frontage wall (wall 276) of building A7 was left intact. The east wall (151) was totally rebuilt as wall 42 and was the earliest purely brick-built (LB1) wall on site. It incorporated a brick hearth (58) in room *e* that had a stone-flagged floor. The room division shown on plan (Fig.61) between rooms *e* and *f* was suggested by the line of the passage in the next phase (building A11ii), and also by the position of the doorway in wall 276 (marked by the line of a modern sewer trench). Room *f* had a burnt clay floor (layer 197), the latest occurrence of this type of flooring. It sealed the backfill of the Period 10 cesspit 2422. The south wall of room *f*, completely rebuilt in Period 12, is presumed to have survived from building A7.

Room *g* measured 1.45 x 2.10m, and was built in the yard within the angle of room *f* and the south tenement boundary. Its north and east walls (183 and 184) were bonded with wall 42 but were built of flint rubble, faced with carefully knapped flint on both sides. The floor was set with tightly packed cobbles. The only apparent entrance was from the yard. The manner of construction suggests that this room had a specialised function but the nature of this was not apparent (but see below, p.244).

There was patchy survival of a loose gravel yard surface. This had been cut by two large post-holes, 155 and 682 to the east of wall 42, which are interpreted as the supports for a narrow-fronted outshut (rebuilt in the following period). A large rectangular cesspit was dug in the south-east corner of the yard, which seems likely to have destroyed a similar but earlier feature described in the 16th-century deeds. It was, however, only possible to dig this by machine at the end of the excavation to record size and depth.

The clay pipes from this phase were characteristically from a date bracket of 1640-80, and would seem to reflect the redeposition of earlier material. The upper backfill of cesspit 2422, which immediately preceded the construction work of building A11i did, however, contain clay pipes with a date bracket of 1690-1740 (see below, p.215), and early 18th-century tin-glazed earthenware (Fig.34, No.282); it is these that provide the best evidence for dating the building.

Tenement B: buildings B5iii and B9ii

Building B5iii (Figs 8 and 61)

The east wall of rooms *a* and *b* was refaced on its outer face in brick (as wall 574). A new (coal-fired) hearth, 308 was inserted within the open fireplace on wall 336. This consisted of a small rectangular fire-box built of tiles set on edge. The alcove left on each side was probably boarded up to provide cupboard space, with the existing oven on the west. The original west wall was demolished and the room widened. The new wall, 366, was built over the demolition spread of wall 335, and included an entry into stairturret *d* at the north end (brick steps 2443). A well, 325, was built on the line of this wall. The survival of wall 2431 suggests its use continued as a room partition. The clay floor was re-laid during this period as 321 (Fig.13, S18).

Building B9ii (Figs 8 and 61)

Whilst there was no evident sign of alteration within this building, a sub-rectangular out-building (room *d*) was constructed along the line of the boundary with Tenement A. Room *d* consisted of rubble walls 1875 and 2406, with an entry immediately adjacent to the back door of the house. The room originally had a clay floor but over this a small area of tiles (2405) remained.

Tenement C: building C4i

Building C4i (Figs 8 and 61)

This building represented a major development of the St George's Street frontage, and was the first building on that frontage within Tenement C since Period 4. It also marked a substantial re-arrangement of the pattern of tenement boundaries between B and C in incorporating what had been building B10. Two rooms were added along the St George's Street frontage (rooms *d* and *f*), with a large cellared range to the rear (room *e*). Wall 336 was partly re-faced on the south side in brick as 302 (Fig.13, S18) which *may* represent the vestigial remains of a fireplace (this room is shown as a kitchen in a plan of 1827 and there was no other feature that could have been a hearth). The original gable to room *b* was demolished and presumably replaced with a slight partition (possibly with the same plan as shown in 1827).

The east frontage wall (548) of room *d* abutted wall 339, with partition wall to room *f* represented by foundation trench 330. This was partially sealed by clay floor 306 (the latest clay floor seen on site). The east wall of room *f* still stood in 1976 and incorporated a decorative string course dated to the early 18th century. Trenching along St George's Street suggested that the whole of the east face of the frontage walls were re-faced in brick at this time. A large cellared room (*e*) was constructed in the angle of rooms *c* and *d*. The sub-surface walling of cellar 310 (room *e*) survived and consisted of very rough, mixed, flint-and-brick rubble walling. As the new cellar exposed the rear face of wall 314 of the pre-existing cellar, it was re-faced on the south side in brick (2430). An entry was cut through the west end of wall 314 to link the two cellars, and the jambs faced in brick. Clay pipe evidence suggests that some at least of the large amounts of spoil from this cellar-digging were spread over the rest of the site, but the majority was probably carted away.

Outside cellar *e* was a well (1202), and further west was a cesspit (30), which is probably related to this phase although there were no datable finds. It formed a privy some way distant from the actual house but well-placed to be cleaned out from Muspole Street. Its location suggests that it may have backed on to a further range of service buildings, destroyed by later building C5. Recognisable activity behind building C4 was confined to the exploitation of garden soils. Again, virtually all the finds were residual, but a sherd of English tin-glazed earthenware came from well 1202 (MFT.3).

PERIOD 12 (*c.*1750-1800) (Figs 8, 54 and 61; Table 2)

This period was defined by a number of structural alterations, subsequent to the larger-scale rebuilding of Period 11 and which could still be dated to the 18th century. Developments from this and later periods are clearly shown in the series of topographical maps of the city. Extracts from the three most useful (the 1789 Hochstetter, 1830 Millard and Manning and 1885 OS map) are shown on Fig.54.

Tenement A: building A11ii

Building A11ii (Figs 8 and 61)

Rooms *h* and *j* were added against the rear of the street frontage ranges of building A11i to replace the previous post-built structure. Room *h* was built parallel to wall 1750 and consisted of walls 1748 and 1749, both built of flint rubble with brick rubble levelling courses (Fig.16, S42). There was an entrance at the west end, by well 1754.

Room *j* appears to have been added subsequently (replacing the more temporary structure of Period 11), for its east wall (188) butted against wall 1749, but this may only mark a constructional phase. The room contained a well (1754), a low brick-and-flint plinth (2309), possibly to support a copper, and a shallow gutter. The south wall (flint wall 139) flanked a passage leading from the front range.

Both ranges are interpreted as outshuts in the yard of the tenement, either as domestic wash-houses or serving some semi-industrial purpose connected with the use of room *g* of building A11i (Priestley and Corfield 1982, 112-3). Comparison with Fig.54B suggests that this range was added before 1830. The yard surface consisted of a trampled earth surface (45) with a roughly-paved area at the north end.

Tenement B: building B9ii

Building B9ii (Figs 8 and 61)

In the cellar (*c*) flint-and-brick walls 1449 and 1455, and a rebuilding of part of wall 1451 (as 1450), may represent the foundations for the base of a fireplace carried on the ground floor, above this cellar.

Tenement C: building C4ii

Building C4ii (Figs 8 and 61)

A new yard wall was built off the north-west corner of room *c* to enclose a small yard. Slight traces remained of outhouses within this, and also a small cellar (room *g*). The stairwell of this was lined with the bases of 18th-century wine bottles and might be interpreted as a wine store (although described as a latrine in 1827; Pl.XXXVIII). The cellar had been partially inserted into the line of B9*d* which may by now have become derelict. This phase was probably also associated with the blockings in the openings of the west wall of room *c* (wall 313). This then formed a very substantial unit quite distinct from the character of occupation elsewhere on the site.

Fig.54A clearly shows the whole of the Muspole Street frontage of the site occupied by buildings. If so, (although Hochstetter is unreliable) they had evidently been demolished by 1830. Any evidence had been destroyed by later cellarage.

PERIOD 13 (*c.*1800-1942) (Fig.54)

Tenement A

The 1830 plan shows the existence of rooms *g, h, j* and the newly constructed cesspit 2444. Although there was no surviving structural evidence, the 1885 OS map shows this tenement again divided into three dwelling units.

Tenement B

The corner of Alms Lane and St George's Street was hit by an incendiary bomb in 1942 and was subsequently cleared. This removed much of the stratigraphical evidence for Periods 8 to 13. Archaeologically, the period is represented by the rebuilding of the west cellar wall of building B9ii*c*. The various outbuildings again are shown by the extent of buildings on the 1830 plan, whilst the 1885 OS map suggests that building B9*a* and *d* formed a separate dwelling. A passage is shown between B9*b* and *c* but this does not necessarily mean that there was a property division. A passage is also shown between buildings B5iii and B9*c*.

Tenement C

The south part of the site survived longest in the records of occupation provided by the 19th-century directories. Both the 1830 plan and 1885 OS map provide a plan of the formal gardens laid out at the rear of C4, and, by 1885, a conservatory against the west wall of room *e*. Post-dating the 1885 OS map, a brick-walled cellar was built on the Muspole Street frontage (No.11 Muspole Street). Considerable quantities of shoe leather were found around the cellar, which dates from the time when it was occupied by a shoe-finisher. Up until 1939, building C4 was used as a factory by a printing firm.

An air-raid shelter was dug against C5 during 1939-1942. After the end of World War Two the site was cleared and used as a car park until 1976, when excavated.

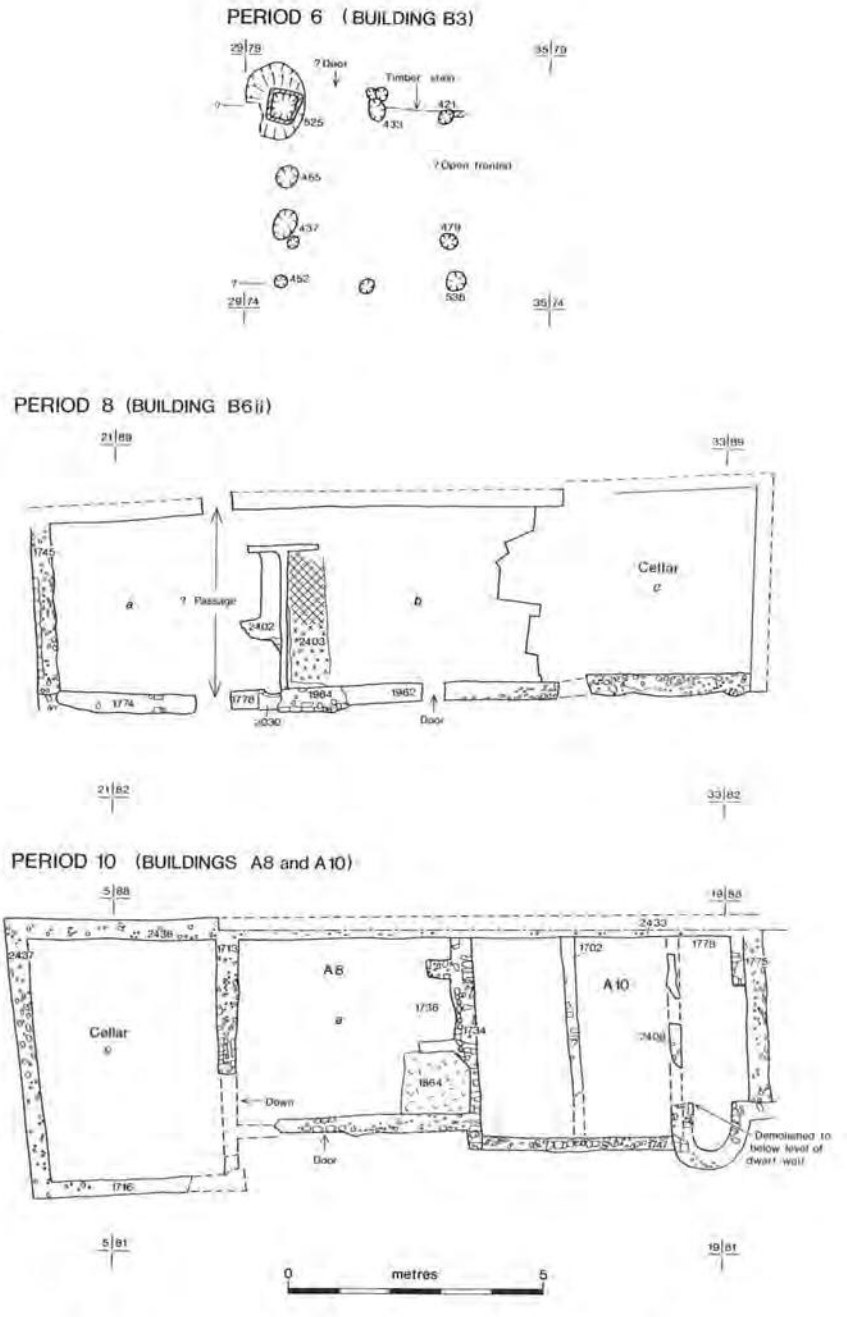


Fig.9 Site 302N. Plans. Buildings B4, B6ii and A10. Scale 1:150

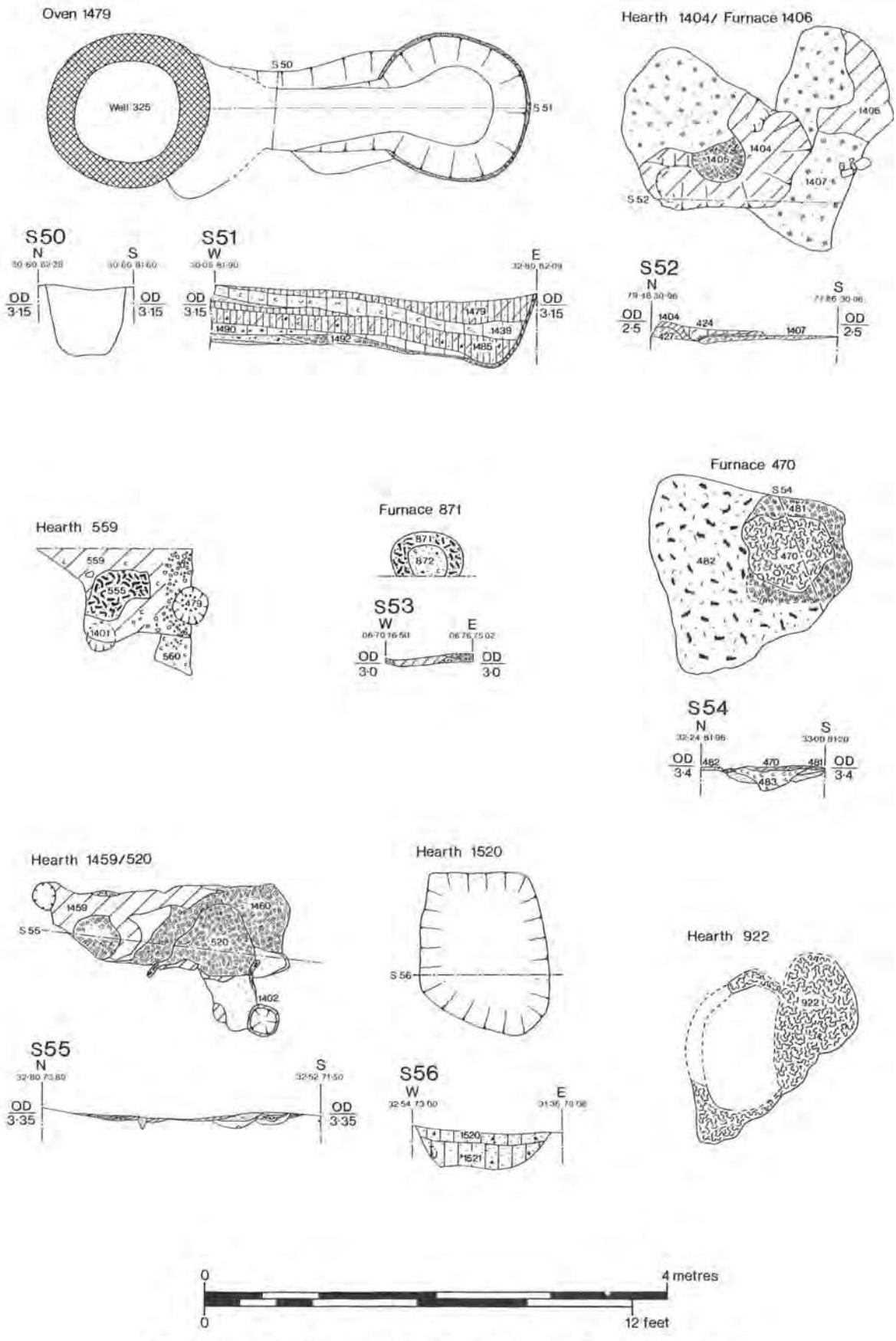


Fig.10 Site 302N. Industrial hearths and furnaces, Period 4. Scale 1:50

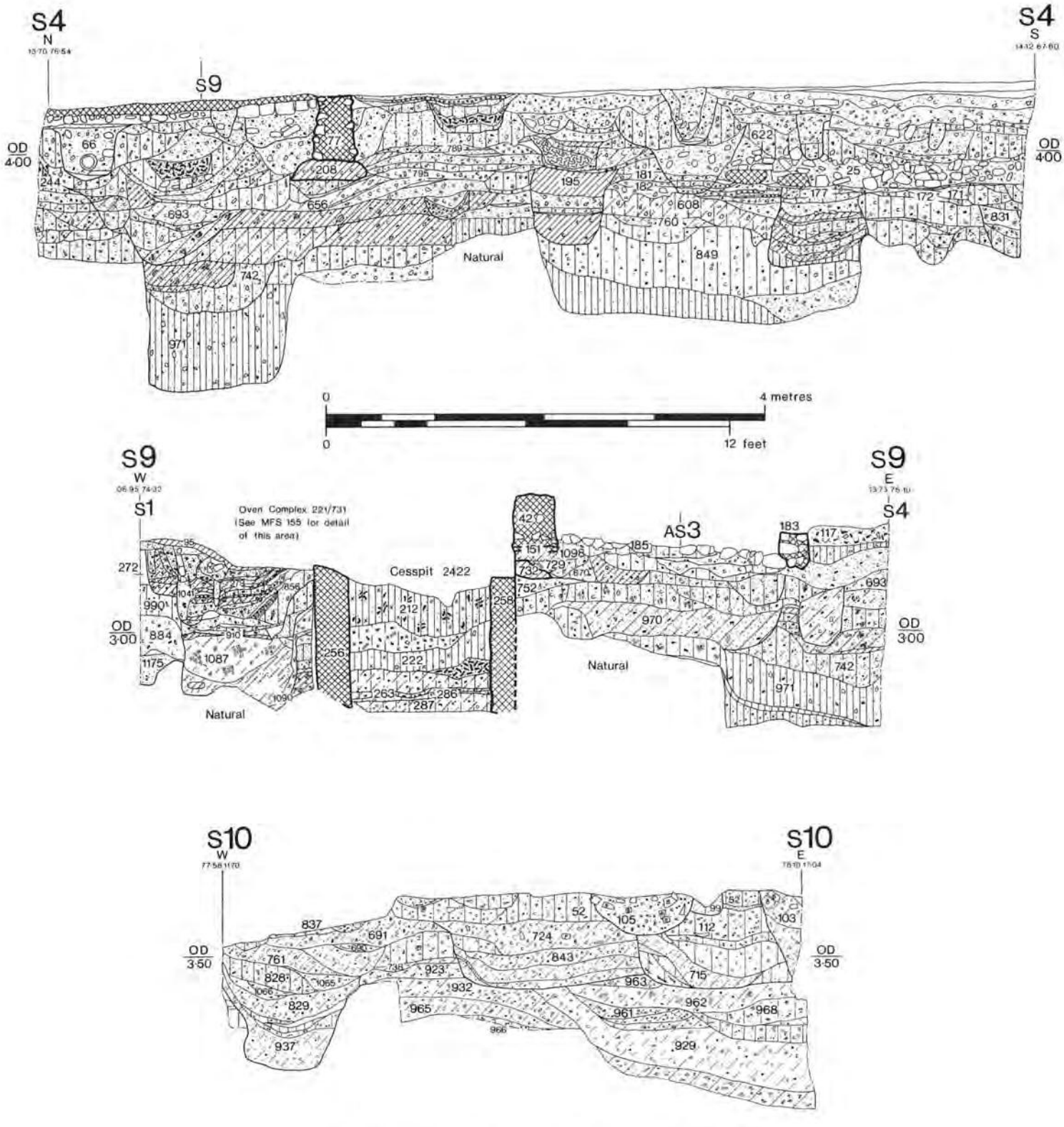


Fig.11 Site 302N. Sections S4, S9 and S10. Scale 1:50

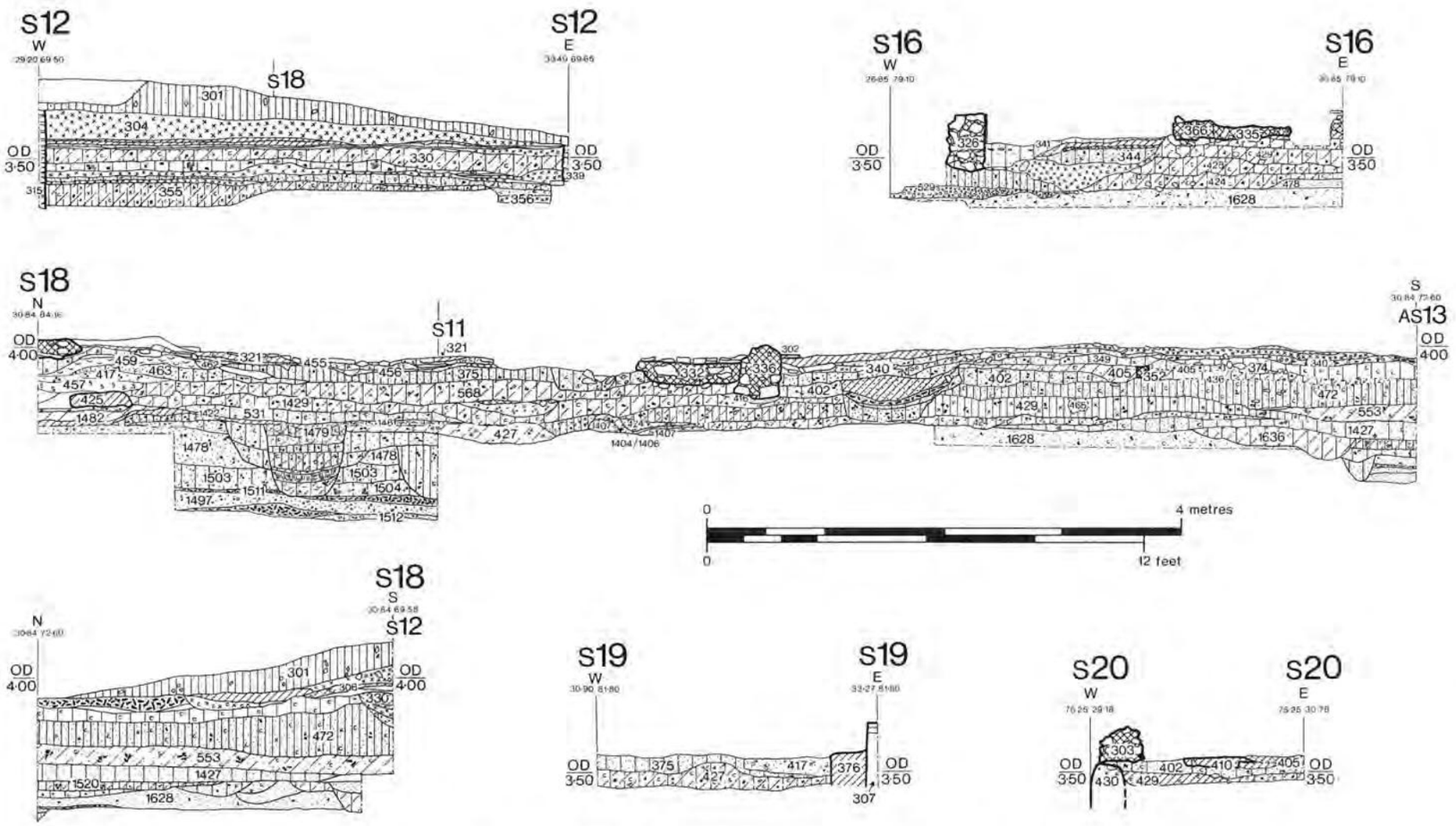


Fig.13 Site 302N. Sections S12, S16, S18, S19, S20. Scale 1:50

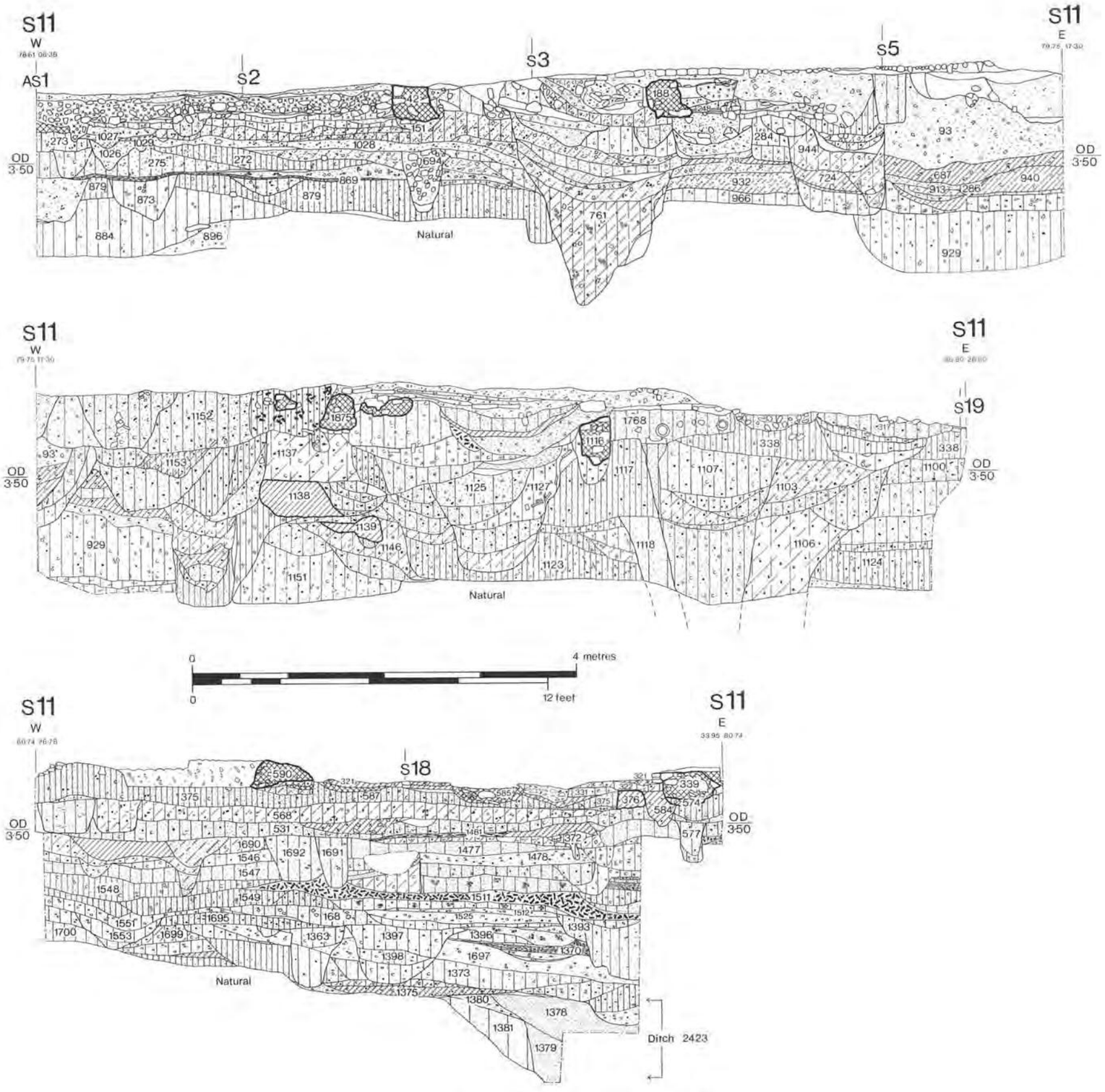


Fig.12 Site 302N. Section S11. Scale 1:50

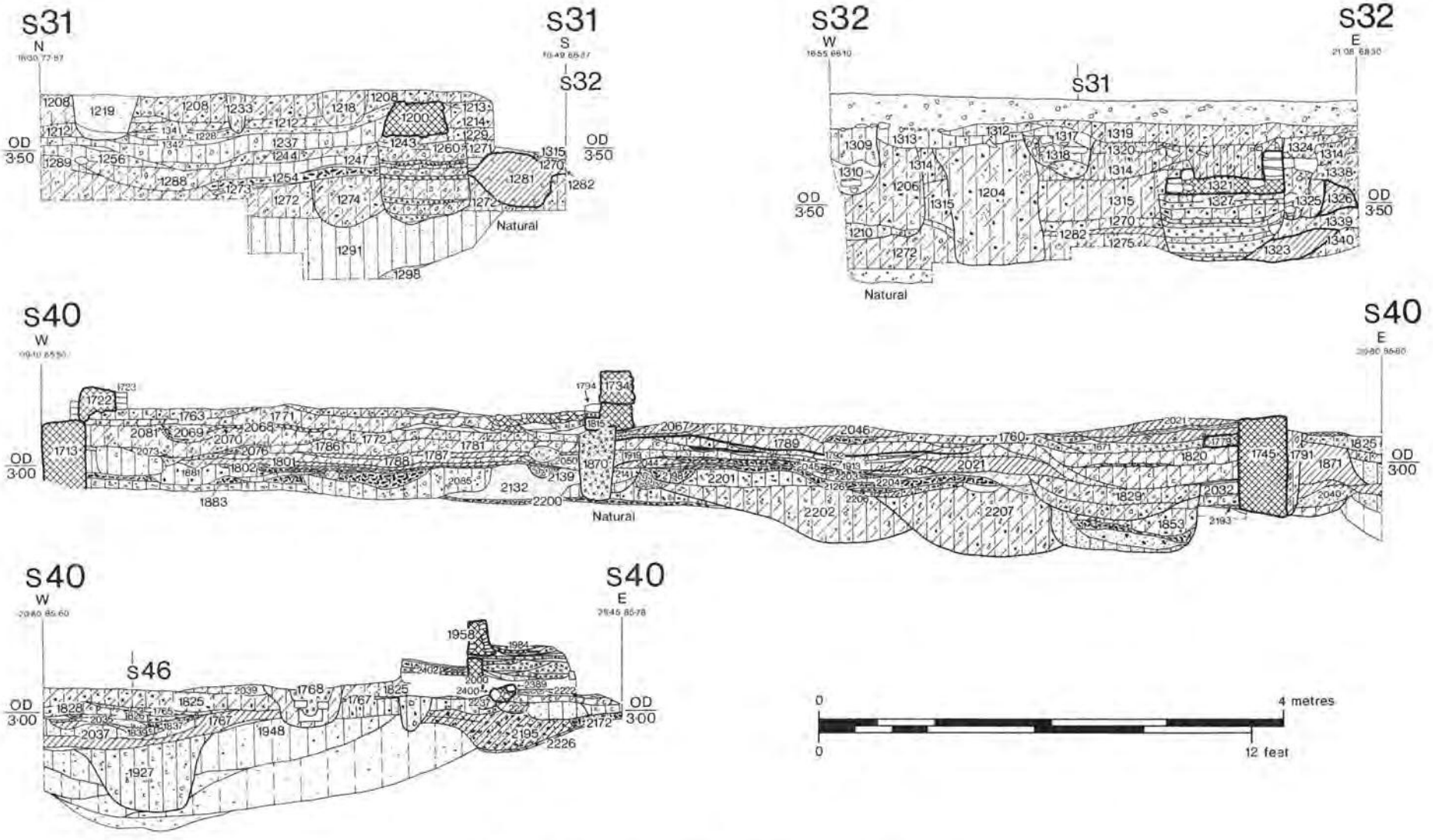


Fig.14 Site 302N. Sections S31, S32, S40. Scale 1:50

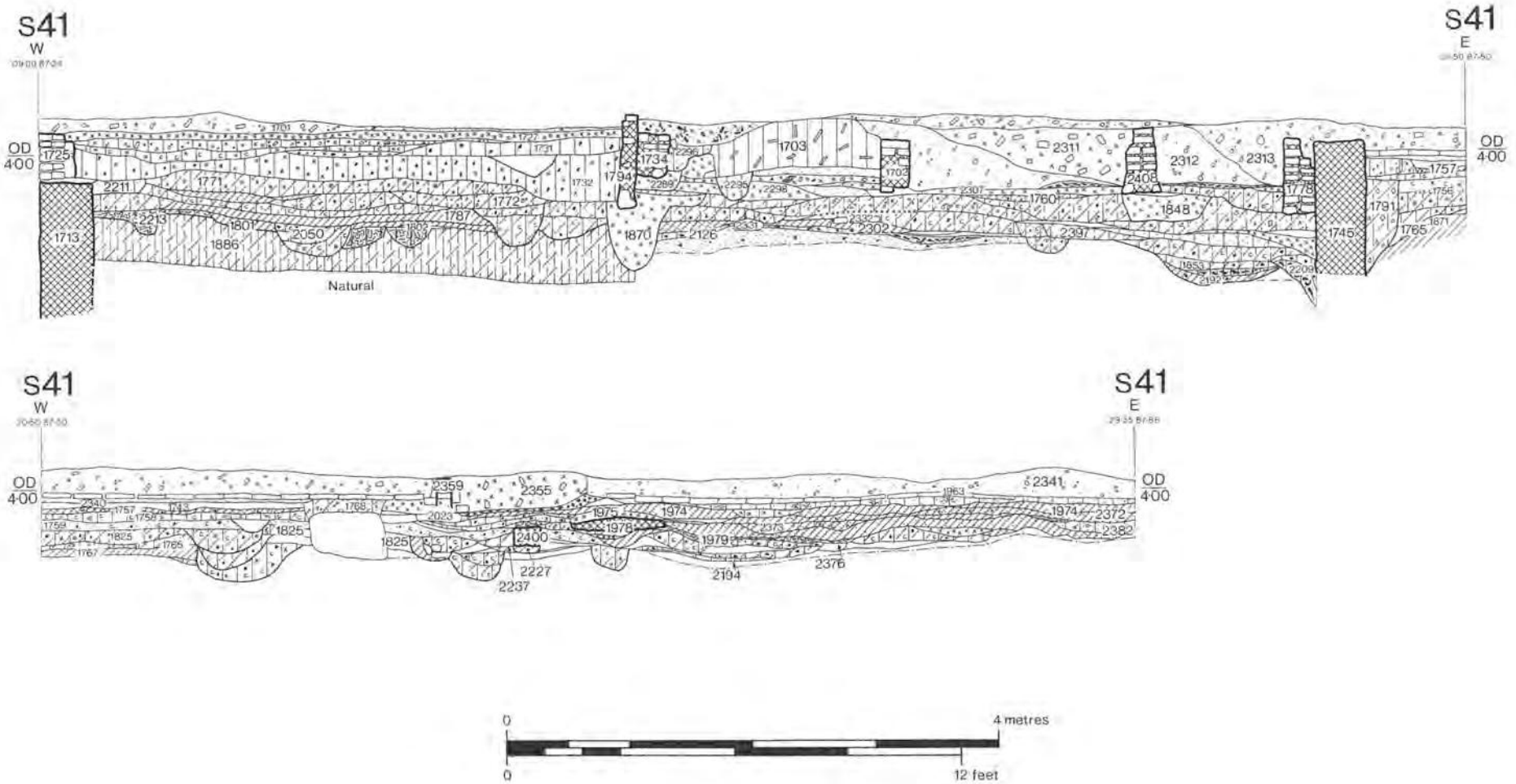


Fig.15 Site 302N. Section S41. Scale 1:50

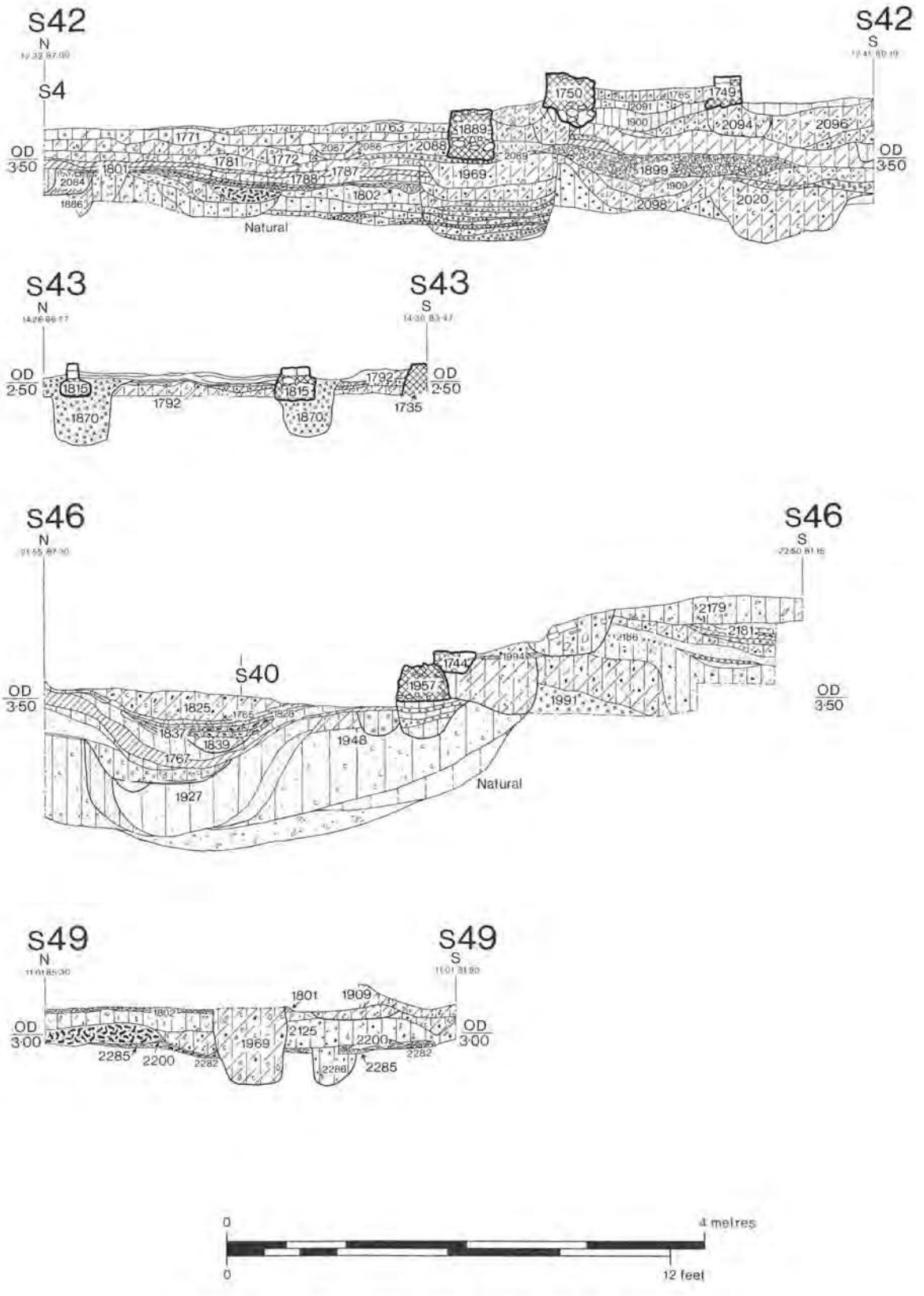
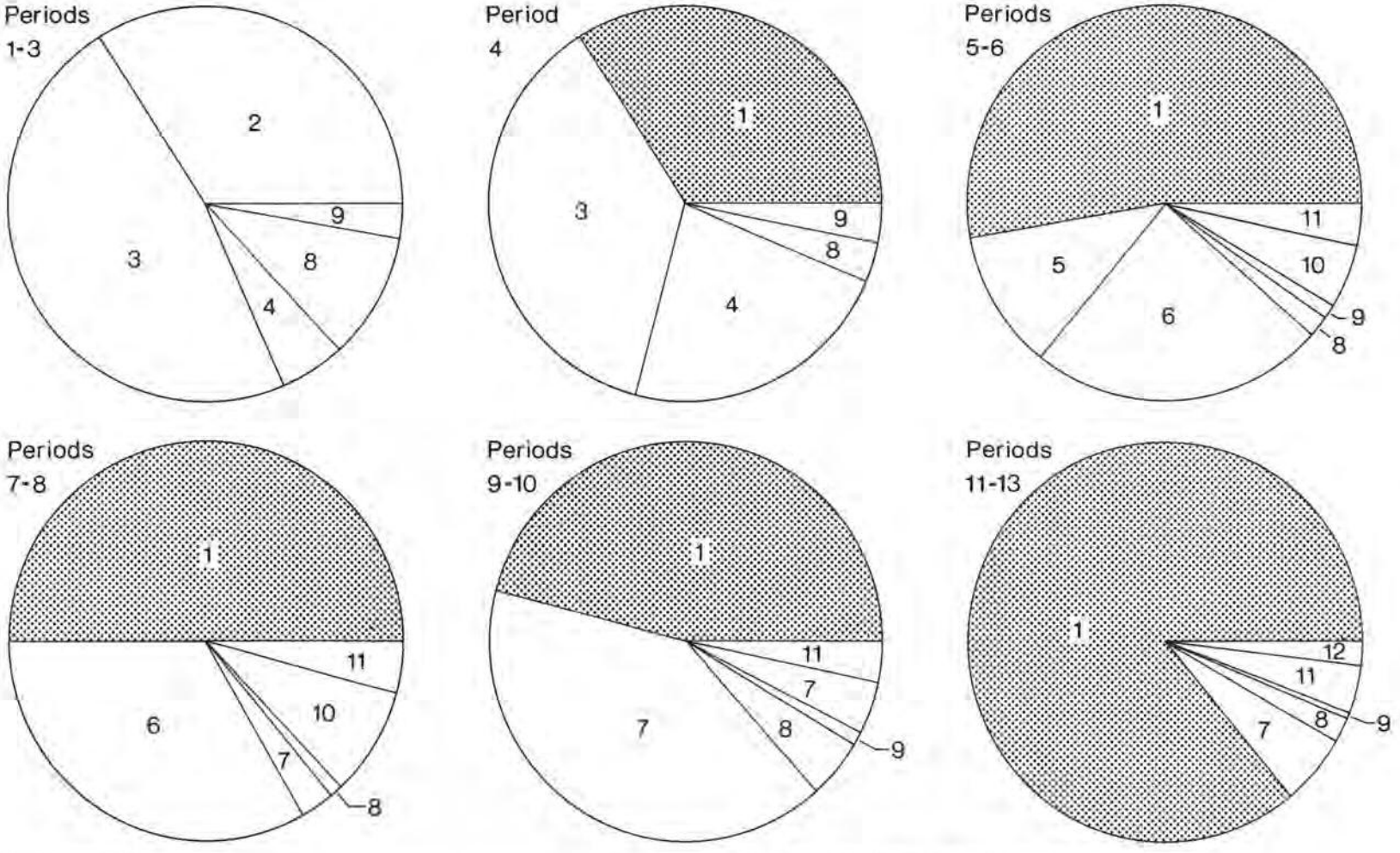


Fig.16 Site 302N. Sections S42, S43, S46, S49. Scale 1:50



1 Residual
2 Local late Saxon and early medieval wares
3 Local medieval unglazed wares
4 Local medieval glazed wares
5 Late medieval local unglazed wares
6 Late medieval & early post-medieval glazed wares
7 Post-medieval local wares
8 Contemporary English imports
9 Contemporary Continental imports
10 German stonewares
11 Dutch wares
12 English late post-medieval wares

Fig.17 Site 302N. Pie-charts showing the chronological distribution of pottery types

VI. The Artefacts

The reader is referred to the General Introduction for an explanation of the basis on which material has been selected for illustration and publication, and for a full list of the abbreviations used in these reports.

The Pottery

by Sarah Jennings

The pottery from this site covers a period from the 10th to the 20th centuries. Unlike the Botolph Street sites, there is no Roman pottery and only a single sherd of Middle Saxon Ipswich ware (in a 17th-century context). This indicates a total lack of occupation or activity in the area before the Saxo-Norman period, as most sites in Norwich produce small amounts of earlier pottery from dumping of soil (see above, p.130).

The pie-charts (Fig. 17) show the percentage of residual material on the site, which increases dramatically after *c.*1700, when a change in refuse disposal removed nearly all the contemporary material. Because of the length of time that each chart covers, they can only give a rough indication of the different percentages of broad groups of pottery.

Period 1 (*c.*1000-1050) (Fig. 18, MFT.3, D3)

The pottery found in Period 1, mainly Thetford-type wares and local unglazed wares (including Early Medieval ware—EMW) could give a length to the period of over a 100 years, i.e. from the beginning of Norwich Thetford-type production in *c.*900 to post-1000 AD, due to the presence of eighteen Early Medieval ware vessels in Period 1.1. Ditch 2423 contained only a single Thetford-type ware sherd in a Period 1 fill, and another in Period 2, neither of which was diagnostic. Pit 770 in Period 1.1 contained fragments of four Thetford-type and eleven Early Medieval ware vessels, and as the latter is still thought to start *c.*1000 (Hurst 1963, 155-7; 1976, 342-3) when Thetford-type wares were still in production in Norwich (Atkin *et al.* 1983, 92), there is little to indicate a starting date of much before AD 1000 for activity on this site. Although there were some 100-plus vessels associated with Period 1, the majority were represented by small single sherds. These were, however, typical of the first half of the 11th century, and did not include any examples of ginger jars, a form which dates from the mid 11th century at the earliest (as seen on site 300N, Norwich Cathedral Close, Jennings forthcoming (a)). The nature of the pottery accords with the excavator's interpretation of the period as essentially waste ground with, perhaps, much of the pottery being brought on to the site with rubbish.

Neither of the two identifiable non-local sherds, one Pingsdorf-type with a date range of the 10th to 13th centuries (Hodges 1981, 29), and the other (Fig.18, No.1) a bowl rim of a Thetford-type from north-east Norfolk (pers. comm. A. Rogerson), can give any more definite indication of date.

Period 1.1 (Fig. 18)

2. Thetford-type ware. Layer 1867.
3. and 4. Thetford-type ware. Layer 966.

Period 1.1/1.2

1. Bowl. East Norfolk Thetford-type ware. Fine fabric varying in colour from pinkish-buff to grey, occasional rounded quartz inclusions. Layer 1275.
5. EMW cooking-pot rim. Layer 1275.

Period 1.2

Layer 659

6. Thetford-type ware.
7. EMW.
8. Pitcher rim? Local medieval unglazed ware (LMUW), rim with possibly the beginning of a spout.
9. LMUW.

Period 1.2/2

10. EMW. Layer 749.

Period 2 (*c.*1050-1150) (Fig. 18, MFT.3, D3)

Fragments of only five vessels were found; and four of these were represented by small, single, abraded sherds. The Thetford-type rims, particularly Fig.18, No.12, can

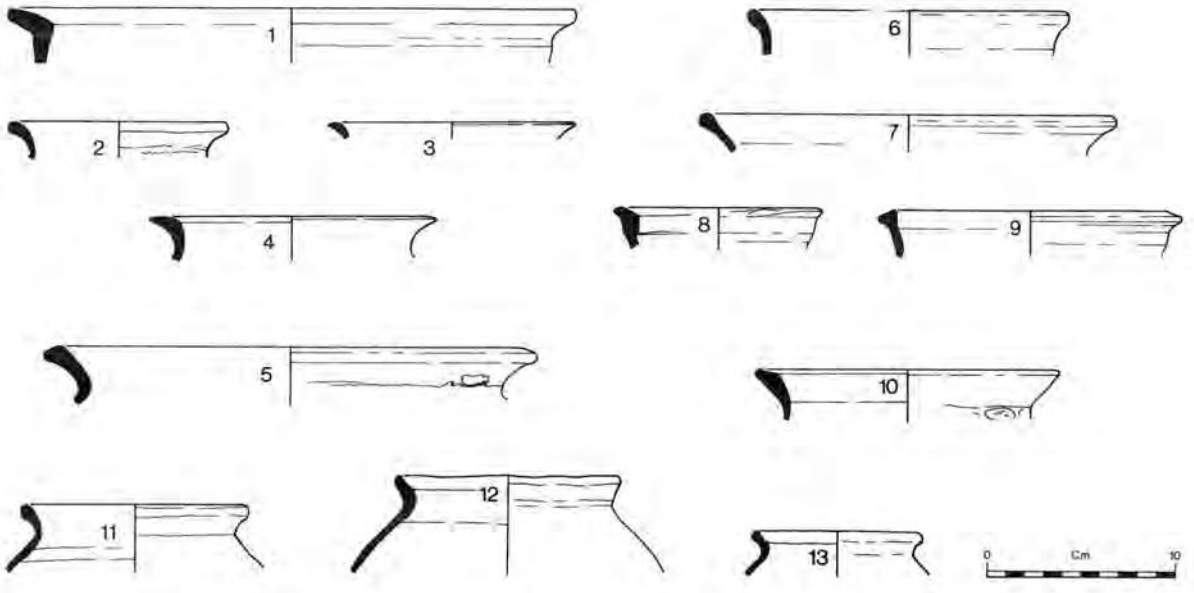


Fig.18 Site 302N. Pottery. Periods 1 and 2. Scale 1:4

be compared with those from 5 Lobster Lane (site 336N), which was the latest in date of the four kiln sites found in Norwich (Jennings 1983, 87).

Period 2

11. Thetford-type ware, second or semi-waster. Layer 1543.
12. Thetford-type ware, sooting on exterior. Layer 1542.
13. Late Thetford-type ware. Layer 1542.

Period 3 (*c.*1150-1275) (Figs 19 and 20, MFT.3, D3)
The length of Period 3 is reflected in the pottery, particularly the local unglazed wares. Although some of the simpler rim forms may be residual, most are consistent with a starting date of 1150. The presence of bowls and jugs in Period 3.3 suggests an end date of the second half of the 13th century. Yarmouth-type and Early Medieval Sparse Shelly ware occur for the first time at the beginning of the period (Mellors 1976, 184-91), and Grimston-type wares begin slightly later.

Period 3.1 yielded three continental imports out of a total of sixteen vessels. These were a single sherd from a decorated Rouen jug (Fig.19, No.26), and single sherds of Blue-grey and Pingsdorf-type wares. The remainder were all locally produced coarsewares.

Period 3.2. No pottery was found.

Period 3.3 marks a noticeable increase in the range of fabrics, size of sherds and the proportion of vessels surviving. Several are more than three-quarters complete, suggesting for the first time breakage in the immediate vicinity. The local unglazed wares now dominate the assemblage, with the proportion of Thetford-type and Early Medieval wares markedly declining (MFT.3, D3). The rim forms of the local unglazed wares become more complex during this period, particularly on the large bowls, which often have pouring lips (Fig.20, Nos 32-3). A less common, but distinctive, square rim, which only appears to have been made in the 13th century is shown on Fig.20, No.39. A similar example was found in a late 13th-century pit at Barn Road, Norwich (Hurst 1963, fig.10, no.31). Among the small number of continental vessels in Period 3.3, mostly represented by single sherds, are Pingsdorf-type, Blue-grey and Andenne wares, all of which one would expect in a phase of this date. One unusual item is a single sherd of London Rouen-type ware, a type of pottery which dates from the early 13th century (information Alan Vince).

Period 3 (Fig. 19)

Layer 882

14. and 15. Ginger jars. EMW.
17. Thetford-type.

Layer 884

16. Late Thetford-type, brown fabric with dark grey surfaces.
19. LMUW.
18. EMW. Layer 1551.
20. LMUW. Light grey fabric, traces of sooting on darker grey exterior surface. Layer 1079.
21. Castle Acre-type, fabric Aii, 1075-1150 (Milligan 1982, 202). Hard dark grey fabric, quartz inclusions. Pit 1553.
22. LMUW. Layer 1551.

Period 3.1

23. Jar or cooking-pot rim with thumbed edge. EMW. Layer 1079.
24. LMUW. Dark grey fabric, sooting on exterior of rim. Layer 990.
25. LMUW. Grey core, orange-brown surfaces. Layer 1525.
26. Body sherd. Rouen ware. White fabric, pale yellow glaze over exterior, patch of brown slip. Layer 990.

Period 3.3 (Fig. 20)

27. Jug neck. Grimston-type, handle plugged through vessel wall. Grey fabric, buff to orange surfaces, patchy reduced-green glaze. Layer 1506.
28. Thetford costrel neck. Grey fabric, brownish-grey margins, dark grey outer surfaces. Layer 1503.
29. LMUW. Light grey fabric, dark grey interior surface, grey and buff exterior surface. Layer 1433.
30. LMUW, jug or jar neck. Layer 1424, pit 1413.

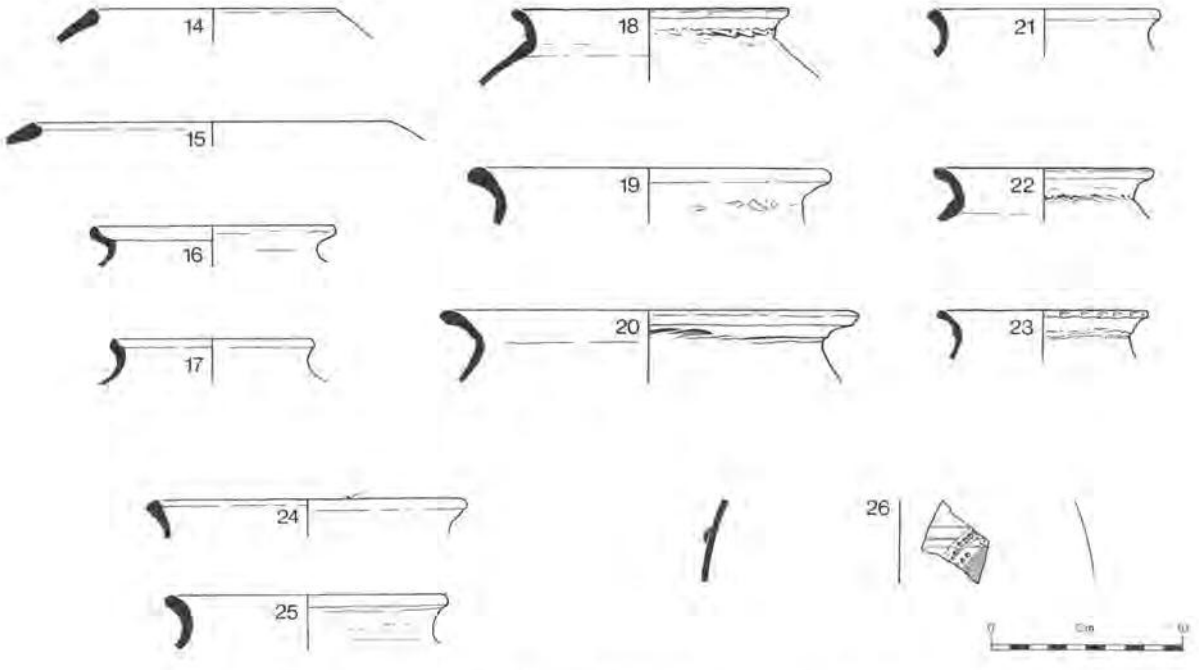


Fig.19 Site 302N. Pottery. Periods 3 and 3.1. Scale 1:4

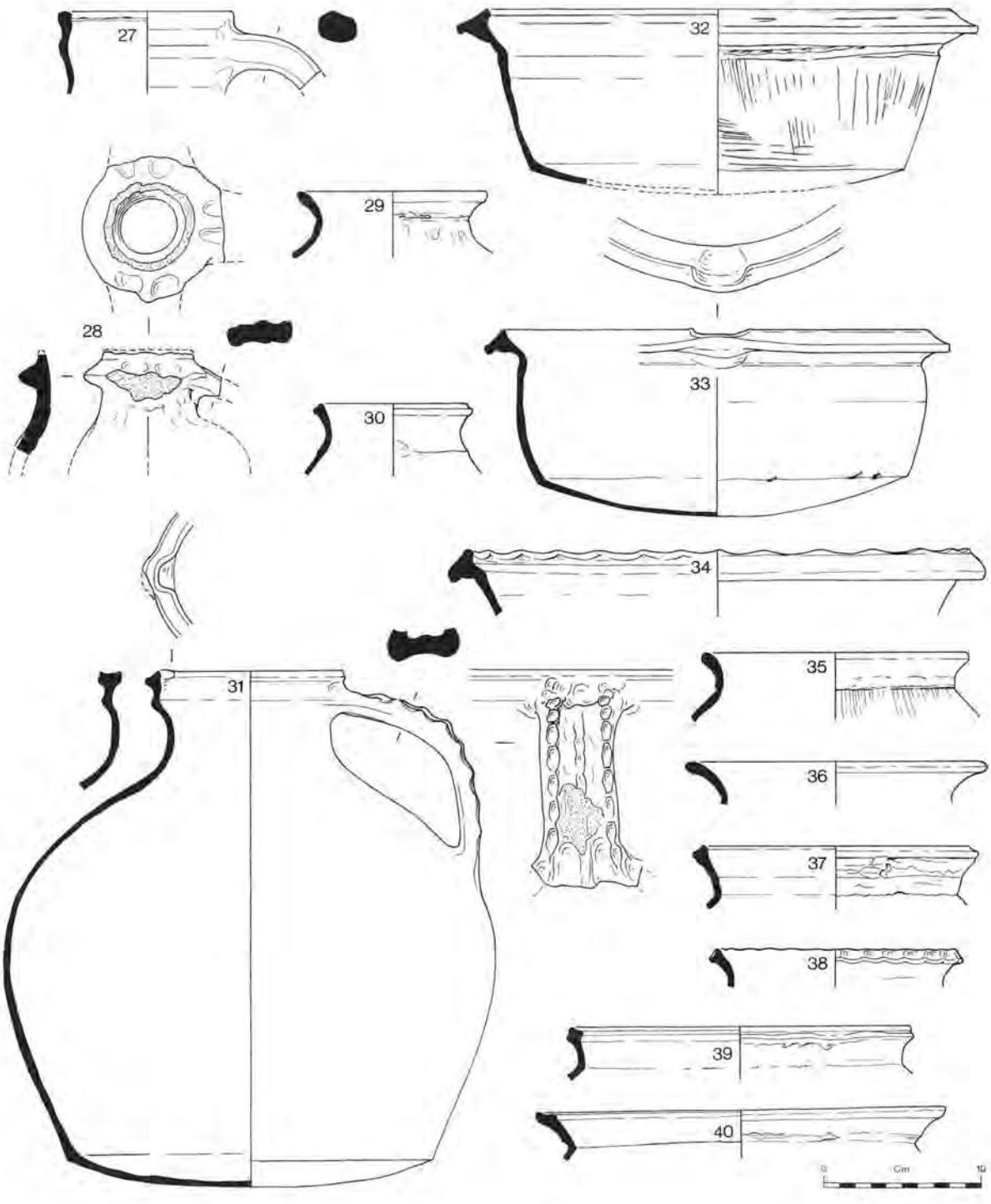


Fig.20 Site 302N. Pottery. Period 3.3. Scale 1:4

31. Early unglazed jug. Nearly complete. Layer 1506.
32. LMUW, bowl. Heavy sooting on exterior and under rim. Layer 1507.
33. LMUW, bowl. Heavy sooting on exterior. Layer 1659.
34. LMUW, bowl. Dull brown fabric, quartz and dark grey inclusions, patchy grey to dark grey surfaces. Pit 1413.
35. Jar with knife trimming on the shoulder. LMUW. Pit 1498.
36. LMUW. Sooting on exterior rim. Layer 1478.
37. LMUW. Heavily marked on outer rim. Layer 1497.
38. LMUW. Grey fabric, dull brown to grey surfaces. Layer 1686.
39. LMUW. Layer 1506. (Cf. Hurst 1963, fig.10, no.31.)
40. LMUW. Layer 1478.

Period 4 (*c.*1275-1400) (Figs 21-25, MFT.3, D4 and 5) This period yielded the first definite evidence of widespread occupation on the site, which was industrial rather than domestic. It is also the most complex period, with seven sub-periods, and its length is shown by the range and development of the local unglazed ware rim forms.

The number of local medieval unglazed ware bowls compared with the cooking-pots is surprisingly large and may reflect the industrial use of the site during this period. The percentage of unglazed jugs increases, par-

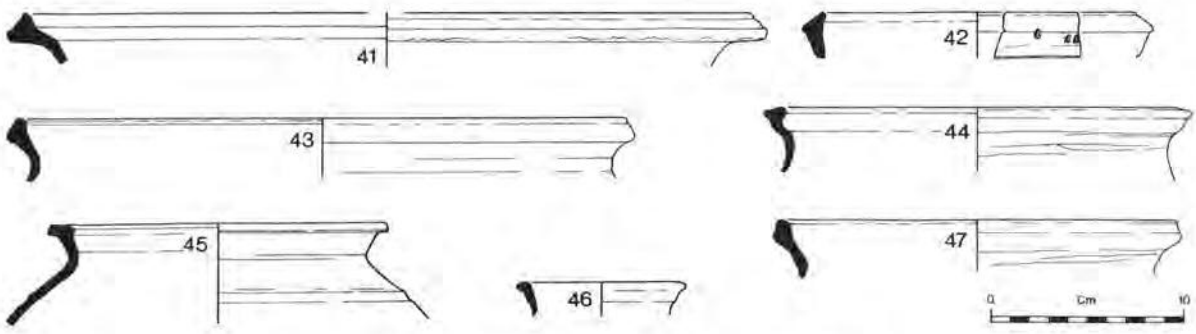


Fig.21 Site 302N. Pottery. Period 4.1. Scale 1:4

ticularly towards the end of the period, and the glazed Grimston-type jugs are augmented by East Norfolk Glazed ware[1] examples. Dutch glazed red wares and Langerwehe wares are present in Period 4.1 for the first time, the Dutch wares becoming a consistent feature throughout the remainder of the assemblage.

Building A1, of Period 4.1, interpreted as a brewhouse, produced a very heavily sooted cooking-pot (Fig.22, No.53) and a Grimston face-jug (Fig.22, No.54). In building C1i, Period 4.2, the body of a large Grimston-type jug was found *in situ* in hearth pit 1520 (Fig.23, No.63; MF Pl.2) and contained a large number of herring and sprat bones (A.K.G.Jones, below p.226). This jug was obviously originally broken in the neck area, as it has been chipped to a roughly level line around the upper part of the body, to enable it to be reused as a container. It does not, however, show any sign of sooting on the exterior. Large-bodied jugs, often with a spout and three handles, have been dated to the later 13th century, and the subsequent use of this vessel has obviously extended its life. A similar vessel was found in a pit at Barn Road, Norwich (Hurst 1963, fig.10, no.28) and dates to the late 13th century.

In Period 4.5 much of the pottery from furnace 1406 probably derived from rubbish associated with the demolition of building C1 (see p.152). Among this were fragments of nine continental vessels, which, as with the small finds (p.202) may be associated with the occupation (in Periods 4.2-4.4) of an unexcavated building to the south.

The relative increase in the amount of residual pottery from Period 4.7 reflect the fact that at this time the site reverted to waste ground, following the end of the industrial phase. Among the fragments that may be residual is the rim of a lamp, probably with a spike base (Fig.25, No.121). Although pottery lamps in Thetford-type ware are found frequently in Norwich, medieval examples are rare, and insufficient numbers have been found to enable a date range to be suggested. The small amount of contemporary material from Period 4.7 included early LMT wares and several well-developed unglazed jugs.

Three sherds of an unusual fabric and form were also found in this phase, and like much of the material may also have been residual. The sherds probably represent two vessels and have a coarse, unglazed orange fabric with ?grog and quartz inclusions. One sherd had a plain slightly rounded rim with an approximate diameter of 21cm, the other two joining sherds were thicker and had a maximum diameter of 17cm. Although the sherds were small in comparison to their thickness (varying from 1.1 to 1.8cm) they appear to be cylindrical and could be reconstructed as drainpipes. All three sherds had a deposit that was confined to the inner surface. This was examined by Paul Wilthew of the AML who commented that it derived from use, rather than burial, and was largely calcareous indicating the use of large amounts of water. These possible drainpipes may have been associated with the brewery in Period 4.1 (see above, pp.149-50).

Period 4.1 (Fig. 21)
Pit 2195
41. Large bowl. LMUW. Layer 2231.
42-43. LMUW. Layer 2194.
44, 46-47. LMUW.
Pit 2251
45. LMUW. Layer 2252.

Period 4.1 building A1 (Fig. 22)
Pit 2191
48. Ginger jar. EMW form, LMUW fabric. Grey core with pale brown margins and surfaces.
53. LMUW cooking-pot. Extremely heavily sooted on exterior and top of rim on interior.
Pit 1853
49. LMUW. Slight traces of sooting.
50. Orange fabric, quartz and small red inclusions. Layer 1851.
51. E. Norfolk Glazed ware. Orange fabric, reduced interior; patchy partly reduced orange and green glaze on exterior.
52. Bowl. LMUW. Sooting on exterior. Pit 1853 and layers 1761 and 478.
Pit 1872
54. Grimston ware face-jug. Cat. 342.

Period 4.1 building A2
Layer 916
55. LMUW. Sooting on exterior.
59. Unusual small bowl. Dark grey fabric; mottled light brownish-orange surfaces, wire marks on base.
61. Grimston-type ware jug. Iron oxide on applied decorative strips.
56. LMUW. Sooting on exterior. Layer 734.
57. LMUW. Sooting on exterior. Layer 869.
Layer 2174
58. and 62. LMUW.
60. Jug neck. E. Norfolk Glazed ware. Dull orange fabric, quartz inclusions, some large grits; patchy clear orange glaze. Layer 926.

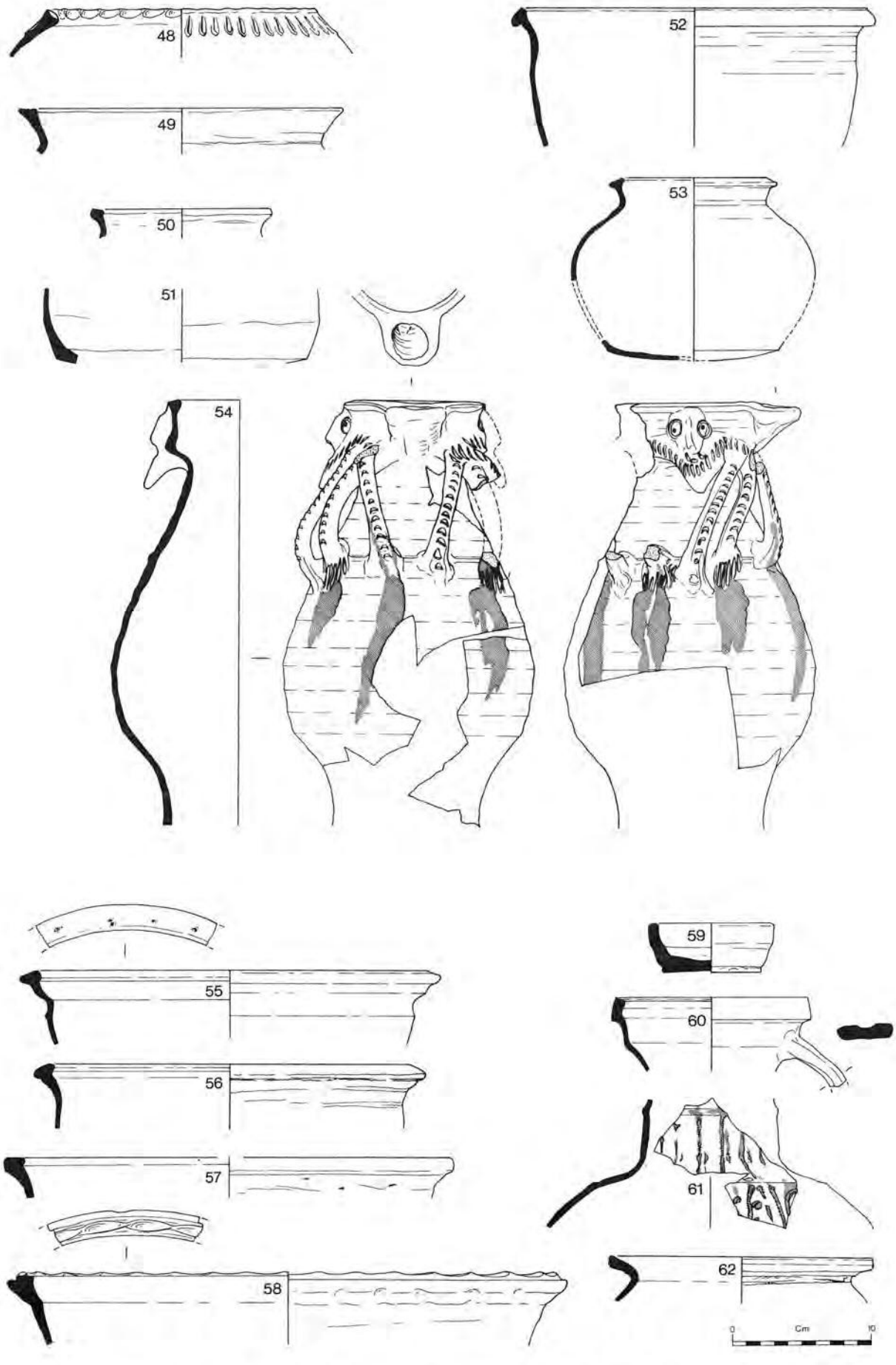


Fig.22 Site 302N. Pottery. Period 4.1, A1 and A2. Scale 1:4

Period 4.2 building C1i (Fig. 23)

Hearth pit 1520

63. Grimston-type ware. Reused base of a jug (see above, p.182). Iron oxide on raised vertical strips, iron green glaze to just below maximum diameter. A very similar example came from Barn Road (Hurst 1963, fig.10, no.28).

64. Grey fabric with brownish-orange margins and surfaces, mica and occasional quartz inclusions; one small patch of greenish-glaze.

65. Orange fabric, small red inclusions and sparse mica; buff margins, slightly darker orange exterior surface with patches of clear yellowish-orange glaze near top of sherd.

68. LMUW. Grey fabric, orange margins and dark grey surfaces.

69. LMUW.

67. Handle with comb decoration. Dark grey fabric with occasional sub-rounded quartz and dark grey inclusions; light buff margins and slightly darker surfaces. Layer 552.

Period 4.3

70. Grimston-type ware. Buff fabric, yellow-green glaze. Vessel fired inverted. Pit 1491.

Period 4.3 building C1ii

66. Bowl, hand-made. Grey fabric, occasional small quartz inclusions; mottled dull orange surfaces. Layer 1535.

Layer 1563

71. LMUW. Heavily sooted on exterior.

72. LMUW.

Layer 492

73. Jar. LMUW. Fine fabric, hard-fired.

74. Grimston-type ware. Small angled handle, possibly from a face-jug.

75. LMUW spout. Hand-formed, knife trimming from just below rim.

76. LMUW.

77. LMUW. Pit 520.

78. LMUW. Layer 1535.

Period 4.4 building C1iii (Fig. 24)

79. LMUW. Sooting on exterior. Layer 1518.

Period 4.5

Layer 571/427

80. LMUW.

83. Face from the neck of a jug. Grimston-type ware. Fragment from face-jug.

Furnace 1406, layer 427

81. LMUW.

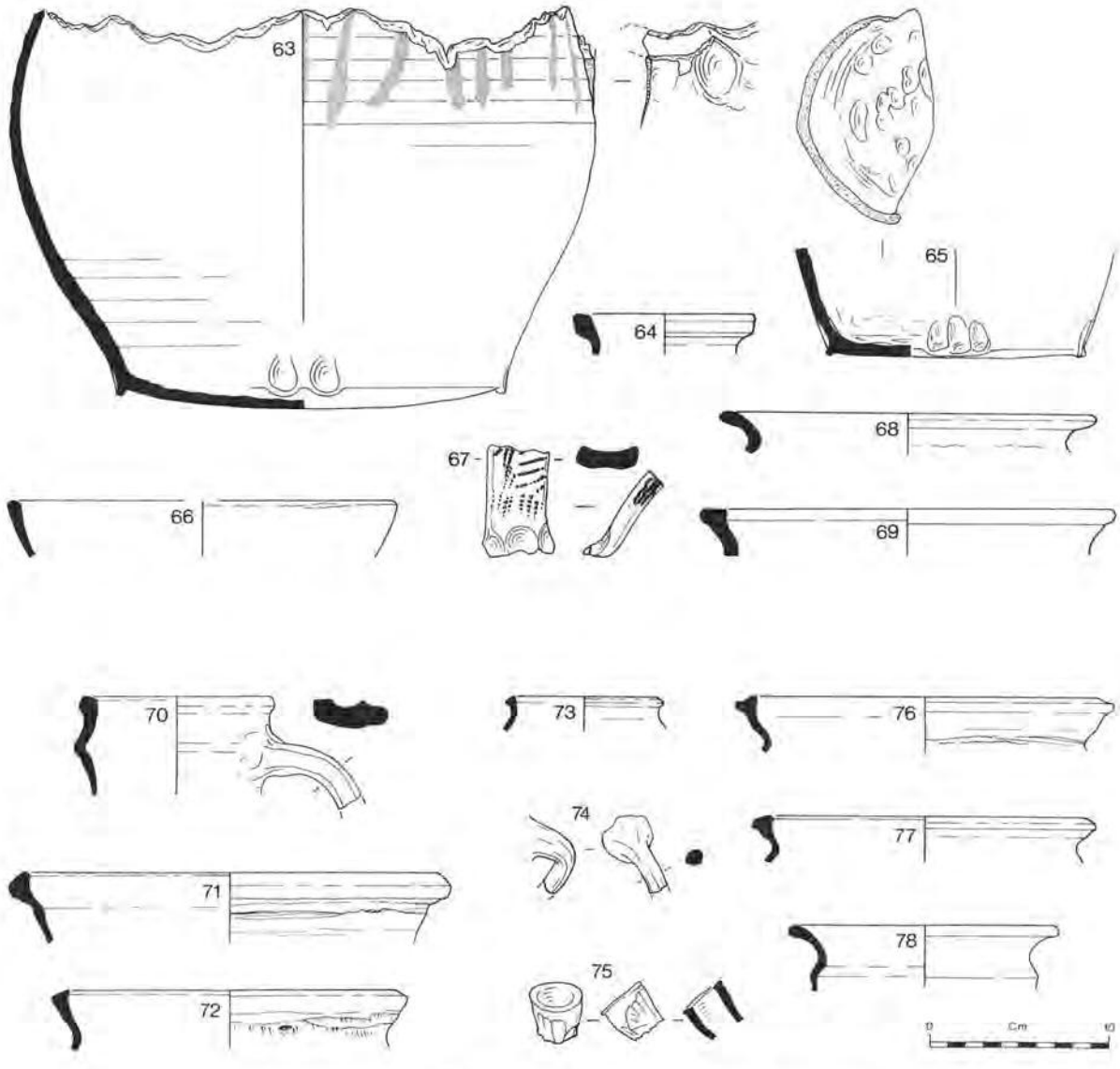


Fig.23 Site 302N. Pottery. Periods 4.2 and 4.3. Scale 1:4

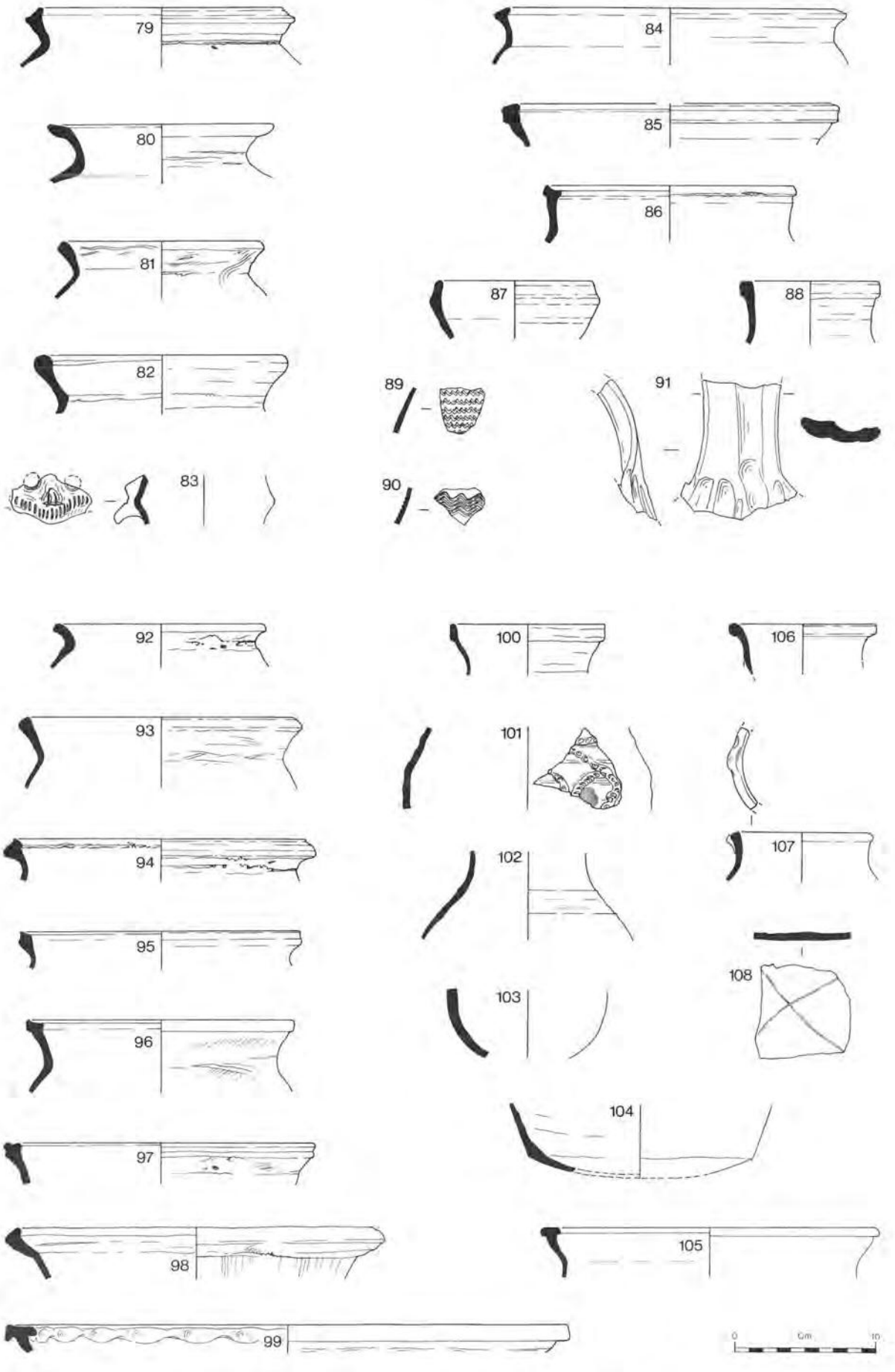


Fig.24 Site 302N. Pottery. Periods 4.5 and 4.6. Scale 1:4

82. LMUW. Light grey fabric and surfaces.
84. LMUW. Sooting on exterior.
85. LMUW.
86. LMUW.
87. Jug rim. Grey fabric; heavily reduced interior, orange-buff exterior.
88. Unglazed jug rim.
103. Blue-grey ware. Heavily sooted exterior. Also layer 1482, Period 4.6.

Furnace 1406

89. Aardenburg-type ware.
90. Andenne ware.
91. French, jug or pitcher handle. Fine grey fabric with small rounded quartz inclusions; orange margins with dark orange surfaces. Patchy green glaze with darker copper green spots. Layer 1427.

Period 4.6

Layer 1489

92. LMUW. Grey core, mottled orange-grey surfaces.
94. LMUW.

Layer 542

93. LMUW. Sooting on exterior.
96. LMUW.
102. Langerwehe stoneware, jug fragment.
107. LMUW. Heavily sooted on exterior.
108. Early LMT. Base sherd with incised cross on bottom.

Layer 1485

95. LMUW.
98. Bowl. LMUW. Sooting on exterior.

Layer 1487

97. LMUW.
100. Jug or jar rim. Dutch. Orange fabric; patchy clear orange glaze, slight sooting on exterior.
101. Grimston-type ware. Dark grey fabric, lighter grey outer margin. Applied strips of lighter grey fabric, over all reduced green glaze appearing lighter on strips, patch of iron oxide.
106. Unglazed jug. Light grey fabric, buff surfaces.

Layer 1488

104. Early LMT. Grey fabric, thick orange outer margin; glaze spots. Sooting on base.
105. LMUW bowl. Heavy sooting on exterior.
99. Large bowl. LMUW. Layer 489.

Period 4.7 (Fig. 25)

Layer 2158

109. LMUW.
120. Grimston-type ware.

Layer 2125

110. LMUW. Sooting on exterior.
111. LMUW.
116. Jug rim. E. Norfolk Glazed ware. Grey fabric, sub-rounded quartz grains; orange-buff margins, reduced green glaze on exterior.
118. Grey fabric, some small rounded quartz inclusions; orangey-buff outer margin, apparently unglazed but surface abraded.

Layer 275

113. Unglazed jug.
115. Scarborough ware, fabric II (Farmer 1979).
112. Unglazed jug. Layer 2153.
114. Scarborough ware, fabric II. Abraded rim fragment. Pinkish-buff fabric, copper green glaze, stacking scar on rim. Layer 1873.
117. Early LMT. Grey fabric, brownish-orange surfaces, glaze spots on exterior. Layer 2122.
119. Aardenburg-type ware (cf. Dunning 1976, 192, fig.1, no.1). Layer 272.
121. LMUW lamp rim. Sooting on interior and inner rim edge. Layer 1881.

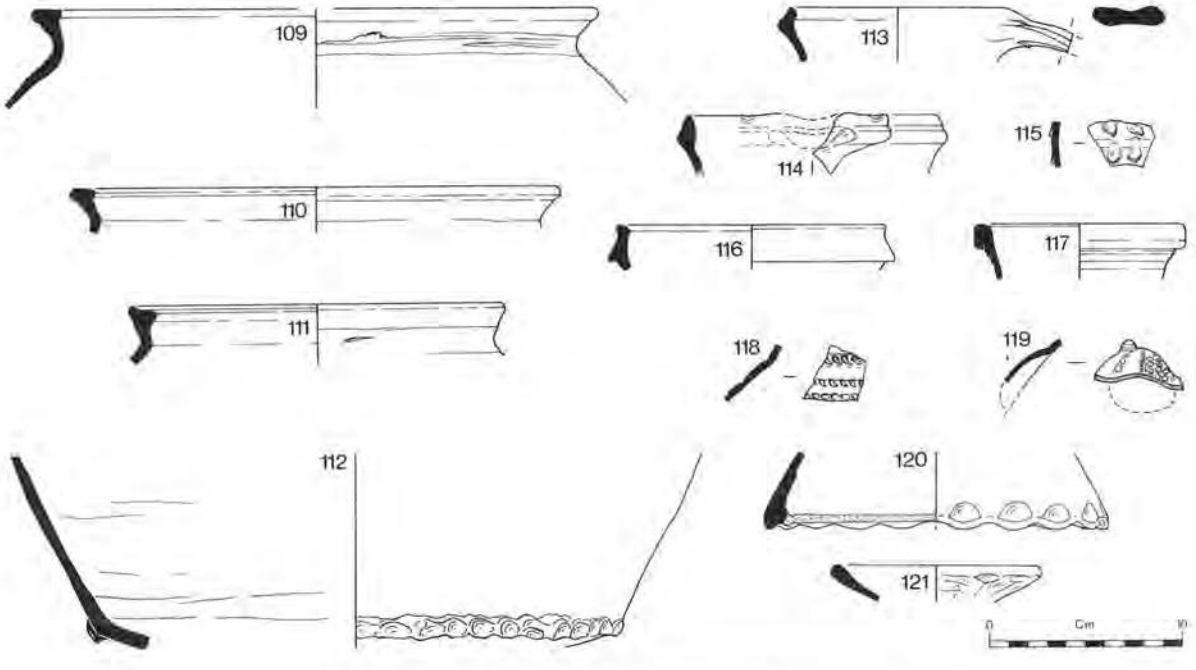


Fig.25 Site 302N. Pottery. Period 4.7. Scale 1:4

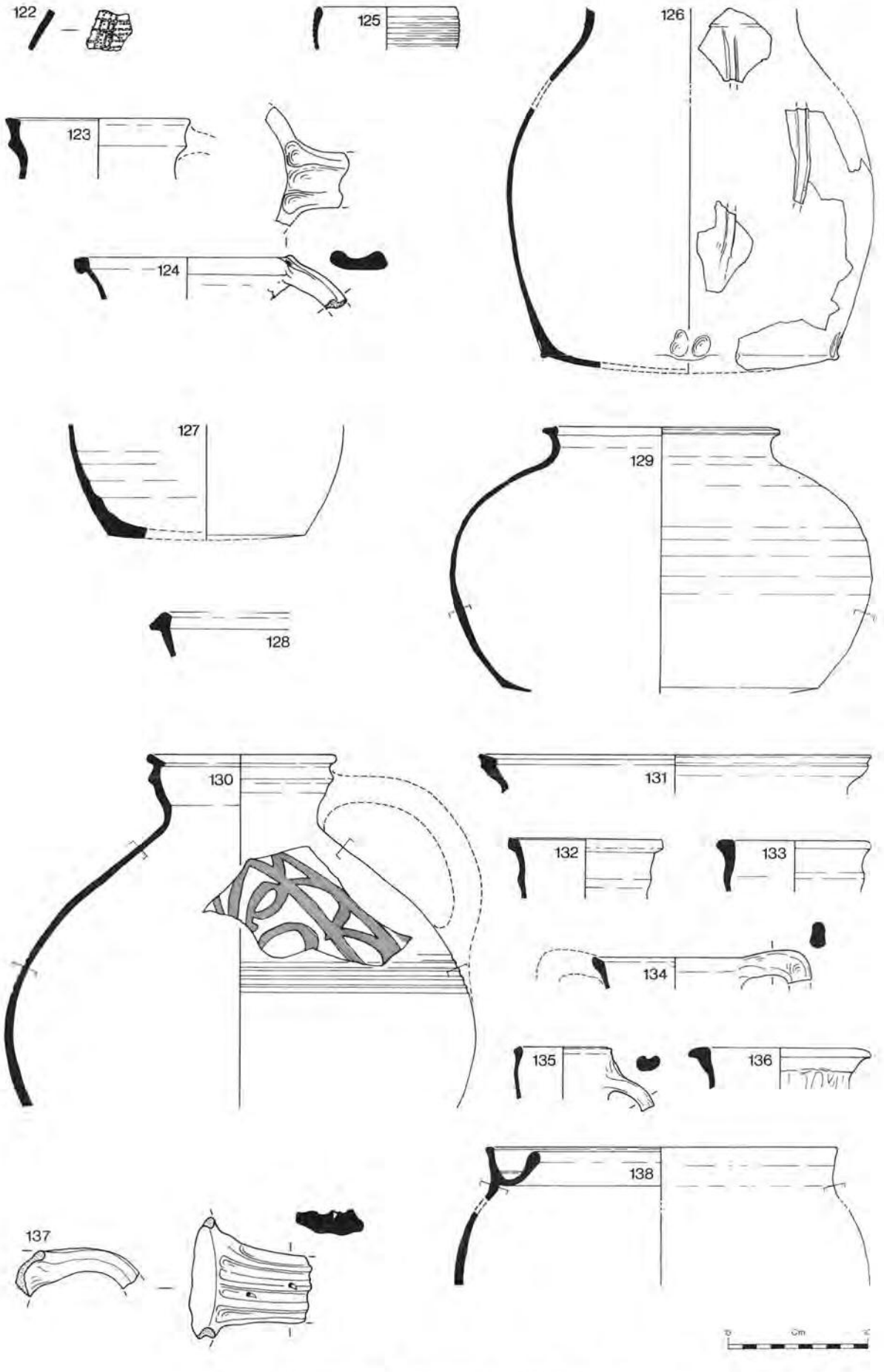


Fig.26 Site 302N. Pottery. Period 5. Scale 1:4

Period 5 (*c.*1400-1450) (Fig. 26, MFT.3, D6)
Although domestic occupation began on the site during this period, the pottery assemblages are dominated by residual material, which was disturbed during construction work within Tenements A and B (MFT.3, D6). The majority of this is late 13th and 14th-century in date and comprises mainly unglazed local wares and Grimston-type wares.

The local unglazed bowls and cooking-pots are difficult to date with any certainty: for the purposes of the pie-chart (Fig.17) only the definitely late material has been considered non-residual. The fact that these cooking-pots were still in use during the 15th century is shown on site 149N (see above, p.38 and Fig.23, Nos 104 and 108). A similar example comes from building A4i (Fig.26, No.129), which was found in association with material dating to the first half of the 15th century.

Late Medieval and Transitional ware had appeared in Norwich by the beginning of the 15th century, but probably did not become common until the mid 15th century. There is only a limited amount from this period, mainly from layer 478 on Tenement B. This represents build up over part of Period 4, but remained partly exposed as garden soil until Period 6. It contained a large amount of material, and included fragments of eleven well developed Late Medieval and Transitional vessels, and sherds of Tudor Green with Raeren stoneware. The latter may well have come from the construction of building B3 or B4 in Period 6. Tenement B contained a higher percentage of later vessels than the assemblage from Tenement A (MFT.3, D6). The overall indication is, therefore, that development on Tenement B is some 20-25 years later than Tenement A. This applies particularly to building B2 where the largest concentration of later pottery occurs. Building B1ii yielded fragments of both Dutch glazed red wares and Langerwehe/Raeren stonewares.

This period also produced the first fragments of a type of pottery tentatively called East Anglian White ware[2] (Fig.26, No.127). Another probable example comes from Pottergate (149N Fig.30, No.206). This and other fragments found so far come from 15th-century contexts.

Several fragments of a vessel with an unusual dull orange fabric and a brown glaze on the exterior were found in Tenement C, as well as residually in pre-Period 7 contexts (Period 7-). This vessel (Fig.26, No.138) is probably the base from distilling apparatus (Moorhouse 1972, 111-3). Although jars with lid-seated rims are known from Norwich (Jennings 1981, 61 and fig.25, no.426), neither the form nor the fabric of this vessel are like the usual LMT examples.

Period 5 (Fig. 26)

122. Brownish-orange fabric, quartz inclusions; grey inner surface. Comb-stamped decoration. Layer 760.

123. Unglazed jug. Handle scar. Layer 769.

124. Late medieval Grimston-type ware. Dark grey fabric; buff external surfaces and patch of light green glaze. Pit 742, layer 936.

Period 5 Tenement A

126. Local glazed ware. Fabric, form and decoration similar to the unglazed jugs, grey, hard fired; dark reduced green glaze. Layer 213.

Period 5 building A3i

Layer 2031

127. East Anglian white ware. Hard pale buff-cream fabric, light grey core when thick near base, small angular quartz varying in size, and large sub-rounded black mineral inclusions, patchy pale yellowish-brown glaze on exterior. Some traces of sooting.

128. Large bowl rim. LMUW. Sooting on exterior.

Period 5 building A4i

129. Late medieval local unglazed ware. Hard-fired, sooting on base. Layer 738 and Period 9.1, hearth 731.

Period 5 Tenement B

Layer 424

130. LMT, probably a cistern. Bright orange fabric; copper-green glaze, iron oxide decoration. Also from Periods 6 and 7.

133. Unglazed jug.

134. Dutch. Orange fabric; patchy clear orange glaze. Slight traces of sooting under handle (Harbottle and Ellison 1981, 130-1).

Layer 478

131. Wide mouth jar. LMT.

132. Buff fabric, quartz and red mineral inclusions; dribbles of under-fired glaze on exterior. Vessel fired inverted.

Period 5 building B1i

135. Late medieval Grimston-type ware. Hard over-fired dark grey fabric; rich even dark green glaze. Layer 2169.

Period 5 building B2

136. Jar rim. Dark grey fabric, occasional quartz and dense minute black inclusions; light brown margins and surfaces, spots of clear glaze on exterior. Layer 428.

137. Late medieval Grimston-type ware. Grey fabric, lighter grey margins; even reduced green glaze. Layer 443.

Period 5 Tenement C

125. Siegburg stoneware, jug rim (Beckman 1974, 197, fig.14, no.98). Layer 1293.

138. Distilling-base. Orange fabric, dense sub-rounded quartz and occasional black mineral inclusions; dull red surface on interior of rim, clear brown glaze on exterior. Layer 1291, and Period 7-, layer 1239. (Moorhouse 1972, 113-4 fig.32.)

Period 6 (*c.*1450-1500) (Figs 27-29, MFT.3, D7)
The appearance of Raeren stonewares places Period 6 towards the end of the 15th century. Much of the pottery is again residual, but it is, however, likely that the unglazed jugs were still in production at this time, and were not totally replaced by Late Medieval and Transitional ware examples until the early 16th century.

Deep LMT bowls, often with two horseshoe-shaped handles, similar to those found on storage jars, appear for the first time (Fig.27, No.139). These are much more common than the shallow bowls, of which there is only one identified example in this period (Fig.28, No.164). Most of the Grimston-type wares are of the late medieval type, plain and globular, with a well-fired dark grey fabric and an even, dark reduced green glaze (cf. Cat. 380), rather than the true post-medieval types and forms. These, together with Late Medieval and Transitional wares, provide virtually all the glazed jugs until the early 16th century, when the latter wares finally dominate the local market. Contemporary imports are confined almost entirely to German stonewares and Dutch glazed red earthenwares. As usual in Norwich, most of the Dutch vessels are hollow-wares, with only relatively few flat-wares (Fig.27, No.140).

There is an increase in the numbers of both Langerwehe stonewares and Dutch glazed red wares in Tenement B. In building B3 a small, but significant group of pottery came from the fill of post-hole 437 (Fig.28, Nos 159-161). This includes: a Raeren stoneware base, which is unlikely to date much before *c.*1475; the rim of a Dutch GRE frying-pan; a substantial

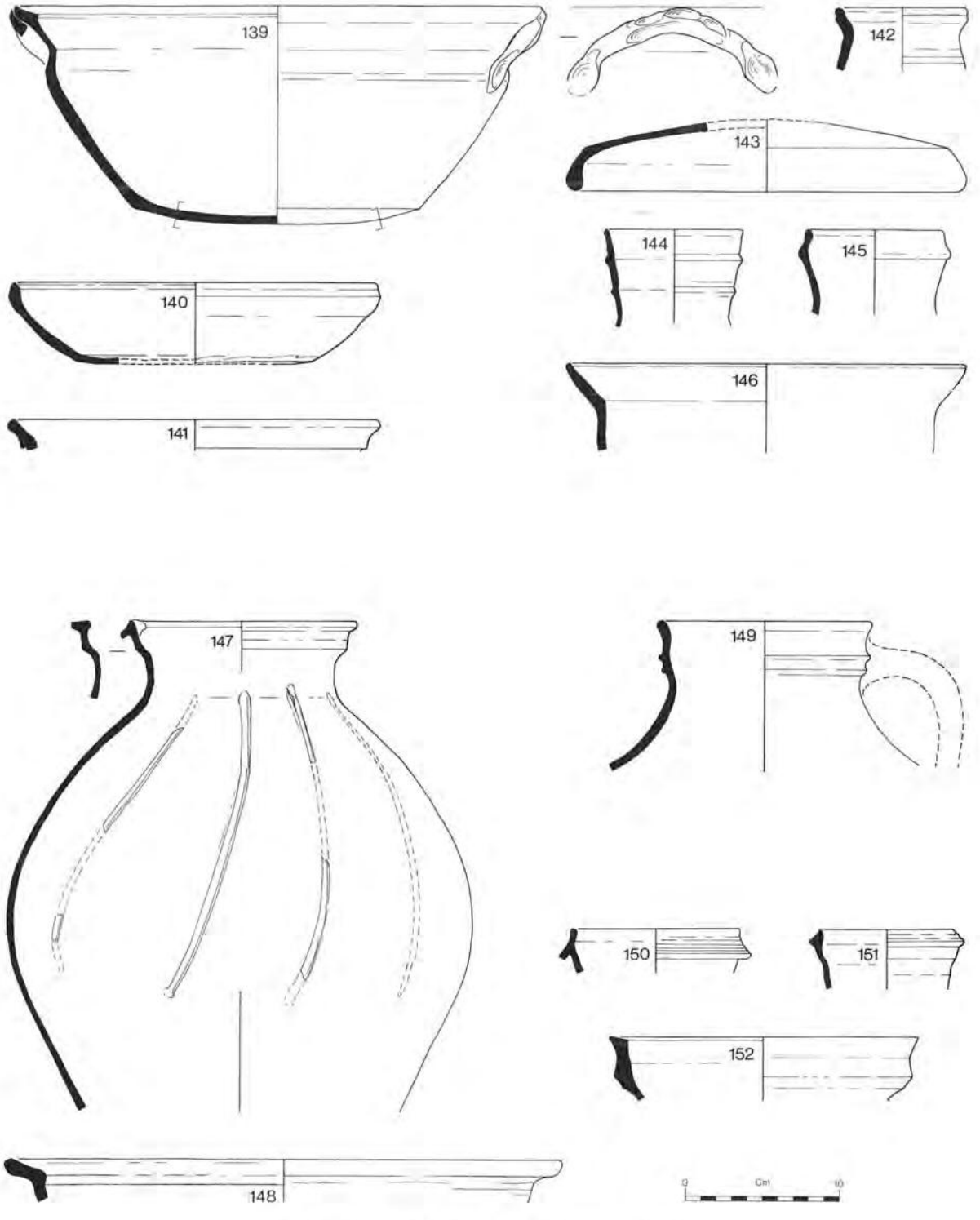


Fig.27 Site 302N. Pottery. Period 6. Scale 1:4

Langerwehe base (not illustrated) which was burnt after it was broken; and a thumbed base of Cambridge Sgraffito ware (Cat.242). Tenement C contained noticeably little residual pottery, much less than had been apparent in the rest of Period 6. None of the stonewares could definitely be ascribed to Raeren, only one of the eleven came in the category Langerwehe/Raeren, and the remainder were definitely Langerwehe; the near absence of Raeren stonewares could therefore make activity in Period 6 on Tenement C marginally earlier than on either Tenement A or B.

Period 6 (Fig. 27)
Layer 429
139. LMT. Light brown-orange fabric; yellow and green speckled glaze on lower interior. Slight sooting on exterior. Also Period 7 B5i.
140. Dutch GRE. Reddish-orange fabric; clear brownish-orange glaze on interior, sparse near rim. Sooting on exterior.
143. LMT lid. Speckled copper-green glaze on upper surface.
146. ?Local unglazed ware. Grey core, buff to orange margins and surfaces.
141. Flemish Grey ware. Grey fabric, fine quartz inclusions; dark grey surfaces (Verhaeghe 1983, 69, fig.7.11, no.2). Layer 1254.
142. LMT, rim of small ?pipkin. Traces of sooting on exterior. Layer 970.
144. Jug rim. Dutch GRE. Orange fabric; brownish-orange glaze on both sides. Layer 932.
145. LMT. Layer 1988.

Period 6 building A3ii
149. LMT jug. Copper-green glaze. Layer 2117.

Period 6 building A3iii
147. Unglazed jug. Hard-fired grey fabric. Layer 1784.

Period 6 building A3iv
148. Large bowl. Late medieval local unglazed ware. Heavily sooted on exterior. Layer 1914.
150. Jug or jar rim. Dutch GRE. Orange fabric; clear orange glaze. Layer 1781.
151. Unglazed jug. Layer 1788.
152. Bowl. Low Countries unglazed ware. Orange fabric, small rounded quartz sand inclusions. Layer 1788.

Period 6 Tenement B (Fig. 28)
Layer 472
153. LMT. Reduced green glaze on interior.
154. LMT. Patchy yellowish-orange glaze on exterior.
155. ?Over-fired Dutch GRE.
156. Storage jar. LMT. Green-speckled yellow glaze on interior. Sooting on exterior rim.
157. Langerwehe stoneware.
158. Small jug. Late medieval local glazed ware. Grey fabric, thick orange margins; patchy copper-speckled glaze on shoulder.

Period 6 building B3
Post-hole 437
159. Raeren stoneware.
160. Dutch GRE frying-pan. Sooting on exterior.
161. LMT. Copper-green glaze on lower part of interior.
Unillustrated:
Cat. 242 Cambridge Sgraffito ware base.

Period 6
Layer 402
162. Unglazed LMT. Light orange fabric, slightly darker orange surfaces.
163. Unglazed jug. Light grey fabric, dark grey surfaces.
164. LMT. Speckled-green glaze on interior.
165. Dutch GRE.

Period 6 Tenement C
166. LMT. Sooting on exterior. Layer 1256.
167. Dutch GRE. Sooting on exterior. Layer 1244.
168. Post-medieval Grimston-type ware. Reduced pale green glaze on exterior and interior. Layer 1247.

Period 6.2 Tenement C
Layer 1237
169. LMT fine ware. Possibly a drinking vessel. Copper-spotted yellowish-green glaze on interior and exterior.
170. LMT. Patchy thin brownish-green glaze on dark grey exterior.
171. Siegburg 1450-1500 (pers. comm. J.G. Hurst). Pale grey fabric; iron wash on exterior.
172. LMT. Copper-green glaze, patches only on interior.
173. LMT drinking-vessel base. Speckled copper-green glaze on interior and exterior.

Period 6/7 (Fig. 29)
174. Small bowl or skillet. LMT. Copper-spotted glaze on interior. Slight sooting on exterior. Pit 1829.

Period 7 (*c.*1500-1575) (Fig.29, MFT.3, D8 and 9)
Many of the layers ascribed to this period contain joining fragments of vessels also found in Period 5 and 6 contexts, as well as continuing, though diminishing, amounts of medieval wares (MFT.3, D8 and 9). This is probably accounted for by the degree of foundation trenching which took place in the period as a result of general rebuilding over the whole site.

This period produced the first identifiable chafing-dish (Fig.29, No.189) from this site, and a Humber ware jug neck (pers. comm. J.G. Hurst), the first example known from Norwich, though probably residual in this context.

Tenement B had a larger number of vessels than either A or C. However, Tenement C had a rammed mortar and chalk yard surface, 1234, which may have facilitated a more complete removal of rubbish than is seen in the earth yards of the other tenements, thus explaining the paucity of finds.

The contemporary pottery is still largely Late Medieval and Transitional ware and, basically therefore, the assemblage of Period 7 closely resembles that of Period 6, the only difference being a slight increase in the numbers of Langerwehe and Raeren vessels. It has not been possible to establish any noticeable differences between the material from buildings A5i and A5ii, or to place the developments on Tenements A, B or C in a sequence. This confirms the contemporary nature of developments suggested by the excavation (see above, p.161).

Period 7- (Fig. 29)
175. Tudor Green. Fine very pale pinkish-white fabric; even dark copper-green glaze on interior, copper-spotted glaze on exterior. Layer 1239.

Period 7
176. Late LMT. Even green glaze on exterior and rim on interior. Layer 1127.
177. Late medieval Grimston-type ware. Rich reduced dark green glaze on exterior. Layer 1832.

Period 7.2 building A5ii
178. Bowl. Late medieval local unglazed ware. Sooting on exterior. Layer 1899.
179. Late medieval Grimston-type ware. Pit 1791.

Period 7 building B5i
180. Jug rim. Brown-orange fabric; dark grey interior, no glaze. Layer 442.

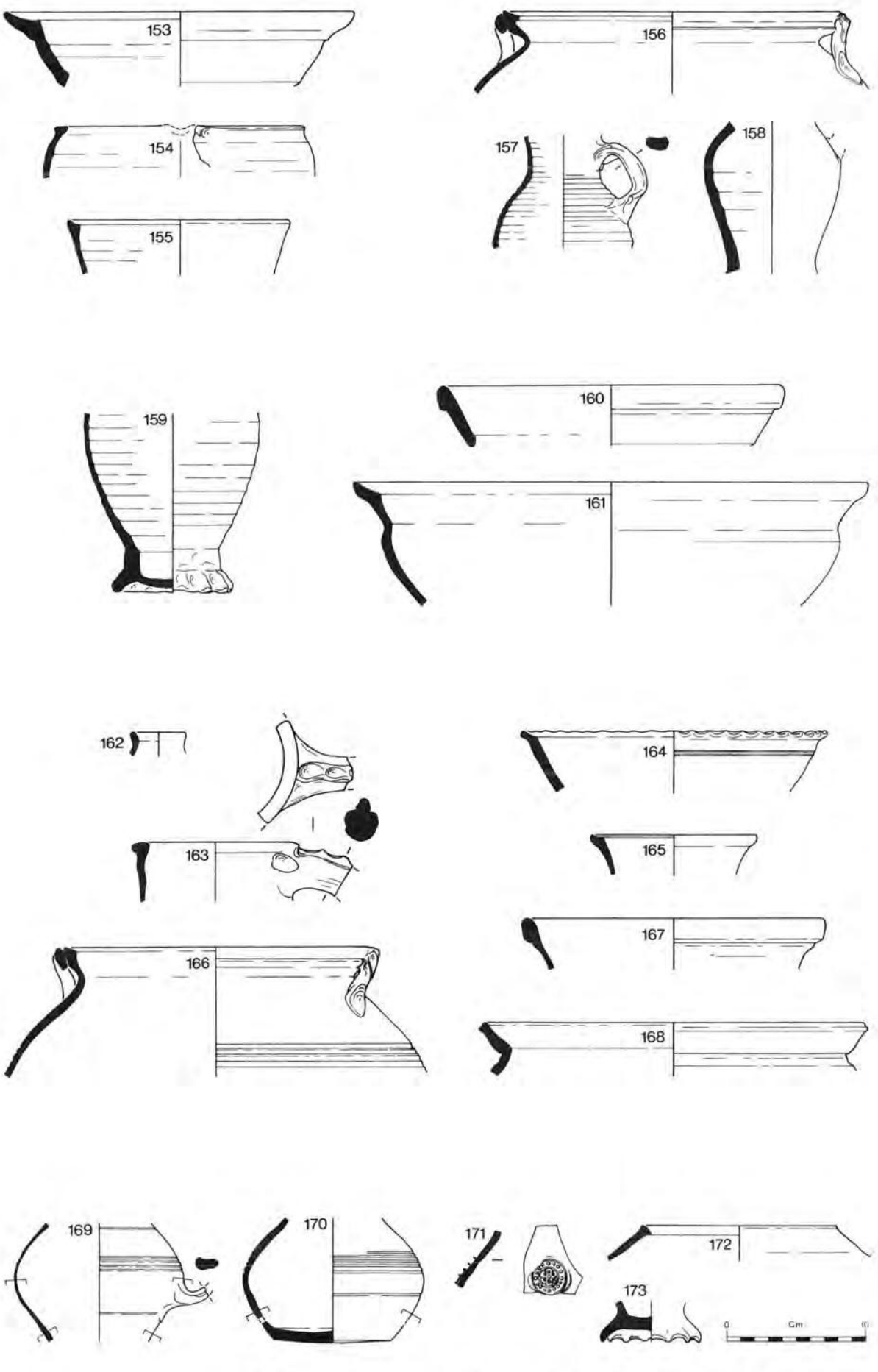


Fig.28 Site 302N. Pottery. Period 6. Scale 1:4

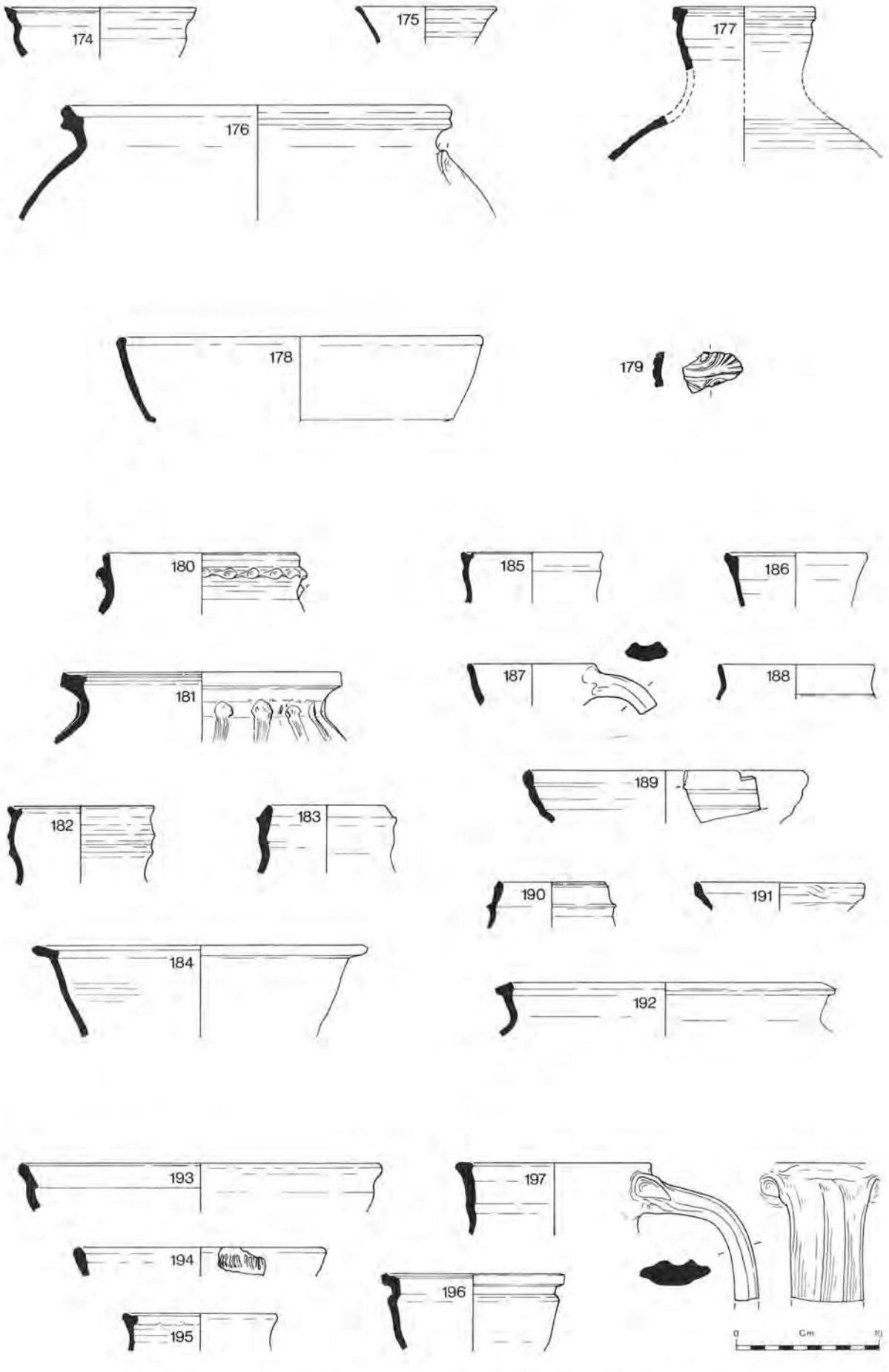


Fig.29 Site 302N. Pottery. Periods 6/7 (No.176) and 7. Scale 1:4

183. LMT. Copper-spotted green glaze below rim on exterior. Layer 457.
186. and 191. Dutch GRE. Layer 375.

Period 7.2 building B5i
181. Unglazed jug. Layer 362.

Layer 338
182. Late medieval/post-medieval Grimston-type ware. Rich reduced green glaze on exterior.
184. Post-medieval Grimston-type ware. Yellowish-green glaze on interior, thin patches on exterior.
185. Jug rim. East Anglian white ware. Pale pink fabric, dense ill-sorted small quartz inclusions; off-white surfaces, patches of yellowish-brown glaze on exterior.
187. LMT-type ware. Orange fabric; copper-spotted green glaze on interior and exterior.
189. Post-medieval Grimston-type chafing-dish. Grey fabric; yellowish-green glaze on interior and exterior.

Layer 595
188. LMT fine ware, ?drinking-vessel. Copper-spotted pale green glaze on exterior and interior.
190. Raeren or Aachen stoneware.
192. Dutch GRE. Sooting on exterior. Layer 309.

Period 7 building C3i
193. LMT. Brownish-orange glaze on interior. Layer 1224.
194. Grey fabric, occasional sub-rounded quartz and black and dark red mineral inclusions; dark orange margins, brown surfaces, thumb nail indentations. Layer 1296, pit 1295.
196. Late LMT. Patchy green glaze on interior. Pit 1203.
197. Humber ware. Orange fabric with reduced interior; patchy brownish-orange glaze on handle. Layer 1221. (Mayes and Hayfield 1980, 103.)

Period 7+ Tenement C
195. Post-medieval Grimston-type ware. Patchy, rich reduced green glaze on exterior. Layer 26.

Period 8 (*c.*1575-1600) (Fig.30, MFT.3, D10)
The small amount of pottery reflects the limited time span of this period. Frechen stonewares and the locally made glazed red earthenwares, which replaced Raeren stonewares and LMT wares, are found in Norwich from the last quarter of the 16th century onwards. Small amounts of both these two wares are present in Tenements A and B, with the majority of the glazed red earthenware vessels coming from building A6 (MFT.3, D10). Late Medieval and Transitional wares remain in production until the end of the 16th century, and these, together with the late Grimston-type wares, form the majority of vessels in use at this time.

Fig.30, No.201 is an example of an LMT cooking-vessel, which is an uncommon form by the end of the 16th century, and is the only example known from the site. Dutch-type frying-pans and cauldrons still continue to be imported (Fig.30, Nos 198 and 203) but it is only the frying-pans which show signs of sooting. This is presumably because the function of ceramic hollow-ware cooking vessels had largely been replaced by metal examples. Another import is the most complete example of a North Holland firecover found in Norwich (Fig.30, No.202; reconstructed Cat.633). These were used for setting against a fireplace, rather than over a hearth (Hurst 1975, 53, pls 1 and 2); they have an average width of some 45-50cm and the most likely context where this could have been used is hearth 1722 in A6*a*, which might be reconstructed to give a hearth opening of approximately 45cm (see p.164; Fig.6). This hearth, and hearth 308 from B5iii in Period 11, are the only examples where coal-fired hearths could be shown to be used on the site, as opposed to the wide wood-burning open fireplaces.

Later activity around building C3 cannot be defined more closely than Period 8/9 on stratigraphic grounds. The pottery would indicate a demolition date towards the end of the 16th century, and not the 17th century, as the absence of both Frechen stonewares and glazed red earthenwares suggests the earlier rather than the later period.

Period 8 (Fig. 30)
198. Dutch GRE. Pit 1131.
199. GRE. Brownish-orange glaze on interior only, dull red unglazed exterior. Pit 1009.
200. LMUW lamp rim. Slight sooting on inner rim edge. Pit 1831.

Period 8 building A6
201. Pipkin. LMT. Rich dark copper-green glaze on upper interior. Sooting on exterior. Layer 1769.
202. North Holland slipware firecover. Layers 1700 and 1763. Cat. 632.
203. Frying-pan. Dutch GRE. Sooting on exterior. Layer 342.

Period 8/9 building C3
204. Late LMT/GRE. Orange fabric with patchy grey core and inner margin; reduced-green glaze on interior, patches on exterior. Sooting on exterior. Layer 1265, pit 1260.

Period 9 (*c.*1600-1675) (Figs 30-32, MFT.3, D11 and D12)
The bulk of the material from this period comes from Tenement A/C (plot 3), which can be divided in terms of use into two areas, the front and the rear. Although there is little difference in the types of pottery found in these two areas, there is a great difference in the proportions (MFT.3, D11). Excluding the two ovens, H221 and H731, the majority of the material from the front of A/C is contemporary with the period, while the reverse is true for the rear. There are apparently only two vessels with fragments in both A/C front and rear (Fig.31, No.213 and Cat. 645), but as the bulk of the material appears to have been removed from the site, it has not been possible to establish a more definite connection between the vessels from the two areas.

Small glazed red earthenware bowls with vertical handles are only found in midden 93 (Fig.30, No.207). These were not made until the second quarter of the 17th century (Jennings and Atkin 1984, 18); chamber-pots and wider, shallow bowls (Fig.30, No.210) are, however, typical of the first half of the 17th century. This would indicate that midden 93, which probably served both A8 and A9, was in use until the end of the period. However, the midden does have a small amount of intrusive material, presumably from later midden 1811.

The increase of imported fine wares, tin-glazed earthenwares, Metropolitan slipwares and Surrey white wares, is typical of the mid 17th century in Norwich. A small number of fine wares came from buildings A8 and A9 and these, together with the limited amounts of glazed red earthenwares and iron-glazed wares, would give a date of the mid 17th century. Most of the iron-glazed sherds are from single-handled mugs and not from tygs. These mugs are found in Norwich from the early 17th century onwards (Jennings and Atkin 1984, 19).

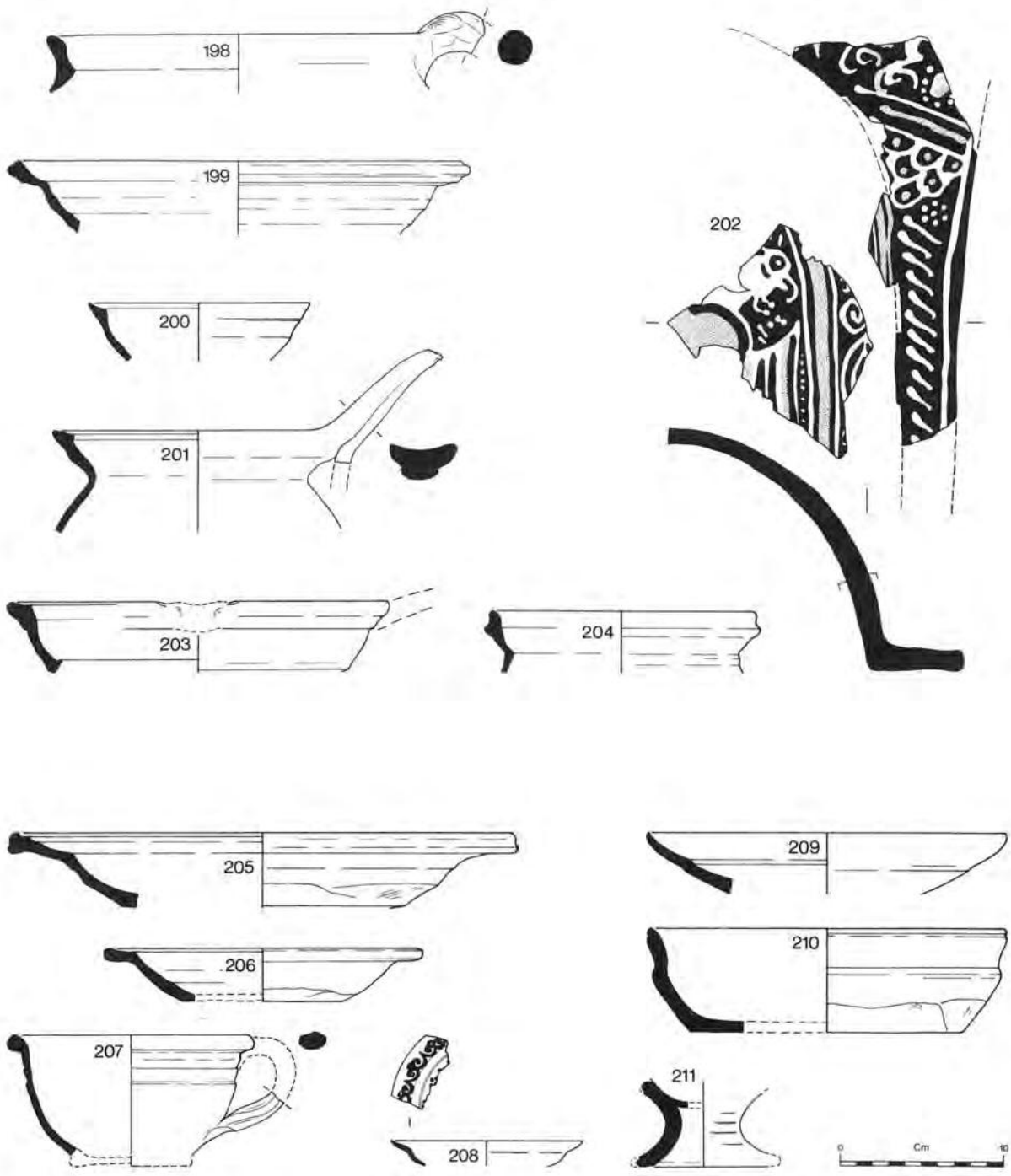


Fig.30 Site 302N. Pottery. Periods 8, 8/9 (No.204) and 9. Scale 1:4

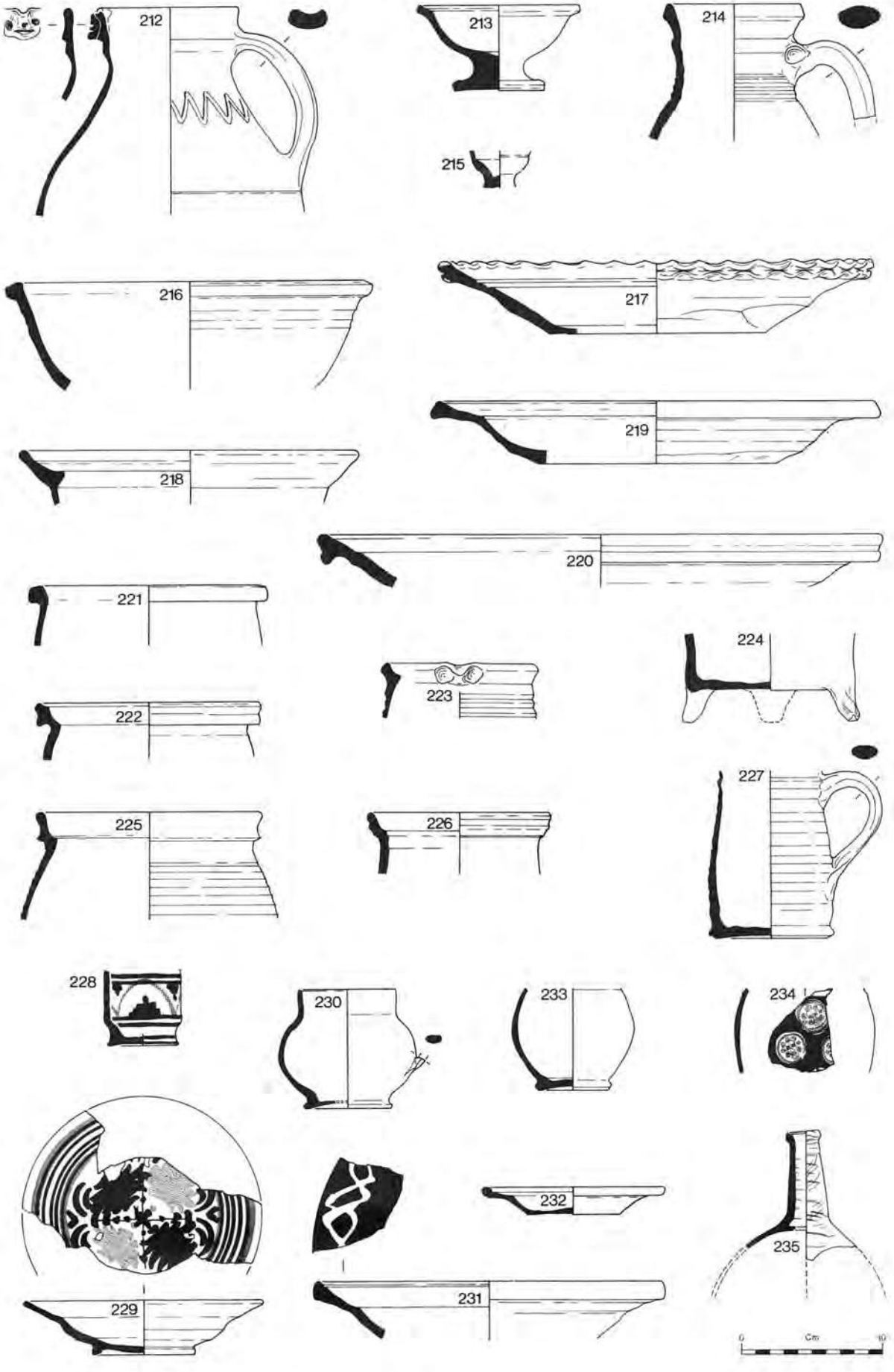


Fig.31 Site 302N. Pottery. Period 9. Scale 1:4

Period 9.1 A (Fig. 30)

Layer 93, midden

205. GRE.

206. GRE. Stacking scar on interior glazed surface.

207. GRE. Heavy sooting on exterior.

208. English TGE dish. Cream fabric; very pale blue glaze with dark blue decoration.

209. ?Dutch TGE plate. Pale cream fabric; white glaze with slight blue tinge, edge of central mid blue decoration only.

210. GRE. Yellowish-orange glaze, under-fired in lower part of interior.

211. English TGE, ?part of a salt. Cream fabric, white glaze with a slight pinkish tinge. (Cf. Noël Hume 1977, 69 and fig.VI, no.14.)

Period 9 A/C front (Fig. 31)

Pit 609

212. LMT. Slightly under-fired fabric. Speckled copper-green and yellow glaze, mainly opposite handle.

213. GRE. Brown glaze on interior, patches on exterior. Also A/C rear, layer 284.

214. GRE. Orange glaze, reduced-green in patches, on exterior.

215. GRE. Greenish glaze interior and exterior.

216. GRE. Sooting on lower part of exterior.

217. GRE. Sooting on exterior.

225. Early GRE. Light orange fabric; reduced-green glaze, patchy on interior.

227. Iron-glazed ware. Grey fabric; opaque black-brown glaze on interior and exterior except for base.

Pit 610

223. GRE, pipkin rim. Sooting on exterior.

224. GRE. Yellowish-brown glaze, with iron oxide spots, on interior. Sooting on exterior.

228. English TGE drug-jar. Cream fabric; white glaze with blue and purple decoration.

230. English TGE cup. Pinkish-cream fabric; white glaze.

231. Metropolitan slipware.

Pit 862

218. GRE. Brown glaze interior and exterior.

219. GRE. Yellow glaze on interior, patches of copper-green on exterior.

220. GRE. Stacking scar on interior.

221. GRE. Fired inverted.

222. GRE.

226. GRE.

229. Dutch TGE, 1630-50. Very pale cream fabric; white glaze with blue and yellow ochre decoration, lead glaze on back.

232. Surrey white ware. Greenish-yellow glaze on interior, thin on exterior. (Haslam 1975, 168 and fig.3, no.9.)

Hearth 221, layer 835

233. GRE. Reduced green glaze interior and exterior. Stacking scar on base.

234. Westerwald stoneware.

235. Martincamp flask, type III (Hurst 1966, 57).

Unillustrated:

Cat. 645 Metropolitan slipware. Layer 862 Period 9 A/C front and 699 A/C rear.

Period 9 A/C rear (Fig. 32)

Pit 724, layer 267

236. Dutch GRE. Thick clear orange-brown glaze on interior and exterior.

237. Dutch GRE. Sooting on exterior.

238. Low Countries unglazed ware.

Pit 284

239. Post-medieval Grimston-type ware. Reduced green glaze on interior. Slight sooting on exterior.

240. GRE jug neck. Clear brown glaze on exterior and to bottom of neck on interior.

241. Late LMT/early GRE. Green glaze on interior, vessel fired inverted.

242. Late LMT, ?part of a chafing-dish. Orange fabric; even green glaze on both surfaces.

243. Cistercian-type ware. Hard dull red fabric, brown glaze interior and exterior.

Unillustrated:

*Cat 245 Probably post-medieval Grimston-type ware. Layer 688.

Period 9 building A9

244. Cologne stoneware (cf. Reineking-von Bock 1971, no.262). Pit 1835 and Period 10 A layer 1809.

Period 9 building B5ii

Layer 363

245. Weser slipware. Pale cream fabric; white slip on interior, orange slip decoration.

246. Dutch TGE. Pinkish-cream fabric; white glaze with dark blue decoration, lead glaze on back (Korf 1963, 30 no.40).

247. GRE. Heavy sooting on exterior.

248. Surrey white ware. Pale yellow glaze on interior.

Period 9/10A (Fig. 32)

Pit 244

249. Frechen stoneware.

250. TGE. Pale cream fabric; white glaze with blue and light blue decoration.

251. Surrey white ware, small strainer. Off-white fabric; copper-green glaze on interior, patchy on exterior.

252. Metropolitan slipware. Glaze and slip scratched on interior base.

Period 10 (*c.*1675-1720) (Figs 33 and 34, MFT.3, D12) Utilitarian glazed red earthenware vessels still dominate the kitchen wares, while most of the drinking vessels continue to be made in iron-glazed earthenware.

A large and interesting group of Dutch wares came from one deposit, layer 1811 in 10A (see below, p.198). This group (Fig.33, Nos 253-61) clearly dates to the 17th rather than the 18th century. The earthenware vessels are all of a domestic nature and several have been used for cooking over a long period, as sooting and burning of the fabric is apparent in the partial cracks that were in the vessels while they were still in use. Locally made hollow-ware cooking-pots were rare by this time, having been largely replaced by metal examples. Only flatwares, small glazed red earthenware bowls and dishes, are consistently heavily burnt and sooted on the exterior, and were obviously used directly over fires (Fig.30, No.207). These pots, together with the evidence of clay pipes and small finds (pp.215 and 204), would suggest the belongings of an immigrant household (in a sub-divided house) perhaps with different methods of cooking. Associated material in this and, residually, in later periods (Fig.34) includes a pipkin, probably locally made, which was also used for cooking, even after the substantial handle was broken off (Fig.34, No.289).

An unusual find for Norwich is part of an elaborate Westerwald jug (Fig.33, No.270). This form and style of decoration dates to the early 17th century (Reineking-von Bock no.480), but as vessels of this quality and period are rarely found in Norwich, they may, as a result, have survived intact for several decades. (Another fragment from a similar jug—cf. Reineking-von Bock no.479—was found by workmen during site clearance, possibly from the unexcavated baulk 4.) A later Westerwald fragment dates on stylistic grounds to the end of the 17th century (Fig.34, No.276).

Very little, if any, of the pottery can be directly related to the buildings in the sub-divided tenements, nearly all the material coming from associated yards (which are shared between properties). The material

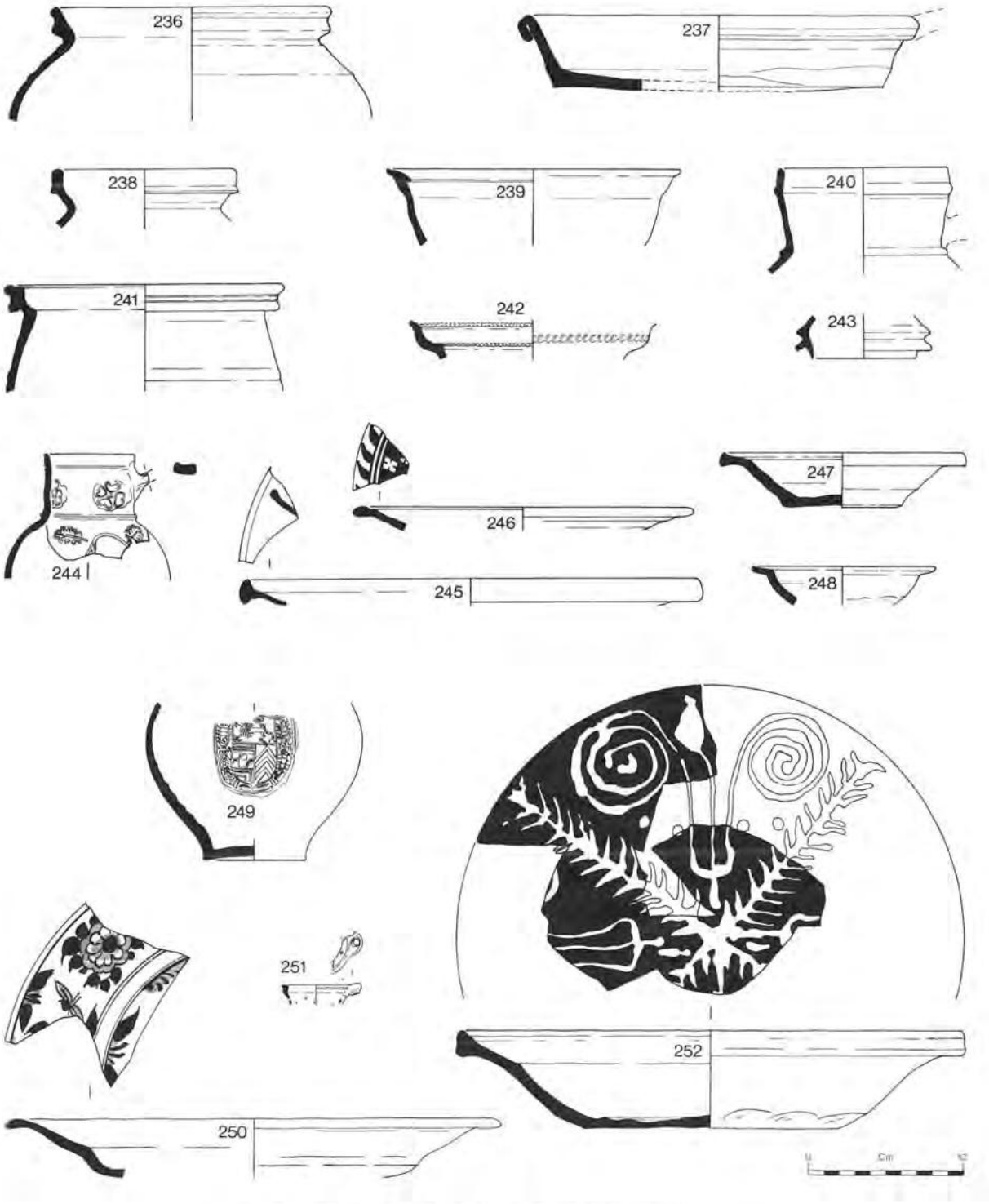


Fig.32 Site 302N. Pottery. Period 9. Scale 1:4

from several of the pits, particularly pits 112 and 1204, was found in substantially-sized fragments. Fig.34, No.274 was intact, except for a small segment of the rim.

Period 10 Tenement A (Fig. 33)

Layer 1811

253. Low Countries unglazed ware. Light brown fabric, red mineral inclusions. Sooting on interior. Also Period 12 layer 1842.

254. Dutch GRE. Sooting on exterior, fabric burnt near base.

255. Dutch GRE. Sooting on exterior.

256. Dutch GRE. Light brownish-orange fabric; yellowish-orange glaze on interior, light brown unglazed surfaces. Heavy sooting on exterior.

257. Dutch GRE. Orange fabric; clear orange glaze around inner rim and inner base and parts of exterior. Slight sooting on unglazed areas of interior.

258. Dutch GRE. Light orange fabric; orange glaze on interior. Fabric burnt near base.

259. Dutch GRE. Stained on interior. Fragment of another vessel adhering under base.

260. Dutch GRE. Orange fabric; bright orange glaze on interior. Sooting on base and sides of vessel.

261. Dutch TGE. Light cream fabric; discoloured white glaze with blue and lemon yellow decoration, lead glaze on exterior (cf. Korf 1963, 14 no.17).

Pit 112

262. Late medieval local unglazed ware. Layer 147.

263. GRE. Sooting on exterior.

264. GRE. Yellowish-green glaze on interior. Layer 147.

265. Dutch GRE. Light orange fabric; orange glaze on interior, brownish-orange glaze on exterior.

266. West Norfolk bichrome ware. Layer 147.

267. Early GRE lid. Patches of green glaze on interior and exterior. Layer 147.

268. and 269. West Norfolk bichrome ware.

270. Westerwald stoneware (cf. Reineking-von Bock, no. 480).

271. GRE. Yellowish glaze on interior.

Unillustrated:

Cat. 885 Surrey white ware skillet. Layer 147.

Period 10 Tenement C (Fig. 34)

Pit 1206

272. GRE. Patchy orange and reduced green glaze over interior and upper half of exterior.

277. English TGE. Cream fabric; white glaze. Layer 1210.

Pit 1204

273. GRE.

274. GRE. Brownish-orange glaze on interior only.

275. GRE. Slight sooting on exterior.

278. TGE, probably Dutch. Cream fabric; white glaze with dark blue decoration.

279. GRE. Thin brownish-orange glaze on interior.

276. Westerwald stoneware. Applied decoration with blue and manganese decoration. Layer 1215.

Period 10/11 Tenement C

280. Surrey white ware. Part of a candlestick. Pale pink fabric; rich yellow glaze (cf. Haslam 1975, fig.10, nos 114-6).

Period 11 (*c.*1720-1750) (Fig. 34, MFT.3, D13)

The bulk of the ceramic material in Period 11 clearly derived largely from Period 10 and the second half of the 17th century. Only two fragments were definitely non-residual: the rim of a tin-glazed earthenware plate, with a decorative border motif attributable to London in the early 18th century (Fig.34, No.282); and a fragment of white salt-glazed stoneware dating to the mid 18th century. None of the wares usually associated with a period of this date in Norwich (e.g. white-dipped wares, Nottingham stonewares or Westerwald tankards) are present. This would argue a completely different, and more efficient, form of refuse collection. The almost total lack of very late 17th and 18th-century wares, normally common in Norwich, would indicate that this practice began here in the early 1690s.

The backfill of cesspit 2422 in this period contained fragments of at least five Dutch vessels (Fig.34, Nos 290-4), including three dishes. Dutch flatwares are not nearly as common as hollow-wares in Norwich and this group of relatively late examples is unusual. They could have derived from the fill of a feature as part of a massive rebuilding of A7, A8 and A10, on a property thought to have been occupied by Dutch immigrants in Period 10 and do themselves probably date from either Period 9 or 10 (17th century). They therefore represent an intact assemblage from the use of A7, but were discarded during demolition in Period 11.

Period 11 (Fig. 34)

281. GRE. Layer 671.

Period 11 building A11i

Pit 2422

282. English TGE, early 18th century. Pale cream fabric; white glaze with light blue decoration. Layer 34. (Cf. Lipski Collection Catalogue 1981, Part 1, 71, no.82)

283. TGE. Cream fabric; discoloured white glaze, blue decoration, lead glaze on back. Layer 222.

284. English TGE 'blue dash' tulip charger. Light pinkish-orange fabric; white glaze with blue, orange and green decoration, lead glaze on back. Layer 222.

285. TGE. Light pinkish-orange fabric; white glaze with blue, green and orange decoration. Layer 34.

286. Dutch TGE. Pale buff fabric; white glaze with blue decoration, lead glaze on back. Layer 222.

289. GRE. Layer 222.

290. Dutch GRE. Orange fabric, occasional red inclusions; brownish-orange glaze on interior, patches on exterior. Layer 222 and Period 10 A pit 2422 layer 243.

291. Anglo-Dutch GRE. Orange fabric; brownish-yellow glaze on interior. Layer 222.

292. Dutch GRE. Light brownish-orange fabric; orange glaze on upper part of interior, brown and copper-green glaze on exterior. Sooting on unglazed areas of both interior and exterior. Layer 222.

293. Dutch GRE. Orange fabric; brownish-orange glaze on interior and exterior. Layer 222.

294. Dutch GRE. Light orange fabric; greenish glaze on interior, heavy sooting on exterior.

Layer 214

287. Dutch TGE. Cream fabric; white glaze with blue and orange decoration, green-tinted lead glaze on back.

288. GRE. Under-fired yellowish-orange glaze on interior.

Period 12 (*c.*1750-1800) (MFT.3, D13)

With the exception of one Westerwald drinking mug (cf. Cat.831), all the material in this period is probably residual, much of it 17th-century and originating from Periods 9 and 10. This included fragments of several Dutch, or Anglo-Dutch, vessels. Some of the sherds joined to those from Period 10A layer 1811, and the remainder could well be associated with that group.

Period 13 (*c.*1800-1942) (MFT.3, D14)

Period 13, like Period 12, contains mainly residual pottery from Periods 9 and 10, along with a limited amount of 19th and 20th-century material. 18th-century ceramics are again largely absent from this assemblage, the only identifiable fragments being one Staffordshire moulded slipware plate and some white salt-glazed stoneware sherds.

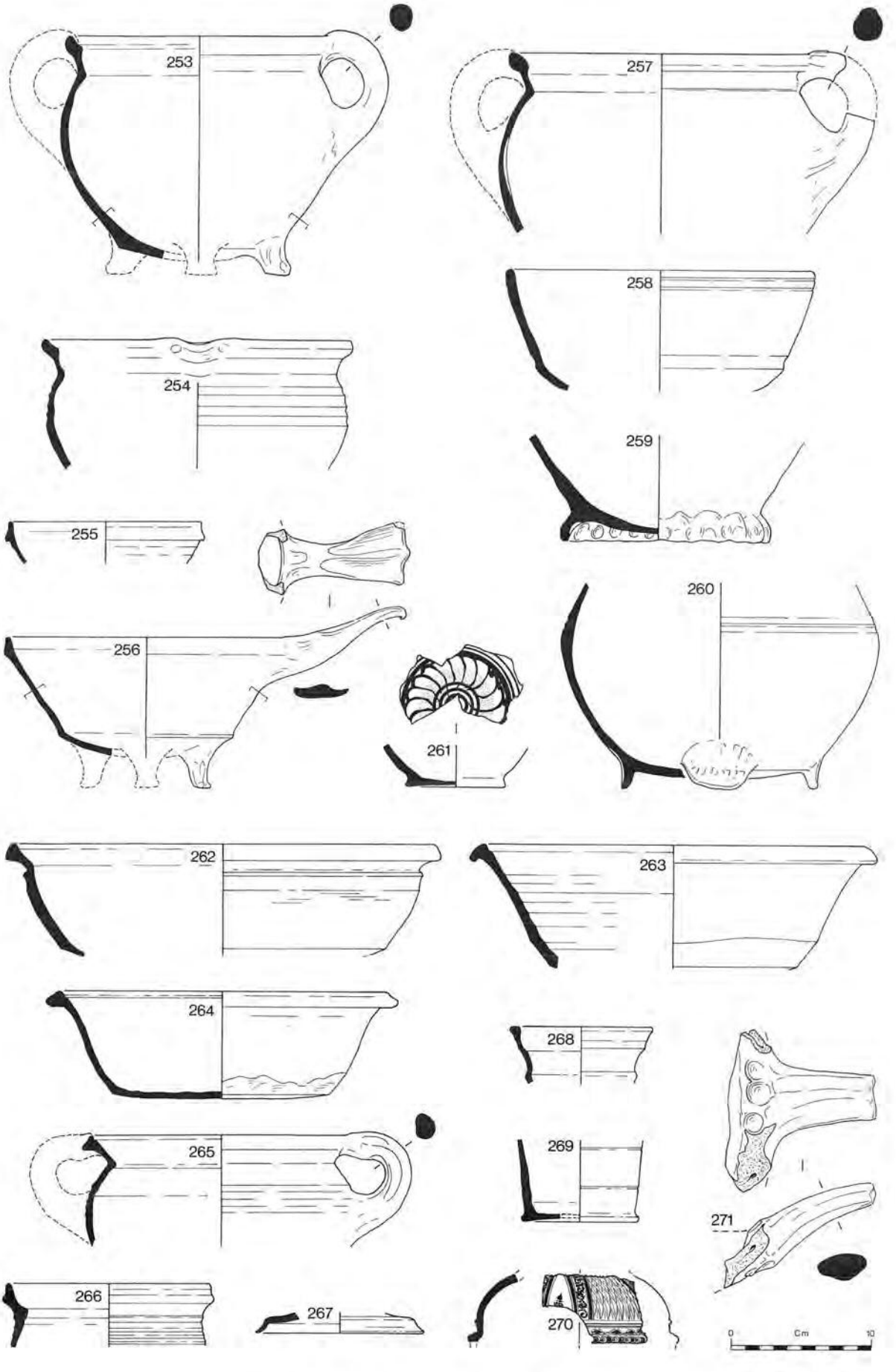


Fig.33 Site 302N. Pottery. Period 10. Scale 1:4

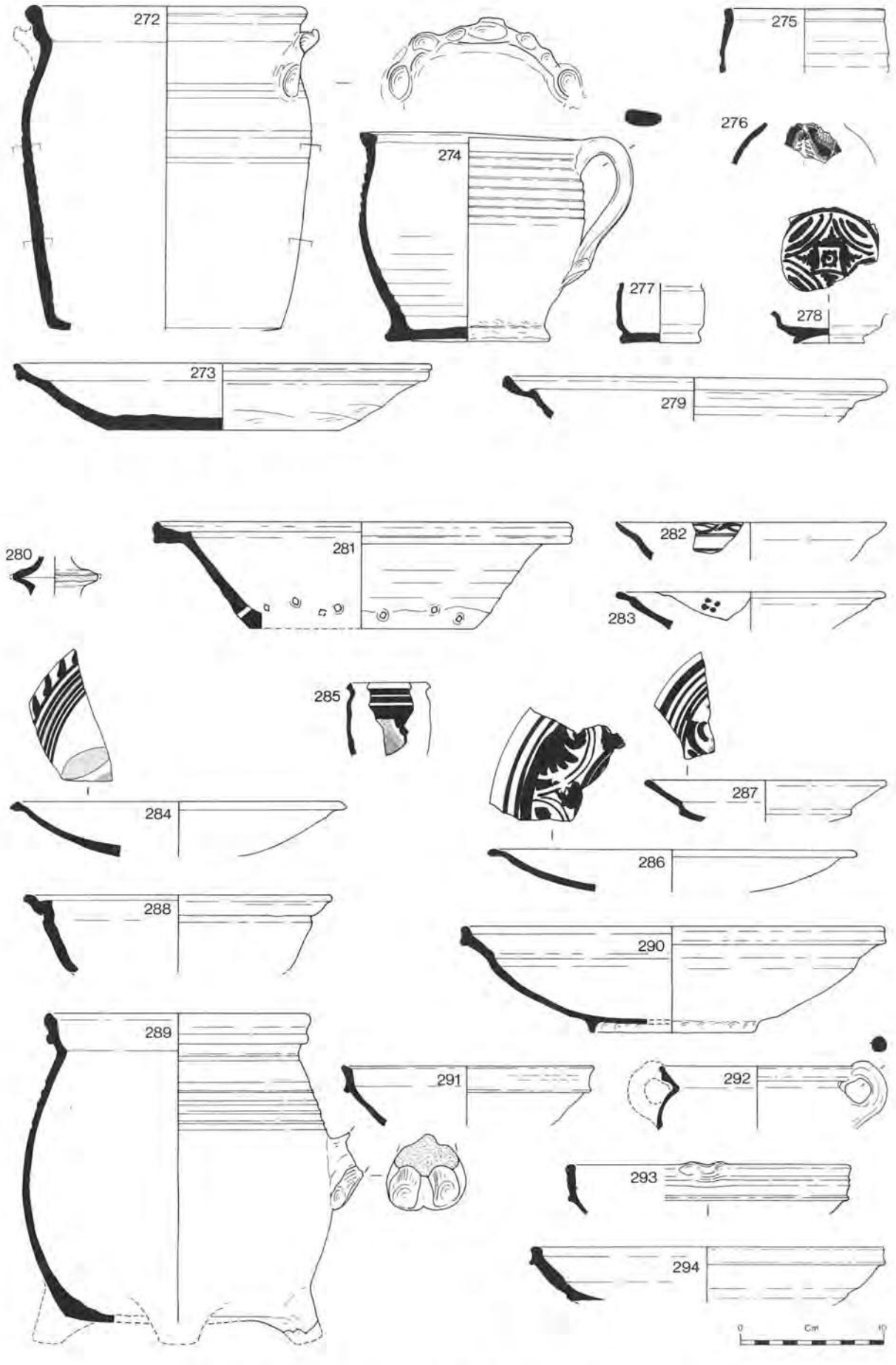


Fig.34 Site 302N. Pottery. Periods 10, 10/11 and 11. Scale 1:4

Conclusions

The type and volume of pottery retrieved from this site has been affected by four different elements: the marginal nature of the site (Periods 1-3), industrial activity (Period 4), the development and subsequent alteration of domestic housing (from Period 5), and changing methods of refuse disposal both on and off the site throughout its occupation. These four factors affect the pottery in varying ways, but result in increasingly large quantities of residual pottery.

The low level of finds in the ditch makes the dating of the initial cutting very difficult (see above, 281N p.130). The pottery from the Alms Lane site is little help in the dating of this feature. It is probable that much of the pottery from Periods 1 and 2 resulted from the deposition of refuse from elsewhere, rather than originating from vessels used and then discarded where they were broken. This also applies to a lesser extent to Period 3 but, with the exception of some nearly complete vessels from the latter part of Period 3, many of the sherds were small, abraded, and frequently only a single sherd survived from any one vessel. The paucity of material in the earlier phases is reflected particularly in the imported wares. Although imports rarely achieve any significant percentage in Norwich, the numbers from Alms Lane are low, and particular wares, such as those from Andenne, are usually more common.

During the industrial phase (Period 4) the number of large bowls compared to other vessel forms is significantly higher than in other comparable groups which were purely domestic. The majority of these bowls were large, with diameters ranging from 24 to 35cm, and nearly all had extensive traces of exterior sooting, so had not been used merely as storage containers.

The late medieval and early post-medieval periods provided the largest domestic groups. The material from the site as a whole is remarkably uniform. The main exception to this is the surprisingly large group of material from the Low Countries found in Periods 9 and 10, and residually in later contexts from Tenements A and A/C. These pots may well have been the property of immigrant families moving directly into the area from the Continent together with all their household possessions. The local markets obviously failed to provide all that they required: a letter by Claus Van Werveken in 1567 to his wife, still living in Antwerp, requested that she *'Bring a dough trough, for there are none here . . . Buy two little wooden dishes to make up half pounds of butter: for all the Netherlanders and Flemings make their own, for here it is all pigs' fats'* (Moens 1887/8, 220). Although the vessels mentioned in this instance were all probably made of wood, the letter does show that the immigrants were prepared to go to some trouble to obtain items that they were used to. This may also explain the apparent alacrity with which local potters copied continental forms, as they had a large ready market for them.

Prior to and including the 17th century, a substantial amount of the debris from the tenements was abandoned in the immediate vicinity, mainly in cesspits or middens. But by the beginning of the 18th century very little contemporary material survives, as night-soiling has removed all but a few sherds. This is a common feature on most sites in Norwich, and begins either in the late 17th or early 18th century. Here it can be dated to *c.*1690.

It is always difficult to determine the social status of a site or its occupants from the ceramic assemblage, as pots were frequently extremely utilitarian in function, were very cheap, and only reflected a limited section of the contents of a household. The documentary evidence suggests that a wealthy Alderman owned and lived on Tenement A during Period 6 and possibly during the early part of Period 7, while all the other tenements were rented. There is, however, no discernible difference in the pottery from the different tenements during this time. This problem is typified by the relatively large amounts of imported fine wares from the late 16th and early 17th centuries found on Botolph Street (see above, p.108) where some of the poorer immigrants are believed to have been living. With Alms Lane, the documentary evidence makes it clear that the site was under the single ownership of a wealthy landlord, but let to separate tenants. (This is in contrast to Westwick Street, site 159N, where the owners were of similar status, but the proportion of fine, or decorated, wares did indeed suggest that they were actually occupying the site: Jennings forthcoming (b).) The archaeological evidence suggests that the site was sub-divided into distinct tenements and there was no evidence of pottery joining between them except in Period 9, Tenement A/C.

On Alms Lane there are fewer cooking-pots in the late medieval and early post-medieval periods than might be expected, which would indicate that the tenants were wealthy enough to afford metal examples. Unfortunately, there is rarely any surviving evidence for these, as they tend to be patched, and when beyond repair the remaining metal was recycled. Fragments of six were, however, found, and the majority come from Periods 5 to 7. Not all the ceramic pots that would have been used for cooking, though, will show signs of sooting on the base, as they were sometimes placed inside metal cauldrons and the food cooked in the equivalent of a double boiler (see Fig.59). In the post-medieval period the vessels that most frequently show signs of being used over a fire are small bowls and shallow dishes.

The assemblage as a whole provides a clear reflection of the site's character and chronology. As such it is typical of the material that one would expect to find in a peripheral location in a thriving city.

Endnotes

1. East Norfolk Glazed ware is the name given to a ware which, as yet, has no known source, but vessels have been found in Norwich and in the east and south-east of the county. Its distribution seems to cover areas not easily served by the kilns at Grimston, so there is relatively little in Norwich (where Grimston-type wares are common) but proportionally much more from the south-east of Norfolk. A tentative date range of the 13th and 14th centuries is suggested by the vessels so far found. It is hoped to define this ware more precisely in Jennings and Milligan, forthcoming.
2. East Anglian White ware is the name tentatively given to an off-white/pale cream fabric which has been found in very limited numbers. It is thought that this ware may well be of relatively local manufacture, and if so, it is more likely to come from the east of the area rather than the west, and may be associated with East Norfolk Glazed ware discussed above. Another possible example comes from site 149N (Fig.30, No.206, see above). The fragments found so far come from 15th-century contexts.

The Small Finds

by Sue Margeson

with contributions by Elisabeth Crowfoot (textiles), Blanche Ellis (spurs), Ian H. Goodall (ironwork) and

D. Smith (querns/millstones). The jettons have been identified by the late Stuart Rigold. The bone has been identified by Mary Harman, and the stone by D. Moore; the vessel glass has been identified by J. Haslam.

The 2000 or so finds from Alms Lane, though not individually spectacular, represent an important domestic assemblage from a series of ordinary tenements. The seventy-five objects selected for illustration are those which provide evidence of the dating and status of individual buildings, and some reflect the occupations as well as the life-styles of the inhabitants. This section consists of: (a) summaries of the finds in each period considered by phase and building; (b) the catalogue (see above, p.4 for the order in which finds are discussed).

Period 1 (*c.*1000-1050)
The site on Alms Lane lay between two areas of late Saxon settlement (see above, p.1 and below, p.240), and activity of this period is reflected by finds of a hooked tag with ring-and-dot decoration (Fig.36, No.13) and a finger- or ear-ring (Fig.35, No.1).

Period 2 (*c.*1050-1150)
No small finds of this period were found in context; this reflects the scanty level of activity and predominantly industrial nature of the waste being deposited here.

Period 3 (*c.*1150-1275)
The finds are again sparse. Some datable objects residual in later contexts, however, reflect the use of the site as a rubbish tip during the 12th and 13th centuries. There is, for example, a 13th-century lead seal matrix (Fig.36, No.23); a number of 13th-century buckles (Fig.35, Nos 6 and 8); and a silver penny of Edward I (1280/81). There is also a blade from a pair of shears of 12th/13th-century type (Fig.37, No.36). Bone-working waste was apparently dumped here in the 12th and 13th centuries. Although this amounts to only two finds (an offcut from Period 3.2, and a rough-out from Period 3.3 — not illustrated), it is significant given the sparse evidence of bone-working elsewhere in Norwich, with evidence so far confined to the King Street/Castle bailey area in the early medieval period (Margeson and Williams forthcoming). A blacksmith's punch from Period 3.3 (Fig.39, No.60) may be related to the dumping of slag on site during this period.

Period 4 (*c.*1275-1400)
The finds from the early part of Period 4 include some evidence of the iron-working industry. Building A2, possibly converted to a workshop or smithy, produced a block of sandstone which, from its worn surfaces, seems to have been used for grinding and finishing metal objects. Blacksmith's tools from Period 4 consist of a hot chisel (for working iron while hot) found on hearth 1406 adjacent to smithy C1 (Fig.39, No.56), and a cold set (for working cold iron) from a pit in Period 4.7 (Fig.39, No.58). Other smith's tools from later contexts (e.g. buildings B5i, B5ii and B6ii, Fig.39, No.59) are probably residual from this phase, most of them coming from the St George's Street frontage, where smithing activity was concentrated.

There are no finds related specifically to brewing on Tenement A in Period 4.1, except the complete upper stone of a millstone (Pl.XXXV), broken deliberately and found in pit 1853, possibly used for grinding malted grain (see below, p.212).

Many of the owners of the site from 1288 to the early 14th century were involved in the leather industry. Although there is no evidence that leather-working was actually being carried out there, artefacts associated with the industry were found (on opposite sides of the site): a currier's iron slicker (Fig.39, No.65) from Period 4.6, and a currier's knife (Fig.39, No.66) from Period 5 or earlier but probably of similar date.

When compared with the quality of most of the finds from Tenements A and B, the quality of many finds from Periods 4.5, 4.6 and 4.7 on Tenement C suggests that they are probably associated with the occupation of an unexcavated house to the south of the site, the demolition material from which was spread northwards on to C and the adjacent part of Tenement B. A large number of finds relate to the building; these include door-fittings: straps, hinge-pivots and a fine hinge (Fig.38, No.42), a clench-bolt, a lock-ward (Fig.38, No.45), and a bolt. Household items include an iron candle-holder and a whittle tang knife; while tools for domestic textile work include a copper alloy thimble (Fig.38, No.53) and a bone spindle-whorl (Fig.38, No.51). The dress-fittings, although only copper alloy copies of similar types in precious metal, are of exceptional quality when compared with material from the rest of the site, and reflect a well-to-do life-style in the vicinity. Notable among them are two annular brooches, one zoomorphic and one with six bosses set with glass (Fig.35, Nos 3 and 4; Pl.XXXVI). The quality of these finds may be compared with the imported pottery found around building C, which it is assumed was thrown out of the same building at this time (see above, p.182). There is also an assemblage of horse equipment which may reflect the relative wealth of the inhabitants: two horseshoes, a horseshoe nail, part of a spur and a bridle link (Fig.40, Nos 70-72).

Period 5 (*c.*1400-1450)
The buildings of Period 5 are simple clay-walled, two-roomed cottages. Structural ironwork such as hinge pivots, staples and straps came from buildings A3i and A4i. The whetstones were probably used in a domestic context (see below, p.212) and other implements include a fish-hook (Fig.37, No.38). There are also dress-fittings. Buildings B1i and B2 also produced implements used in domestic crafts, such as a bone spindle-whorl (similar to Fig.38, No.51), and perhaps early evidence of commercial activity on site with a fragment of scale-pan. A 14th-century decorated annular brooch is notable among the dress-fittings (Fig.35, No.5).

Period 6 (*c.*1450-1500)
The houses of Period 6 were of the same type as in Period 5, but the finds (notably the personal implements and jewellery, and also household fittings) reflect a higher standard of living. Building A3iv, in addition to structural ironwork, staples and a hinge-pivot, also produced the earliest securely stratified example of window-glass from the site.

Tenement B also produced structural ironwork (a rove, a ?latch-rest and binding), domestic implements and furnishings, including an iron candle-holder (Fig.37, No.29). Personal items include a 15th-century

nail-cleaner (Fig.36, No.20) and a 14th-century strap-end, residual in context (Fig.35, No.11). The seventy-nine fragments of stone, including mullions, found as post-packing in building B3 (post-hole 437) must have been brought in from elsewhere, as houses such as these would certainly not have had stone windows. The site lies close-by St George's Church, a possible source. Domestic implements from this building include a cauldron foot fragment and a knife. A moulded pin fragment from a 14th-century brooch is notable among dress-fittings. Building B4 produced a decorated back-plate from furniture (Fig.36, No.26) and an interesting assemblage of personal implements and dress-fittings such as an unguent spoon or ear-scoop made of twisted copper alloy wire (Fig.36, No.21). A 15th-century 'fede' ring of gilded copper alloy is of particular quality among the finds from this house (Fig.35, No.2). The French jetton, *c.*1360-80, may still have been in use (SF302N/*672*, see below, p.213).

Tenement C was disused in Period 6 and therefore has few distinctive finds apart from a lock-ward (not illustrated).

Period 7 (*c.*1500-1575)
Period 7 saw the introduction of flint and flint-and-brick rubble-walled houses, more substantially built than the earlier buildings on site, but of similar size. The finds are more numerous, and some may be from moveable furniture which reflects an increasing material culture characteristic of the 16th century (though with no increase in wealth).

A door stud was recovered from building A5i in Period 7.1, and a key from Tenement A may come from the same building (Fig.38, No.46). Among domestic furnishings is a copper alloy candle-holder (Fig.37, No.28). The backing-plate from a heckle or woolcomb (Fig.38, No.48) may belong with a number of heckle or woolcomb teeth found in a pit in Period 9 in the same area, and indicates craft activity. Building A5ii produced a copper alloy vessel foot (see below, p.211) and a stone spindle-whorl (Fig.38, No.52).

Building B5i produced a large amount of structural ironwork: a wall-hook, a hinge-pivot and a strap-hinge (Fig.38, No.43), a barrel-padlock case (Fig.38, No.44), a lock-bolt, a key (Fig.38, No.47), and staples; and a wide range of tools and implements: two blacksmith's chisels, a woodworker's paring chisel (Fig.39, No.63), knives, shears and a sickle (Fig.40, No.68). This unusual survival of iron implements may be due to the particular circumstances surrounding the rebuilding of this house (see above, p.162). There are also whetstones which (with the smith's tools) may be residual from the iron-working of Period 4. Copper alloy studs, roves and mounts (including Fig.36, No.25) probably come from furniture. Household objects include a copper alloy vessel fragment (see below, p.211), and an iron bag-hook (Fig.37, No.27). A stone spindle-whorl indicates crafts in the house. There are numerous drawn wire dress pins (see p.204) and lace-tags (Fig.36, No.16), a belt-slide, a double-hooked fastener (Fig.36, No.14) and an iron buckle, as well as a probable horse-harness bell.

Building C3i contained a 15th-century French jetton, and domestic furnishings (a copper alloy vessel fragment, see p.211, and a knife blade). Dress-fittings include pins and a lace-tag (Fig.36, No.18). There is another horse-harness bell. There are no finds, however, to suggest a use for the oven (see above, p.163) although the property was owned by people in both the dyeing and the brewing industries (see below, p.238).

Period 8 (*c.*1575-1600)
The few finds consist mostly of structural ironwork and dress-fittings. A blacksmith's hot chisel was recovered from building A6 (Fig.39, No.57). Among the finds from building B5ii on St George's Street is a clench-bolt from a door, and straps. There is a fine copper alloy upholstery needle, probably contemporary in context (Fig.38, No.54), and a bone knife-handle of characteristic late 16th-century form (Fig.37, No.34). A blacksmith's chisel from B5ii and a smith's cold set from building B6ii (Fig.39, No.59) may be residual from Period 4, as there is no obvious industrial context on the site at this time to explain their presence.

Period 9 (*c.*1600-1675)
There is archaeological evidence for a commercial frontage to Muspole Street at this date (see below, p.244), with ovens on plot 3, possibly related to an alehouse on Tenement C. There was a sub-division of buildings on Alms Lane, probably associated with a decline in status under the pressure of the population explosion (see below, p.252). This decline is not, however, reflected in the finds to any extent, although there is certainly evidence of commercial activity. The copper alloy folding balance (Fig.40, No.69) is one such example. There are also more coins and jettons from this part of the site than from other stratified contexts on the rest of the site (with the exception of the group of farthings in cesspit 2422 in the same area during Period 11, see below), and these may be associated with the use of an alehouse. The ?three-farthings coin of Elizabeth I (SF302N/*338*) and the farthing of James I (SF302N/*167*) are contemporary in context (see below, p.213) and the German jetton of *c.*1530 from oven 221 may still have been in use during the operation of the ?alehouse. Other finds correspond with the date of this phase, in particular the knife with whittle tang and bolster, a characteristic early 17th-century type (Fig.37, No.33), a rowel-spur fragment of the second quarter of the 17th century (Fig.40, No.73), and a late 16th/early 17th-century buckle with suspension loop (Fig.35, No.9), all from pit 609. The closest parallel to the buckle is one from Amsterdam, which is interesting in view of the other 'Dutch' finds, pit 609 being adjacent to the boundary of the properties thought to have been occupied by immigrants from the Low Countries (see below, p.260). The same area produced three unusual textile fragments (see below, p.211), one a knitted ?purse fragment, one a fragment of silk/cotton damask (?from a waistcoat or jacket lining), and one of decorated whipcord. These fragments, and in particular the damask which is of non-local manufacture, may reflect the presence of inhabitants of some status.

Among the finds from Tenement C in Period 9 is an iron candle-holder and the rim of an iron vessel. A pair of iron callipers (Fig.39, No.64) may have been used by a woodworker.

A particularly interesting find (as a further example of small-scale craft activity) was a stone mould fragment (Fig.39, No.61) found on Tenement A in a context of

Period 9 or later. The mould was used for casting rings, and one from this actual mould fragment was found in a pit *c.*14m away on Tenement B (Fig.39, No.62). The rings may have been used as dress fasteners. From the same layer as the mould (and thus giving it a general date bracket) came a German jetton (SF302N/*686*, see below, p.213) of 16th/17th-century date.

Period 10 (*c.*1675-1720)
From Period 10 onwards, the pattern of waste disposal seems to have altered the character of artefacts in the stratigraphy, with fewer finds and a greater quantity of residual material. Industrial or craft activity is not represented, and a distinctively domestic assemblage includes window-glass, utensils (drinking-glass of 16th/17th-century date, Fig.37, No.40) and implements (a whetstone). From Tenement A came a 17th-century farthing token (SF302N/*137*, see below, p.213) and part of a double-sided ivory comb, probably of 16th/17th-century date (Fig.36, No.22). A lathe-turned bone bobbin or parchment pricker from pit 692 may also be contemporary (Fig.38, No.55).

Period 11 (*c.*1720-1750)
Period 11 saw a major change in the status of the housing on site (see below, p.257). Associated with the construction of the large semi-courtyard plan house A11i (and including material from the backfill of cesspit 2422) is a large number of finds, including building ironwork and fittings (hinge-pivot, hinge, staple, and barrel-padlock case or key), and window-glass (including a complete quarry) representing demolition of building A7. Among domestic fittings are glass vessel fragments of 17th/18th-century date, a copper alloy tack, rivets and a decorated inlay strip. There is a scale-pan fragment, and a deposit of five farthings of Charles I (SFs302N/*159, 160, 161, 163* and *198*) in the cesspit, perhaps the contents of a purse (see below, p.213).

Period 12 (*c.*1750-1800)
The character of the deposits does not change significantly during Period 12. Building A11ii produced a gaming-counter made from a filed-down sherd of tin-glazed earthenware of the second half of the 17th century. A most unusual residual find is an early 16th-century compass-dial (Fig.36, No.24; Pl.XXXVII).

Period 13 (*c.*1800-1942)
There is some notable residual domestic material, for example a fine 16th-century knife handle with decorated copper alloy end-cap, copper alloy rivets and inlaid wire (Fig.37, No.31). There is also a single (residual) tenter-hook (Fig.38, No.50), significant as the only surviving artefact from an industry that was widespread throughout the vicinity in the medieval period, with at least one tenteryard on the west side of Muspole Street.

Dress

(a) Finger-rings (Fig.35)

1. SF302N/*2261* Period 3 or earlier, layer 1440

Copper alloy penannular finger- or ear-ring, 11th century (compare examples from Thetford, Goodall, A.R. 1984(a), fig. 110, nos 17, 19-21, and two from the Castle bailey site in Norwich, Margeson and Williams forthcoming).

2. SF302N/*673* Period 6 building B4 layer 402

Gilded copper alloy 'fede' finger-ring, 15th century (compare Oman 1974, pl. 54, A-E for 'fede' rings of the 15th century and pl. 22, C, D and E for finger-rings decorated with alternating rectangular and square panels of cast and incised ornament in the form of stylised foliage, characteristic of the 15th century).

(b) Brooches (Fig.35)

3. SF302N/*2214* Period 4.6 layer 542

Copper alloy annular brooch with six collared bosses set with blue glass pellets. Remains of pin looped over frame. A miniature version of a fairly common medieval brooch type, 13th century (compare an example from Exeter, Goodall, A.R. 1984(b), fig. 190 no.51).

4. SF302N/*2296* Period 4.5 Tenement C layer 1508

Copper alloy annular brooch in the form of two confronted winged animals, the wings and eyes represented by punched ornament. Probably 13th century.

5. SF302N/*2209* Period 5 Tenement B layer 478

Copper alloy annular brooch decorated with three applied square sheet mounts, each incised with cross-hatching. The pin of hammered sheet is looped over the frame. Probably 14th century. Compare a similar brooch, decorated with applied shields and crescents, from Broken Wharf, London (London Museum 1954, pl. LXXVIII no.2).

(c) Buckles and belt-fittings (Fig.35)

6. SF302N/*2515* Period 4.1 Tenement B (pit) layer 2195

Copper alloy buckle frame with four moulded knobs, 13th century (compare Fingerlin 1971, cat. no. 231).

7. SF302N/*588* Period 4.5 Tenement B Hearth 1406 layer 427

Iron buckle frame.

8. SF302N/*796* Period 6 layer 970

Gilded copper alloy buckle-plate decorated with lion *passant* in relief, 13th century (compare a group of buckle-plates with cast ornament in the form of mythological animals, often enamelled, Fingerlin 1971, cat. nos 12, 34, 136, 413, 451, 552, 556; Clarke and Carter 1977, fig. 130 no. 7).

9. SF302N/*685* Period 9 Tenement A/C front (pit) layer 609

Copper alloy double-looped buckle with suspension loop, late 16th/early 17th century (compare similar buckles from Amsterdam, Baart *et al.* 1977, cat. nos 207-209).

10. SF302N/*692* Period 11 building A11i pit 2422, layer 34

Copper alloy double-looped buckle with moulded tongue-rests. Probably 17th century.

11. SF302N/*2203* Period 6 Tenement B layer 472

Copper alloy strap-end, one face decorated with rocker-arm ornament. Compare a similar example from the Netherlands from the first half of the 14th century (Fingerlin 1971, cat. no. 333).

12. SF302N/*2234* unstratified Tenement B/C layer 1409

Copper alloy strap-end, one face decorated with rocker-arm ornament; lobed terminal. 14th century (cf. Fingerlin 1971, no. 564).

(d) Fasteners (Fig.36)

13. SF302N/*795* Period 1.2 layer 966

Copper alloy hooked tag, 11th century; compare similar examples with ring-and-dot decoration from 11th-century contexts at Thetford (Goodall, A.R. 1984, fig. 111 nos 32 and 33). Graham-Campbell 1982 discusses their various functions as clothes and purse fasteners.

14. SF302N/*2200* Period 7 building B5i layer 442

Copper alloy double-hooked fastener with rocker-arm ornament (compare 15th-century hooked belt-fasteners, Fingerlin 1971, cat. no. 443, and double-hooked fasteners from 15th- and 16th-century contexts in Amsterdam, Baart *et al.* 1977, cat. nos 157-160).

15. SF302N/*652* Period 6 building B4 layer 402

Copper alloy wire loop fastener. Wire loops functioned as 'eyes' and were found in considerable numbers on the site from Period 6 onwards. No corresponding hooks were found. Compare hook-and-eye fasteners from 16th/17th-century contexts in Amsterdam (Baart *et al.* 1977, cat. nos 170, 179, though on these the twisted ends curl round to form loops for attachment).

Drawn wire pins (not illustrated)
Pins of types 1, 2 and 3 occur on the site (Margeson 1982(b), fig. 23 nos 6-10). Type 1 first occurs in Period 4.1, and types 2 and 3 in Period 5, but these early occurrences may be intrusive. The largest deposits of pins (from building B5i in Period 7.2, building B5ii in Period 8, Tenement A in Period 9, and the cesspit 2422 in building A11i in Period 11) correspond with the increasing use of pins for head-dress, ruffs and sleeves in the 15th and 16th centuries, as well as for dress-making.

Lace-tags (Fig.36)
Types 1, 2 and 3 occur from Period 6 onwards, corresponding with the use of laces for fastening jerkins, hose, jackets and other items of

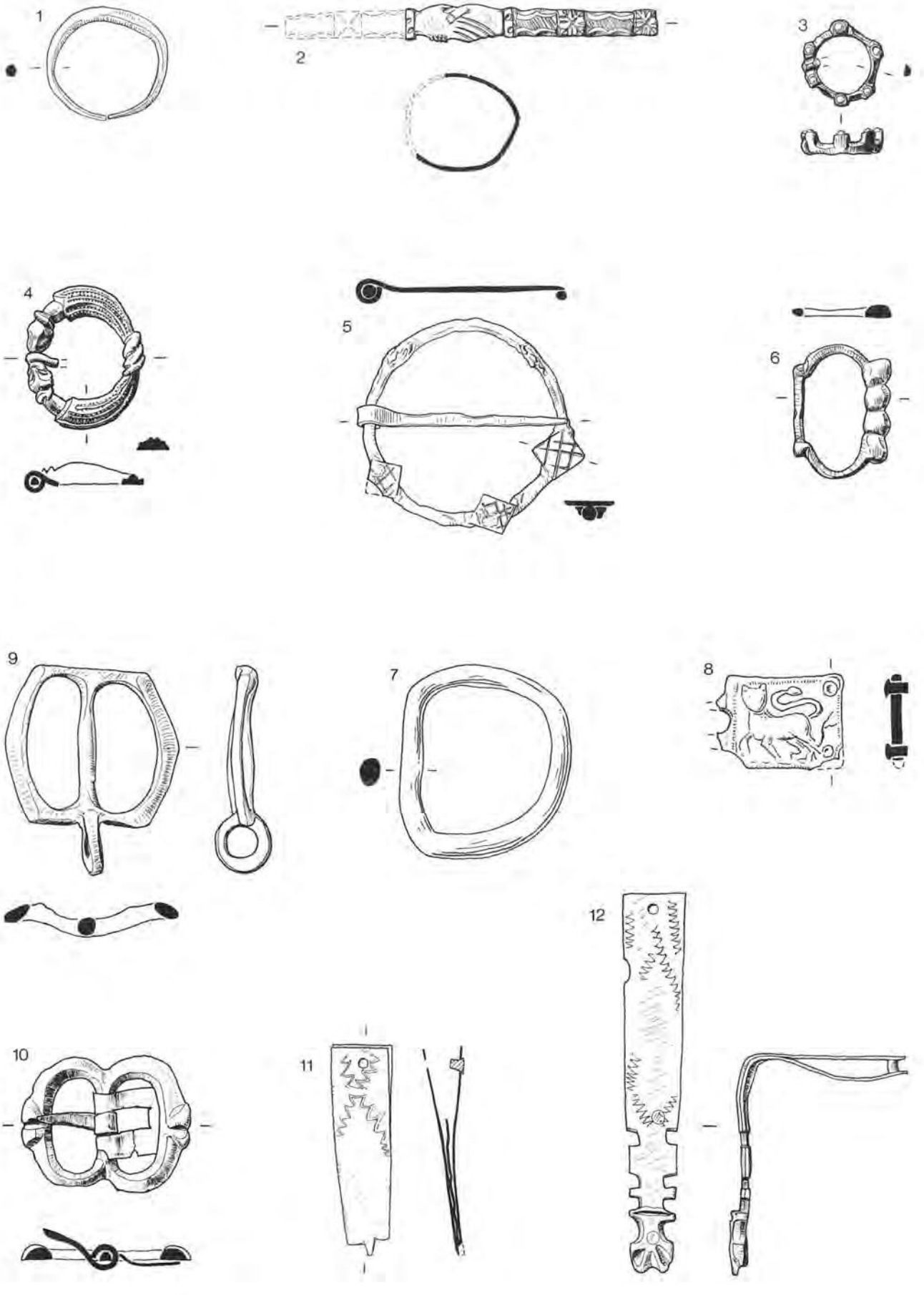


Fig.35 Site 302N. Dress-fittings: copper alloy (1-6, 8-12), iron (7). Scale 1:1

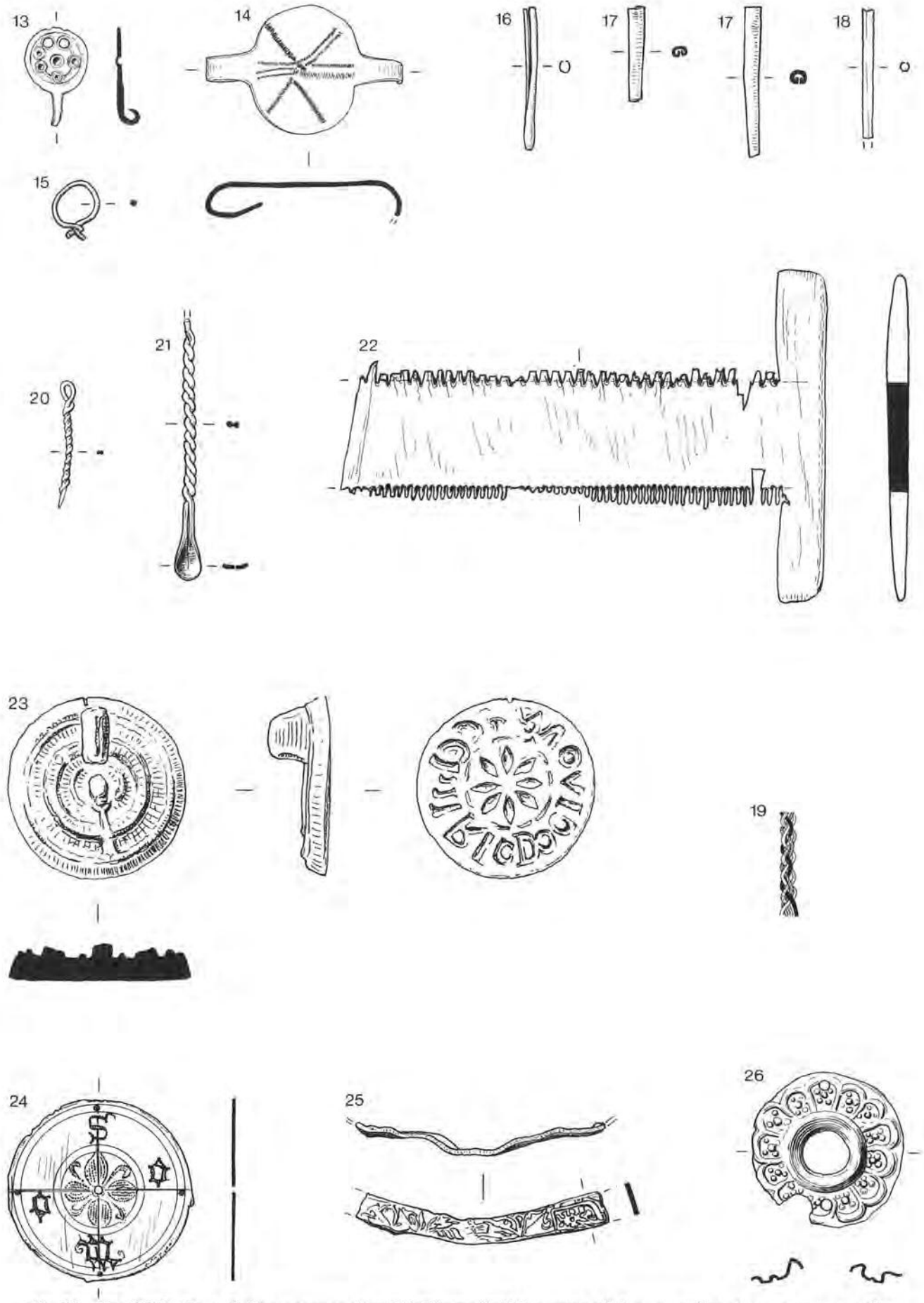


Fig.36 Site 302N. Dress-fittings: copper alloy (13-18); textile (19, not to scale); personal implements: copper alloy (20-21, 24), ivory (22), lead (23); domestic objects: copper alloy (25-26). Scale 1:1

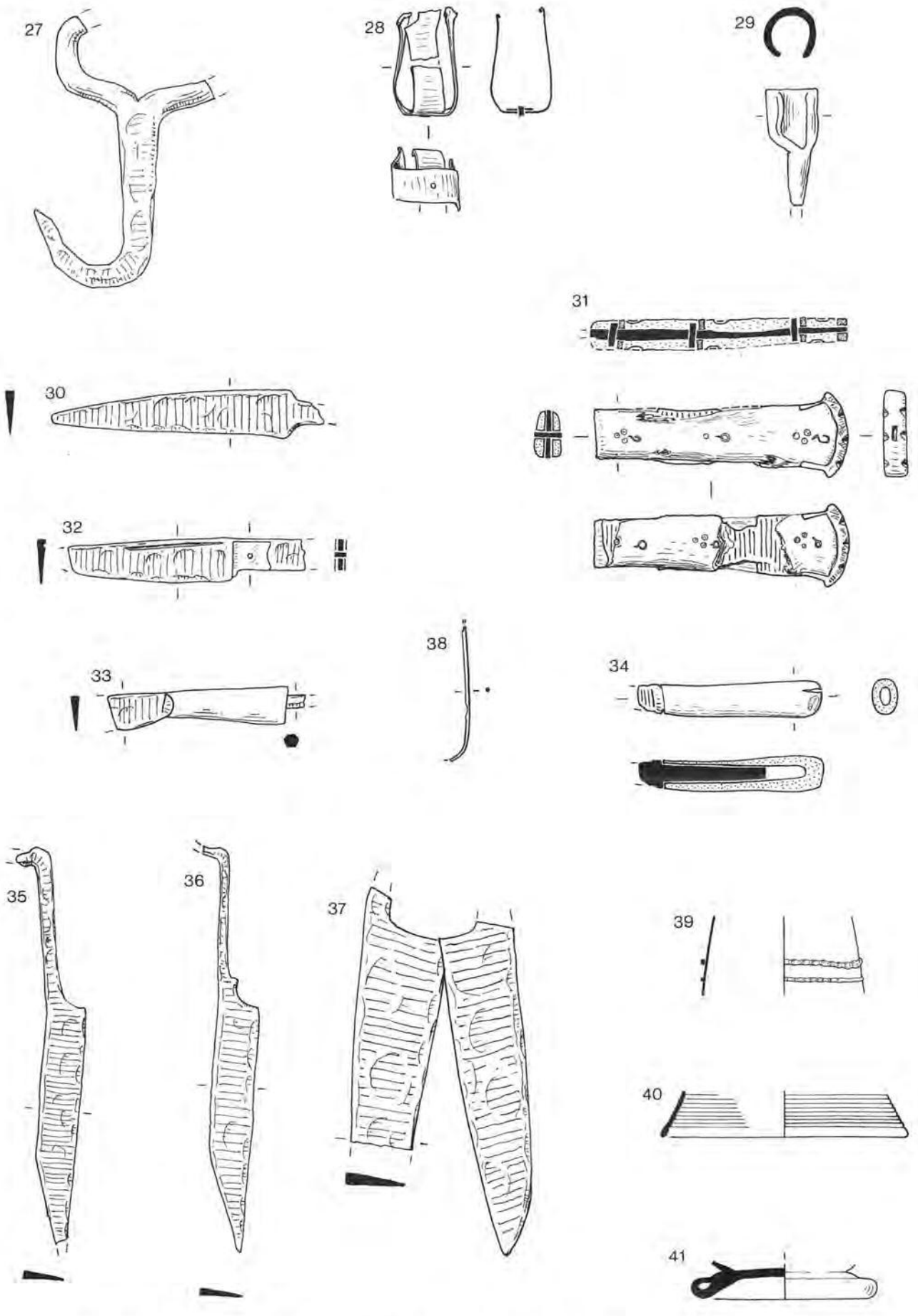


Fig.37 Site 302N. Domestic objects: iron (27, 29-38), copper alloy (28), glass (39-41). Scale 1:2

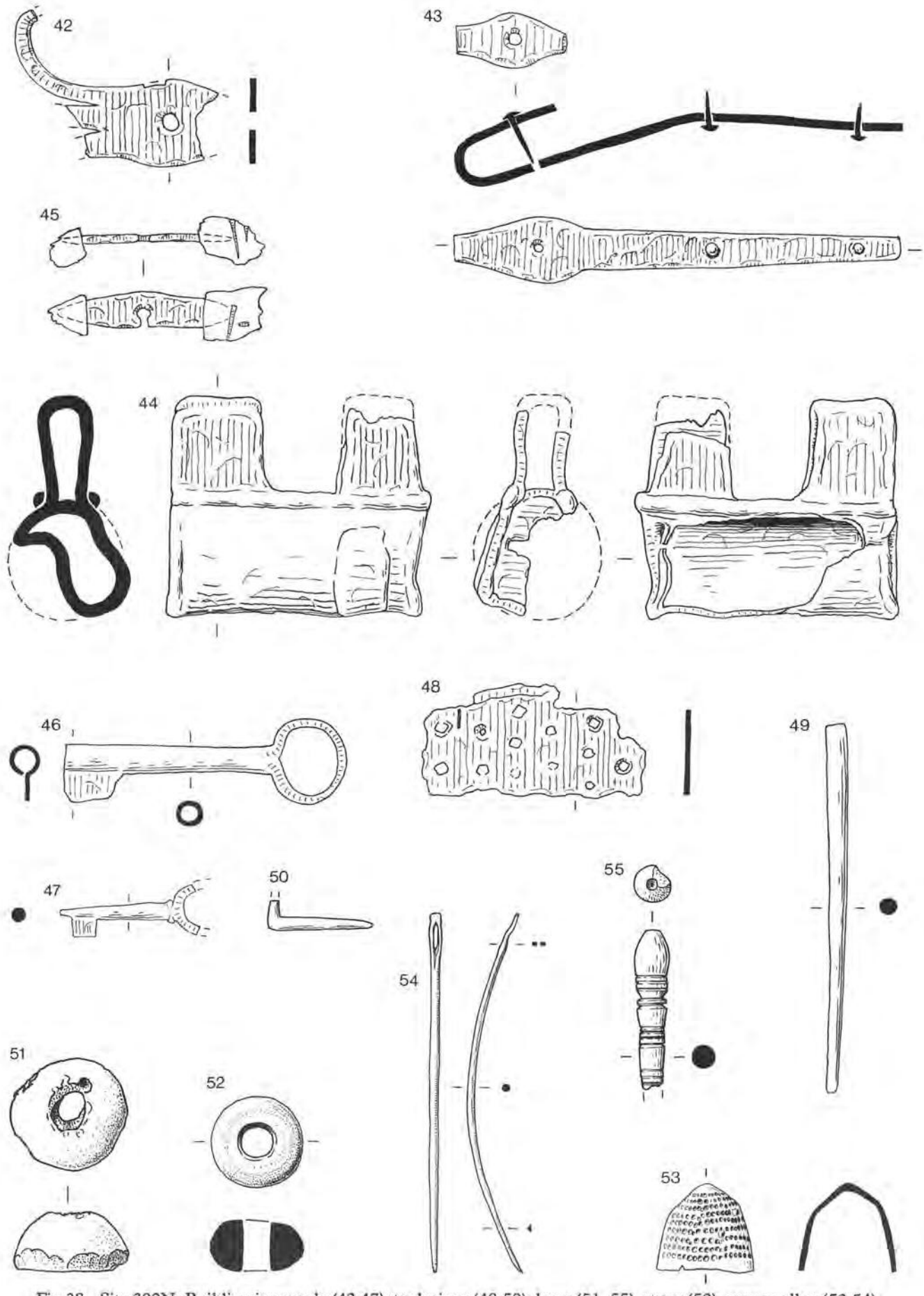


Fig.38 Site 302N. Building ironwork: (42-47); tools: iron (48-50), bone (51, 55), stone (52), copper alloy (53-54). Scale 1:2, except Nos 53-55 at 1:1

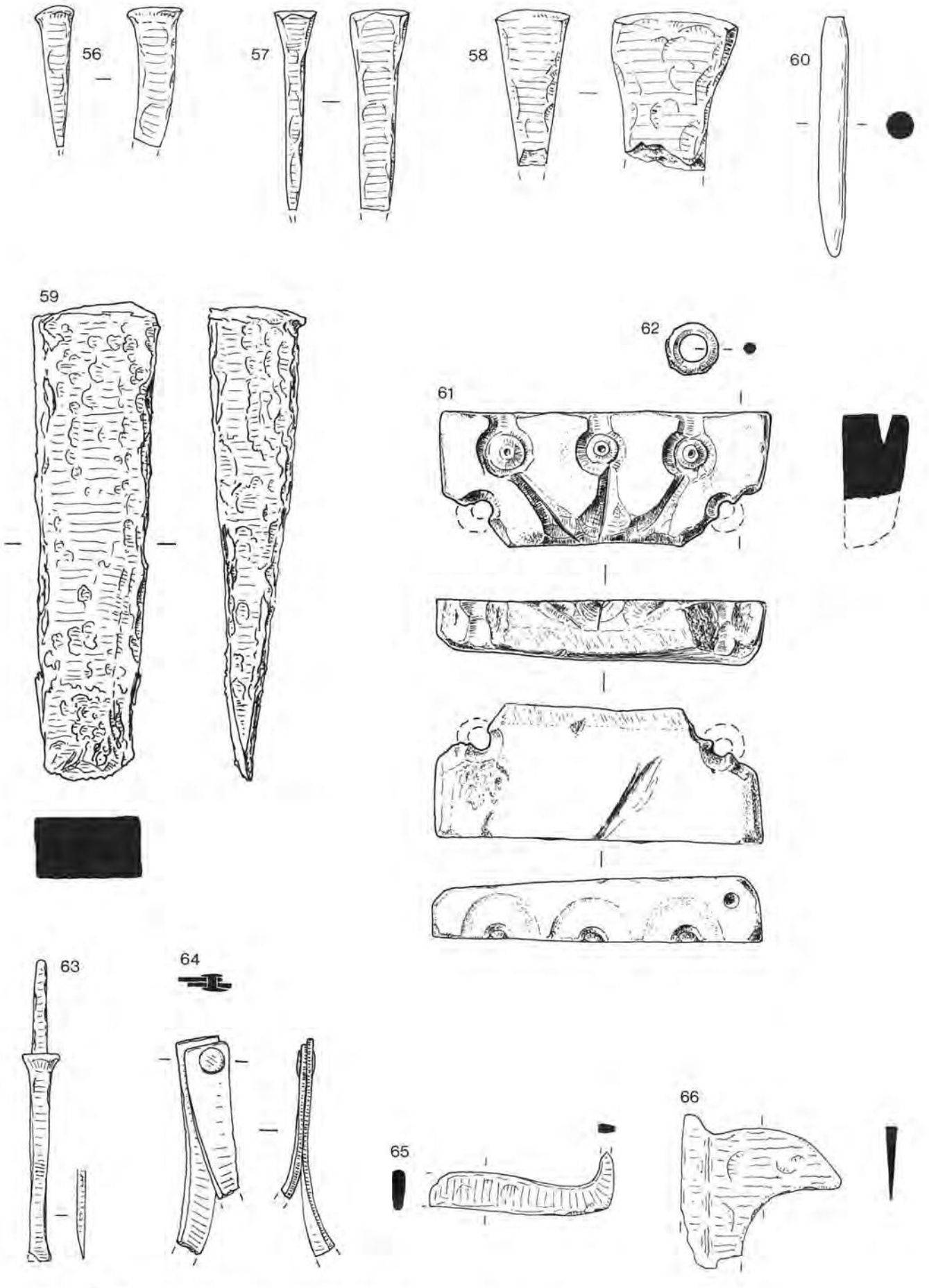


Fig.39 Site 302N. Tools: iron (56-60, 63-66: scale 1:2), stone (61, scalc 1:1), tin (62, scale 1:1)

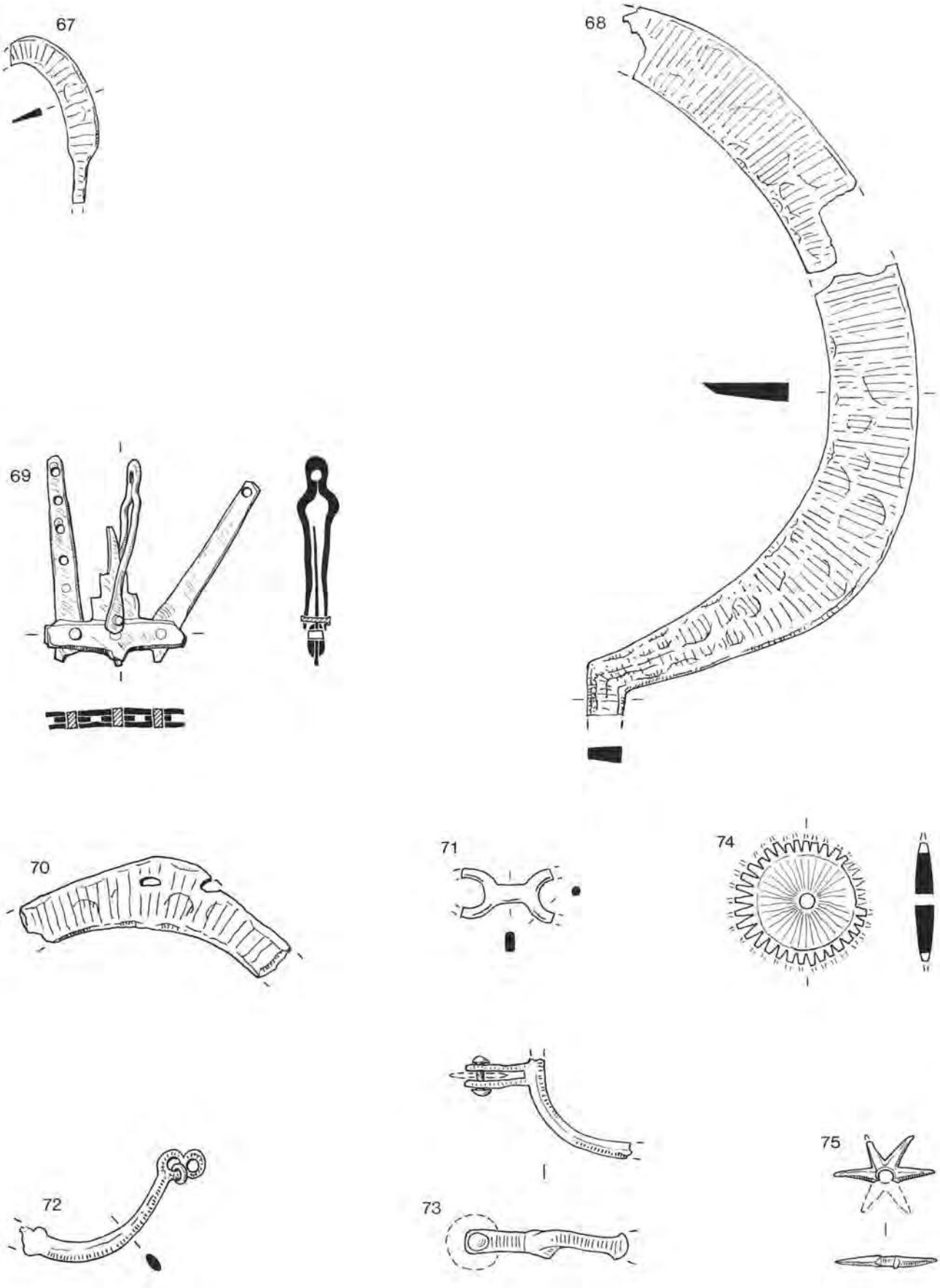


Fig.40 Site 302N. Tools, iron (67-68); trade, copper alloy (69, scale 1:1); horse equipment: iron (70-74), copper alloy (75). Scale 1:2

dress in the 16th century. The typology follows and extends Oakley 1979, 262-63: type 1 (Fig.36, No.16) being of slightly tapering form, with the lace secured by a transverse rivet at the top, and the edges overlapping only at the base (compare Margeson 1982(b), fig. 23 no. 3). Type 2 (Fig.36, No.17) is cylindrical in form, securing the lace along its length, with both edges folded inwards to grip the lace. Type 3 (Fig.36, No.18) is cylindrical, with edges overlapping along its entire length. Those illustrated are the earliest complete examples of each type on the site.

16. SF302N/*719* Period 7 building B5i layer 471
Copper alloy lace-tag, type 1.

17. SF302N/*158* Period 11 building A11i pit 2422 layer 212
Copper alloy lace-tags, type 2.

18. SF302N/*2233* Period 7 building C3i (pit) layer 1236
Copper alloy lace-tag, type 3.

Textiles (see MF 302N.2, E1) (Fig.36)

Eleven out of the fourteen fragments of textile from Alms Lane are flax tabby (plain) weaves, with the usual European Z-spinning. These flax tabbies are of similar quality, either good grade sheeting or linen suitable for garments such as shirts and nightshirts. Two have a finer slightly open weave and softer quality perhaps better suited to women's caps (from pit 1260 in building C3, Period 8/9, and unlocated in Period 8/12).

Three items are of different fibres and techniques and all come from Period 9. The fragment of damask (SF302N/*2455*) is of particular interest.

SF302N/*371* Period 9 Tenement A/C front, pit 862
Bag or purse fragment, wool. Solid even fragment of woollen knitting, in stocking stitch, folded double, and sewn along the fold with coarse deteriorated ?flax thread to the edge of a fragment of copper alloy sheet; traces suggest a line of stitching below, parallel to the fold, holding the two thicknesses together. Knitted fragments from late medieval contexts most commonly come from hose, caps or jacket sleeves (Walton 1981, 200, 226-7). This small fragment, though of very similar quality, may be part of a bag or purse with a metal rim and fastening.

SF302N/*2455* Period 9 Tenement A/C layer 116
?Jacket or ?waistcoat lining fragment, silk/cotton, solid damask. One thread system (warps) of silk, reeled and not degummed (probably to preserve extra toughness), and the other (wefts) of coarse uneven cotton (no dye was detected, examination by P. Walton). No selvedge is preserved. The fragment, now black with soot, would originally have been white. The combination of silk with cotton suggests an Indian origin. Miss Natalie Rothstein (Textile Department, Victoria and Albert Museum) points out that the use of cotton was not fully understood at this period, and this soft fabric may have been used mainly for warmth and comfort, perhaps as the lining for a jacket or waistcoat. The design cannot be recovered though the traces of silk that remain perhaps suggest a leaf spray.

19. SF302N/*374* Period 9.1 Tenement A Hearth 731 layer 912
Whipcord with silk core and silver-gilt thread. Two fragments of a narrow cord or plait in metallic thread, silver gilt strip round a yellowish silk core. The plait was probably made separately and then sewn on to whatever it decorated. Cords, braids and laces in silk and metal thread were used to decorate (or to edge more elaborate decoration on) church vestments, and to edge cuffs and collars on secular garments, and on smaller items such as caps and purses.

Personal Implements

(a) Toilet articles (Fig.36)

20. SF302N/*773* Period 6 Tenement B layer 472
Copper alloy twisted wire nail-cleaner with suspension loop, 15th century.

21. SF302N/*655* Period 6 building B4 layer 405
Copper alloy unguent spoon or ear-scoop, 15th century.

22. SF302N/*345* Period 10 Tenement A (pit 112) layer 147, joining SF*322*, Period 12 layer 115
Ivory double-sided simple comb fragment, probably 16th/17th century (compare examples from Amsterdam, Baart *et al.* 1977, cat. nos 110-113, and Southampton, Platt *et al.* 1975, cat. nos 1946, 1947).

(b) Other implements (Fig.36)

23. SF302N/*2447* Period 6 building A3iv layer 1788
Lead cast seal matrix, with engraved stock motif of octofoil and illegible legend. Projecting lug on reverse to act as handle and to orientate the matrix correctly. Below the lug, the reverse is decorated with cast relief ornament, possibly a stylised fleur-de-lis. 13th century (compare a group of lead seal matrices with stock devices common in the 12th and 13th centuries, used by those not entitled to bear arms, Rigold 1977, 324-5).

24. SF302N/*634* Period 12 building A11ii layer 254
Copper alloy disc divided into four quadrants and marked with the letters SOMO. The central field contains a punched quatrefoil. There is a small hole in the centre. The style of the lettering suggests an early 16th-century date. The letters stand for the points of the compass in Latin: *septentriones, oriens, meridies* and *occidens*. With the small hole in the centre for the disc to revolve on a pin, there seems little doubt that it functioned as a compass. (Pl.XXXVII)

Domestic Fittings and Furnishings

(a) Fittings (Fig.36)

25. SF302N/*644* Period 7.2 building B5i layer 362
Copper alloy decorated strip, off-cut from plaque. Cast ornament in the form of three acanthus-type leaves and a shield.

26. SF302N/*651* Period 6 building B4 layer 402
Copper alloy back-plate, decorated in repoussé technique.

27. SF302N/*32* Period 7.2 building B5i layer 338
Iron bag hook with broken loop, similar to one from the Manor of the More, Herts (Biddle, Barfield and Millard 1959, 185, fig. 20.5).

(b) Lighting (Fig.37)

28. SF302N/*2297* Period 7.1 building A5i layer 1772
Copper alloy candle-holder.

29. SF302N/*973* Period 6 Tenement B layer 472
Iron socketed candle-holder with broken stem.

(c) Knives and shears (Fig.37)

30. SF302N/*915* Period 5 Tenement B layer 478
Iron whittle tang knife with broken tang.

31. SF302N/*73* Period 13 (pit 361) layer 365
Knife handle with iron tang, copper alloy rivets, pins and decorated end-cap, and bone scales.

32. SF302N/*827* Period 9 Tenement A/C (pit) layer 761
Iron scale tang knife with inlaid groove on blade and riveted non-ferrous shoulder plates.

33. SF302N/*559* Period 9 Tenement A/C front (pit) layer 609
Iron whittle tang knife with bolster of typical early 17th-century form.

34. SF302N/*320* Period 8 building B5ii layer 329
Bone-handled whittle tang iron knife with bolster, late 16th century.

35. SF302N/*874* Period 9.2 Tenement A oven 221 layer 835
Iron shears arm with plain blade.

36. SF302N/*893* unstratified layer 763
Iron shears arm with cusped blade.

37. SF302N/*924* Period 9.1 Tenement A oven 731 layer 912
Iron plain shears blades.

(d) Implements (Fig.37)

38. SF302N/*907* Period 5 building A4i layer 738
Iron fish-hook, hook and flattened head lost. One of eight recovered from the site, all from Tenement A at different periods (buildings A2, A4i, A11ii and pits).

(e) Vessels of copper alloy, iron and glass (Fig.37)

There are fragments of copper alloy cooking vessels from buildings A5ii, B1i, B5i and C3i in Periods 5-7, and, probably residual from building C4 in Period 11. This distribution corresponds with the ceramic cooking-pots apparently going out of fashion during Periods 5-7 (see above, p.201). There are only two fragments of iron vessels (a rim and a lid) from Period 9 and Period 11.

Glass tableware does not appear until Period 9 when a number of 16th/17th-century vessels were found on Tenement A/C and Tenement A, some perhaps associated with the ?alehouse. Large assemblages of bottles and vessels were found in all areas of the site in Periods 11, 12 and 13. An intrusive fragment of a late medieval urinal was found in Period 4.

39. SF302N/*482* unstratified layer 924
Glass vessel fragments decorated with thin rouletted trails. Colourless glass. ?Late 15th/early 16th century.

40. SF302N/*493* Period 10 Tenement C (pit) layer 1207
Drinking-glass base fragment made of spirally wound glass. Pale green glass. 16th/17th century.

41. SF302N/*231* Period 12 layer 52
Small glass bowl base with folded foot. Pale olive green glass. 17th century.

Building ironwork and other related finds

(a) Door-fittings (Fig.38)

42. SF302N/*2605* Period 4.7 (pit) layer 2133
Iron shaped hinge terminal similar, amongst others, to those on the mid 12th-century door of Stillingfleet church, North Yorkshire (Addyman and Goodall 1979, 89-90, fig. 8, pls. XXVII, XXVIII).

43. SF302N/*904* Period 7 building B5i layer 442
Iron strap hinge with shaped, nailed u-shaped hanging loop.

(b) Locks and keys (Fig.38)

44. SF302N/*55* Period 7 building B5i layer 375
Iron distorted barrel-padlock case with key slot along underside.

45. SF302N/*2611* Period 4.7 (pit) layer 2173
Iron ward from lock with fragments of wooden supports at each end.

46. SF302N/*2176* Period 7 Tenement A layer 1997
Iron key with ring bow and bit rolled in one with hollow stem.

47. SF302N/*886* Period 7 building B5i (pit 467) layer 474
Iron key with broken ring bow, solid stem and bit.

Tools and crafts

(a) Textile manufacture (Fig.38)

48. SF302N/*2631* Period 7.1 building A5i layer 2369
Iron backing-plate from heckle or woolcomb with holes for iron teeth. A more complete example is known from Thetford (Goodall I.H. 1984, fig. 119, nos 20, 21) and several from Pottergate (p.62).

49. SF302N/*980* Period 7 building B5i (pit 356) layer 480
Iron heckle or woolcomb tooth.

50. SF302N/*1104* Period 13 (pit 361) layer 365
Iron tenter-hook with broken hook.

Spindle-whorls (Fig.38)

Five spindle-whorls were recovered from buildings B1i, B2, B5i, B5ii of Periods 4.7-7.2, varying in weight from 12.6grm to 29.5grm, indicating the production of a range of yarns of different thicknesses (the heavier the whorl, the finer the yarn). The types present here (hemispherical, biconical, discoidal, cylindrical) are all known from medieval sites elsewhere. The two selected for the catalogue are those which occur in the earliest and latest contexts.

51. SF302N/*2449* Period 4.7 layer 2159
Bone hemispherical spindle-whorl. Made from cattle femur head. Weight 15.9grm. There is another example from the site (SF302N/*2408* Period 5, building B1i, weight 21grm). Compare examples from 11th and 12th-century contexts at Thetford (Rogerson and Dallas 1984, fig. 194, nos 70-77), and Castle Acre Castle (Margeson 1982(a), fig. 46 no. 4).

52. SF302N/*2446* Period 7.2 building A5ii layer 1893
Jurassic limestone biconical spindle-whorl. Weight 29.5grm. Compare examples from 14th-century contexts in Amsterdam (Baart *et al.* 1977, cat. nos 100, 102), and a context of 1250-1350 in King's Lynn (Clarke and Carter 1977, fig. 144 nos 9, 12).

Needlework (Fig.38)

53. SF302N/*2215* Period 4.6 layer 542
Copper alloy thimble. The slightly conical form and uneven punching is characteristic of medieval thimbles (Moorhouse 1971, cat. no. 166).

54. SF302N/*119* Period 8 building B5ii layer 329
Copper alloy upholstery needle formed from rolled sheet metal.

55. SF302N/*342* Period 10 (pit 692) layer 685
Bone lathe-turned shaft. Made from the shaft of a large long bone of cattle or horse. Probably fragment of bobbin or parchment pricker (for transferring patterns). Compare a similar object from Southampton (Platt *et al*, 1975, cat. nos 1928, 1937: in 13th/14th-century contexts) and a complete example from the Castle bailey site in Norwich (Margeson and Williams forthcoming, fig. 38, no. 6), with an iron point inserted in the flattened base. The type may persist from the medieval period onwards.

(b) Metal-working (Fig.39)

56. SF302N/*846* Period 4.5 Tenement B Hearth 1406 layer 427
Iron blacksmith's hot chisel with burred head.

57. SF302N/*2104* Period 8 building A6 layer 1770
Iron blacksmith's hot chisel with burred head and broken stem.

58. SF302N/*2610* Period 4.7 (pit) layer 2172
Iron blacksmith's cold set with burred head and broken stem.

59. SF302N/*2607* Period 8 building B6ii (pit) layer 2151
Iron blacksmith's cold set with slightly burred head.

60. SF302N/*2150* Period 3.3 (pit) layer 1550
Iron blacksmith's punch. For a range of tools, etc., from a blacksmith's forge at Waltham Abbey, Essex, see Goodall, I.H. 1973, 170, fig. 11.

(c) Mould for casting (Fig.39)

61. SF302N/*351* Period 9+ Tenement A layer 686
Limestone mould fragment.

62. SF302N/*2230* unstratified Tenement B/C layer 1408
Tin or tin alloy ring with casting seam around edge; cast in mould shown in Fig.39. Perhaps used as dress-fasteners. (Metal identification, K. Wardley.)

(d) Wood-working (Fig.39)

63. SF302N/*31* Period 7.2 building B5i layer 338
Iron woodworker's paring chisel with bolster at base of tang. Compare with a post-medieval chisel and gouge, each with a bolster, from Sandal Castle, West Yorkshire (Goodall I.H. 1983, 240, fig. 4 nos 31, 32).

64. SF302N/*920* Period 9 Tenement A/C (pit 761) layer 829
Iron callipers with simple joint and broken legs.

(e) Leather-working (Fig.39)

65. SF302N/*2119* Period 4.6 layer 1487
Iron currier's slicker with broken blade and side arm, used to force dirt out of hides and rub grease in.

66. SF302N/*825* Period 1/5 (pit) layer 758
Iron currier's knife similar to one from Oakham Castle (Gathercole 1958, 33, fig. 10 no.2).

(f) Horticulture (Fig.40)

67. SF302N/*533* Period 6/8 Tenement A layer 669
Iron incomplete weedhook.

68. SF302N/*833, 510* Period 7 building B5i layer 375
Iron sickle with broken blade and tang.

(g) Querns and millstones

All the fragments of quern and millstone examined are of grey vesicular lava. It is probable that this material comes from the Rhineland, and though variously called Andernach, Mayen and Niedermendig lava, there are strong reasons for preferring the term Rhenish lava (Smith forthcoming). The absence of Millstone Grit is perhaps due to the lack of appropriate commercial contact between Norwich and northern England and the north Midlands.

The querns and millstones from this site are unlikely to have been used for producing flour as milling was tightly controlled by the municipal authorities. General stratigraphic and environmental evidence suggests that these stones were used for grinding malt. This has been suggested as the purpose of querns in a 14th-century manorial context (Beresford 1976). Until now very little has been known archaeologically about the organisation of the medieval brewing industry, but Alms Lane provides clear evidence for the small scale of the industry and the evidence that might be found for it (see pp.241-2

Among the fragments from the site, one significant example is a complete upper millstone, broken into many pieces (SF302N/*2421* layer 1851). Unlike the other fragments, often reused as hearths (for example, SF302N/*2423* layer 1462), this had been dumped in its entirety in a pit when the site was cleared at the end of Period 4 in the late 13th century.

SF302N/*2421* Period 4.1 Tenement A (pit 1853) layer 1851 (Pl.XXXV)
Millstone upper stone, complete.
Thickness varies from 2 to 4cm. Diam. 57cm. Grooved grinding surface finished with chisel marks 0.8cm wide, top roughly finished. No handle holes. The stone was probably deliberately broken.

SF302N/*2423* unstratified layer 1462
?Millstone fragments, c.7cm thick. Grooved grinding surface, underside dressed with chisel marks 0.5cm wide. Reused as hearth.

(h) Whetstones

The majority of whetstones from Alms Lane are Norwegian ragstone (see Falck-Muus 1918-21, and KLNM 'Brynestein', 285-8, on the quarrying of ragstone around Eidsborg in Telemark, and the trade routes from Eidsborg through Skien and across the North Sea; a 12th/13th-century ship with a cargo of whetstones was found off Klastad, Norway; Moore 1978, 65).

The whetstones appear in the earliest phases, in particular in Periods 4.6, 4.7 where they must have been used in the iron-working industry. Those from Periods 5, 6 and 7 (building B5) probably reflect domestic activity, though some of these may be residual.

Trade and commerce

(a) Implements (Fig.40)

69. SF302N/*736* Period 9 Tenement A/C (pit) layer 761
Copper alloy folding balance with sheet metal pointer, rolled and flattened sheet metal stirrup; beam and arms made of strips.

(b) Coins (not illustrated)

SF302N/*338* Period 9 Tenement A/C rear, layer 284
Elizabeth I, ?three-farthings.
SF302N/*167* Period 9.2 Tenement A/C oven 221 layer 221
James I royal farthing token, 1613-25.
SF302N/*137* Period 10 layer 112
17th-century farthing token.
SF302N/*159* Period 11 (pit 2422) layer 212
Charles I royal farthing token, 1625-34.
SF302N/*161* Period 11 (pit 2422) layer 212
Charles I royal farthing token, 1625-34.
SF302N/*198* Period 11 (pit 2422) layer 34
Charles I royal farthing token, 1625-34.
SF302N/*160* Period 11 (pit 2422) layer 212
Charles I 'rose' farthing token, 1635-44.
SF302N/*163* Period 11 (pit 2422) layer 212
Charles I 'rose' farthing token, 1635-44.

(c) Jettons (not illustrated)

SF302N/*727* Period 5 layer 742
French, 14th century
Obverse: open jewelled crown; legend illegible. Reverse: cross of two strands fleurdelisée, with a lis in the centre, within tressure. Diam. 20mm.
SF302N/*672* Period 6 building B4 layer 402
French official, c.1360-80
Obverse: dolphin; legend illegible. Reverse: cross flory. Diam. 24mm.
SF302N/*2223* Period 7 building C3i layer 1226
French, third quarter 15th century, Tournai
Obverse: shield of France ancient within tressure; legend illegible. Reverse: cross patée. Diam. 28mm.
SF302N/*735* Period 9.2 Tenement A/C oven 221, layer 874
German, c.1530
Obverse: 3 crowns alternating with 3 lis; fictitious legend. Reverse: *reichsapfel* in trilobe; fictitious legend. Diam. 25mm.
SF302N/*686* Period 9+ layer 686
German, stock Nuremberg, 16th/17th century
Obverse: 3 crowns alternating with 3 lis. Reverse: *reichsapfel* in trilobe. Diam. 25mm.

Miscellaneous

(a) Horse equipment (Fig.40)

70. SF302N/*2603* Period 4.7 layer 1873
Iron horseshoe arm with calkin, wavy edge and counter-sunk nail-holes.
71. SF302N/*2155* Period 4.7 layer 1881
Iron link from bridle-bit with non-ferrous plating.
72. SF302N/*2615* Period 4.7 (pit) layer 2098
Iron downcurved spur side with figure-eight terminal, 14th-15th century.
73. SF302N/*557* Period 9 Tenement A/C front, pit 609
Iron rowel spur with straight sides, one broken. Empty rowel box. Probably second quarter 17th century.
74. SF302N/*2193* Period 6 building A3iv layer 1919
Iron rowel of about 34 points with non-ferrous plating. Large rowels of this type were fashionable during the second half 14th century.
75. SF302N/*746* Period 6 Tenement B layer 472
Copper alloy star rowel fragment, originally of six points.

The Clay Pipes

by Susanne Atkin

The excavation produced 1185 fragments, from 106 out of *c.*2500 contexts (8 contexts were unphased). Of the 160 datable bowls from the site, 68 were from Period 9 pits, in particular from the pits in the yard of Tenement A/C. A further 41 bowls occurred as residual material in later periods, but in contexts which cut/overlay these Period 9 areas. The format of this report will follow that of the main excavation report in discussing the material by period and tenement, but reference is also made to the tables in microfiche (MFT.8). Figures 41-2 illustrate the main forms of the bowls, and a fragment of a Dutch stem (identified by Don Duco), from Periods 9-11. The incidence of types of bowl is shown on Fig.43.

Periods 3-8 (12th-16th centuries)

A total of twelve small stem fragments and only two bowl fragments (17th and 18th centuries) scattered between eleven medieval contexts (seven of them in Tenement B); those from Tenement A (2117, 1771) represent intrusion from 17th or 18th-century building activity, and those from Tenement B from 18th/19th-century activity (on the basis of the narrower stem bores), particularly the excavation of the cellarage. The average stem length is 40mm.

Period 9 (*c.*1600-1675)

Tenement A, building A8: layers 1737 and 1774 were the only contexts within a building in this period to contain clay pipe bowls (four of 1640-80), one of them covered in mortar.

Yard: midden 93 contained 122 fragments, including 16 bowls dating to *c.*1630-80; of these, 15 stems and 6 bowls were coated in a brown stain which has been identified by Peter Murphy as calcium phosphate, resulting from contact with decaying waste matter as in a midden or cesspit.

Tenement A/C: the majority of the pipe finds (both from Period 9 and from the entire site) came from the pits in this one area, the yard adjacent to Tenement A. Pits 284, 609, 610 and 862 produced a total of 248 fragments, 36 of them bowls ranging in date from 1600-80 at the limits, but the majority all lie within a shorter span of 1630-70, with only one later, narrow-bored (and therefore intrusive) stem (in pit 284). These bowls (and those from midden 93) represent the two main forms of mid 17th-century Norwich bowl-types: the bulbous, waisted bowl (Fig.41, No.3); and, found here in slightly larger numbers, the more gently curving-sided bowl types (Fig.41, Nos 4 and 6). Both of them are similar to London types of *c.*1640-70 (AO 1969, fig 1, nos 10 and 12).

All the bowls from these pits have been smoked, some of them heavily (compared to the numbers of unsmoked bowls from cesspit 160 on site 281N). The incidence of manufacturing faults, evident on the mid 17th-century Pottergate group (p.50) is comparatively low: two bowls bear spots of glaze (in pits 609 and 610); the clay on some bowls is badly cracked (particularly from midden 93); a few have badly trimmed bases; and a few bowls are from badly-fitting, worn moulds where there is a misalignment of the two halves of the bowls indicating a mould near the end of its life (in pit 610; and layer 147 in Period 10). Many of the surfaces are rough and well-used with black or grey patches on the exterior which could result from normal, though heavy, use, but there are also some stems and bowls which are severely burnt, others have a reddened appearance, and some have 'clinker' or 'slag' attached, as would be the case if they had been in contact with 'kiln-type' conditions. The majority of such fragments come from clay-lined pit 610, together with a very hard-fired bowl fragment and distorted pieces of stems and bowls.

Tenement A/C, Oven 221 (Period 9.2): eleven fragments,

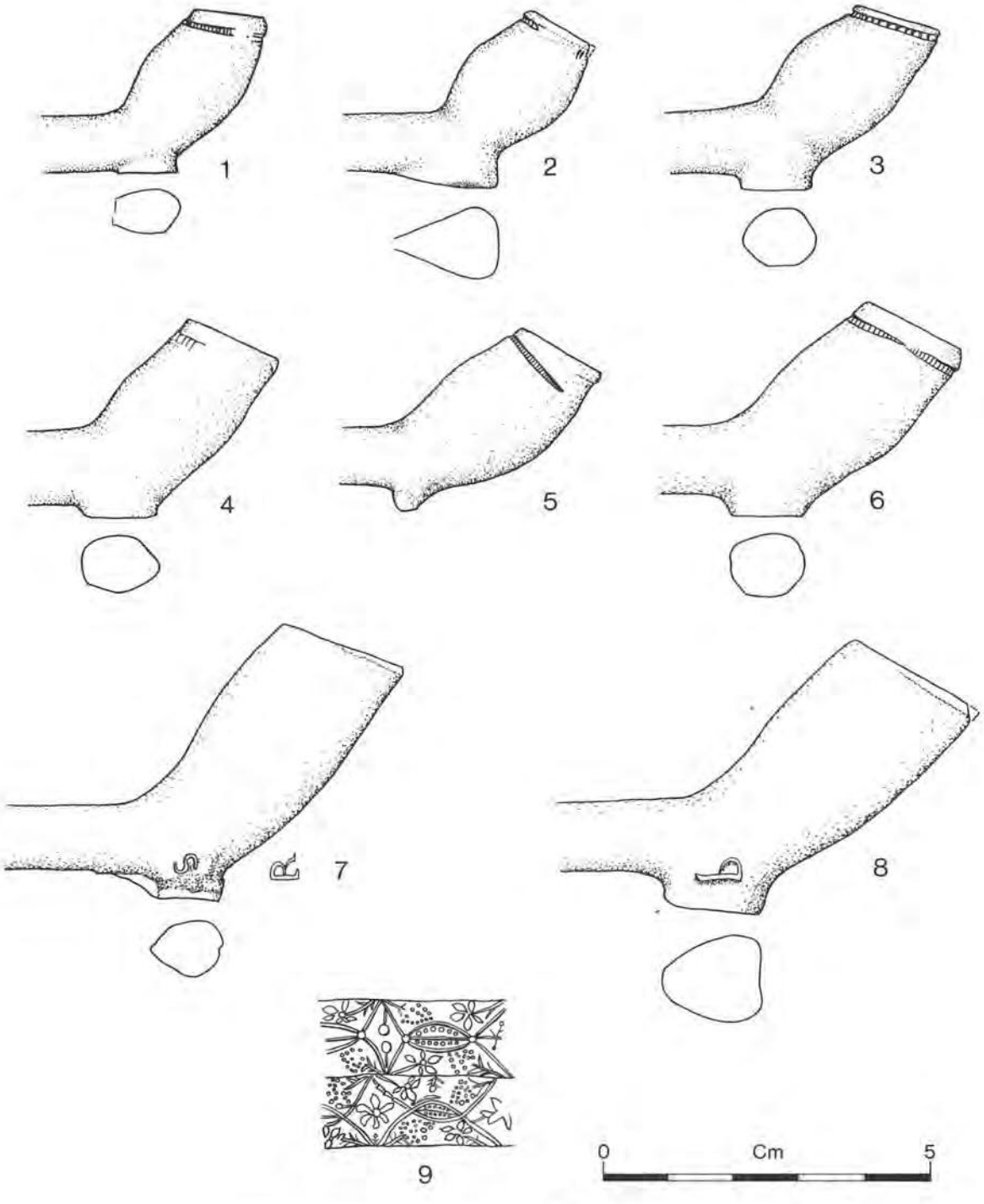


Fig.41 Site 302N. Clay pipes. Periods 9 and 10. Scale 1:1

including a bowl of *c.*1650-80 were recovered from 221 and floor 279 (see below for a further discussion of the use of the feature).
Tenement B, building B5ii: three contexts produced four stems.

Period 10 (*c.*1675-1720)
Tenement A, building A9 and yard: two stem fragments in layer 1762 (backfill of cesspit 2421) were the only pipe fragments from building A9; one other stem fragment came from a layer in the yard outside (1811) which is perhaps surprising in view of the amount of finds recovered from both 1811 and the feature that it replaced, midden 93.

The upper sealing layers of rubbish pit 112 (layers 112 and 147) produced 209 fragments, of which 27 were bowls, the earliest dating from 1620-40, but the majority are within the range 1640-70/80 (Fig.41, Nos 5 and 6). The fragment of Dutch stem with an elaborate, stylized floral design in relief (Fig.41, No.9), has been identified by Don Duco as being 'found more often in the western parts of the Netherlands, dating from the very late 1660s and mainly from the 1670s'. (Another fragment of Dutch stem occurred in 19th-century pit 71 (layer 72), which clipped the edge of pit 112, and contained three bowls dating to *c.*1640-70; this stem may have been made in Amsterdam, and possibly earlier than No.9: Duco, in correspondence, 1983.)

Only one bowl is definitely post-1680, and probably has a terminal date of *c.*1720 (Fig.41, No.7); the initials RS, mould-imparted on the sides of the 'egg-shaped' base may refer to Richard Skipper, apprenticed in 1699 (Karshner 1979), and they are a commonly found set of initials in Norwich (see Pottergate, p.51, for later types of RS pipes). The bowl-type is called here 'transitional' to distinguish it from the earlier bulbous or straighter-sided types and the later pedestal-based bowls. It is contemporary with some of those found in the backfill of pit 2422, Period 11 (Fig.42, Nos 10 and 11).
Tenement B, building B9: make-up layer 1967 produced one bowl, *c.*1680-1710 (Fig.41, No.8) covered in mortar.
Tenement C, building C3, and robber trench 1206: eighteen fragments (from four contexts), including two bowls of 1650-80.

Period 11 (*c.*1720-1750)
Tenement A, building A11i: four contexts (pit 138; layers 140 and 214; floor 185) produced twenty-one fragments including three residual bowls of *c.*1640-60.

Pit 2422 is a survival of use from Period 10; the backfills (34, 212, 222) produced sixty-eight fragments, including fifteen bowls, the majority dating to within 1690-1740. Two bowls in 212 again represent a small residual element of 1640-80/90, with a transitional bowl of *c.*1670/80 representing the only bowl of its type on Tenement A—two others of similar date and type are on Tenement B (Period 13). Eight bowls, typologically between 1690 and 1750/60, have mould-imparted makers'

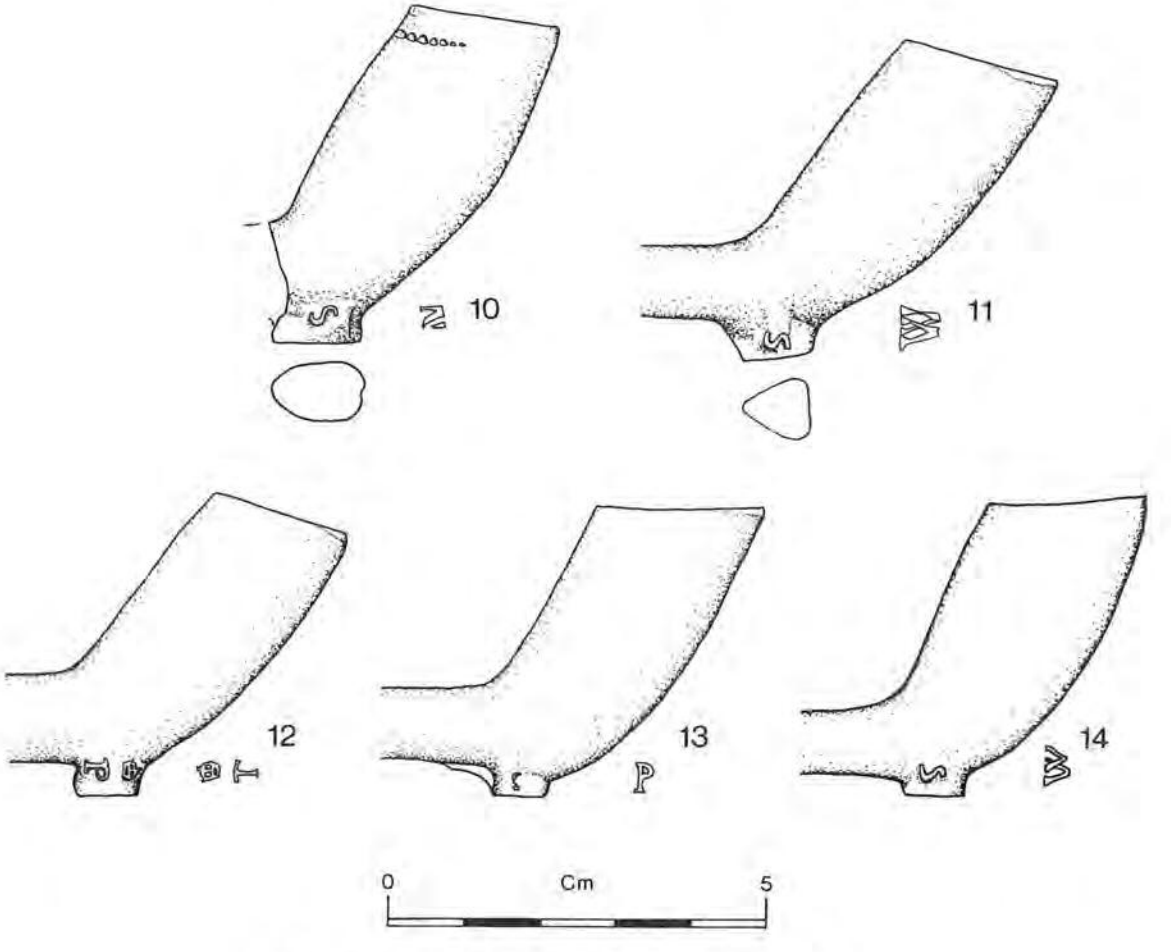


Fig.42 Site 302N. Clay pipes. Period 11. Scale 1:1

initials (plus two which are unmarked). The bowl forms are various, ranging from two bowls of 1690-1720, one of which has a line of rouletting below the rim (Fig.42, Nos 10 and 11) to three pedestal-based bowls of 1710-50/60, two of them with the rim nearly parallel to the stem (Fig.42, Nos 12-14). The initials WS could refer to William Symonds, recorded in Norwich in 1693, although the two bowls illustrated in Fig.42, Nos 11 and 14 would suggest a production period for the maker of at least thirty or forty years. TP crowned (Fig.42, No.12) is the mark of Thomas Parsley of Redenhall, Norfolk, recorded taking apprentices in 1722 and 1736, but out of business by 1743 (Atkin, S. forthcoming). The practice of marking a bowl with crowned letters occurred in London *c.*1700-60, and this bowl-type falls within those dates. The pedestal-based bowl-types in Fig.42, Nos 12-14 do not survive from any other context on Alms Lane.

The stems in the backfill of pit 2422 are in general longer than in any other context, suggesting minimal disturbance.

Tenement B: no finds.

Tenement C, building C4: context 372 produced two late stems. Well 1202 (1211, 1230, 1255) produced seventeen fragments including one bowl fragment, probably 17th century.

Period 12 (*c.*1750-1800)

Tenement A, building A11ii: only thirty-four fragments from ten contexts; the four bowls are between 1620-80 and therefore are clearly residual.

Tenement A, Yard: Pit 113 (117, 613, 658) produced thirty-seven fragments including two bowls (in 117) of differing dates but both residual—an early bulbous type (1640-60), and a straight-sided type (1660-80). The latter is only one of three examples of this new form on Alms Lane, the other two appearing in sewer trench 67 (Period 13). Both pit 113 and sewer trench 67 cut through Period 9 pit 862.

Period 13 (*c.*1800-1942)

A collection of modern pits, sewer trenches and miscellaneous contexts with redeposited fills. Seven out of fifteen contexts contain a total of seventeen bowls of *c.*1630-80.

Tenement A: pits 7, 22 and 33 contain very small numbers of mixed 17th to 18th/19th-century material; the spurred, thin-stemmed bowl in pit 33 is probably late 18th century.

The sixteen other contexts listed in MFT.8 as containing clay pipes can all be located in contexts in the 'yard' area of Tenement A, cutting through the pits (mainly 862 and 112) of Periods 9 and 10.

Tenement B: contexts 301, 320 and 1708 produced a total of forty-one fragments.

Context 1708: two bowls consistent in date with the other (mainly Period 9) bowl-types from this site, *c.*1630-80.

Context 301: one bowl of *c.*1680-1710, and therefore of a similar date to the bowl-type found in another Tenement B context, layer 1967 in Period 10.

Context 320: one bowl similar to AO 1969, fig.2, no.27, 1780-1820, and as its spur is untrimmed, it probably dates from after *c.*1800 (Oswald 1981(b), 71) and is the only contemporary bowl in this period.

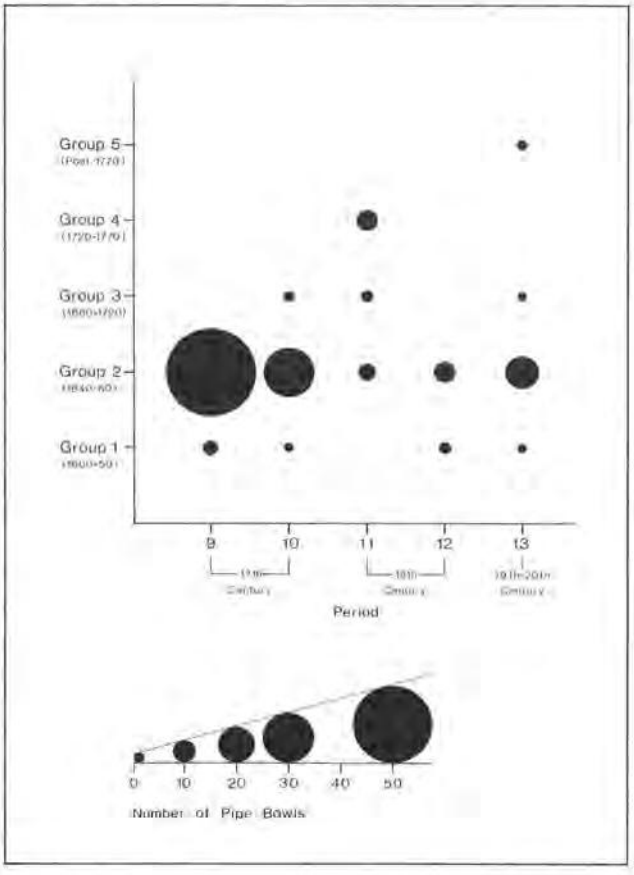


Fig.43 Site 302N. Distribution of clay pipes by period

Discussion

Apart from a very small number of early 17th-century bowl-shapes (Fig.41, Nos 1 and 2) which also occur in London prior to 1650, the bulk of the bowls date from the mid 17th century and were found in largeish numbers over the site, mainly in the Period 9 pits. They then occur as residual material in the periods following Period 9 (Fig.43). Three examples of a 'new' straight-sided bowl type, appearing in London 1660-80 (AO 1969, fig.1, no.18) occur in sewer trench 67 and layer 117 (cutting through Period 9 pit 862)—otherwise, there appears to be little evidence of additions to the typology over a period of fifty-odd years.

The evidence of contact with burning and high temperatures noted in the Period 9 pits also occurs in Tenement A/C contexts from Periods 11, 12, 13 (and in unphased contexts), from, presumably, redeposited contexts originating from Period 9 (see Fig. 43), and could point to an association with the oven (221) in the corner of plot 3, with the pits that produced clay pipes all within a 5m radius of it (clay-lined pit 610 within pit 862 being one of the closest). In the absence of any evidence of waste kiln material, this feature could perhaps have been used to clean the dirty pipes for reuse (Le Cheminant 1978, 187-189) during the comparatively long period of time that they were being smoked. Bakers' ovens were used for firing and cleaning pipes and perhaps this oven, whatever its original use (perhaps from a brewhouse), served the same purpose. The frontage of building C3 during Period 9 was used for

commercial/industrial purposes (possibly a tavern), and the presence of a considerable number of pipes, nearly all showing signs of long and 'heavy' use, might suggest that they were smoked by the artisans on the work premises, or by customers.

The bowl typology provides scant evidence for the use of clay pipes after Period 9. Unmarked bowls of the types found in large numbers on sites 281N and 149N, sub-site 1 *c.*1675-90 are markedly absent. All that survives in bowl terms of the years post-1680/90 are the five marked transitional bowl-types that can be equated with Norwich makers working during the last decade of the 17th century and up to *c.*1740. Even the typologically later bowl-forms in the backfills of pit 2422 (Fig.42, Nos 10-14) have been deposited in a pre-existant pit in backfill excavated from elsewhere; the very few post-1700 pits on site contain no contemporary pipes. As the site was occupied throughout this time the absence of certain bowl-types, and of 18th-century finds in particular (also seen in the pottery assemblages) could be significant in emphasizing the change in rubbish disposal (see below for the implications on the system of rubbish disposal).

On Tenements B and C, where the evidence would have been destroyed by the insertion of later post-medieval cellars, it's worthwhile noting the two late 17th/?early 18th-century bowls in contexts 301 and 1967 (Fig.41, No.8), both Tenement B contexts, and both unlike any bowls found on Tenement A (or A/C). The mortar-covered bowl in layer 1967 suggests that it may have been dropped by workmen during the rebuilding of the fireplace in building B9.

Theoretically, it is thought possible to judge the 'socio-economic' status of a site by the quality of the pipes (Davey 1981, 75-6). Duco's study of different areas of 17th-century Amsterdam showed clearly that 'each social group chose its own particular kind of pipe' (Duco 1981, 384). Burnishing of pipes in the Dutch pipemaking industry signified a higher price of pipe: of the fourteen contexts containing burnished bowls and stems, only layer 1774 (in building A8) is located outside the Tenement A/C yard area; of the ten burnished bowls, seven are from Period 9. It cannot be definitely stated whether these occur as a result of the status/wealth of the smokers, or whether it is due to a number of immigrants preferring burnished bowls to plain ones and so creating a demand fulfilled by local makers. This is an aspect of clay pipe study that will be investigated in more detail in the light of the associated finds in the forthcoming volume on Norwich pipes.

Periods 9 and 10 (Fig.41)

1. Small; well-finished, grey tinge to clay, three-quarter milling, wide bore. Pit 609, Period 9. One example. 1610-40.
2. Small, bulbous; lopsided, milled all round. Pit 862, Period 9. Two other examples in layers 1782 (Period 12) and 1773 (unphased). 1620-60.
3. Waisted bulbous; milled all round rim. Pit 862, Period 9. 1640-60.
4. Curving-sided; slightly larger than No.3, frontal milling. Midden 93, Period 9. 1640-70.
5. Spurred bowl; cracks in clay, frontal milling. Layer 147, pit 112, Period 10. AO 1969, fig.1, nos 14, 15: 1660-80; Rutter and Davey 1980, figs 13-15: 1650-80.
6. Neatly made, carefully finished bowl, three-quarter milling, small flat inner base. Pit 112, Period 10. 1660-80.
7. Transitional marked bowl; unmilled, two halves of mould unevenly joined (most visible on base), small flat inner base. Initials RS. Pit 112, Period 10. *c.*1690-1720?
8. Transitional marked bowl; wide mouth, thick stem; covered in mortar. Very large heart-shaped base marked on right side, no mark visible on left side. Layer 1967, building B9, Period 10. *c.*1680-1710.
9. Dutch stem fragment with stylised floral decoration in relief. From the western part of the Netherlands, 1660s-1670s (pers. comm. Don Duco). Layer 147, pit 112, Period 10.

Period 11, Pit 2422 (Fig.42)

10. Transitional marked bowl; frontal milling, flat inner base. Backfill 212. *c.*1690-1720. NS—no Norfolk maker recorded with initials, but commonly found in Norwich and surrounding districts.
11. Transitional marked bowl; thin-walled, knife-cut rim, unmilled. Backfill 212. *c.*1690-1725? One of three bowls marked WS in pit 2422, all of differing shapes. Similar type of bowl in pit 112, Period 10, marked RS (Fig.41, No.7).

Nos 12-14. All with pedestal base; unmilled, knife-cut rim. AO 1969, fig.2, no.25: 1700-70.

12. Nearly upright. Backfill 34. *c.*1690-1730.
13. Upright; flat inner base. Backfill 212. Mark PS—maker unknown. One of four examples of 'standard' 18th-century shape and size in pit 2422 (one of them marked WS).
14. Upright; small flat inner base, long surviving stem. Backfill 212. Latest bowl typologically with WS mark, but no reason to suggest that bowl cannot be contemporary with No.11, given the range for each bowl.

The Ceramic Building Materials[1]

by P.J. Drury

Fragments of 'early' bricks, made from estuarine or fluvial silts, first appear on the site in Period 4.1, i.e. probably within the last quarter of the 13th century, and occur (equally sparsely) in Periods 4.2, 4.5, 4.6, and 4.7 (Fig.44, summarising MFT.5 and 6). Those from hearth 1406 (Period 4.5) and a recognisable EB4 from layer 1150 (associated with the Period 4.1 smithy C1) suggest the occasional opportunistic use of bricks on the site during the 14th century, but it is equally possible that all reached the site accidentally with the materials for building in clay. Bricks (in particular the large EB1) were probably first introduced to the city in connection with the building of the curtain wall around the Castle motte in 1268-70, and were used extensively thereafter in the town walls. What is perhaps remarkable is the rapid dispersal of brick fragments across the city in the late 13th century, site 302N being by no means exceptional in this respect.

During the 15th century (Periods 5 and 6), early brick fragments became slightly more common, but usage seems to have here remained almost as rare and opportunistic as in Period 4. Identifiable examples of EB3 and EB4 were associated with building B4 in Period 6, and wall 2163 in building B1i included some brick (not retained, but presumably EB) with the flint.

By contrast, during Periods 7 and 8 no fewer than eight different types of early brick (EB1-4, 6-9) were used on the site. In Period 7 they occur wholly as broken bats, rubble from the demolition of other buildings from which all the whole bricks had been salvaged presumably for better quality work elsewhere (or at a higher level in the excavated buildings). In Period 8 came the first consistent use of whole bricks (of types EB6 and 7) in fireplace 2000 (B6ii). Dating of individual types between the late 13th and early 16th centuries is at present problematical and here irrelevant; but the problem of their immediate source is not. One suspects that the dissolution of some urban churches provided the bulk of this hardcore. 'Late' bricks, of sandy clay, size LB1 (*c.*215/235 x 105/115 x 45/50mm) first appear in Period 7, but scattered across the site in fragments like the early

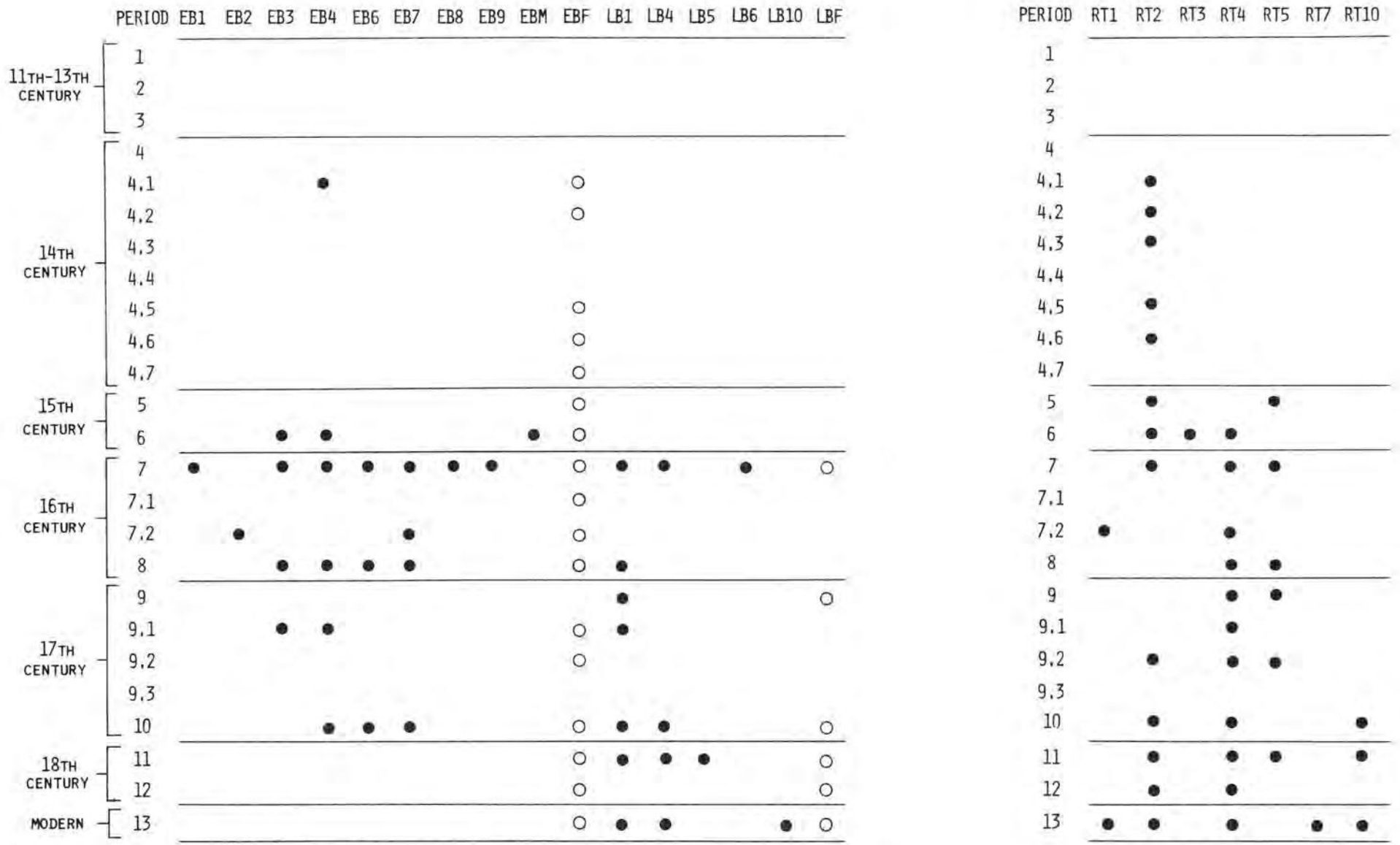


Fig.44 Site 302N. Incidence of brick and tile by period

bricks. There is a single LB6 from layer 313 (building B5i), an unusual size for the period (220 x 110 x 65/70mm). These all probably arrived on the site as part of the rubble assemblage. This is quite possible since they were being made, for example, at or near Baconsthorpe Castle, north Norfolk, as early as the final quarter of the 15th century. In Period 8, however, LB1s are confined to contexts associated with building B6 (and occur residually in B9, Period 10), which suggests that they were acquired new when B6 was built.

In Period 9 and later, the incidence of early bricks falls off rapidly, as would be expected. Bricks of type LB1 seem to have remained the norm well into the 18th century, being associated with A11i in Period 11. Bricks of type LB4, which represent a minor variation of size and finish, probably lie early in the date-range of LB1 and are here associated with pit 2422, building A7. During the 18th century, bricks tended to become thicker and narrower, reflected here by LB5 (100/110 x 55mm), associated with B5iii, Period 11. Nineteenth-century greyish-yellow bricks of type LB10 were present in Period 13 contexts.

The earliest type of rooftile on the site is RT2, glazed pegtiles *c.*250 x 175mm. They are associated primarily with the smithy C1 of Period 4.2, and occur residually around the site of the building until Period 7. A date early in the 14th century is implied, i.e. within the period when they are likely to have been made. There can be little doubt, however, that these decorative tiles were normally to be found at this time on the roofs of the more important burgess houses and public buildings of the city, their use here being due to the desirability of a fireproof roof-covering on a smithy.

Their typological successors, RT3, are effectively absent, and unglazed pegtiles of type RT4 (*c.*240 x 170mm) almost so before Period 7. Thus it seems likely that before the 16th-century rebuilding only structure C1 had ever had a tiled roof. In Period 7 there is a clear association between unglazed pegtiles (RT4) and buildings B5i and C3i, suggesting that these had tiled roofs. This incidence is reflected in that of the unspecified tile recorded in association with B5ii in Period 8, but those associated with A6 may reflect an extension of tile usage on the site, though not necessarily on the roofs of buildings, for in Period 9.2 pegtiles of both RT4 and RT5 were clearly used in the hearth (layers 201, 279, 296, 835 in oven 221). In Period 11 (*c.*1720-50) they are associated primarily with building A11i (with some from C4, perhaps residual from C3), suggesting that its roof was covered with them, and in Period 12 (*c.*1750-1800) they are connected exclusively with its rebuilding A11ii.

Of the pegtiles in unusual fabrics, the scarce fragments of RT1 probably arrived on the site as rubble in Period 7. Those of RT5 are scattered through space and time, but being glazed are all likely to be residual in the contexts of Period 5 onwards from which they came. Pantiles (RT10) first appear, as one might expect, in Period 10 contexts (*c.*1675-1720), and completely displaced the use of pegtiles probably during the course of the 18th century.

The few medieval (pre-1550) glazed floor-tile fragments (FT2, 6-10, 17) are clearly strays, but interestingly are not obviously associated with the Period 7/8 influx of medieval rubble. A fragment of an unglazed paving tile (FT22-6) from pit 381 (building B5ii, Period 8) confirms the period of origin of the type, but there is no clear evidence of their use before Period 10, which with the incidence of FT26 in layer 89 (Period 9.2) indicates that thin yellow paving bricks were in use by the early 18th century.

Endnote

1. The classification used here is set out in full in Drury 1982, microfiche supplement 147N.MF1, A6-B9 and revised in MF Intro.1, A1-9, this volume.

VII. The Raw Materials

The Iron Ore

by Ian Fisher

Samples of iron ore taken from iron-pan in the natural sand cut by pit 849 in Period 3 were submitted to analysis and thin-sectioned. They are poorly sorted sandstones with quartz (SiO_2) grains ranging in shape from angular to sub-rounded. The rock is cemented by goethite (FEO.OH)/Limonite (FeO. OHn H_2O) which are hydrated iron oxides. It is difficult to assess the true limonite content of the rocks as it produces marked staining of other clay-sized grains. It appears though to be in some cases as much as 50% (by volume) although overall probably only about 10% (these values are at best very subjective). Limonite itself contains about 60% Fe and is a recognised iron ore, forming the major component of some French iron deposits. The limonite represents a replacement of another iron mineral, possibly siderite ($FeCO_3$) or chamosite (an iron-rich alumino-silicate).

The sample probably forms part of the Cretaceous carstone (a well-known ferruginous sandstone) which outcrops in north Norfolk. Parts of the carstone contain considerably more iron than in the samples inspected, which may represent ore left in the sides of the quarry for this very reason, having a low iron content. Assuming the value of 10% limonite containing 60% Fe, the whole rock would contain somewhere in the region of 6% iron, which is probably too low to be useful in iron-working. Assuming, however, that parts of the carstone contain 50% limonite, the amount seen in parts of the thin-section, ore used for smelting may have contained up to 30% Fe, which would be quite sufficient to support a good smelting works. After roasting the iron content may have risen to around 60%. This compares to an Fe content of 45.2% of the nodules from the smelting site at West Runton, Norfolk (believed to increase to 52.8% after roasting).

The Coal Samples

by A.V.H. Smith

Eight samples of coal from the site were submitted for analysis, each comprising single pieces. Most were less than 2.5cm in maximum length. The samples comprised both dull and bright coals, and all showed slight signs of weathering.

Approximately half of each sample was crushed and a portion of the crushed coal was mounted in an epoxy resin for measurements of reflectance after polishing. Reflectance measurements are made on the vitrinite component of coal and the values obtained are closely related to the volatile matter and the carbon content of the vitrinite. Reflectance is therefore a reliable indication

of coal rank. The other portion was macerated to obtain the spores. It is not possible to assign a small piece of coal to a particular seam but from a knowledge of the geological ranges of the species observed it is possible to indicate the horizon above, or below, which a particular coal must have originated.

Results of Analysis

MFT.9 (302N.2, E10) gives the values of average maximum reflectance on the vitrinite component of each sample. The approximate volatile matter (dry ash free basis) corresponding to the reflectance value of each coal is also shown.

The values of average maximum reflectance cover the range 0.98-1.19% (VM 37.5-29.0%) and indicate that the coals are of high and medium volatile bituminous type. Coals of this rank belong to the categories of strong caking coals and prime coking coals.

Three samples yielded poor spore assemblages with few species and can only be assigned to the Coal Measures. All of the remaining can be assigned more precisely to seams in the Middle Coal Measures. No spores were seen which characterise the seams in the upper part of the Middle Coal Measures. One assemblage contained a species which does not occur in seams above the horizon of the Ryhope marine band in the Durham coalfield or the equivalent horizon in other coalfields. This horizon occurs in the upper part of the Middle Coal Measures and separates strata of Westphalian Band C age. It also marks the boundary between Lower and Upper similis-pulchra non marine bivalve zone.

Origin of coals

It is not possible to relate a small piece of coal to its coalfield of origin but it is possible to exclude certain coalfields as a possible source on the grounds that coals of a particular age and rank do not occur. Thus those coals which have an average reflectance >1.0% and which are of Middle Coal Measures age could not have come from the Yorkshire, Nottinghamshire and North Derbyshire coalfields where coals of this age are of lower rank. The nearest source is the Durham coalfield where outcrops of the approximate age and rank occur along the banks of the River Wear in the Chester-le-Street/Finchale/Durham locality and also in the general area between Ferryhill and Coundon. Whilst those coals having a reflectance <1.0% could have originated from other coalfields, it seems unnecessary to consider this possibility since such coals also occur in the Durham coalfield.

The range of reflectance values shown by samples from most of the sites sampled in Norwich (281N, 284N and 302N this volume; 148N, 283N) suggest an origin from different seams or from different localities of the same seam. There is no evidence to suggest that the coals from any particular site were exclusively from a different source.

VIII. Environmental Evidence

The Animal Bones

by Judith Cartledge

Introduction

Despite the valuable results which have been gained at Southampton and Exeter, comparatively little work has yet been published on urban bone assemblages in this country. The animal bones from Norwich are of great value because the assemblages comprise several contemporary samples produced by a range of industrial, marketing and domestic activities, associated with sites of varying social status. The following report is a summary of results so far from Alms Lane, site 302N, with some reference to other sites in Norwich, and forms part of a wider study of faunal remains from the city. In the present report, layers producing animal bone are mainly considered in relation to period. The layers have also been divided according to tenement (by period) but no significant variation was recorded.

Quantification

a) Total number of fragments: the faunal sample comprised 37,686 fragments (Table 11). Only 22,686 fragments (60% of the total) came from stratified contexts or a single defined period and are therefore suitable for analysis. The range of animals represented included frog or toad, rodents, hare, rabbit, cat, dog, equids, roe, fallow and red deer, but eighty percent of the identifiable fragments were of pig, sheep/goat and cattle. The large numbers of bird bones consisted chiefly of domestic fowl, goose and some duck, and will be considered separately (pp.222-3). Lagomorphs (rabbits and hares) were common, considering the diminutive size of the bones and consequent vulnerability to destruction. Cat bones were not present before the

Total no. of fragments	Pig	Sheep/Goat	Cattle	Hare	Rabbit	Cat	Dog	Horse	Fallow Deer	Red Deer	Roe Deer	Rodent	Bird	Frog/Toad	Ribs	Vertibrae	Unident. frags.	TOTAL
Period 1	12	17	30				1					1	18	1	33	23	86	223
Period 2	11	20	33				1	1					3		28	9	97	203
Period 3	25	77	80	1	1				1				28		92	31	137	472
Period 4	159	482	452		7	17	4	3		1		1	191		473	242	773	2805
Period 5	125	355	542	5	12	20	10	8				1	134		330	241	596	2379
Period 6	113	376	420	2	18	14	4	5	1		1	1	188		379	231	901	2654
Period 7	182	482	477	2	44	13	3	1				1	306		557	403	1196	3667
Period 8	52	146	136	4	16	5	1						79		167	96	154	852
Period 9	142	468	657	1	36	13	3	3	3			114	236		592	313	1021	3606
Period 10	25	109	100		3		14						31	1	111	62	256	712
Period 11	108	409	350	5	19	16	4					1	154		362	213	673	2314
Period 12	58	166	222		10	20	27	2	2				52		227	140	405	1329
Period 13	42	357	218	2	14	9				1		8	46		205	134	432	1470
TOTAL	1058	3464	3717	22	180	127	72	23	7	2	1	128	1466	2	3552	2138	6727	22686

Table 11 Site 302N. Summary of animal bones, by species and period

domestic occupation of Period 4, but occur thereafter in most periods. There is good evidence for grain-processing and storage on the site during Period 4, and it is possible that the cat bones from this period are from animals used to control the rodent population. The large number of rat fragments in Period 9 (1600-1675) are accounted for by at least three individual rats from layer 912. A large number of the bird bones bore teeth marks, probably from cats (information from M. Harman). The combined total of deer fragments formed only 1% of the identifiable fragments and came from bone rather than from antler (chiefly meat/waste bones).

During Periods 1-3, when the site was basically an industrial rubbish tip, there were fewer bones than in the later periods. Most of the bones from these later periods are likely to have been part of domestic rubbish deposited there (with a high degree of residuality from Period 10 onwards). There was very little evidence from worked bone to suggest any manufacturing industry here (see above, p.202).

b) Main Mammalian Species (MMS) (MFT.12): from the quantification based on fragments examined, there are no obvious spatial patterns between the various tenements within periods. There is, however, a clear overall chronological pattern for the numbers of fragments by period, particularly where there are over 200 fragments within a period. Pig bones consistently form below 20% of fragments. Cattle and sheep/goat frequently comprise around 40-50% of fragments. The most common animal discards on the site are therefore cattle and sheep/goat, with pig coming a poor third. If one includes Periods 1 and 2, both of whose respective total MMS fragments are less than 100, pig percentages undergo an initial decline in the late 13th century, whilst sheep if anything undergo a slight increase; cattle remain at much the same level.

These conclusions are, however, based on fragment counts only, which are subject to several limitations. The fragment percentages are influenced by the differing capacities of the skeleton of a species to survive taphonomic and excavation processes. Cattle bones, for instance, are more likely to survive than those of sheep/goat and pig. To some extent the degree to which these latter species are underrepresented can be estimated by differing methods of quantification. One of these methods is to examine the proportions of the various parts of the skeleton that have survived. Other methods of quantification—for example Minimum Numbers of Individuals (MNI) and Relative Frequencies can expose the particular factors affecting the fragment percentages. It is intended to undertake these forms of analysis at a later date within the wider study of Norwich faunal assemblages.

c) Skeletal Proportions (MFT.16): the pattern of the skeletal proportions from the Main Mammalian Species (MMS) all seem similar. For all species the main factors determining which bones are present are firstly the size of the bones, and secondly the tendency of each type of bone to fragment.

The skull fragments form a high percentage as do the girdles and upper limb bones. The phalanges and the carpal/tarsal bones form a very small percentage in relation to their frequency within the skeletal frame. This low occurrence of bones in groups 5 and 6 (302N, MFT.16) is probably due to their diminutive size and consequent poor recovery. The size-effect thus influences the frequencies of pig and sheep/goat bones even more so than in the case of cattle. Pig percentages vary more than those of cattle and sheep/goat largely because the sample is small. The metapodials seem to be of an expected frequency according to their proportion in the skeletal frame so it is likely that all parts of the carcass were being imported on to the site.

The only groups in which there seemed to be an especially peculiar distribution were in Period 11, building A11i, in particular layer 222 from cesspit 2422 where the numbers of sheep/goat phalanges and metapodials were disproportionately high, and layer 93 (a suspected midden on Tenement A, Period 9) where the number of cattle phalanges was also comparatively large.

It did appear that cattle skulls may have been more fragmented than those of other species so to check that they were not obliterating any underlying trend, the skull fragments, mandibles, maxilla and teeth were subtracted from the MMS calculation. This changed the situation to the extent that sheep/goat now had the highest total of fragments but otherwise the effect was not greatly significant.

Main Mammalian Species (MMS); size and age study (MFT.13-19)

Pig

a) Measurements (MFT.15): none of the sites so far studied in Norwich has produced sufficient pig fragments for any size or age patterns to be distinguished. The radius measurements from Alms Lane (302N), Whitefriars (421N) and Heigham Street (283N), however, all appear to fall within a very tight range. The other measurements do not even show this. This means that further metrical studies will be necessary in an attempt to define size groups.

b) Dentition (MFT.18): most pigs were slaughtered at a young age with all the mandibles containing fourth premolars in a very early stage of wear, or else well-worn milk teeth, but there are a few older exceptions. Most of the third molars of these individuals are no further developed than the *a* wear stage, but one third molar was worn to the *k* stage and another to the *g* stage.

Sheep/goat

a) Measurements (MFT.14): the radius measurements indicate a slight increase in size range around the 16th century. The smallest common measurement increases at this time from 26mm to 27mm. The top of the range for both groups is 32mm. Periods 7 to 9, and 11 to 13, have much the same size range and so it is possible that the later bones are just reworked and residual bones from earlier periods. This also matches the incidence of finds and environmental evidence on site, which has led the excavator to suggest that rubbish disposal on site had ceased by *c.*1690.

Compared with the Whitefriars (421N) and Heigham Street (283N) sites, Alms Lane (302N) has a wider range of measurements. Over half of the site 302N measurements are smaller than, or equal to, the smallest of the Whitefriars measurements, and yet the site 302N peak is the same as at Whitefriars. Heigham Street (283N) differs in that the measurements are more closely grouped and they come to a more uniform peak (Cartledge forthcoming). Similarly, the size range of tibia (measurement 1) is smaller than at Whitefriars (421N).

b) Dentition (MFT.17): the majority of the sheep/goat dentition seems to come from fairly mature animals. Over half of the mandibles are beyond the *g* wear stage in the first molar. However, there are also a few mandibles still possessed of their deciduous molars, but these too are usually well-worn. Again the absence of very immature animals resembles Heigham Street (283N).

Cattle

a) Measurements (MFT.13): the radius measurements from Alms Lane (302N) possibly formed a smaller range than at Heigham Street (283N) and Whitefriars (421N). However the measurements overlap, and there are too few measurable radii from Whitefriars for one to be certain of this. Two out of five of both Heigham Street (283N) and Whitefriars (421N) radii were over 80mm whereas all but one of the nineteen Alms Lane (302N) radii were under 80mm.

The metatarsal measurements 5 and 6 follow the same pattern with site 302N at the lower end of the range as compared to Heigham Street and Whitefriars.

b) Dentition (MFT.19): there are eighteen out of fifty-eight mandibles containing deciduous teeth, mostly at an early wear stage. There seem to be two distinct groups, one of six months or under, the other of over three years. According to a table produced by Grigson (Grigson 1982, 13) based on criteria used by some German authors, twelve mandibles come from animals of six months or under, and thirty-five come from animals over three years old. This does not necessarily indicate the preferred age for slaughter since differential preservation may have considerably favoured the survival of the more mature mandibles.

Conclusions

Most of the bones are from domestic rubbish deposits, although there may be some evidence of sheep slaughtering on site from the fill of cesspit 2422 in Period 11 (waste from Period 10), and possibly cattle slaughtering waste from midden 93 on Tenement A in Period 9 (1600-1675).

It is clear that of the domestic animals, cattle and sheep/goat were the most important throughout the occupation of the site, pigs being of lesser importance—though all three together account for the majority of the bones found. The proportions of cattle and sheep bones are fairly similar; apparent differences in Table 11 are absent (except in Period 9) in MFT.12 in which skull fragments have been omitted (see above, p.221). Though these two species may be similar numerically, it should be remembered that cattle provide several times as much meat as the same number of sheep (although the number

of cattle may have been exaggerated by cattle bone being more often cut up into joints than sheep).

Most of the sheep mandibles were from mature animals, suggesting that the animals had yielded two or more crops of wool and lambs before being used as meat, whereas a larger proportion of the cattle mandibles are from young animals. A fifth are from animals of less than six months old, which must have been slaughtered for young beef; and about three-fifths are from animals of three years of age or more, stock which may have been kept for breeding, milk production and traction before eventual slaughter. The majority of the pigs were slaughtered before reaching dental maturity, as is usual on most sites.

Horse and dog are both scantily represented, but cat bones are common from Period 4 onwards and may represent pets and/or free-living animals. Large groups of bones appear to have derived from single animals: bones from a young dog and cat in pit 1808; a young dog in pit 1204; a mature cat in 1202.

The distribution of lagomorph bones is particularly interesting. Hare bones are scant. The occurrence of a single rabbit bone from Period 3 (layer 880) is early (as rabbits are supposed to have only been introduced at the Norman Conquest). In the early medieval period rabbits were confined to warrens and their table use is restricted. It is not clear when they first began to breed in the wild and to reach pestilential proportions, but the numbers of rabbit bones from Period 4 onwards (late 13th century) and peaking in the early 16th century (Period 7) is regarded as high for an 'ordinary' urban site. Unfortunately it is not possible to determine whether these were rabbits kept in captivity or from the wild, but it may indicate the appearance of rabbit as a cheap dish in the area. The use in Period 4 coincides with the first appearance of non-imported rabbits in English documents.

Deer are only scantily represented. There was no antler, so bone implies meat consumption and hunting. Six out of the nine deer bones come from low meat-carrying/waste bones (metapodials and phalanges), the others from fused femur and fused radius fragments (therefore mature).

Very small mammals are scarce (apart from the rat bones from Period 9, commented on above, p.221), although the recovery of fish bone and small bird bones suggests that this was not due to the accident of excavation technique.

The Bird Bones

by Mary Harman with J. Baker and D. Bramwell

(Most of the bird bones were identified by Mary Harman, but difficult specimens were taken to Dr D. Bramwell who kindly identified the more unusual species.)

Just over 1200 bird bones were found, of which nearly all were identifiable, though few were so complete that they could usefully be measured. The majority were from fowl and goose, the latter probably domestic though wild greylag cannot be excluded. No bones definitely attributable to pheasant were found. A small number of bones from duck were found (similar to mallard but, in some cases at least, probably domestic).

The total numbers of bones from fowl, goose, duck, and from other species recognised, have been arranged according to period (MFT.20). The relative proportions of fowl and goose bones are fairly similar until Period 6, with marginally more from the former; from Period 7 the relative numbers of fowl bones increase slightly to about 60% of the fowl/goose total in most periods. At King's Lynn (Bramwell 1977, 399-402) there was a similar increase in fowl bones relative to goose in the post-medieval period, though goose was almost always more important numerically. Immature bones from both birds are in the minority at Alms Lane: mostly between 15% and 20% for fowl, 8% or less for geese, but most of these are from fairly well-grown birds, there being very few bones from chicks or goslings. A greater proportion of the goose bones (20-40%) than the fowl bones (7-14%) are waste. These are from the head and feet rather than the edible part of the carcass, but this may be due to the greater size and more robust character of goose bones: it seems likely that the birds were dressed in the home rather than elsewhere, and both were probably home produced. An examination of the numbers of bones shows no obvious difference between the different tenements except that in Periods 6, 7 and 8 Tenement B produced most of the bird bone while from Period 9 onwards more came from Tenements A and C, reflecting the pattern of waste disposal and lack of pits on Tenement B from that date.

Only a small number of bones from other species were recognised, including two more which were probably domestic: a few bones from doves, and also from Period 9 onwards the occasional turkey bone. Several of the others are edible: the partridge, small ducks, moorhen, plovers and heron, and most of these are associated with the water and damp places characteristic of this area. The duck bones are difficult to identify positively, but they compare well with widgeon, tufted duck and goldeneye. The crow family is represented by its smaller members: crow, and possibly rook, jackdaw, and possibly magpie. There are very few bones from small birds, sparrow and mistlethrush being exceptions, but as with very small mammals, this is perhaps more due to accidents of preservation, rather than their real absence from the site.

A number of bones had cuts on them associated with jointing or carving, for instance, at the distal end of fowl tibiotarsi, and across the sterna and furculae of geese. Some bones showed tooth marks typical of those produced by cats, particularly at the ends, which are more easily chewed than the shafts.

In conclusion, the majority of the bones are from poultry, of which fowl and goose predominate, and though goose was of secondary importance from the 16th century onwards, it nevertheless, being a larger bird, provided the most meat in all periods, and was more often eaten as a mature bird than fowl. It is, perhaps, surprising that doves are so sparsely represented, though their small size may be partly responsible for this. It is interesting to find evidence of turkeys in East Anglia early in the archaeological record: the bird was introduced into Britain in the 16th century and occurs here first in a 17th-century context.

There were several bones showing evidence of disease or injury and Dr J. Baker has kindly commented on these. All were from fowls, and the earliest examples are from Period 6, which includes a fragment of sternum with what appears to be a non-union fracture on the anterior of the keel, and two tibiotarsi, one with a swell-

ing of the shaft which probably represents a healed fracture, the other with a slight swelling of the shaft of unknown cause. From Period 7 a small nodule of new bone near the distal end of a radius shaft is of unknown cause though it is known that nodules do form at this site in chickens. In a Period 9 context there is a tibiotarsus with a small nodule of new bone on the medial aspect of the distal articulation; this represents minor damage to the synovial structures. Period 10 produced another tibiotarsus, with a small spur of new bone on the shaft, but the reason for this growth is unknown. From Period 12 there is a tarso-metatarsus with an irregular slightly concave area of new bone medial to the flexor tendons; this is probably a response to inflammation of the adjacent soft tissue producing a periostitis.

The Fish Bones

by Andrew K.G. Jones and Sally A. Scott

Introduction

Excavations at Alms Lane have provided an excellent opportunity for examining fish remains from medieval Norwich. The site underwent major changes in use, beginning as a dumping ground for iron waste (Periods 1-3) and developing into an intensely occupied area of the town (Period 4 onwards). It has been possible to examine both the general characteristics of the fish consumed by people in medieval Norwich and to look closely for diachronic and spatial differences in fish exploitation.

During the excavation, samples of many layers were examined for fish bones and other small remains by sieving soil samples to 1mm using a modified Siraf sieving tank (Kenward, Hall and Jones 1980). Each sample weighed approximately 15kg (roughly one 12-litre bucketful), but accurate records of sample weight were not taken. An attempt was made to sample as many layers as possible in order to analyse the distribution of fish bones by phase and context type. A total of 244 samples were collected and processed; 166 (from 152 contexts) produced 3315 identifiable fish remains. Over 100 identifiable bones were collected from Periods 3-11 (inclusive).

Two contexts stand out as being different from the majority. Context 2422 was a large, stone rubble-lined pit from Tenement A filled in Period 11. This cesspit was one of the few which contained occupation debris; most pits were backfilled rapidly with building rubble. Twelve separate samples were collected from a central column in the fills of cesspit 2422 in order to examine changes in the numbers and kinds of fish remains deposited during the filling of the feature. Context 1520 comprised the fill of a green-glazed pottery vessel apparently found *in situ* within building C1 in Period 4 (1275-1400). Although found on a hearth there was no sooting on the outside of the vessel which may indicate that it was not being used as a cooking-pot at the time it was abandoned. The fills of the pot were carefully removed and sieved for small bones and other remains.

The majority of the bones were identified by the author (A.K.G.J.) during the course of the excavation. Difficult determinations, e.g. cyprinid pharyngeal bones, were checked by Mr A.C. Wheeler of the British Museum (Natural History). A group of small samples was recently identified using the reference collection of the Environmental Archaeology Unit, University of York. The identifications were processed using the computer database management system 1022. A full list of identified bones with their measurements is given by context and period in archive. The generic and specific nomenclature of fish follows Wheeler 1969.

Results

The assemblage of fish bones collected from this site was dominated by remains of marine fish. Almost two-thirds of the identified bones were from adult herring, *Clupea harengus* L. In addition, substantial numbers of remains from cartilaginous fish (Elasmobranchii) eel, *Anguilla anguilla* L., whiting, *Merlangius merlangus* (L.), cod, *Gadus morhua* L., and flatfish, *Pleuronectidae*, were present. At least two species of cartilaginous fish were present: spur-dog, *Squalus acanthias* (L.), and thornback ray, *Raja clavata* L. A few marine species were represented by small numbers of bones, e.g. sprat/young herring, cf. *Sprattus/Clupea*, haddock, *Melanogrammus aeglefinus* (L.), ling, *Molva* cf. *molva* (L.), mackerel, *Scomber scombrus* L., gurnard, *Triglidae*, horse mackerel, *Trachurus trachurus* (L.) and sole, *Solea solea* (L.). Sprats or young herring were identified by twenty-one vertebral centra and a group of small scales. The vast majority of the sprat/young herring remains were found in the fill of the pottery vessel, context 1520, and these are recorded in Table 22 as Clupeidae. Some vertebrae were identified as ?sprat. In order to prepare the rank order diagrams (Fig. 45) the numbers of bones identified as small Clupeidae and ?sprat were added and designated '?sprat'.

Exclusively freshwater fish, pike, *Esox lucius* L., cyprinids (including roach, *Rutilus rutilus* (L.), and tench, *Tinca tinca* (L.)) and perch, *Perca fluviatilis* L., represent only 2% of the identified bones. Of the fish which live in salt or freshwater eel was present in substantial numbers; salmonid, *Salmo sp?p.*, and stickleback, *Gasterosteus aculeatus* L., bones were very rare.

The diversity of the fish assemblage (number of taxa present in each phase) was plotted against the number of samples (MFT.23). This clearly shows that the number of taxa present is positively correlated to the number of samples examined. At approximately fifteen samples the curve levels off, indicating that periods with less than fifteen samples are likely to contain only the most common fish remains.

The data has been analysed by period (see Table 22). At first sight there did not appear to be any significant deviation from the pattern described above for the site as a whole. The early Periods, 1-3 (1000-1275), contained rather fewer bones than Periods 4-11 (1275-1750), those of most intense occupation. Only the most common taxa were present in Periods 1 and 2. There did not appear to be any major change in the kinds of fish present on the site during Periods 4-11. There were some small variations in the numbers of less common taxa (pike, cyprinids, haddock, ling, perch and sole), but the abundant fish, herring, whiting, cod, eel and flatfish, appeared in greatest numbers in all periods. Domestic dwellings were not constructed on the site until Period 5, a period when fish remains were found to be more abundant.

The bones were recovered from a large number of different kinds of features. These were grouped into

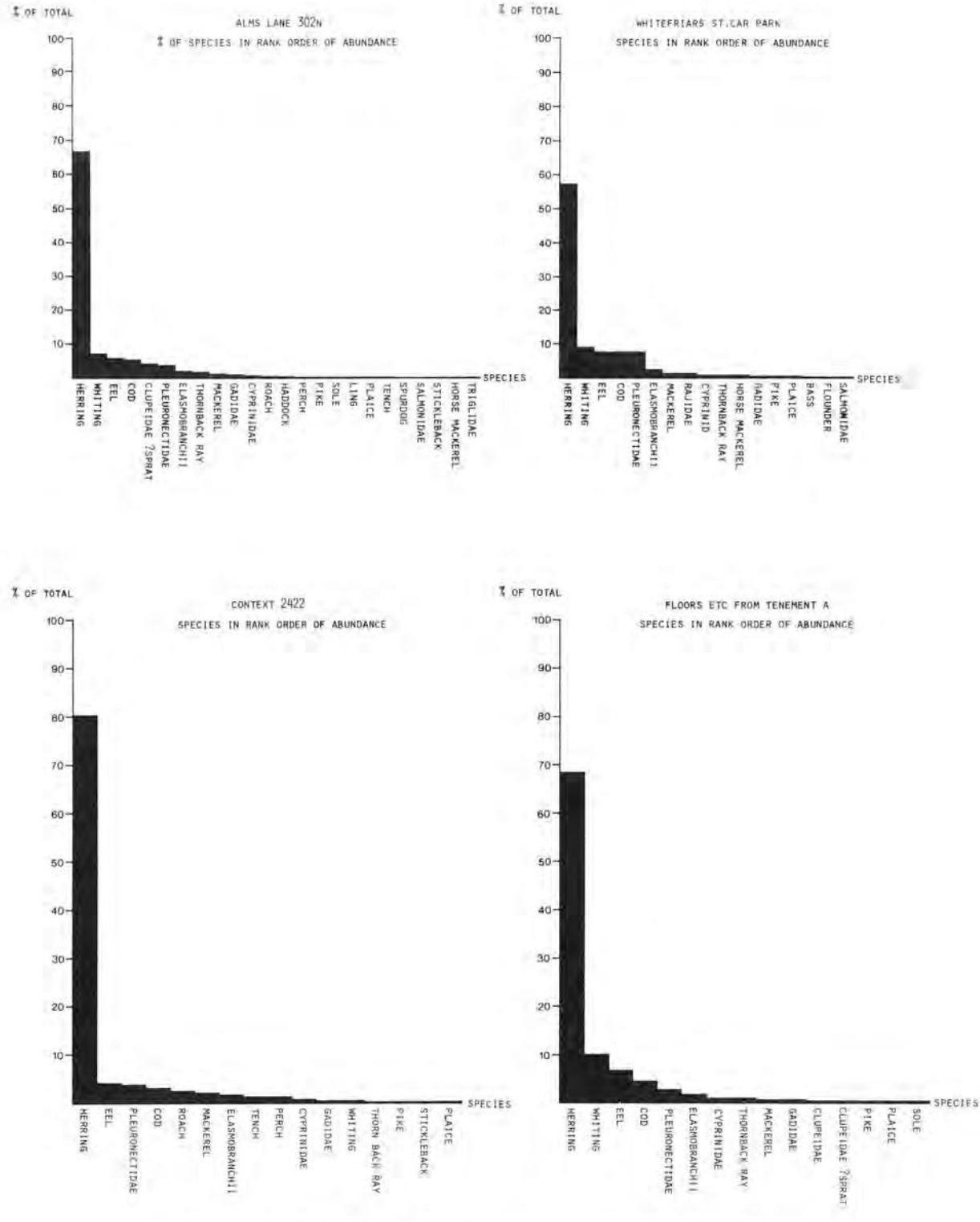


Fig.45 Site 302N. The fish bones (species in rank order of abundance)

TOTAL NUMBER OF BONES 3,315	ELASMOBRANCHII	SPURDOG	THORNBACK RAY	CLUPEIDAE	?SPRAT	HERRING	SALMONIDAE	PIKE	CYPRINIDAE	TENCH	ROACH	EEL	GADIDAE	WHITING	COD	HADDOCK	LING	PERCH	HORSE MACKEREL	MACKEREL	TRIGLIDAE	STICKLEBACK	PLEURONECTIDAE	PLAICE	SOLE
PHASE 1						14						1		2	8					2 1					
PHASE 2	1		1			34							1		2 3					1					
PHASE 3	3		8			168 8	1					11 1		10 3	16 8					2 2	1		6		
PHASE 4	5 2	1	9	14 *100	4	299 195		1	7 2			27 2	9	40 12	35 11	3			1	5 1			17 2	1	2
PHASE 5	3	1	2			113 8		1?	1			10	1 2	72 11	14 2		3	1		1			19 3	1	
PHASE 6	5		5	1		131 14			1			21	3 1	10 2	8 2		1			2			13		2
PHASE 7	4 1	1	1 4		1	262 30		1	7 1			36 2	6	16 7	22 2	1 1				3			8 1	1	1
PHASE 8	1		4			71 1					2 1	11 2	1	12 2	9	1				4			1		
PHASE 9	3		5			150 18			1		3 3	28 3		20 1	10 4	1 1				5 1			12		
PHASE 10	5		1			83 4			3 2			3			2	1							1		2
PHASE 11	8		1	1		355 109		1 1	3	1 3	2 9	24 4	2 1	3 2	6 10			1 3		9 2		1	18 4	1	
PHASE 12																							1 2		
PHASE 13						1 4																			
ADDITIONAL 15	3		1			79 1		2	1			23 2	2	7 1	6 2	3	1	1 2		1			10		
TOTAL	47	3	43	121		2176	1	7	29	4	20	212	30	233	184	12	5	8	1	42	1	1	118	4	7

Table 22 Site 302N. Summary of fish bones. Top left figure refers to vertebral centra; lower right figure refers to any other bone fragment on the fish skeleton.

three categories: pits; layers laid down within buildings (including hearths); and miscellaneous layers, e.g. yard deposits. As the site was divided into tenements it was also possible to examine the distribution of fish bones by feature, kind and tenement (MFT.23).

On Tenement A, pit 2422 (Period 10) produced a large number of bones (MFT.24). While there did not appear to be any significant differences in the numbers or kinds of bones deposited as the feature was filled, a relatively large number of bones from exclusively freshwater fish (pike, roach, tench and perch) were present. In this context it seems likely that the stickleback bone was also from a fish caught in freshwater. The other pits from this tenement produced small groups of bones typical of the overall assemblage.

Tenement B produced very few fish bones from pits, while the pits in Tenement C are characteristic of the site in general. During Period 9 (1600-1675) an area on the Muspole Street frontage (plot 3) is thought to have been used as an alehouse and included two cesspits. The fish bones from this area of the site were unexceptional.

The kinds of fish bones recovered from layers laid down within houses on both Tenements A and B (Periods 4-7) conform to the pattern observed for the site as a whole. However, the absence of fish remains in houses in Period 8 onwards in both tenements is notable (Fig. 45).

Building C1 in Period 4 is particularly interesting because it contains context 1520, a pot the fill of which included a large number of fish remains (MFT.24). Bones from the heads of at least eight adult herring together with sprat/young herring vertebrae and scales dominate this assemblage. When the pot was emptied it was clear that herring remains were concentrated at the base of the vessel. The bulk of the fill of the pot produced a small number of bones. Unfortunately, it was not possible to separate the bones from the basal fill from those found in the body of the pot, but it is thought that the small number of non-herring bones came from the soil filling the vessel.

Miscellaneous deposits (i.e. those that were neither pit-fills nor deposits within buildings) from all tenements produced fish bone assemblages typical of the site.

The size of the fish present in the deposits has been assessed by comparing archaeological remains with bones of modern specimens of known length. A total of twelve whiting dentaries (lower jaw bones) were measured using vernier calipers. The measurement taken was the depth of the dentary as described by Wheeler and Jones (1976). A group of seventeen modern whiting dentaries from fish of known total length was also measured and their dentary depth plotted against the total length of the fish (MFT.25). The modern whiting ranged from 10cm to 44cm total length. A regression line was fitted to the plot and the length of the archaeological fish estimated. The length of the fish was found to be highly positively correlated with the depth of the dentary bone. The smallest whiting from Alms Lane would have been approximately 25cm long while the largest measured was in the region of 60cm total length. The majority were between 30 and 45cm long. MFT.26 gives the measurements and estimated lengths of the archaeological specimens. Using a graph showing the relationship of cod premaxillae size and fish length (Wheeler and Jones 1976) the five cod premaxillae (upper jaws) were sized. Four of the cod were large fish (90-105cm total length) with one smaller animal approximately 45cm long. Measurements of cod vertebrae indicate that the majority of the fish measured between 50 and 100cm total length. Bones of both the head and body suggest that whole fresh fish were imported. Details of other measured bones are available from the archive of fish records. All the other fish represented at Alms Lane appear to be from animals of average size.

Discussion

There can be little doubt that the medieval and post-medieval occupants of the Alms Lane site ate a large amount of herring, and that marine fish, notably cartilaginous fish, whiting, cod and flatfish, figured as a prominent dietary ingredient. Bones of all the marine fish present at Alms Lane were also found in excavations at Great Yarmouth (Wheeler and Jones 1976), and it seems probable that fish were imported from the East Coast. (Details of the biology, fisheries and problems of differential preservation of the principal species are discussed in the Great Yarmouth report.)

Eel appears to be the only fish which was locally available and consumed in large numbers. Exclusively freshwater fish appear to have been insignificant as a major food item, although they must have added occasional interest to medieval fare.

The numbers and kinds of fish bones deposited at Alms Lane do not show many changes through time, neither do they vary greatly with the type of layer sampled. Even the influx of Low Countries immigrants did not appear to have influenced the kinds of fish remains incorporated into deposits on the site. This suggests that during the whole of the medieval occupation herring, whiting, cod, eel and flatfish were the most important food species, and that the remains of these fish were scattered indiscriminately across the site.

Evidence from Whitefriars Street Car Park (421N), Pottergate (149N), the Lower Close (300N), Botolph Street (281N) and Bacon's House (172N) (Fig. 45 and MFT.27) shows that this pattern was characteristic for much of medieval Norwich.

It is interesting that the Whitefriars Street Car Park (421N) material is so similar to the occupation sites. At Whitefriars the bones were collected from deposits forming the river bank, a situation where rubbish from many households may have been mixed with remains of animals which died in the river. It therefore appears from the present study that the Whitefriars (421N) assemblage was composed mainly of domestic fish refuse.

While the general characteristics of the fish assemblage from Alms Lane did not appear to show major changes, localised differences in the abundance of some species, and the distribution of bones in deposits of different kinds have been revealed.

Some of these differences may be artefacts of the sampling and analyses. For example, whiting, a species which is present in almost every period, is most abundant in Periods 4 and 5, perhaps suggesting a greater consumption of this species. By contrast, whiting bones were less common in cesspit 2422 than in most other context groups.

Relatively large numbers of remains of freshwater

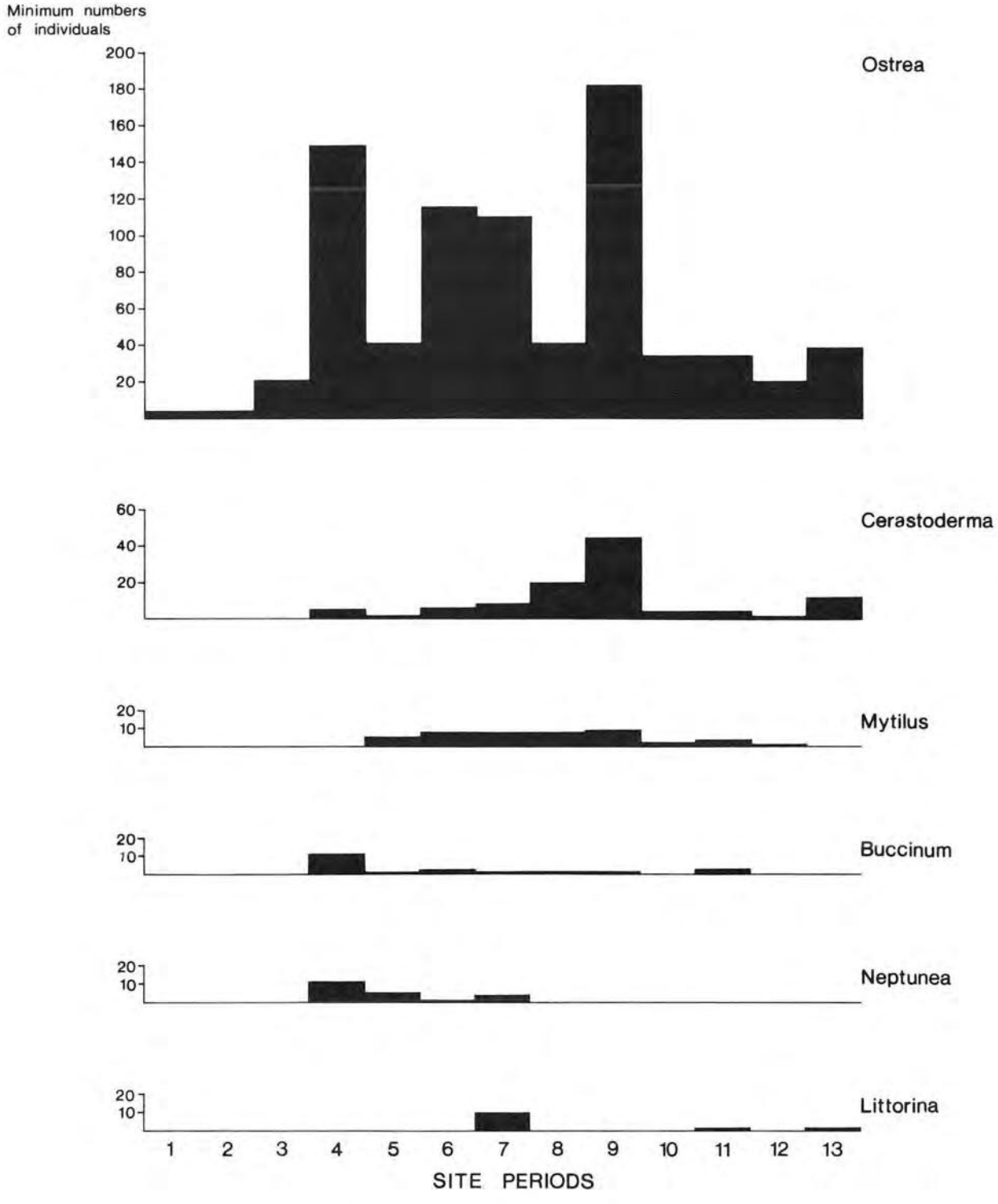


Fig.46 Site 302N. Marine molluscs

fish were recovered from pit 2422 and may reflect a preference for these animals. Pike, tench, roach, perch and stickleback are today present in the Wensum. It is impossible to be certain that all these fish were eaten, in particular, the stickleback is likely to have been discarded with the entrails of a larger animal.

Fishing for freshwater fish was governed by local laws for in 1292/3 there is a mention of illegal nets being set across the river at Surlingham (Hudson 1892). The Rolls of Pleas for 1350 mention a certain 'David Fishmonger' who was a dealer in freshwater fish; and in 1390/91 there is a mention of perch, roach and pike being stolen (Hudson 1892). These references make it clear that freshwater fish were taken from the Wensum in substantial numbers—sufficient to occupy at least one fishmonger. The number of bones of freshwater fish recovered from Alms Lane is small compared to the numbers of bones from marine fish. The implication must be that the fish bones collected from this site are but a small fraction of the bones brought on to site during the periods investigated. In this light, species which occur as small numbers of bones reflect the diversity of fish species consumed, but it would be unwise to attempt to assess their significance in people's diet.

The most clear change in bone distribution is to be found on Tenements A and B, where there appears to be a change in the kind of deposits which contained fish remains. Until Period 8 most fish bones were found on floors or in other layers within buildings. In Periods 8-11 fish remains were only recovered from pit-fills located outside buildings. This may indicate a deliberate attempt to keep houses clean and concentrate rubbish disposal in pits. There is unequivocal evidence that rubbish was carted off the site from Period 11 onwards (see p.255) and it is likely that much rubbish was removed from the site at earlier periods.

Conclusion

The pattern of fish consumption does not appear to have changed from between *c.*1150 and 1750, a period which saw the transition of the site from a suburban derelict wasteland to an intensely occupied part of the town.

The Marine Molluscs

by Peter Murphy

Shells collected by hand during excavation are listed in MFT.28 and the results are summarised in Fig. 46. In all site periods the predominant species is the oyster (*Ostrea edulis* L). Valves of cockle (*Cerastoderma edule* (L)) and mussel (*Mytilus edulis* L) and shells of whelks (*Buccinum undatum* L and *Neptunea antiqua* (L)) and winkle (*Littorina littorea* (L)) occur at lower frequencies. Winkles are absent before Period 7 (*c.*1500-1575). As with all hand-collected shell assemblages it is probable that the smaller shells and those more prone to fragmentation are under-represented. Shell assemblages with very similar species composition were collected at most Norwich Survey excavations (cf. Pottergate, 149N, this volume).

The Plant Remains

by Peter Murphy

Introduction

The site at Alms Lane was more extensively sampled than any other site excavated by the Norwich Survey. 244 samples, predominantly bulk ones, were processed by Andrew Jones. Of these 178 contained remains of crops and wild plants, but only 152 came from stratified and datable contexts. Deposits were in general well-drained, and preservation conditions were therefore poor compared to those prevailing in waterlogged deposits at valley floor sites in Norwich (cf. Ayers and Murphy 1983, 40). Consequently the range of macrofossils preserved is limited, but sampling was on a sufficiently large scale to ensure recovery of abundant remains of staple food crops, mainly carbonised cereals and pulses but also some mineralised fruitstones and seeds. On the basis of this large collection of material it proved possible to relate changes in the composition of plant macrofossil assemblages of successive site periods directly to changes in the utilisation of the site. For these reasons the plant remains from Alms Lane require more detailed discussion than those from most other Norwich Survey excavations.

Sampling, recovery and identification

Samples were taken from a representative range of contexts, including ditches, refuse pits, cesspits, wells, ovens and hearths, floor deposits and general occupation layers. A standard 12-litre (15kg) sampling unit was used for most of the bulk samples, which were processed by Andrew Jones using a bulk sieving/flotation tank with 1mm meshes to retain the residue and collect the flot (Kenward *et al.* 1980). Recovery of material smaller than 1mm was therefore incomplete. Smaller samples were also examined from a number of contexts in order to assess the contents of these deposits before undertaking full-scale bulk-sieving, or to determine whether significant numbers of macrofossils smaller than 1mm were being overlooked by bulk sieving. Plant remains were extracted from these small samples by manual water flotation with a 0.25mm collecting mesh. The concentration of botanical remains in the soil was usually so low that these samples did not in general produce useful 'seed' assemblages.

Plant remains extracted and identified are listed in MFT.29 (302N.3, D1-E8).

Preservation

Fruitstones and seeds of cultivated fruits and a proportion of the seeds from wild plants were preserved by mineralisation—impregnation or replacement with poorly crystalline calcium phosphate (Green 1979). There were many mineralised fruits and seeds which were deformed or incompletely replaced and could not be determined even to family level. The genus *Prunus* was represented only by mineralised internal casts of endocarps. Seeds of *Sambucus nigra* were ubiquitous and often extremely abundant. Most of these do not appear to be mineralised and their survival is presumably attributable to their extreme durability. They have not been counted, but the presence of *S. nigra* seeds is noted in MFT.29.

The remaining plant remains, mainly cereal caryopses, but also some culm, rachis and spikelet fragments, pulse seeds, weed seeds and capsules, buds and bulbs are carbonised. This material is generally in a poor state of preservation, showing the deformation, 'puffing' and porous surfaces characteristic of plant material carbonised rapidly, perhaps in open hearths. Consequently many specimens could not be closely iden-

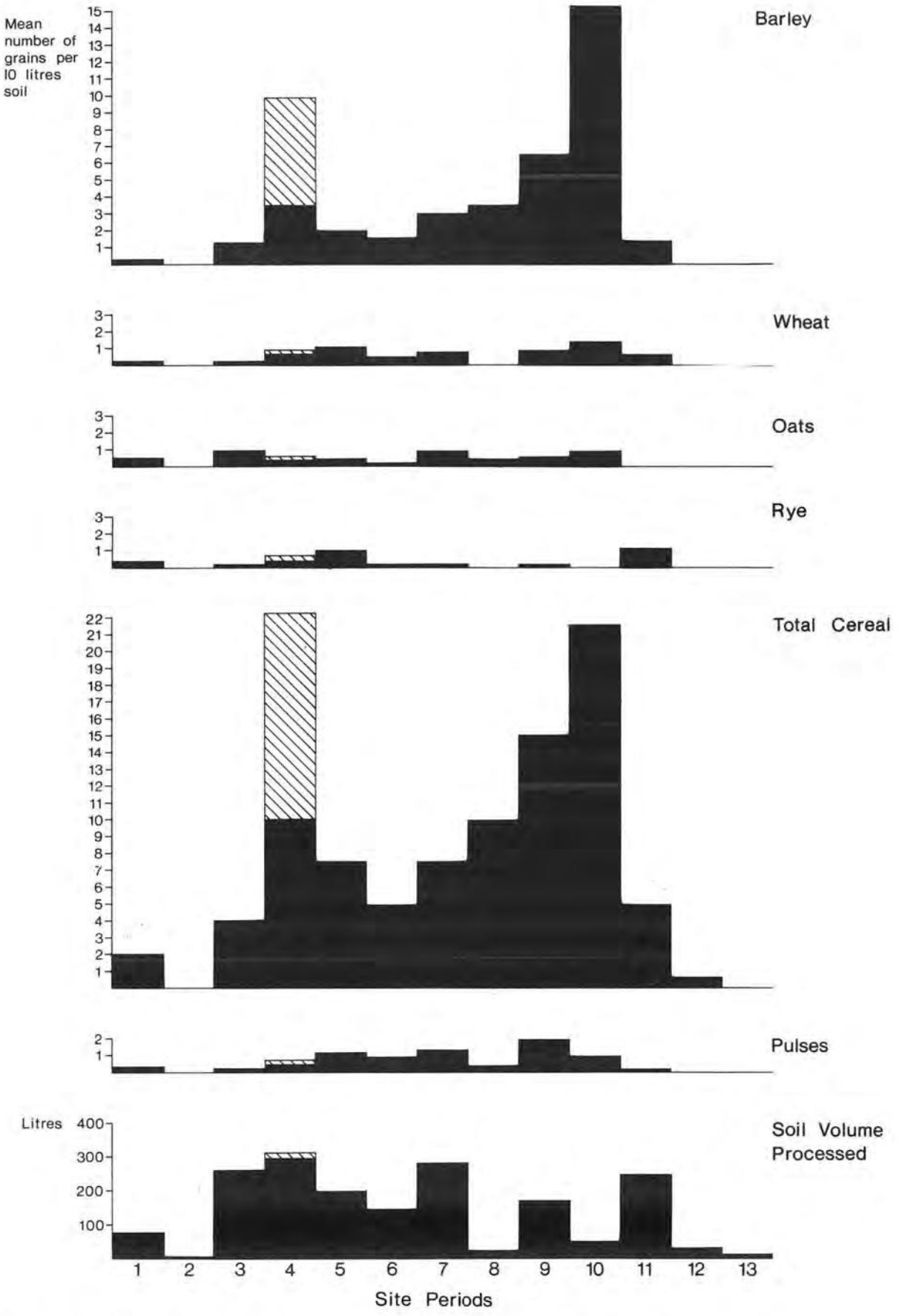


Fig.47 Site 302N. Concentration analyses for cereal grains and pulse seeds. The horizontal axes show site Periods 1-13. The diagram at the base of this figure shows total soil volumes processed for each site period. The vertical axis here refers to litres of soil. In the remaining diagrams the vertical axes show numbers of grains or seeds per 10 litres of soil processed. Cross-hatched portions of the histograms refer to contexts 925 and 1492.

tified. There are, however, a few samples of exceptionally well-preserved cereals and pulses, notably sample 130 (context 925) and these will be considered in more detail below.

Cereals and pulses

Full lists of identifications are given in MFT.29. The results are summarised in Fig. 47 in the form of a 'seed concentration analysis' (Green 1982, 44). This diagram was produced as follows. For each site period the total numbers of cereal grains and pulse seeds were calculated, though cereal rachis fragments, being generally rare, were excluded from the totals. In order to permit direct comparison with Green's results the number of grains and seeds per ten litres of soil were then calculated. Cross-hatched sections of the histogram refer to two contexts which produced large cereal samples (925 and 1492). The 'total cereal' diagram includes unidentified cereal grains. At the base of Fig. 47 soil volumes processed per period are shown in order to provide a basis for assessing the reliability of the results: for some periods only small and probably unrepresentative volumes were processed.

The diagrams show several conspicuous features:

1. Ignoring fluctuations for the moment, there is a long-term increase in grain concentrations, from about 2 grains per 10 litres of soil in Period 1 (1000-1050) to a peak of 21.7 grains per 10 litres by Period 10 (1675-1720). Because of the small sample volume for Period 10 this figure may not be wholly reliable, but nevertheless even in Period 9 a concentration of 15.2 grains/10 litres is reached. It is probable that this trend is related largely to increased density of occupation, with consequent increased losses of grain by charring during food preparation, malting etc. Reworking of earlier deposits containing residual cereal grains from earlier phases may perhaps also be a factor influencing this trend. It is notable that after Period 10 (i.e. post-1700) there is a sharp decrease in the concentrations of all cereals. It is possible that charred cereals were no longer being discarded in any quantity on the site and that the cereals from deposits of the latest site periods are largely residual.
2. Consistently at all periods barley grains were carbonised more frequently than grains of other cereals. This result is in very marked contrast to Green's results

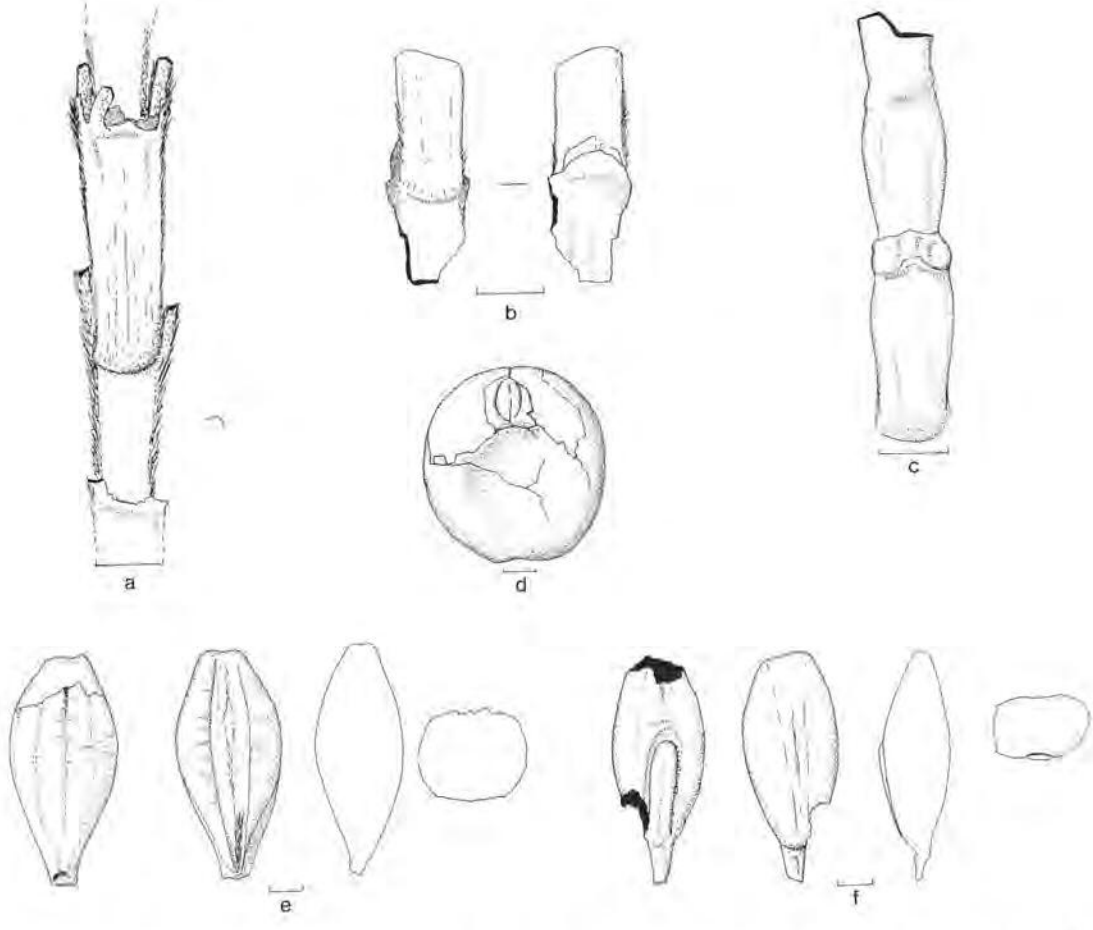


Fig.48 Site 302N. Selected crop plant remains from Period 4 contexts (millimetre scale beneath each drawing). a) Section of barley rachis *(Hordeum distichum)* 925. b) Rachis node and fragmentary internodes of rye *(Secale cereale)* 925. c) Section of wheat rachis *(Triticum aestivum)* 925. d) Pea *(Pisum sativum)* 925. e) Grain of barley *(Hordeum* cf. *distichum)* 925. f) Germinated barley grain *(Hordeum* sp) 1492.

from medieval pits at Winchester in which wheat grains were slightly more abundant than barley, and oats occurred generally at lower concentrations (1982, fig. 21). These results from Winchester, however, are derived from a large number of sites, and direct comparison with results from Alms Lane may not be valid. A probable explanation for the predominance of barley at Alms Lane is that it was the only cereal commonly in use as whole grain for human food—for malting and for use in soups and stews. Other grains (wheat, rye, oats) would probably have been consumed mainly as flour or meal. Much of the milling in the city seems to have been done from an early date at watermills in the Westwick area. The earliest documentary references are of the 13th century, although mills may have existed in the area before that date (Blomefield 1806, IV, 505; Helen Sutermeister pers. comm.). This being so it seems probable that cereals other than barley reached the consumer mostly as flour or meal, and obviously in this form they would only be represented as plant remains in archaeological deposits in exceptional circumstances. The relatively small numbers of wheat, oats and rye grains recovered may represent accidental charring in domestic hearths during the preparation of such foods as groats or toasted grain (cf. Hillman 1981, fig. 7).

3. There are peaks in total cereal grain and barley grain concentrations in Periods 4 (1275-1400) and 10 (1675-1720). The Period 4 peak is partly, but not wholly, due to two large deposits of barley (925 and 1492; cross-hatched in Fig.47). These two deposits are particularly informative. Moreover the cereal deposits from Period 4 are associated with structural evidence clearly indicating some form of cereal processing on site. It is therefore worth considering the cereal deposits of Period 4 in some detail.

Cereals from Period 4 deposits

1. Context 925 (Sample 130)

This context was a pit-fill containing a high concentration of carbonised material. It lay against the south boundary of the property. Carbonised cereals, crop weeds and other plant remains from sample 130 are listed in Table 30.

This deposit consists largely of barley. The grains are all hulled. Symmetrical grains predominate but there are a few examples which could be from lateral spikelets of six-row barley, though deformation makes certainty difficult. Many grains are under-developed and there are some completely undeveloped spikelets consisting of empty husks. Some of these are still attached to rachis segments. The lemma bases are mainly shallow bevels. Short-medium rachillas with straight hairs, up to 3mm in length, predominate. Fig. 48e shows a typical grain from this deposit. Sections of rachis comprising up to six internodes are present; the internodes are variable in size and pubescence. A typical length of rachis is illustrated in Fig. 48a, showing pubescent margins and glume bases and sterile lateral spikelets. The first rachis segments are of both short, angular and long, slender forms, but the collars are abraded. From these spikelet and rachis features it appears that a genetically diverse barley crop is represented. Two-row barley (*Hordeum distichum*) predominates, with some possible six-row. Both lax-eared and dense-eared forms are represented, though internodes from lax ears are more common.

The wheat rachis internodes (Fig. 48c) are relatively slender and clearly represent a variety of bread wheat (*Triticum aestivum* L). The grains are undeformed and some retain apical brushes of hairs, but they are nevertheless short forms with maximum widths just above the embryo and with very rounded ventral cheeks. Rapid carbonisation of such grains would result in near-spherical forms and indeed such grains are common in other deposits from the site, where they are described as *Triticum aestivum sensu lato.*

The grains of rye *(Secale cereale* L) are slender with abruptly truncated apices and sharply triangular cross-sections. Short sections of rachis comprising up to two internodes were also recovered (Fig. 48b).

Hordeum spp (caryopses)	84
Hordeum spp (rachis internodes)	160 (approx)
Triticum aestivum L (caryopses)	5
Triticum aestivum L (rachis internodes)	2
Secale cereale L (caryopses)	4
Secale cereale L (rachis internodes)	8
Avena sp (caryopsis)	1
Pisum sativum L	2 + 4 *c.f.*
Pteridium aquilinum (L) Kuhn (frond frags)	+
Papaver sp (stigmatic disc)	1 fragment
Brassica sp	1
Raphanus raphanistrum L (siliqua joints)	2
Silene sp	2
Stellaria cf. *media* (L) Vill	1
Agrostemma githago L	1
Atriplex patula/hastata	19
Rumex sp	5
Vicia sp	1
Fraxinus excelsior L	2
Menyanthes trifoliata L	1
Convolvulus arvensis L	3
Veronica hederifolia L	7
Galium sp	1
Sambucus nigra L	5
Centaurea sp (inflorescence)	+14 cypselas
Eleocharis sp	4
Gramineae indet.	12
Indet. (capsule fragment)	1
Indeterminate seeds etc.	14

Table 30: Carbonised plant remains from 925 (Sample 130). (Taxa are represented by fruits or seeds except where indicated.)

Two leguminous seeds are definitely identifiable as peas, *Pisum sativum* var. *arvense* (L) Poir. In overall form they are extremely irregular with deep surface depressions. The hilums are small and oval. Their dimensions are: length 4.0mm, 6.0mm; breadth (across cotyledons) 5.4mm, 2.9mm; hilum length 1.2mm, 1.0mm (Fig. 48d). The large size of the illustrated specimen is notable. Other seeds and isolated coryledons from the deposit which have lost their testas and hilums are probably also peas. In other samples from the site near-spherical leguminous seeds and cotyledons with no testas or hilums and frequently with abraded and encrusted surfaces are common. These are described as *Pisum*-type in MFT.29.

In summary the sample consists of charred residue from a batch of mainly two-row barley. There is an excess of rachis internodes over grains compared to the ratio in unthreshed ears, and the sample also contains rachis fragments of other cereals, peas and seed heads of arable weeds. Other contaminants including bracken frond fragments, elder seeds, ash keys and remains of two wetland plants, bogbean and spike-rush, were presumably introduced after harvesting. The composition of the sample clearly indicates that some barley was arriving at the site in an unprocessed, or part-processed, state, and this suggests that the crop was grown in the vicinity, since long-distance transportation would have involved wasted effort in moving unwanted contaminants along with the grain. There is no way of determining how carbonisation occurred, but an accidental fire at the site of temporary storage is a possibility.

2. Context 1492 (Sample 226) and similar deposits

Sample 226, a 12-litre bulk sample, from the fill of oven 1479 produced a relatively large assemblage of cereals and weed seeds (Table 31). This assemblage is composed largely of cereal grains which had been deformed as a result of germination before carbonisation. Amongst the better-preserved grains hulled barley predominates. The remains of developing 'sprouts' are visible on many of the barley grains (Fig. 48f) and some contaminants of the barley (oat caryopses and a corn-cockle seed) had also germinated before being carbonised. The context of the sample—an oven fill—leaves little doubt that this carbonised assemblage was produced as a result of poor temperature control whilst barley malt was being dried in the oven. The 'sprouts' on the grain generally extend up to two-thirds of the grain length, but there is much variability and some grains show only incipient sprouting. A similar variation in sprout lengths is reported by Krzywinski *et al.* (1983, 153) in carbonised malt from medieval fire destruction debris at Bryggen, Bergen, Norway. Uneven sprouting at both sites is likely to be in part a consequence of wide physiological variability in the barley used for malting, matching the morphological variability noted above in sample 130 at Alms Lane. Methods of malting used may, however,

also have had an effect, for medieval malting appears to have been poorly controlled by modern standards (Corran 1975, 28). Incomplete turning, for example, could have resulted in a temperature gradient in piles of malt.

Cereal indeterminate	179
Hordeum sp	126
Triticum aestivum s.l.	2
Avena sp	9
Secale cereale L.	2
Sambucus nigra L.	+
Brassica sp	4
Agrostemma githago L.	1
Chenopodium album L.	1
Centaurea sp	1
Carex sp	1
Bromus mollis/secalinus	1
Lolium temulentum-type	1
Indeterminate seed	1

Table 31: Plant remains from oven 1479 (Sample 226).
(All taxa represented by fruits or seeds.)

This deposit from oven 1479 was associated with burnt lining and represents collapsed material related to the last use of the oven. A second oven, 2226, had only a clean loam fill. However, just to the east of this oven a further sample (287 from context 2166) contained germinated barley grains. This unfortunately was a small sample but it appears to have contained a similar concentration of grains to context 1492 and is thought to represent charred malt cleaned out from oven 2226. A third context (1803) adjacent to a clay floor (building A1) in the north-western part of the site contained a much lower concentration of germinated barley grains.

At Bryggen layers producing carbonised malt contained high frequencies of *Myrica* pollen. *Myrica gale* (bog myrtle) is known to have been used as a flavouring in medieval ale (Krzywinski *et al.* ibid). At Alms Lane conditions were unsuitable for pollen preservation and no macrofossils from flavouring plants were identified. Macroscopic remains of hops (*Humulus lupulus*), including fruits and bracts, have been identified at other sites in the city, however. At Whitefriars (site 421N) hop macrofossils were common in early medieval waterfront deposits, though there is a strong possibility that fruits from wild plants were brought to the site by the river (Ayers and Murphy 1983, 42). More recently, a few fruits and bracts have been recovered from waterlogged 11th-century cesspits at the Magistrates' Courts, site 450N, but again, natural dispersal from wild plants cannot be excluded (Murphy, forthcoming). A charred hop fruit from a late 15th-century cesspit at Pottergate, site 149N, well away from the river, is thought to provide more reliable evidence for the use of hops (Murphy, this volume, p.68). Thus although there are grounds for thinking that hopped beer may have been produced in Britain from the 10th century (Wilson and Connolly 1978, 148) there is no firm botanical evidence for the use of hops before the later Middle Ages in Norwich.

Period 4 deposits: a general discussion

The distribution of cereals in samples from Period 4 deposits is shown in Fig. 49. Deposits interpreted as carbonised malt are confined to the northern part of the site, and in general samples with high grain concentrations also tend to group in this area. Cereals are conspicuously rare in the south-eastern area, where iron-working was the main activity. Structural and artefactual evidence for grain-processing activities including malting comes from the northern area; this is discussed further below, but includes clay-lined pits, a clay floor, the two ovens discussed above and a millstone. The features are interpreted as steeping pits for grain, a possible malting floor and malt roasting ovens, while the millstone could have been used for crushing the malt before making the wort for brewing.

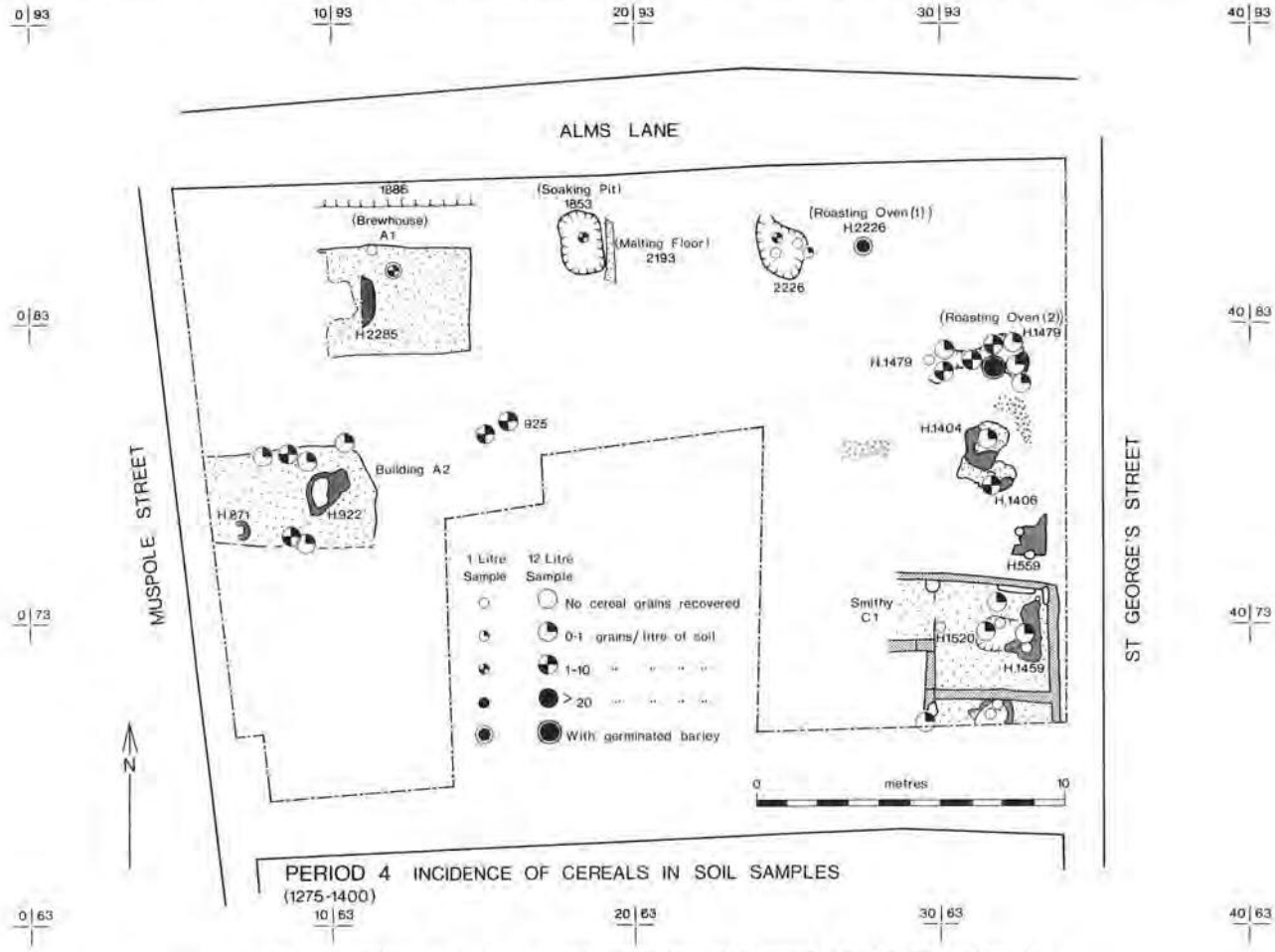


Fig.49 Site 302N. The distribution of carbonised cereals in Period 4 deposits

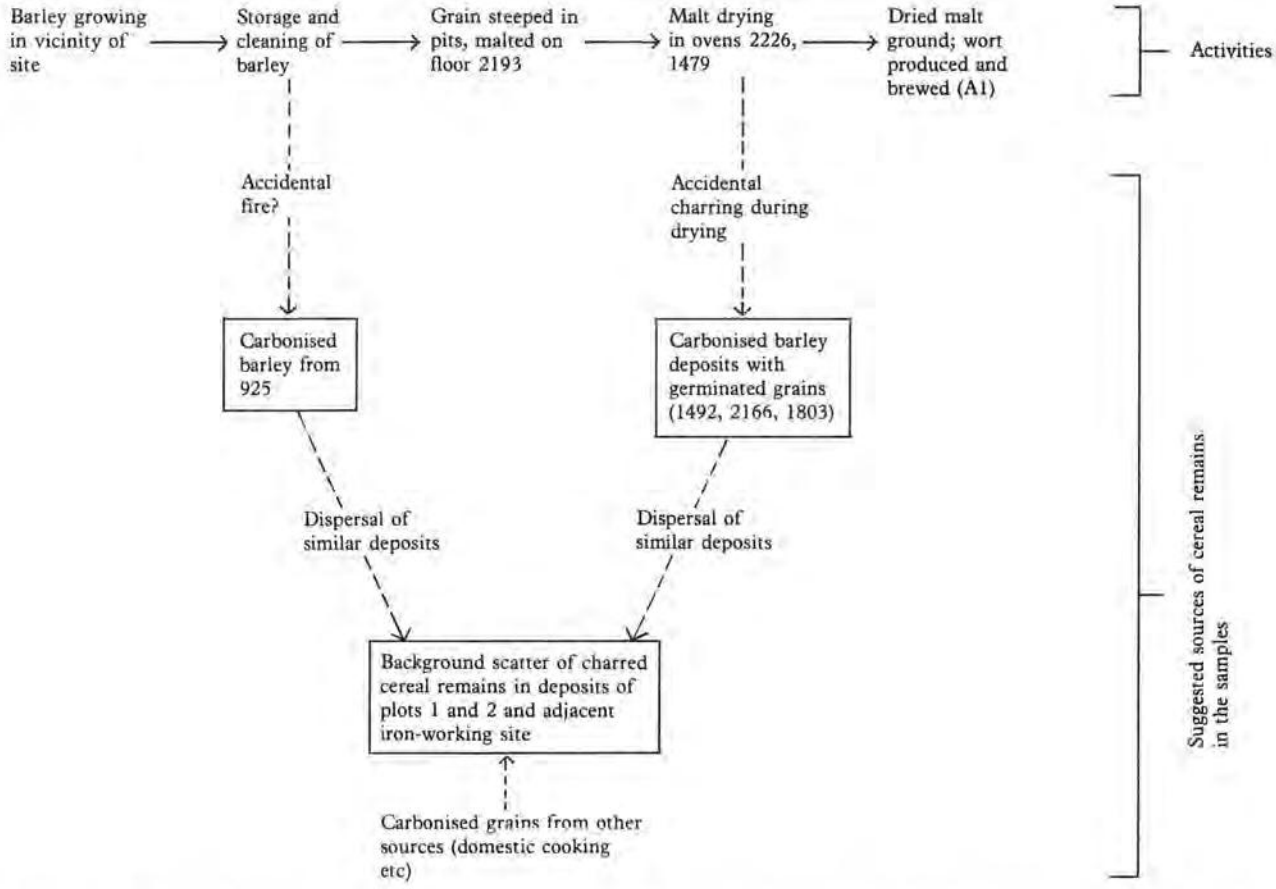


Fig.50 Site 302N. An interpretation of the botanical and archaeological evidence for malting and brewing in Period 4

An interpretation of the combined botanical and archaeological evidence is presented in Fig. 50. If this interpretation is accepted then the results appear to indicate a close linking between local agriculture and industry so as to minimise the costs and effort of transportation from the arable fields to the brewery and on to the consumer.

Cereals from Period 9 and 10 deposits

Deposits of Period 10 (1675-1720), and to a lesser extent Period 9 (1600-1675), also contain high grain concentrations, notably of barley. Moreover at least one deposit (1204) from Period 10, Tenement C, contained germinated barley grains. The botanical evidence is less strong than for Period 4, and there is little supporting structural evidence, but it is possible that there was also some brewing on the site in the 17th century. The deposit from 1204 need not necessarily indicate malting on site: it could merely represent discarded charred grains from malt imported to the site from elsewhere.

Other cultivated and wild plant foodstuffs

Because of the minimal preservation conditions at Alms Lane, and also perhaps because of the modest social status of the occupants during most site phases, the range of plant foodstuffs identified other than cereals is very limited. The only fruits identified were fig (*Ficus carica*), grape (*Vitis vinifera*), elderberry (*Sambucus nigra*), bramble (*Rubus fruticosus*), raspberry (*Rubus idaeus*), *Prunus* sp and apple (*Malus sylvestris/domestica*). No nuts were identified. Context 727 (sample 69) produced a carbonised clove of garlic (*Allium sativum*) or another species of the Liliaceae,[1] though this context cannot be dated closely beyond the 16th century on Tenement A.

Almost all the fruitstones and seeds are mineralised, though there are a few carbonised specimens. Mineralisation involves impregnation of plant tissue with calcium phosphate. Phosphates derived from faeces or other decaying organic material react with calcium salts in groundwater, with lime used as a sterilising agent or with biogenic calcium. Consequently this form of preservation occurs most frequently in cesspits and other contexts with a high proportion of organic material (Green 1979). As would be expected, most of the mineralised plant remains from 302N were recovered from cesspits of the later site periods: remains of fruits are rare in deposits up to Period 6, and only become common in Period 9 (MFT.29). This distribution does not therefore reflect consumption, but rather differential preservation.

Wild plants

The seeds of wild plants fall into several distinct groups: mineralised weed seeds, carbonised weed seeds, seeds of wetland plants and of scrub/woodland plants, mostly those with edible fruits which have already been discussed. The mineralised weed seeds comprise *Chelidonium majus* (greater celandine), *Silene* sp (campion), *Chenopodium album* (fat hen), *Malva* sp (mallow), *Con-*

ium maculatum (hemlock), *Aethusa cynapium* (fool's parsley), *Euphorbia helioscopia* (sun-spurge), *Hyoscyamus niger* (henbane), *Atropa bella-donna* (deadly nightshade), *Veronica hederifolia* (ivy-leaved speedwell), *Stachys* sp (woundwort) and *Ballota nigra* (black horehound). These plants are all strongly associated with the disturbed, nutrient-rich soils of human settlements, and represent part of the weed flora on site. Several of these species have pharmaceutical uses, but there is no direct evidence that these properties were exploited. Seeds of elder (*Sambucus nigra*) were present in most samples, sometimes in very large numbers. They do not appear to be mineralised: seeds of this species are extremely durable and survive in a recognisable state for very long periods in aerobic soils. Like the mineralised seeds, however, these elder seeds are derived from the vegetation of disturbed ground on site.

Carbonised weed seeds occur sporadically in association with small samples of carbonised cereals. In such samples large seeds and fruits generally predominate, though of course recovery of material smaller than 1mm was incomplete at this site. Species represented include *Brassica* sp (cabbage/mustard), *Raphanus raphanistrum* (wild radish), *Agrostemma githago* (corncockle), *Vicia* sp (vetch), *Polygonum aviculare* (knotgrass), *Rumex* spp (docks), *Lithospermum arvense* (corn gromwell), *Convolvulus arvensis* (bindweed), *Galium aparine* (cleavers), *Chrysanthemum segetum* (corn marigold), *Centaurea* sp (?cornflower), *Bromus mollis/secalinus* (brome grass) and other grasses including *Lolium temulentum*-type (?darnel). These fruits and seeds are thought to represent contaminants in batches of cereals imported to the site which were removed by sieving and hand sorting before consumption. Charring of a proportion of these seeds presumably occurred when the waste was thrown into domestic hearths. Carbonised weed seeds associated with an unprocessed batch of barley from context 925 have been listed above.

There are a few identifications of seeds and nutlets of wetland plants including *Menyanthes trifoliata* (bog bean), *Eleocharis* sp (spike-rush) and *Carex* sp (sedges). These presumably relate to the gathering of rushes, sedges and other wetland plants for use as litter and thatch. Apart from seeds and fruitstones of edible wild fruits, remains of scrub and woodland plants are rare, but they include carbonised fruitstones of holly (*Ilex aquifolium*), part of a carbonised acorn cupule (*Quercus* sp) and carbonised buds. These macrofossils are likely to be derived from firewood.

Conclusions

Seed concentration analysis of 152 dated samples from Alms Lane shows a long-term increase in the concentration of carbonised cereal grains in deposits of Periods 1-10, related probably to increasing density of occupation, and a marked drop in cereal grain concentrations in later periods, when there may have been little or no further disposal of charred cereals. Carbonised barley grains were consistently discarded in greater quantities than grains of other cereals. This is believed to be a consequence of methods of consumption: wheat, oats and rye probably reached the site largely as meal or flour, whereas barley was used as whole grain in cooking and malting.

There is a marked peak of cereal grain concentrations in deposits of Period 4 (1275-1400), and this is thought to relate to crop processing and barley malting. A single large deposit of unprocessed two-row barley was recovered, probably the remains of a crop accidentally burnt whilst in store awaiting cleaning. Two deposits of carbonised barley, including germinated grains and associated with ovens, are interpreted as malt accidentally carbonised during roasting. Structural and artefactual evidence provides supporting evidence for malting on the site at this time. Some barley deposits from Periods 9 and 10 (1600-1720) may perhaps also be related to malting or brewing.

Other carbonised crop plants include peas, from most site periods, and a single clove probably of garlic from the 16th century. Mineralised fruitstones and seeds of fig, grape, elderberry, bramble, raspberry, *Prunus* sp and apple occurred mainly in cess deposits in the later site phases. Weed seeds derived from the local weed flora and from batches of cereals imported to the site were identified, together with rare remains of wetland and scrub/woodland plants.

Sampling at Alms Lane has produced useful information on the processing and use of plant foodstuffs and other raw materials in the medieval and post-medieval city. The assemblages of plant remains recovered are quite typical of those from sites in well-drained situations in Norwich. Individually, most of these assemblages are uninformative, containing few seeds of a very restricted range of taxa. In order to produce useful results from such sites it is necessary to sample on a large scale, both to provide statistically valid collections of plant remains from each site period and also to ensure recovery of rare large deposits such as those from Period 4 which can prove critical for the interpretation of activities involving crops and other plants. It seems doubtful whether there is any value in small-scale sampling at sites of this type. Large-scale sampling is, however, very time-consuming and should probably be undertaken in future only where there is a prospect of gaining information on specific areas of interest, such as, for example, the transition in mid to late Saxon Norwich from a self-sufficient farming economy to a truly urban economy.

Endnote

1. This specimen was kindly identified by Dr G.C. Hillman.

IX. The Documentary Evidence

Based on notes compiled by Margot Tillyard

Although the precise pattern of property boundaries can only rarely be plotted with absolute confidence (Tillyard 1983), this was the case with the topographical reconstruction of the Alms Lane site (Figs 51-3). This was possible because of the combination of three fixed points (two street corners and a churchyard) with abuttals defining, among others, an irregularly shaped property (?A/C). Confirmation of the reconstruction's validity was provided by the dimensions quoted for two of the tenements in one late 16th-century document. Independently, on archaeological grounds, a pattern of property ownership had been inferred which matched perfectly the inverted T-shaped pattern of the deed reconstruction boundaries (Figs 57-62). For this reason a

single system of tenement notation (A, B, C and A/C) has been used in both documentary and archaeological reports. The synthesis of the documentary evidence that follows is discussed in relation to the archaeological evidence in Section XIII (pp.254-257).

Materials for topographical reconstruction are as episodic in occurrence here as for any other part of the city, and, as elsewhere, refer more frequently to the owners than to the occupiers of the property (Tillyard 1983, for the methodology). There is a useful series of enrolled deeds for the periods 1288-1340 and 1570-1609, and a good set of original deeds for the period 1723-1836, but the only 'continuous' listings are those of the Landgable returns for 1470 (incorporating that of 1397), 1547, 1570 and 1626. References for these and other documents referred to in this section are gathered together as an endnote below.

Throughout the history of the site property transactions are recorded with reference to the streets that bound it but these are frequently un-named. On the east (now St George's Street) lay Gildengate (name first recorded in 1274/5), on the north Alms Lane (from 1470) and on the west Muspol Street or Muspolgate (from 1288/9). These provide the framework for the topographical reconstructions. The 'muspool' itself lay west of St George's Church and from it a stream ran east along Colegate. Both Kirkpatrick (Hudson 1889, 75) and Sandred and Lindström (forthcoming) favour an interpretation of the name as meaning a mouse or rat-infested pond.

The tenurial pattern on the site *c.*1300 is provided largely by the incidental evidence of the enrolled deeds: for while their abuttals (Fig.51) serve to locate neighbouring properties, the information they give on the property actually being sold is limited. Thus it is known (Fig.51A) that Tenement B was owned or tenanted by Adam Cabel in 1288 but we know neither his occupation nor what he held.[1] Only when Geoffrey de Rokelund, merchant, bought the property in 1321 is it described as 'messuage with buildings'.[2] This is, in fact, the commonest description of properties on both sides of Muspole Street in the earliest enrolled deeds, and might suggest that the area was built up well before the recording of property transactions began.

The process by which the excavated site was broken down into separate tenements (which until 1290 would have been by subinfeudation — Rutledge 1983, 58-9), as shown on Fig.51, is seen in the way in which rents are reserved on several of the properties until the 1320s. (When Reginald de Swathefeud bought Tenement A/C in 1288, for example, a rent of ¼d was reserved to the previous holder, ¼d to the holder of the property to the north, and ¼d landgable and 6d to the lord of the fee.)[3] At the outset of the documented period, however, the pattern of ownership that was to last into the 19th century had been established, even to the extent of Tenement A/C having an independent existence (Fig.51). Its abuttals in 1288, with that of C to B in 1292, suggest that A and B were then in the separate occupation (if not ownership) of Henry de Ludham and Adam Cabell. By 1307 both had been added to the property portfolio of John de Shotesham who had extensive interests in the parish, including ownership of C between 1307 and 1312 and a quitclaim (Rutledge 1983, 52) on A/C in 1307.[4] Shotesham disposed of his acquisitions quite rapidly: A with B (sold as a single property) passed before 1321 to William, son of Roger le lindraper and then to a merchant; while C is recorded in 1312 and 1316 simply as 'once John de Shotesham'.[5] (For the extent of multiple ownership in the city *c.*1300 see Kelly 1983, table 1.) The land had clearly been built upon. In 1307 A/C is described as containing a 'cottage', whilst Tenement A is described as a 'messuage with buildings' in 1321.

The occupations of few early owners and tenants are stated. There is however a clear suggestion of a concentration of *ownership* in the leather trades (cf. Kelly 1983, 22-3 and fig.5). Tenement A was held by a skinner in 1288, A/C by a tanner in 1307, and C by Ralph le Barker in 1326 (oak bark was used for tanning). There are no mid 14th-century deeds for the site but the Landgable of 1397 records Peter Qwyk, a smith, as having once owned a tenement on the corner of Alms Lane.[6] This may have subsumed A/C (as the archaeology also suggests), for it is the latter, not A, on which Landgable was charged in the 13th century. His interests may also have extended to B for it was apparently his widow who sold it in 1385.[7] Qwyk may have been moderately wealthy for, with another smith, he had purchased property elsewhere in the parish in 1379.[8]

The early Landgable evidence is not always easy to use, for the assessors, who seem readily to have become confused, passed the site once coming south down Muspole Street and once going north up St George's Street. The shifting joint ownership of tenements (as with Shotesham's acquisition and disposal of C, while continuing to hold A with B) caused, and causes, further confusion. In 1470, for instance (Fig.51B), while A/C seems to have been joined with A, B was apparently assessed with C.[9] Further problems (cf. Fig.57, Period 6) arise from the fact that the 'tenements' of the landgable listing (and not every property was liable) are probably houses rather than blocks of land. An early indication of owner-occupancy comes with the reference (in 1593) to the grocer, Thomas Hendry, as once living on Tenement A. He was made a freeman of the city in 1489 and may have been responsible for the alterations on this tenement in the early 16th century.[10]

The Landgable lists of 1547 and 1570 are free of most of the earlier problems (Fig.52). Margaret Jannys, widow of a wealthy mayor, had acquired the whole site by 1547 while after her death it passed to Henry Bacon. Another wealthy grocer (mayor in 1557 and 1566), he lived just to the east of the site on Colegate. After Bacon's death in 1568 ownership was rapidly subdivided, and by the 1570s the pattern was much as it had been in the early 14th century (Fig.52A). Tenement A/C which seems to have been assessed with A in 1570 (Thomas Lawter 'for tenements between the lane north and the way west')[11] was then re-divided and became associated with C.

In 1576 the dimensions of A/C are given in the deeds of Lawter to More as 5 yds (4.57m) on the north, where there was an entry, and 8¾ yds (7.99m) onto the road. Its former yard or garden, now united with A, is given as the east abuttal and on the south was a woodshed on C.[12] Running eastwards from the rear of A/C to form the boundary between A and C was a stone wall with a latrine at its east end (i.e. against the boundary of A with B).[13] The property is described as a tenement

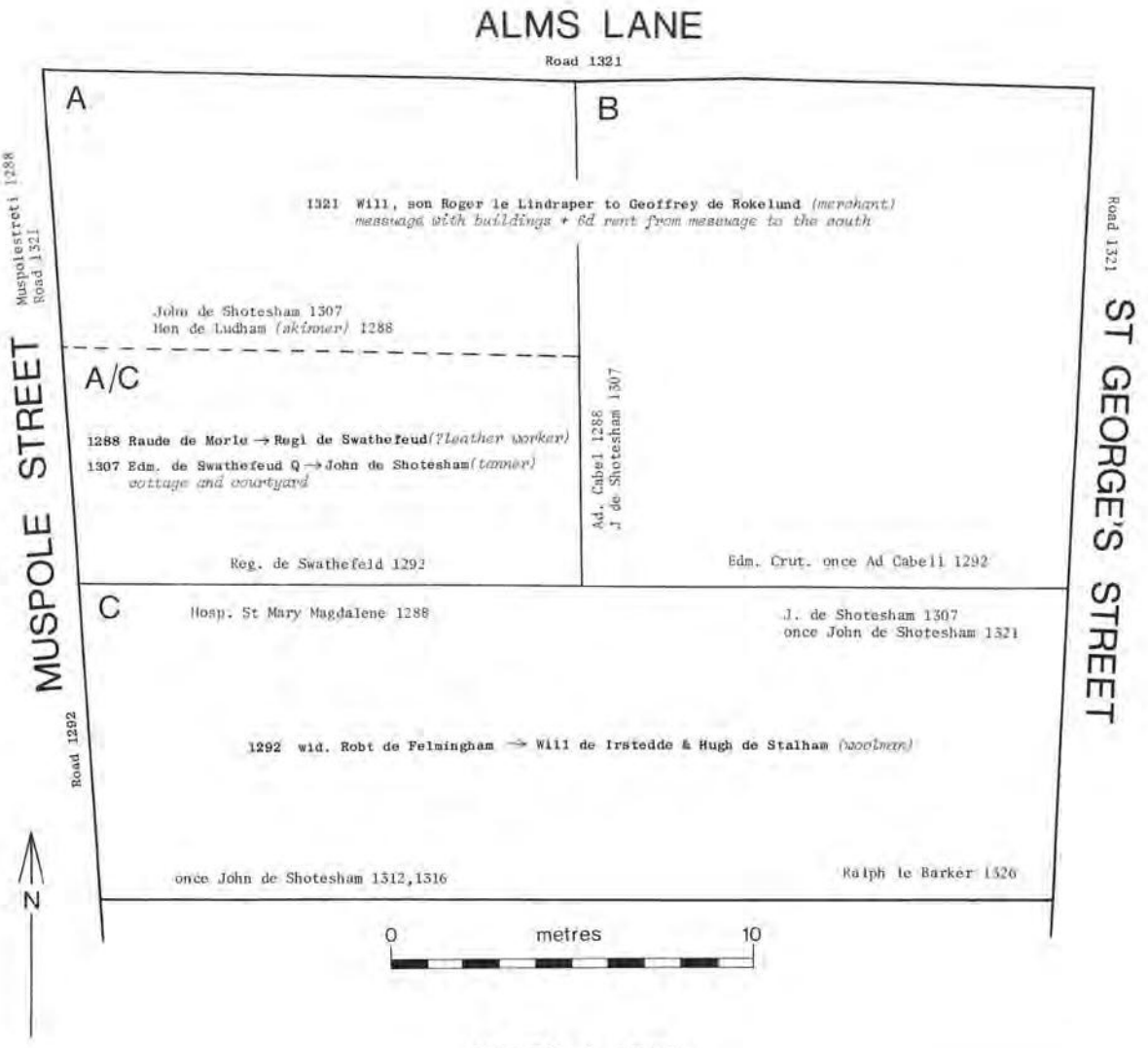
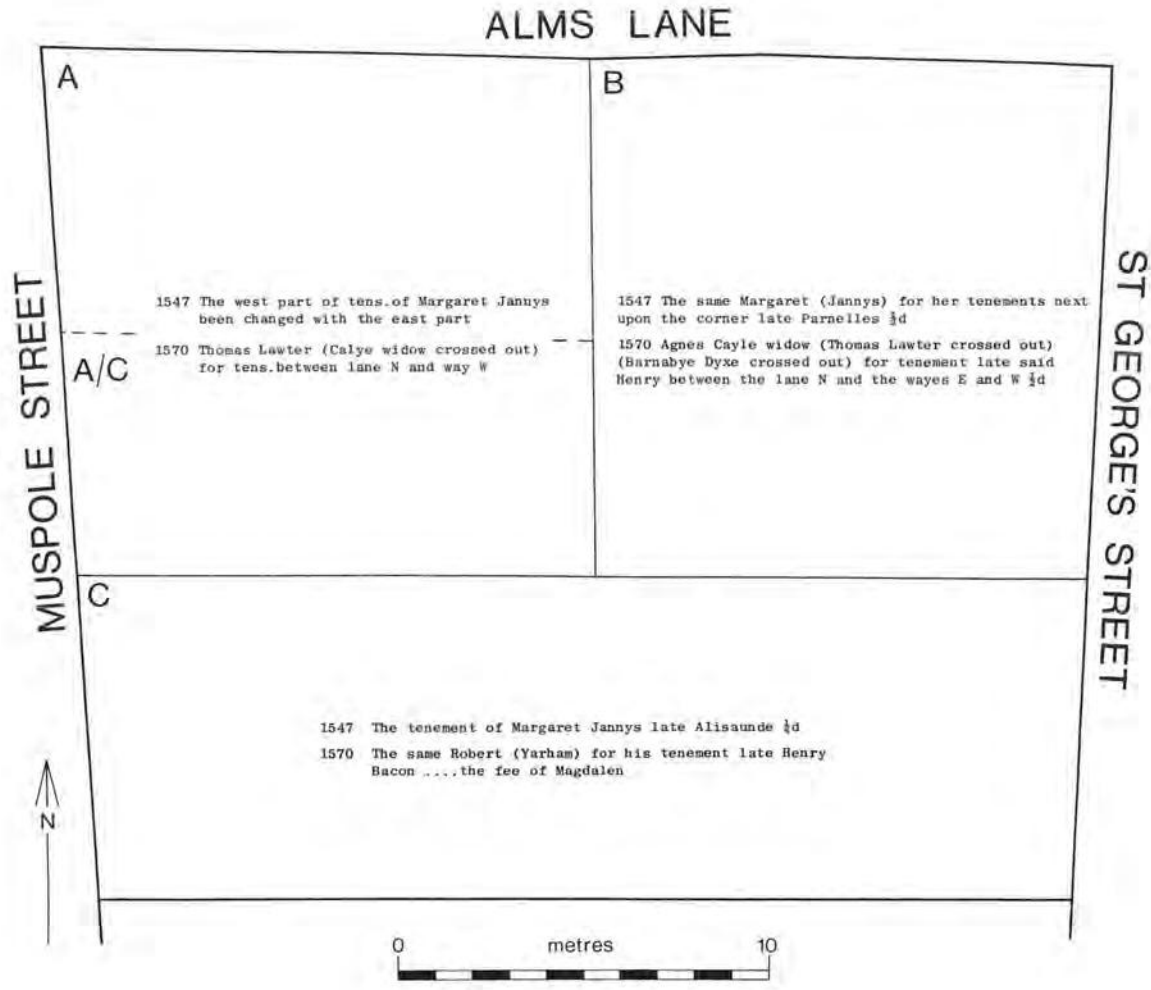


Fig.51 Site 302N. Analysis of medieval property holdings. Top: 13th-century enrolled deeds. Bottom: 1470 landgable.



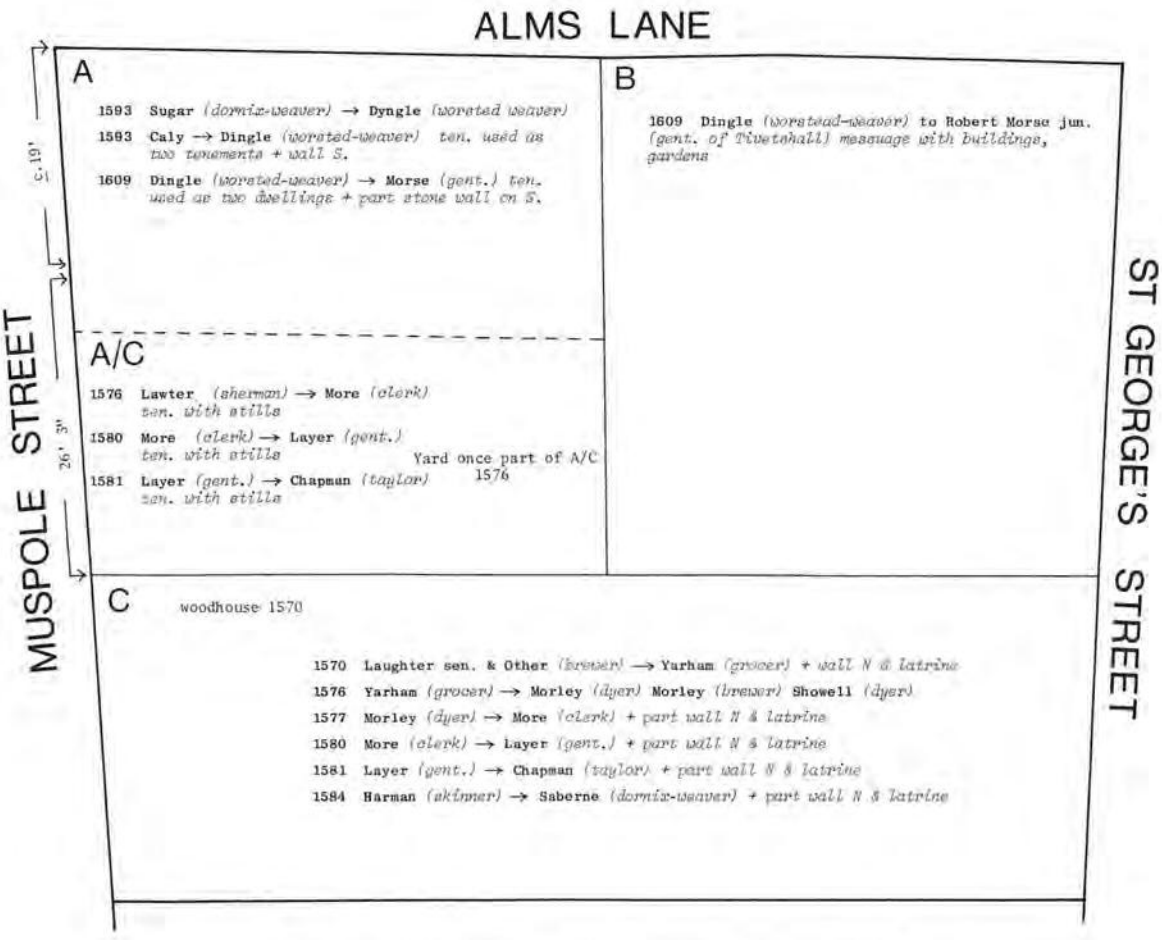


Fig.52 Site 302N. Analysis of 16th-century property holdings

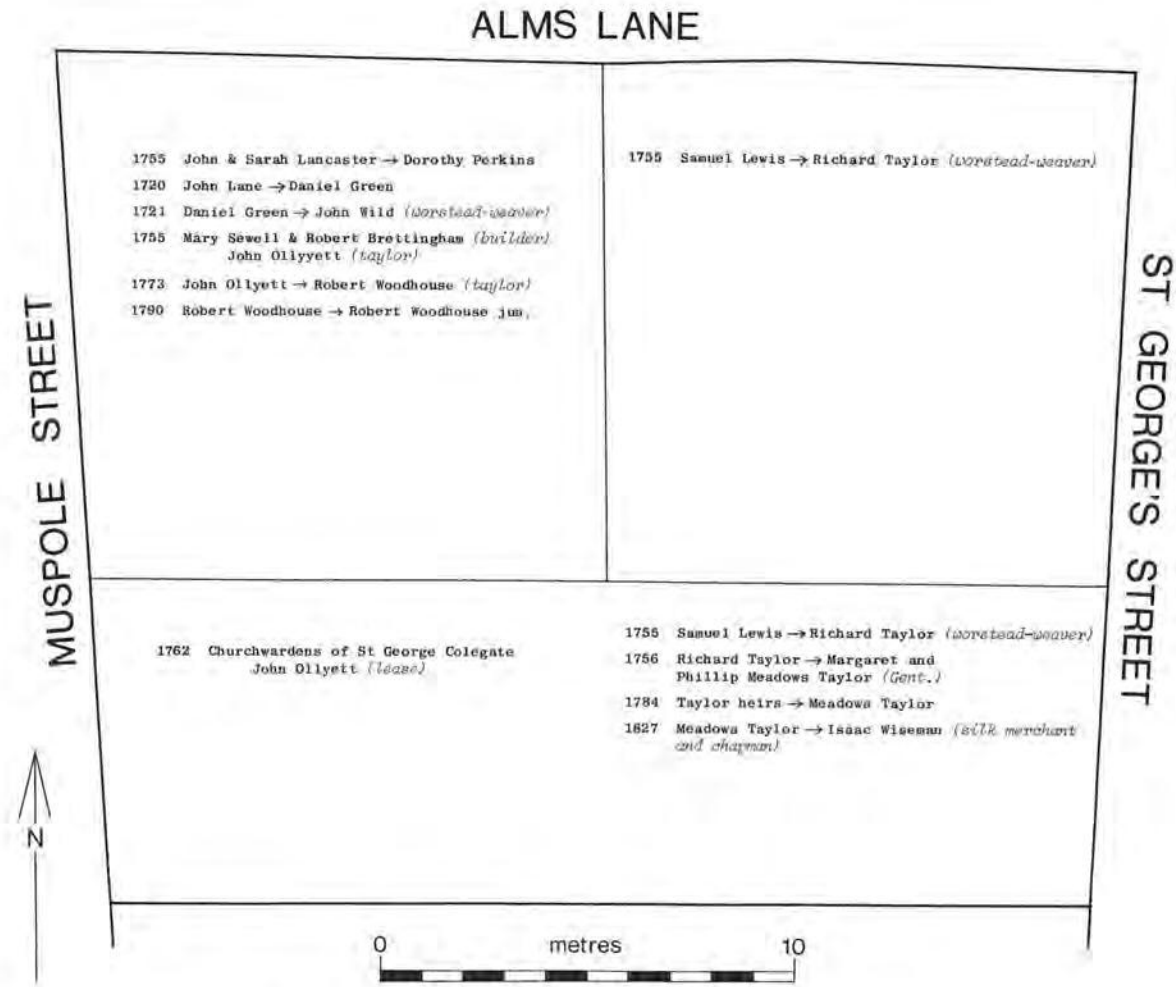


Fig.53 Site 302N. Analysis of 18th-century property holdings

'cum stillicidiis', a phrase which is repeated in the description of C.[14] Although Tenements A/C and C were now in joint ownership it would seem that an eaves-drip gutter ran between them. Tenements A and B were also to pass into joint ownership. In 1593 in two separate purchases Nicholas Dyngle had acquired A which was 'now divided and used as two tenements'.[15] Before 1609 he had also acquired B and in that year sold both A and B to Robert Morse. (Tenement A was now described as 'tenement used as two dwellings'.)

Ownership of the site in the years between 1570 and 1609 changed rapidly (Fig.52B). Some of the owners, like the two gentlemen of Alderford and Tivetshall, were clearly non-resident and this is suspected of others who are known to have had multiple property interests. Speculation as to which of the owners might have been resident (along with tenants) suggests the probability of those in the textile trade (dornix and worsted weavers, shearman, dyers), but on C the brewer John Otber is a possible occupier in the 1570s.[16]

Documentation for the 17th century is sparse, but an almost complete record of the property transactions for the site during the 18th and 19th centuries (from 1715 onwards) is preserved in the Town Clerks' Deeds. These include both the documents themselves, and abstracts of documents now destroyed, and name owners, tenants and undertenants. Reconstructions of the patterns of ownership during this period are shown on Fig.53. Attributions are provided by referencing back from the street numbering in the later deeds. The most immediate point to note is that the basic tripartite division of the site (with a sub-division of the two frontages of Tenement C) remained effective until the late 19th century, although there was often further sub-division. A high percentage of both the owners and tenants were made freemen, and almost all had an interest in the textile industry.

The earliest documented owner of Tenement A in the early 18th century was John Wild (a worsted weaver) who died in 1725. He willed the property to his daughter, Mary Sewell (the widow of a worsted weaver), and to his son-in-law, George Steygould.[17] At the time, the property was actually occupied by the tenants James Cole, Peter Wiggett and Jacob Votier (a Walloon). By 1754, Mary Sewell was 'much advanced in years' with no heirs, and Steygould sold his share to the well-known Norwich builder, Robert Brettingham (admitted as a freeman in 1719).[18] In 1754 the leasehold was bought by one of the existing tenants, John Ollyett (a tailor admitted as a freeman in 1745) for £8 p.a. Ollyett later married the widow of Robert Woodhouse (tailor), who was the owner of Tenement C until his death in 1742.[19] The range to the rear of the house (building A11: Fig.61) was probably that referred to in 1827 as the 'wash-houses,

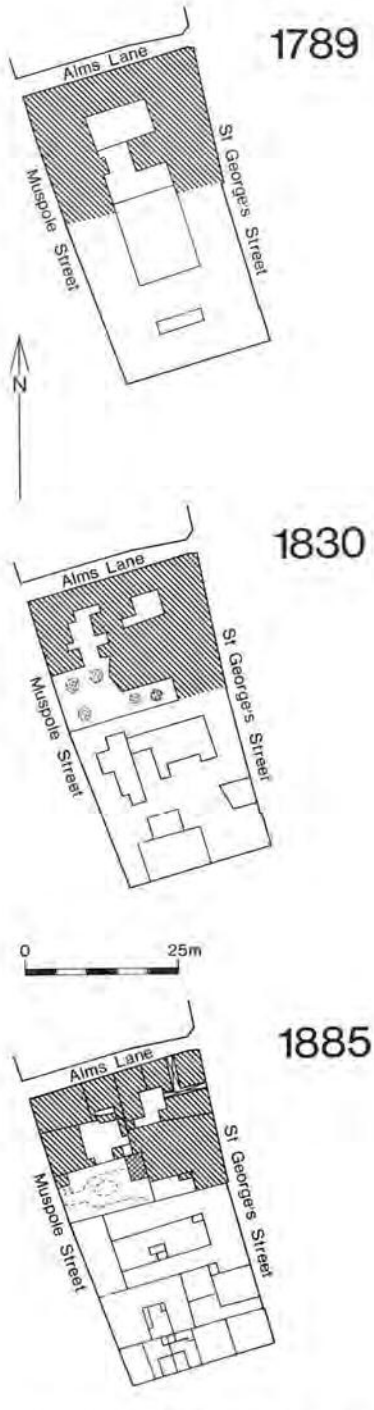


Fig.54 Site 302N. The cartographic evidence

pump and privy' whilst the will of Robert Woodhouse (jnr) in 1798 also referred to 'stables' here.[20]

In 1762 the Muspole Street frontage of Tenement C was also leased to Ollyett by the churchwardens and overseers of St George Colegate. This land was described as 'that old decayed building belonging to the said parish of St George Colegate then commonly used as a stable for many years and then lately occupied by Richard Taylor'.[21] Richard Taylor (worsted weaver) owned the St George's Street frontage of Tenement C, and this division of use was probably a continued reflection of the demolition of building C3 in Period 10 (late 17th century) and the use of the ground as the yard of building C4. Thus it was described as lying 'between the dwelling house of John Ollyett and the entry and yard leading to the dwelling house of Richard Taylor . . . together with the ground, ways, passages, privies and appurtenances'.[22] In 1763 Ollyett agreed to 'rebuild or put into good repair the said tenement or building'.[23]

The property fronting St George's Street was clearly the most prestigious, with Tenements B and C coming under the same ownership, but being rented in units that respected the tenement boundaries. Prior to 1755 it was owned by Samuel Lewis of Westminster who then sold the leasehold to Richard Taylor (worsted weaver) for £500.[24] At least one of his former tenants, Briant Lewis, had also been a worsted weaver and workrooms are referred to in a lease of 1788.[25] Two of Taylor's sons, Richard and John, both described as woolcombers in 1784, held the property until 1827 when it was sold to a yarn factor, Isaac Wiseman (also described as a dealer in silk and chapman). In 1755 the property was described as 'all the houses, outhouses, edifices and buildings and workrooms, yards, gardens, orchards, lands, grounds and appurtenances'; in 1827 the deeds mention a washhouse.[26]

The 19th-century deeds are of interest in showing the continued existence of the boundary between Tenements A, B and C up to at least 1852. In 1800 Tenement A was described as 'now in one' when Nicholas Mallet (shawl manufacturer) bought it from Robert Woodhouse, but in 1820 it was described as 'those three messuages or dwelling houses now late of Mallet deceased together with the yard, wash-houses, pump and privy'.[27] The latter were shared between the occupants. In 1827 Meadows Taylor sold Tenements B and C to Isaac Wiseman for £1050. He leased Tenement B to Robert Dewing (grocer) with the proviso that there should be access to the north 'for the purpose of emptying the muckbin and of carrying and emptying the muck and dirt from the same bin into a certain lane there called the Alms House Lane without interruption'.[28] The deed of 1827 includes a measured plan of Tenement C at this time (Pl.XXXVIII) providing conclusive confirmation for the correlation of the archaeological and documentary evidence. The deed is of particular interest in showing the reuse of room *g* (as the privy) and the nature of the superstructure over the two cellars (drawing room and pantry with passage). In 1832 Wiseman was declared bankrupt and the property was sold at public auction for £600.[29]

Endnotes

1. NRO Case 1 Roll 2 m.12
2. NRO Case 1 Roll 9 m.16
3. NRO Case 1 Roll 2 m.12
4. NRO Case 1 Roll 4 m.32
5. NRO Case 1 Roll 9 m.16
6. NRO Case 18a Chamberlain's Book, p.152d
7. NRO Case 1 Roll 14 m.23
8. NRO Case 1 Roll 14 m.4d
9. NRO Case 1 Roll 31 m.7
10. NRO Case 1 Roll 28 m.8
11. NRO Case 18d Landgable 1541-1626 Book 2
12. NRO Case 1 Roll 26 m.96
13. NRO Case 1 Roll 28 m.20
14. NRO Case 1 Roll 28 m.64, 76; 28 m.8
15. NRO Case 1 Roll 31 m.10
16. NRO Case 1 Roll 26 m.96
17. NRO Town Clerk's Deeds TC 714
18. Ibid

19. Ibid
20. NRO Town Clerk's Deeds TC 713
21. NRO Town Clerk's Deeds TC 714
22. Ibid
23. Ibid
24. NRO Town Clerk's Deeds TC 715
25. Ibid
26. NRO Town Clerk's Deeds TC 713
27. Ibid
28. NRO Town Clerk's Deeds TC 715
29. Ibid

X. The Saxon defences and early settlement

The existence of a Saxon defence system north of the River Wensum (General Introduction, Figs 01 and 02) was first suggested in 1973 (Carter *et al.* 1973, 57). This was on the evidence of the street pattern (in particular the characteristic 'ladder' pattern of St George's Street and Calvert Street linked by Cross Lane) and the direction of certain parish boundaries (St Paul's and St Saviour's). Such anomalies in street and boundary patterns can only serve as general guides, but the western line of such defences has been located and investigated not just on Alms Lane but also in the section cut on Botolph Street, described above (p.114).

The ditch (feature 2423) on site 302N lay directly underneath St George's Street (Fig.57) with the outer lip lying some 2m west of the present kerb line and therefore only *c.*40m from the presumed edge of the 'muspool' marsh (Fig.1). Excavation on site 172N (Bacon's House) in 1974 (Roberts *et al.* 1975, 108) showed that the ditch did not extend to the east of St George's Street. This suggests that the citizens had used the level infill of the ditch as a convenient road surface and that Calvert Street (with Botolph Street and Cowgate) formed the original intra-mural road behind the bank (Fig.1, and General Introduction, Fig.01). Cross Lane is interpreted as a later insertion through the bank after the defences had fallen out of use. The 'dog leg' of Colegate has been interpreted (Carter 1978, 193) as representing the misalignment of two streets built from opposite directions after the usefulness of the defences had disappeared. The date at which the ditch was dug is still not well-established although it seems likely to be 10th century rather than earlier (see above, p.1). Similarly, its silting is probably 11th-century in date, but with only two sherds of pottery found in these contexts this cannot be certain.

The excavated site thus lay west of a defended settlement while being to the east of the possible Middle Saxon nucleus in Coslany. To date, there has been no large-scale excavation within the latter, but examination of material from building sites and the excavations immediately to the north on Oak Street/St Martin's Lane (Atkin forthcoming (b)) suggests that it was originally confined to a narrow band by the river along Oak Street. The location of St Mary Coslany Church off the existing street frontages (General Introduction, Figs 01 and 02) suggests that this marked the limit of expansion eastwards from Coslany in the late 11th century. This interpretation is confirmed by archaeological evidence with the earliest activity immediately to the west of the defences on Alms Lane being probably no earlier than *c.* AD 1000, and characteristic of essentially casual waste disposal. A similar picture at that time is suggested at the junction of Colegate with modern Duke Street, where dumps of iron slag in association with Thetford-type ware have been found in building operations (site 716N in 1984). Further topographic evidence of 12th-century expansion is indicated by the siting of St George's Church (with a dedication popular *c.*1100 at the time of the First Crusade) just outside the line of the Saxon defences. Here the presence of the 'dog leg' on Colegate suggests that the line of the defences still remained a barrier to expansion from within (Carter 1978, 193). Certainly by the 13th century, St George Colegate was regarded as representing the eastern limit of Coslany (Campbell 1975, 25). Significantly, the earliest record of a bridging point on the line of St George's Street is for 'Newbrigge' in 1264 (Schram 1961, 148), compared to 1141-9 for Fyebridge to the east and 1186-1210 for Coslany bridge to the west. Thus the line of the now-disused Saxon defences appears to have remained as a boundary well into the 13th century. This may also be reflected in the name 'Merholt' of *c.*1278 in the vicinity of sites 281N and 284N (General Introduction, Fig.02; Hudson 1889, 77), interpreted by Sandred and Lindström (forthcoming) as deriving from the OE *(ge)maere*, 'a boundary'.

The pattern of land-holdings at the time of the earliest surviving deeds in the late 13th century suggests that by then land partition and settlement was well-established in the locality, with a prevalence of leather-workers. The excavation did, however, suggest that this particular site continued to be used as a quarry and as a rubbish dump (principally for iron-working waste from an iron-working industry but also including waste from bone-working and leather-working).

The appearance of actual iron-working and brewing on the site by *c.*1275 probably marked an increase in nearby domestic expansion (denoted by the increased size and completeness of pottery sherds from the end of Period 3) that steadily forced such noxious industries out to the margins of settlement. This area to the west of the former Saxon defences may therefore have formed an early medieval 'industrial corridor' (extending north to encompass the excavations on Botolph Street and St George's Street, this volume, above, p.142). The earliest reference to domestic occupation on Alms Lane is the isolated early 14th-century reference to a 'cottage' in the deeds (Fig.51); then the site was taken over by industrial usage until the 15th century.

XI. Medieval and Later Industry

by Malcolm Atkin with contributions by Ursula Priestley

Introduction

Evidence for the range of industrial and craft activities practised on, or adjacent to, the site was extensive. Much of this was concentrated in the pre-domestic phase of the site. Initially the area seems to have been quarried, perhaps for iron ore (see below, p.243), but by the 12th century waste from an iron-smelting industry was being dumped in and around these pits and the fill of the late Saxon defence ditch. The 12th and 13th centuries also saw the limited redeposition of waste from a bone-working industry. During the 13th century part of the Muspole Street frontage was owned, but not occupied, by men in the leather trades, who seem to have dumped some of their rubbish onto the site. Many of the proper-

ties immediately to the west were owned by leather-workers at this time. The 14th century was when the first on-site industrial activity (brewing and iron-working) occurred. From *c.*1400 onwards the archaeological evidence is largely of domestic crafts and marketing (evidenced, for example, by spindle-whorls, scale-pans and a seal matrix). By the late 16th century many of the site's owners had interests in the textile trade; that their tenants were involved too is suggested by scattered finds such as heckle or woolcomb teeth and a tenter-hook. There is strong documentary evidence that the textile industry also dominated the occupation of the site in the 17th and 18th centuries.

Brewing and grain-processing (Figs 4, 49, 50 and 57) Ale was the staple medieval drink, at least until the introduction of beer from the late 14th century. Despite this, very little is known about the physical organisation of the industry outside the private brewhouses of castle, manor house or monastic institution. Information for the urban industry in particular is lacking, although it must have been widespread. No brewers or maltsters, for instance, are mentioned in the Norwich enrolled deeds of 1285-1311 (Kelly 1983, table II) which reflects its low status (it was usually carried out by 'ale-wives') and domestic character. In contrast to the beer-brewers (see above, p.84), the 'comon brewers' were probably spread throughout the city as two ale-tasters were appointed for each ward in 1471. The excavated evidence of brewing from Alms Lane (see above, pp.149-150) exemplifies the quasi-domestic nature of the craft (cf. Stamford's distinct malting industry: Rickett 1982, 19-21). Production seems to have been on a small scale, but it is not possible to tell how long the industry was operated for.

The actual brewing process is very simple. Grain (usually barley) is soaked (steeped) in water and then piled in a heap or 'couch' on the malting floor. Thereby heat develops and the grain germinates, producing the chemical diastase which converts the starch in the grain into sugars. When the desired state is reached the process is halted by roasting in an oven. The dried grain (grist) is then crushed before being brewed in hot water to draw off the wort (Corran 1975, 283-85). All these stages (summarised in Fig.50) are represented to varying degrees on the Alms Lane frontage. Evidence for grain-processing comes from pit 925 (Fig.49): a sample interpreted as being part of a harvested crop (primarily barley) had been stored on site (along the south boundary of plots 1 and 2) and was accidentally burnt before threshing. There was no evidence for where this would have taken place on the site but the presence of a stored crop is a reminder of how close the agricultural interests of the city were (see also Kelly 1983, 30).

Clay-lined pit 1853 (Pl.XXVIII) is interpreted as the pit in which the grain was soaked in the preliminary stage. Later, it may have been used to store the hot ashes prior to disposal although the burning of the clay lining was not heavy enough to suggest use as an oven. The find of the millstone fragments suggests that it was finally used as a rubbish pit (SF302N/*2421* from layer 1851, Pl.XXXV). To its east were the fragmentary remains of a chalk surface (2193) for laying out the wet grain in the 'couch' on the malting floor.

There were two possible roasting ovens of which 2226 was the earlier. This was poorly-preserved but consisted of an irregularly-shaped pit with a burnt clay lining (although indicating only a low firing temperature). The flue was probably to the north. Large fragments of iron furnace-bottom found in its fill may represent the disturbed remains of a baffle, used to protect the drying floor (frequently of wood and straw, or cloth stretched on a timber frame) at ground level. As with pit 1853, the feature was backfilled with ash. Perhaps located within a building, it was not finally sealed until Period 5 and so may have been in contemporaneous use with oven 1479, although this is more likely to be its replacement in Period 4.6. Oven 1479 is of the classic type of drying oven (e.g. Sandal Castle: Mayes and Butler 1983, fig.11), with an oval combustion chamber, long flue and shallow stoking pit (Fig.10, Pl.XXVII). Again, the degree of burning of the lining did not suggest a use at high temperature. Its function is confirmed by the presence (Fig.49) of large quantities of carbonised, germinated barley in its lining and initial fill. This represents accidental burning during roasting for there was no evidence of insect attack that might indicate the deliberate burning of spoilt grain.

The next stage in the process of brewing is the crushing of the roasted grain, providing the likely context for the millstone broken up in pit 1853. Its almost complete survival suggests that it must have been used on site as a domestic (hand-turned) mill. No evidence for the location of this activity survived, but it could have been in the areas destroyed by the 16th-century cellars at each end of the Alms Lane frontage. An inventory of the brewhouse of St Mary in the Fields, Norwich, refers to a 'horse mell' and the 'coper or leade' (Hawes 1904, 310). A more detailed building account for a brewhouse at St Martin in the Fields (London) in 1492 also refers to a 'horse mill' together with some of the equipment of the brewhouse itself—the great metal vessels such as the 'plumbum in fornace', the 'groute lede' and 'messheton' (mashtub) in which the brewing took place (Salzman 1967, 552). Such items rarely survive, but in building A1 there were the remains of a large hearth to heat the boiling vat. This hearth had a surviving diameter of 1.80 x 0.80m, partly destroyed by a later cellar. Building A1 itself consisted of a rectangular area of heavily burnt clay floor (Fig.4). The industry clearly demanded a great deal of water and also drainage, hence the provision of gully 1886 draining westwards into the 'muspool' along the Alms Lane frontage outside building A1. Fragments of two possible drainpipes from similar Period 4 activity were found (layer 275) to the south of the brewing site (see above, p.182)

Such a complex of features is quite remarkable. The widely spaced nature of the chief features may have been to lessen the fire risk, but is possibly also an indicator of the space needed for storage and laying out the wet grain (?on chalk floor 2193). There seems to have been a clear division between the brewing activities (which were strung in a long strip along Alms Lane) and the iron-working to the south. An archaeological boundary is suggested (Fig.49) between buildings A1 and A2 and between oven 1479 and hearth 1404, with a path (529) running along the south side of this boundary. It should be stressed that no evidence of such a boundary appears in the surviving documentary record, and both industrial sites were probably rented from the same owner on the property described as a 'messuage with buildings' in

1321 (Fig.51). The essential unity of property ownership is given further support by the dereliction of the Alms Lane frontage towards the end of Period 4, as seen by the accumulation of iron slags over the remains of building A1 and by the siting of iron-working furnace 470 over the fill of oven 1479. This division was not formally reconstituted again, although its existence in Period 4 appears then to have determined the later siting of the housing on the Muspole Street frontage. As such it played a key role in determining the layout of the later tenement pattern.

In common with other classes of medieval industrial features (cf. the iron-working industry, below), the life-span or production capacity of such insubstantial features is difficult to assess. This may only have been a quite small-scale activity, especially as the two roasting ovens seem not to have been used contemporaneously.

Iron-working (Figs 4, 55 and 57)

Iron slags were present on the site in secondary contexts from the late 11th century (principally in the fills of the late Saxon ditch 2423). Similar dumps of slags have been found on most of the excavations in Norwich north of the River Wensum. It is, however, only from sites 302N and 284N (this volume) that there has been *in situ* evidence of iron-working. The detailed evidence for iron-working on the site can be supplemented by an examination of the slags (Fig.55), a large part of which must have been redeposited from nearby smelting and smithing activity (among the Period 3 debris were found two blank key-wards, SFs302N/*994* and *2017*). Tap slags and smelting slags (those associated with the extraction of the raw iron) together dominate the profile of Periods 1-3, and only in Period 2 was any unequivocal slag from smithing identified.

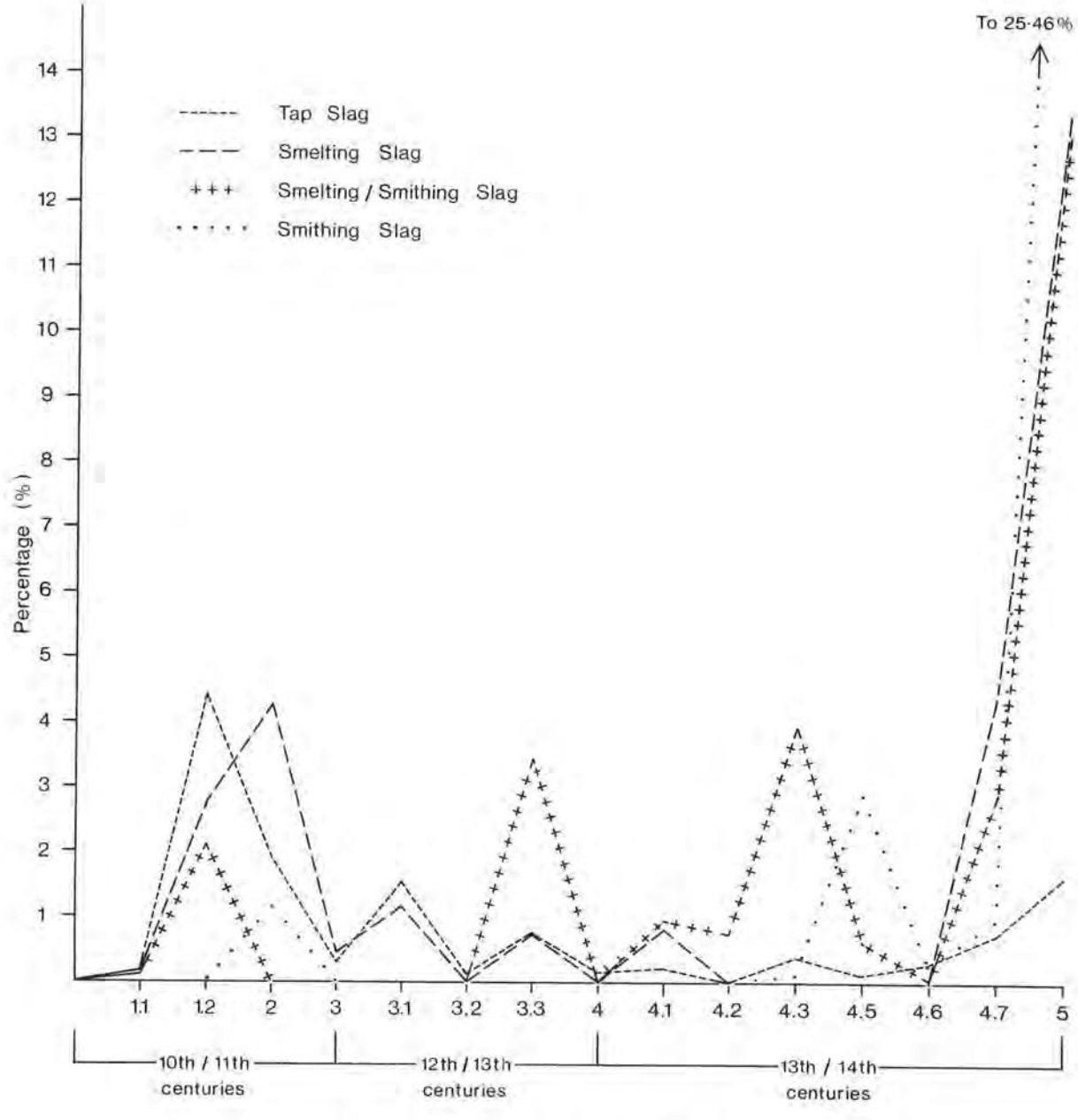


Fig.55 Site 302N. Distribution of iron slags

The total amount of slag understandably declined in Period 3, for far less dumping occurred (a peak of smithing/smelting slag in Period 3.1 occurred as a result of a small number of very large deposits), but it continued to decline in Period 4. This presumably reflects the fact that once production started on site the contemporary debris was periodically carted off to other still-waste areas. The final accumulation of material marks the abandonment of production on the site, for the peak of smithing slag in Period 4.5 actually coincides with the demolition of the smithy. Thereafter, much of the slag found on site is probably residual in context (deriving, for instance, from the cutting of foundation trenches or cellars through old waste dumps) although some continued to be imported (as in feature 417, building B5ii). The high percentage of smithing slags (up to 25.46%) from Period 4.7 would seem to reflect a definite shift away from smelting within the town, with a complete absence of any taps slags from 16th-century and later contexts.

At least part of the raw material for the industry (see Section VII) was probably obtained by quarrying the local sands for nodular ores or iron-pan. Such quarries were found both on Alms Lane and Botolph Street and are also known from just outside the city (*le irinpittes* at Hellesdon in 1321/22: NRO, Case 1, Roll 9 m.20). This could have been smelted and worked-up on site or nearby. Such a method is very labour-intensive, and does not produce an efficient yield (Crossley 1981, 30). It is, perhaps, significant that there is evidence for a well-organised iron-working industry in the city from the late 13th/14th century. This is recognised as a period of high production concentrated in local centres across the country (Schubert 1957, 94) and spreading outside the traditional iron-producing areas, although it is likely that local furnaces would always have been used to supply local need (pers. comm. J. McDonnell). In Norwich it coincides with the massive undertaking of building the town defences which provided a ready market for iron goods. There was then a general decline in iron-working, associated with a decline in fuel reserves and a concentration of the industry in the 15th/16th century (with the introduction of the charcoal blast furnace).

The industrial site had become derelict by the end of the 14th century and the site was again reduced to waste ground during Period 4.7. This meant that the various, somewhat ephemeral, hearths and furnaces were subjected to a long period of exposure to natural erosion processes which led to an absence of clear diagnostic elements. Interpretation of these features must therefore be somewhat speculative.

The beginning of the manufacturing process involved the roasting of the ores. This was done to expel carbon dioxide and excess water from carbonate ores. It made the ore more porous and broke up the larger lumps, thereby making the ore reduce more easily in the smelting process. Although it was possible to carry out this process on the same hearth as for smelting (Tylecote 1962, 273), it was perhaps more common to use a separate one (hearth 1404 on Pl.XXIV). The ore was heaped on top of charcoal or wood (as found on surface 556 around hearth 559) and fired. As it was not taken to fusion temperature (as occurs in smelting) there was no formation of slags. Two roasting hearths were identified on the excavated site—features 559 and 1404 (Fig.10). Both were irregular areas of burnt clay platforms with a highly burnt central zone rapidly diminishing in intensity. Their particular use is suggested by the spreads of iron fines around them and the absence of any slags. Only thin spreads of fines were found (up to 5cm in depth) suggesting that the ore was not crushed prior to roasting but that the spreads probably accrued due to some preliminary sieving and by the accidental crushing of the ore underfoot. In form they are similar to examples excavated at West Runton, Norfolk (Tylecote 1967, 192-3 and fig.9) and at Stamford, Lincolnshire (Burchard 1982, 109 and fig.58).

Those features identified as smelting furnaces (features 871, 1406 and 470 on Fig.10) were all very fragmentary but were closely associated with tapping or other smelting slags. All appear to have been of the simple domed type of Cleere Group B (1972, 21) or Tylecote's 'developed bowl furnace' (1976, fig.41), but it is not possible to sub-divide them further. The size varied from 0.61m-0.90m in diameter. Typically, none of the surviving surfaces of the furnaces bore any significant evidence of extreme heat or fusion of slags. A tile *in situ* on furnace 470 and fragments of tiles around furnace 1406 suggest they were probably floored (and regularly cleaned out). It is also quite possible that the actual vitrified surface was pulled away when the furnace was finally demolished, hence their uneven surfaces and lack of clear diagnostic evidence (Pl.XXV).

There was no direct evidence for the existence of any dome to the furnaces, although this may be presumed, nor was there clear evidence for the nature of any tapping facilities. One fragment of a slag 'cake' (identified by J. McDonnell) was found in a later context (694) but the majority of the slag was in the form of thin sheets and rivulets. It seems most likely that the slag was tapped off the hearth surfaces into channels leading to shallow hollows or thin spreads which were then raked away. There was no evidence for the method of draught because only the base of the furnace was found. Although the use of natural draught is possible in such above-ground furnaces the use of induced or forced draught is far more likely. None of the furnaces showed any evidence to suggest the length of operation.

The most extensive remains were those associated with the buildings A2 and C1 (see above, pp.150 and 151; Fig.4). The documentary evidence (above, p.235) locates a 'cottage' on the approximate site of structure A2 in 1307 (Fig.51). Although not possible to prove, A2 may have been constructed as a domestic building but then converted to a workshop associated with possible smelting hearth 871. Such compacted floors are commonly associated with smelting sites (Tylecote 1967, 192). Immediately to the south (abutting) was a ?water tank (1087) which was enclosed in a clay-walled structure.

The specialised nature of building C1 as a smithy was reflected in its tiled roof (see above, p.151), unusual in the medieval period. One of its hearths (1520, Fig.10) has close parallels with the smithing hearth F.117 from Ramsbury, Wiltshire (Haslam *et al.* 1980, figs 5 and 8), although the depth of 30cm is unusual. In this type, a pit filled with burning charcoal is provided with draught by a bellows protected with an earthenware 'tuyere' or nozzle. In contrast, hearth 1459 seems to be the base of a low, surface hearth, whilst wall 1644 may be the base of a waist-high smithing hearth (as suggested by J. McDon-

nell). Although this survived to a height of only 25cm, the high degree of burning on the wall would be typical of such a hearth.

There was little *in situ* evidence of iron-working waste other than thin spreads of fines around the roasting hearths and the spreads of ash around furnace 470. Comparison with other sites, such as Minepit Wood, Rotherfield, Sussex (Money 1971), showed that the association of large heaps of natural and roasted ores as well as slags around the smelting furnace might have been expected. This suggests that other elements of the industry were destroyed in the excavations for later cellars. Certainly the amount of iron slags in later contexts suggests that some of these cellars cut through the waste heaps. The absence of slags from around the actual features suggests that the working area itself was kept very clean. Neither was there much specific evidence for fuels, although charcoal (from Thorpe Wood, Norwich?) can be assumed for the smelting process. The occasional fragment of coal in layer 492 (above, p.153) may be discounted on technological grounds (information from J. McDonnell), although possibly used by the smithy.

The only artefacts that could be directly related to the operation of the industry comprised a number of hot chisels and cold sets (which also appear in later, residual contexts) and a possible grinding stone from building A2 (SF302N/*2426*). Otherwise, there was a notable concentration of wide-mouthed earthenware bowls from the iron-working contexts, reflecting a use outside the normal domestic assemblage. The structural ironwork and horse furniture from the vicinity of smithy C1 is related not to its occupation but to the dumping of material over its site once derelict, possibly from the property to the south.

The life-span of the industry within the bracket of 1275-1350 suggested by the pottery cannot be precisely determined. It seems, however, that there were at least two distinct phases of activity. At the beginning of the period (4.1 and 4.2) roasting, smelting and smithing all seem to be represented (roasting outside C1i; smelting in A2; and smithing, on hearths 1520 and 1644, in C1i). In Period 4.3 smithing continued in the remodelled C1ii (hearth 1459 and ?cooling tank 1562) concurrently with activity in A2. Towards the end of the period, with both buildings C1iii and A2 demolished, evidence of smithing disappears, while after the disappearance of furnace 1406 (in Period 4.5) that for smelting (furnace 470) is equivocal. Contemporary accounts of smithing point to a rapid rebuilding of structures (Guiseppi 1913, 145-64), as seen in building C1. By the 1340s, as on Botolph Street (p.142), industrial activity had probably come to an end, followed by a long period of dereliction and, with the exception of hearth 470, the renewed use of the site as a rubbish dump in a longer Period 4.7.

Textile Industry

by Malcolm Atkin and Ursula Priestley

Norwich was a major centre of textile manufacture from the medieval period. Much of the impetus for the expansion of settlement north of the River Wensum *(Ultra Aquam)* from the late 15th century came from the movement of the industry from Westwick. From *c.*1565, after a period of relative decline, the trade gained momentum from the immigration of skilled Dutch and Flemish weavers, many of whom settled in the area of the excavation. The industry continued to expand throughout the 17th century (especially in the last three decades). By the early 18th century, St George Colegate parish housed the highest concentration of master weavers in the city (Priestley 1984, 35 and appendix D).

There is clear documentary evidence for the ownership of the Alms Lane site by textile manufacturers from the late 16th century (Fig.52B). Tenement A was owned by a succession of dornix or worsted weavers from 1593-1609, and Tenement C included dyers, weavers and tailors. There is no evidence to suppose that these men were actually living on the site, but they may well have been renting the properties out to other textile workers, as certainly evidenced until at least 1755 in the series of 18th-century deeds (see above, p.238). The house rebuilding and sub-division of the late 16th and 17th centuries were on a scale that might be expected if the area was required to accommodate a large number of migrant workers, and the identification of houses on the site that were almost certainly occupied by Low Countries immigrants (see below, p.260) suggests that these properties, at least, were the homes of weavers (Tenement A).

The probate inventories of the late 17th century refer increasingly to lean-to or detached outbuildings, described as sculleries, scouring houses or wash-houses which were used by master weavers and woolcombers for the scouring of yarn (Priestley and Corfield 1982, 113). The 18th-century range behind building A11 may well have served such a function, and was equipped with a base for a copper. This is probably the range of rooms described as a 'wash house' on the tenement in 1827 (above, p.239). In the same period, the house equated with building C4 is described as having 'workrooms' (above, p.239). Fire insurance records show that by the 1720s solidly built, and often detached, warehouses were common in the parish. This therefore provides a *possible* context for room *c* in building A4 (Period 5, Fig.57), while room *d* of building B9 in the 18th century is almost certainly that described as a warehouse in the 18th-century deeds.

Nevertheless, despite these inferences, direct archaeological evidence for textile manufacture is both tentative and sporadic. The industry is not one in which physical remains are likely to survive in the ground. The only artefactual evidence was a tenter-hook in a residual context in Period 13 and a number of heckle or woolcomb teeth in Periods 7 (1500-1550) and 9 (1600-1675), (Fig.38, Nos 48-50). Thus, although it is not possible to prove a direct connection with the textile industry in any specific instance, there are, at least, a number of developments that can be seen as fitting within the context of this widespread industry in the city.

Miscellaneous 16th/17th-century activity

It is only possible to guess at the activities which occurred on Tenements A/C and C during Periods 8 and 9, but the probability is that they related to victualling. Buildings C3i-iii, dating to the 16th and 17th centuries (Figs 58 and 59) seem to have contained a bakehouse or brewhouse (oven 1201 in a substantial fire-proofed structure), while to its north the 17th-century ovens on A/C (Pl.XXVI) may have been used primarily for roasting malt (surrounded by burnt and germinated barley). In addition, and suggesting an association with an alehouse,

they may have been used for cleaning clay pipes because of a notable concentration of burnt pipes around them (see above). Tenement C was owned by a succession of brewers (and dyers) in the late 16th century, although finds of possible distilling equipment may do no more than indicate a domestic use (Moorhouse 1972). In 1637 (within the period of ovens 731 and 221) Charles I issued a proclamation that no-one engaged in any other trade could be a maltster or brewer. Innkeepers, alehouse keepers, taverners, cooks and victuallers were specifically prohibited from brewing. There was, however, still a large amount of domestic brewing carried out and brewing victuallers did, in fact, survive. The large number of alehouses in Norwich during the 17th century was seen as a serious problem, and in 1634 the Norwich Court of Mayoralty protested that there were many houses *'newly converted to Innes whereof there are multitudes within these fewe yeares, who convert dwellinge howses to Innes and take liberty to erect and hange out signes'* (Minutes of Norwich Court of Mayoralty, 23 July 1634 in Sachse 1967, 162).

XII. The Buildings

Introduction

The excavation revealed seventeen separate and definable building phases spaning six centuries on six basic plots (see below, p.254). The remains of twenty-five structures, some frequently modified, were investigated (A01-11; B1-5 with B10; and C1-5). Twenty of these were houses dating from the period *c.*1400-1750. Within the broad typological sequence that they followed were a number of building types that no longer survive or which have been modified out of all recognition. As with the houses on Pottergate (see above, p.69) previous conclusions (Atkin and Carter 1977; Atkin and Smith 1979) have now to be revised. Discussion in this section ends with consideration of a series of artist's impressions (Figs 63-5) but is focussed initially on abstractions (Figs 9 and 57-61) from the excavated plans (Figs 3-9). Discussion of the siting of the buildings on the tenements follows in Section XIII.

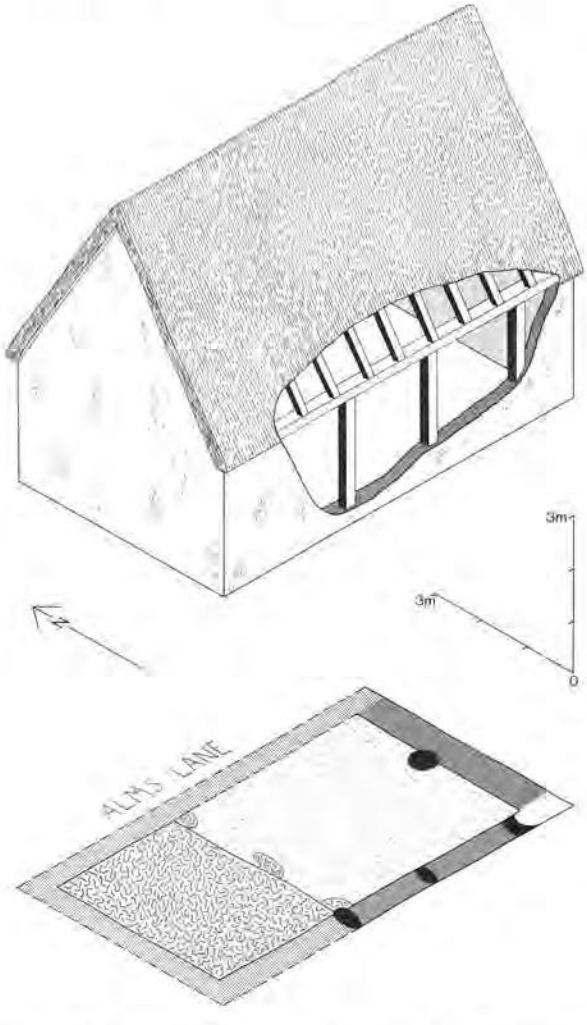


Fig.56 Site 302N. Reconstruction and plan of building A3ii, Period 5, showing use of timber lacing

Building Materials and Techniques

The incidence of different walling materials has been tabulated on 302N, MFT.27. The sample of 150 walls reveals a number of clear trends which have been supported by less extensive finds on other sites. A problem here is that the record is only of the foundation level or, at best, the lower 50cm of any given wall. The nature of the post-holes enclosed within a number of the clay walls (see below), and the possibility that the 16th-century rubble walls may only have been plinths to essentially timber superstructures (Atkin forthcoming (a)), is a reminder of the false impression often given in the excavation record.

The only evidence (Figs 9 and 57) for a purely timber-built structure on site came from the street frontage room of building B3 in Period 6 (1450-1500). This was built of earth-fast posts, surviving irregularly and with slight evidence of a timber (boarded) screen wall between them. Such a construction was unusual on the site, although it has been noted elsewhere in pre-14th-century buildings from the city.

Before *c.*1500 (i.e. in Periods 4-6) 90% of all walls (including the boundary walls 1139 and 2119) found on site were of clay. The three exceptions were built of flint rubble and served specific functions: walls 2389 and 2400 were parts of the earliest built fireplaces on site (buildings B1iii and B1iv), while wall 2399 lined a well in building A3ii. There was no evidence of the strengthening of the clay by the inclusion of, for instance, chopped straw, although almost half of the thirty-six clay walls on the site did contain small inclusions of chalk and flint. The variations might simply reflect the exploitation of a number of different sources for the clay to wall a building (a precursor of the evident lack of building material that was felt in later periods). The average width of the walls was *c.*45cm and, apart from in building C2 (Fig.5), they were built without foundations. This contrasts with the *c.*60cm found in surviving clay-walled cottages of the 17th century (Clifton-Taylor 1972, 287) which are also commonly set on brick or rubble plinths to act as damp courses.

The best information for the nature of the clay superstructure came from building A3i (Pl.XXIX; Figs 5 and 58, reconstructed in Fig.56). Here there was clear evidence for the use of timber lacing (present to lesser degrees in buildings B1, B2, B4 and C1: Table 2). This type of construction has been discussed as a method used in the east Midlands and Lincolnshire from the late Saxon period (Beresford 1975, 37 and Beresford 1977,

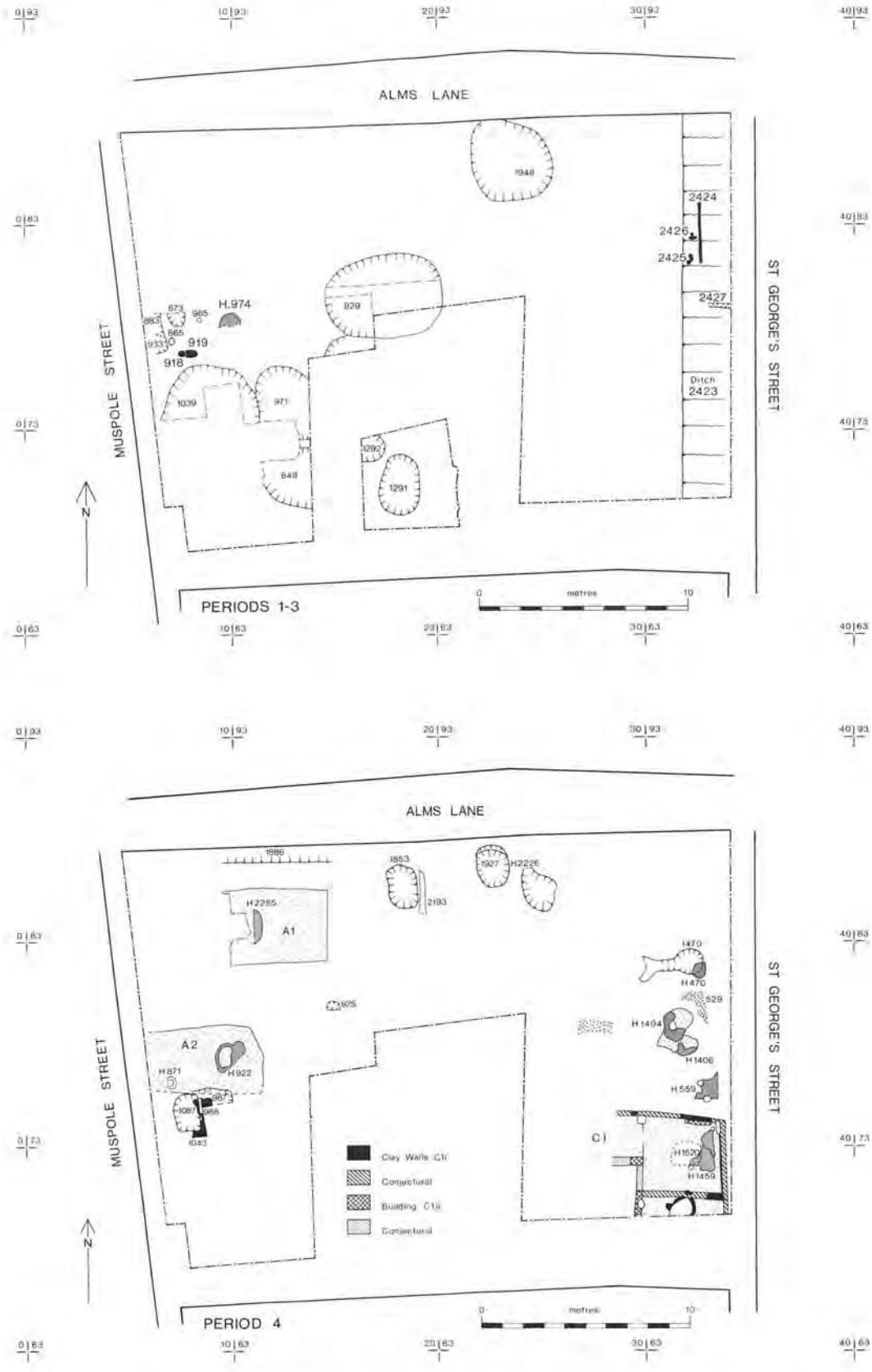


Fig.57 Site 302N. Summary plans. Periods 1-3 and 4. Scale 1:300

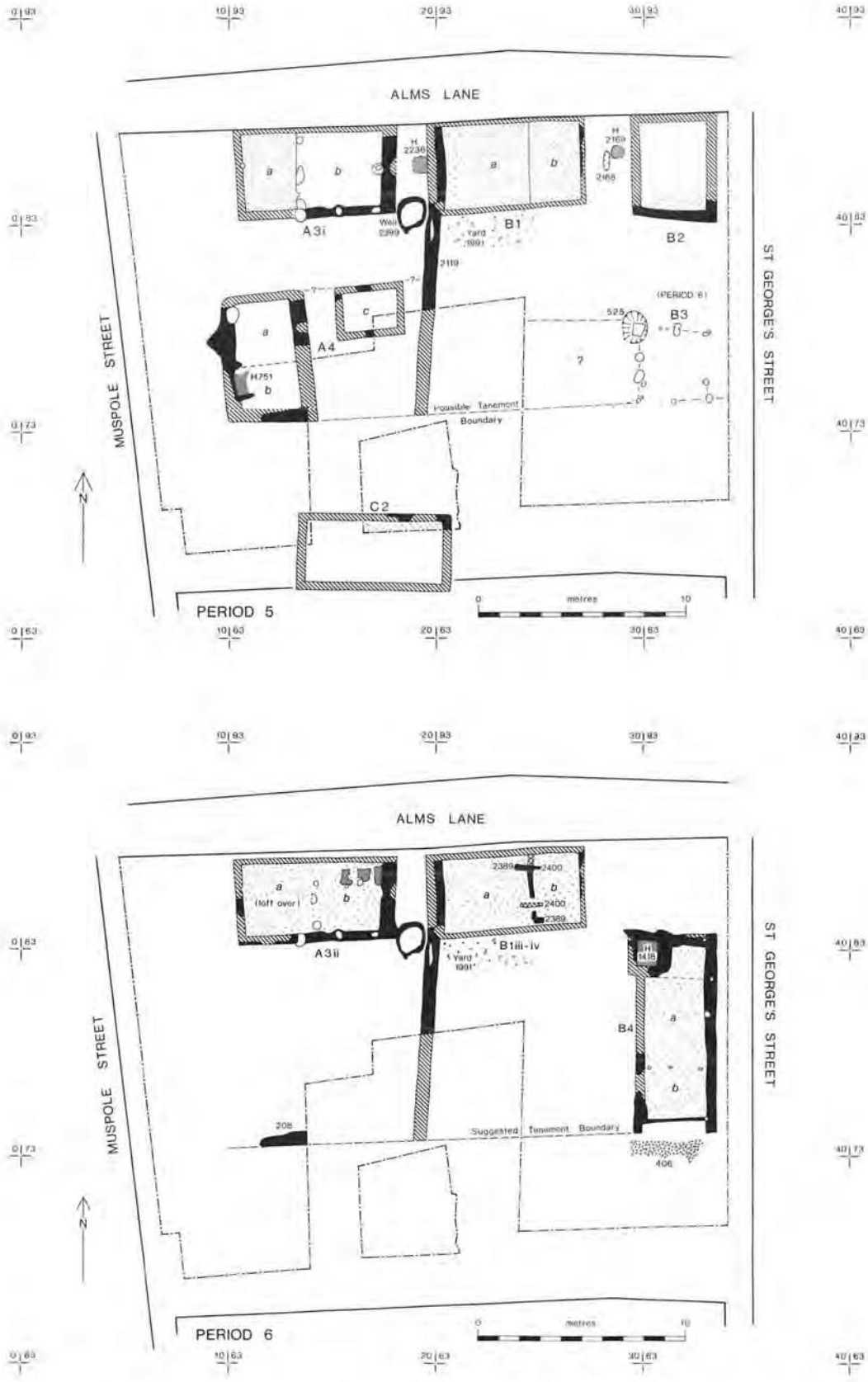


Fig.58 Site 302N. Summary plans. Periods 5 and 6. Conjectural walls hatched. Scale 1:300

Fig.59 Site 302N. Summary plans. Periods 7 and 8. Conjectural walls hatched. Scale 1:300

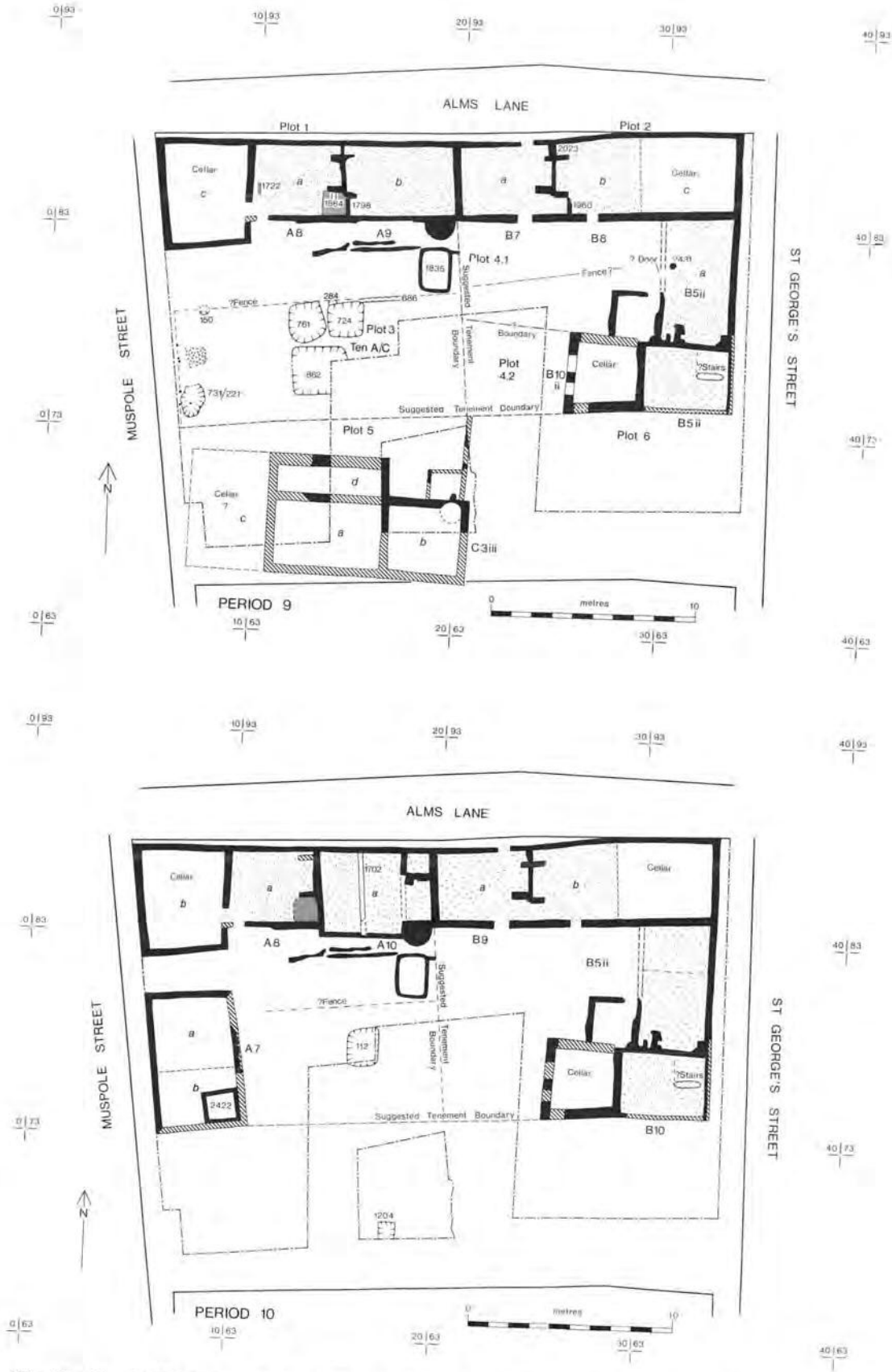


Fig.60 Site 302N. Summary plans. Periods 9 and 10. Conjectural walls hatched. Scale 1:300

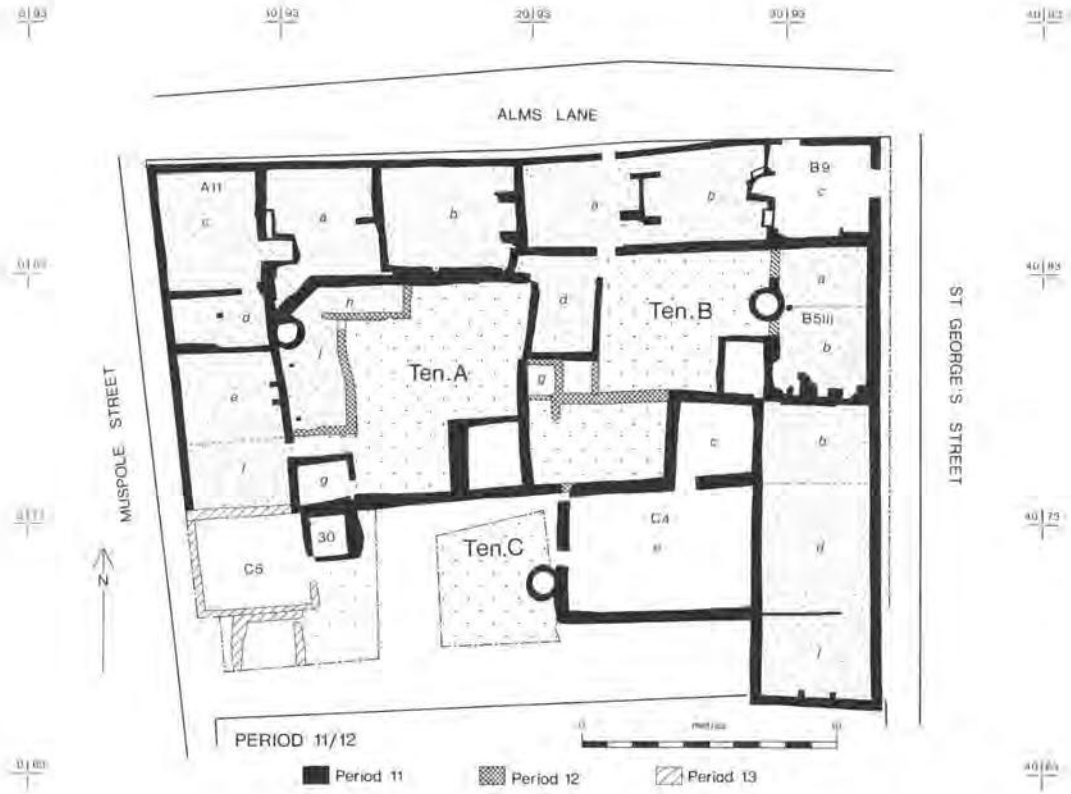


Fig.61 Site 302N. Summary plans. Periods 11 and 12. Scale 1:300

227-9) and is known in Norwich from the 13th century (Atkin forthcoming (c)). The clay wall was packed around vertical studs, which in buildings A3i and B4 were spaced 1.80m apart, although the other buildings had evidence surviving only of isolated supports. With the exception of post-hole 387 in building B4, all the posts merely rested on the existing ground surface. The posts themselves ranged in size from *c.*12 to 40cm; normally round, only those set in wall 376 of B4 had definitely been squared-off (Fig.5).

The scale of the timbers in at least building A3i suggests that their role was more than simply as strengthening for the clay wall. Thus, although the lines of post-holes preserved in both A3i and B4 were as misaligned as those noted by Beresford with the smaller studs at Wintringham (Beresford 1977, 227), it seems likely that here they probably did support the wall-plate. The same may be true of the isolated studs recorded in buildings C1 (Fig.4), B1 and B2 (Fig.5) and elsewhere (Atkin forthcoming (c)).

In the case of studs not set in post-holes the survival of evidence of this technique depends on the degree of survival of the clay wall itself. The fragmentary state of the surviving evidence from excavations means that it is very rare to be able to identify this particular trait and no standing example of it actually survives (Beresford 1975, 36). The clay walls of other buildings on the excavated site and in the city may simply have acted as plinths beneath the ground-sills of a timber-framed structure. This might be indicated by the absence of post-holes set in the walls of buildings A4 and C2 (Fig.5), although they could equally have represented full-height clay walls (a mixture of possible techniques is shown on Fig.64). Any plinths may have been protected by a tile-capping (with 'stray' examples found from Periods 5-7: Fig.44). Narrow lines of clay, as wall 352 in building B4 (Fig.5), may simply represent wattle and daub screens.

There was no evidence from the site for the use of clay lump; neither was there any evidence for the shuttering of cob. Wall 376 of building B4 did, however, contain a diagonal (scarf) joint when sectioned longitudinally, which may represent the junction between two shifts of laying a cob wall. Williams-Ellis (1920, 38) describes cob as being laid in diagonal layers which would produce this effect. The evidence survived only because a small amount of chalk pebbles and soil had intruded between the two stages, while the remains of the wall had been protected from erosion by backfilling against it. Despite this, there was no evidence for any internal treatment of the wall (such as a mortar or lime wash) as has been noted elsewhere in the city (Atkin forthcoming (a)).

Excavation in Norwich has now revealed considerable evidence, albeit fragmentary, for the widespread use of clay walling in the medieval city. This is in contrast to the complete absence of surviving examples in Norwich and the paucity of contemporary documentation, which includes a reference to 'a wall of earth' in 1287 (Hudson and Tingey 1910, 6) and a requirement to 'keep up stone walls, clay walls, sawen pale fences etc.' in a lease of 1644-5 (NRO GHL 1 f.280). The journal of John Denell (a carter) also describes frequent cart loads of clay being brought to St Giles hospital with other building materials in 1417 (Tingey 1904, 126). Those buildings on Alms Lane may well have been like the 'Mud-wall'd Tenement' as described in the poem by

Matthew Prior in 1689 (Mercer 1975, 135). The construction was probably characteristic of the poorer classes of housing in the city, but not exclusively so, as it was also used in the 14th-century town house of the abbot of North Creake (Atkin and Sutermeister 1978, 28-9).

The termination of the use of clay walling on Alms Lane is very distinct at the end of Period 6, and this is made all the more remarkable by the very mixed nature of walling on the site thereafter. Although there seems to have been a desperate shortage of building material in what appears to have been a near city-wide rebuilding after the disastrous fires of 1507 (see above, p.77), clay was now clearly thought to be unacceptable. In part this may be because those clay walls were part of a primarily timber building tradition, while the essence of the 16th-century rebuilding was to provide better fire protection. Flint, flint-and-brick rubble and plain brick walls, all set in substantial foundation trenches (Fig.16, S43), were used contemporaneously from the 16th to 19th centuries.

Notwithstanding the fire risk, the early rubble walls may again have been merely plinths to timber framing. This was almost certainly the case with walls as narrow as 1711 (building B5i) and 370 (building B10i). However, the south wall of building B6i was so wide and lay in such a position overlapping the east end of room *a* that it was probably full height (see Fig.6). Brick first appears as reused rubble. This could have been culled from demolished private buildings (Atkin and Carter 1977, 302) or from the dissolved religious houses and fourteen redundant churches of *c.*1520 to 1570. A wide variety of brick types was brought on to the site in the early 16th century (p.217). They first appear in hearths, the surrounds to fireplaces, or chimneys (e.g. fireplace 2150 in the Period 7 building B6i: Pl.XXXIV). From the late 17th century, brick becomes the most common building material and is seen, for instance, in the slightly later refacing of the Period 11 frontage of building B5iii. Despite the obvious fashion for brick walls and the subsequent decline in flint walling, flint-and-brick rubble walls (in equal numbers to those of brick) continued to be used until the 19th century. Again this may be partly due to the lack of good building material in the area and the reuse of earlier material.

Only with building C1 in Period 4 (Figs 4 and 57) was there sufficient evidence to suggest the use of a tiled roof in the medieval period. The distinctive RT2 type of tile then re-appeared around the site of the building in residual contexts until Period 7 (Fig.44). This building has been interpreted as a smithy and therefore had special needs of fire-proofing. It is assumed that the other medieval roofs were of thatch, as referred to in the Assembly Rolls of 1509 when the first attempt was made to ban 'reed straw called thakke' in favour of 'thaktyle' (Hudson and Tingey 1910, 107). These early attempts at control appear to have had little success and were frequently repeated (Hudson and Tingey 1910, 137-40). Nevertheless, from the early 16th century (Period 7) there occurs the more common appearance of the RT4 and RT5 type of tile, and pantiles appeared from the late 17th century.

Floors on site until the 17th century were either of clay or beaten earth. Their use is probably reflected in the instruction to 'dig no chalk, clay or sand on the site other than necessary for repairs to premises' in the leases of the Great Hospital (GHL, 2, F.66). The clay was noticeably well-prepared, with all inclusions removed; such floors would then have been covered with straw or rushes. Evidence of the latter, partially burnt by the adjacent open hearth and sealed by the make-up to the new floor, was found in room *b* of building A3ii (Period 6). Tiled floors were more common from the late 17th century, and the absence of recognisable floor levels in some of the later buildings suggests that these were frequently re-laid. Except over cellars, planked floors seem to have been rare; the earliest was that evidenced by dwarf walls in the Period 10 building A10 (Fig.9).

Occupation levels over the floors, themselves almost brushed away, were generally thin and non-descript. The intensity of this cleaning increased from the late 16th century, with a noticeable absence of small food remains from any of the environmental samples taken off the floors (see above, p.226). Much of the household refuse was probably swept out into the street and this appears as a frequent complaint in the Assembly Minutes (see below, p.255).

The Frequency of Rebuilding

Care has to be taken in differentiating separate building phases from mere stages in the construction process, for whilst some houses were completely rebuilt in a single operation, others were remodelled in a series of operations within the same building campaign (e.g. buildings B5i and B10i: see above, p.162). This could have arisen from the need to retain parts of the existing building in use for as long as possible (cf. Atkin and Carter 1977, 295). The superstructure of the cellar to building B10i (room *b*) was added as a separate operation with an obvious space in time, long enough for the line of wall 430 to need re-defining by a trench cut alongside it. This technique was repeated during Period 7 in building B6 (Fig.59) with wall 1451.

Even taking account of such 'sub-phases', however, the sequence of building on the site was quite remarkable. Building A3, for instance (modified or rebuilt as A6, A8/9/10, A11), went through ten stages between *c.*1400 and *c.*1800 (Table 2), each phase averaging about forty years. Three inter-related factors may have been involved. Firstly there is the natural life-span of the building material. In the case of timber this could be as short as seven years (for a medieval timber forge at Tudeley, Kent: Guiseppi 1913, 145-64) while clay probably lasted a lot less in the town than the 150-200 years suggested by Clifton-Taylor (1972, 289). Even brick, when subject to heat (as in the backs of fireplaces) could rapidly disintegrate (the city scavengers were inspecting fire-backs for evidence of this in 1570: Hudson and Tingey 1910, 143). On the other hand one must be wary of reading too much into the replacement of the plinths to timber-framed structures. These could have been repaired/replaced while leaving the actual structure substantially intact.

Secondly, there was a natural desire to modify an existing house to the new style and comforts of contemporary fashion, stimulated by events such as the fires of 1507 and 1509 which swept through this parish (but which did not actually affect the site itself). Thus there was the introduction of an upper floor into building A3ii (see above, p.157); the general conversion to the use of rubble walling in the early 16th century associated with

the introduction of built fireplaces; and the extension to the house plan in the late 16th and 17th centuries (see below, p.252).

Thirdly, the pattern of tenancy on these properties must be considered. There is increasing evidence for a high degree of mobility in the urban population (exemplified by Stone and Cozens-Hardy 1938, items 83 and 100) and Derek Keene has suggested that annual leaseholds were common in England until *c.*1520 (Keene 1982, 26). Leases in the 16th century commonly included a provision that the tenant was responsible for the property to be repaired at the end of their lease. This becomes standard in the properties of the Great Hospital in Norwich from 1525. Although less well-documented, there are occasional medieval references that express a similar concern (NRO Court Roll 4, m.30, for 1306/7). It may well be significant, therefore, that the majority of the building activity was one of refurbishment (the relaying of floors, modification of heating etc.) that would be expected in such a repair lease.

Sub-letting was also a common feature in Norwich (although a matter of great concern for property holders who strenuously sought to license and restrict such activity). The practice may be reflected in the late 16th and 17th-century structural record of sub-division on the site, but here it is more likely to have been initiated by the owners as pressure on housing stock greatly increased. The increased value of housing may also be seen in the rapid transfer of housing ownership as seen particularly on Tenement C in the late 16th century, where there were seven owners during the period 1570-1584.

Building Plan

The houses can be considered as falling into one of five basic types:

a) a single ground-floor room (A9, A10, B2, B7, C2).
b) linear plan—with two or three ground-floor rooms in line (A3, A4, A5, A7, B1, B3, B4, B5, B6, B9i, B10, ?C3).
c) an L-plan (A6, A8).
d) a T-plan (C4).
e) a pseudo-courtyard-plan (A11, B9ii).

Broadly speaking, types a) and b) appear as the standard medieval types on site, replaced by types c), d) and e) from the 16th century. As often as not, these types were arrived at by modifications of an earlier plan, within the limits of site constraint (Smith and Carter 1983, 10 and 13). Examples of this are provided by buildings A6 and B5i (pp.163 and 161). The conversion of one type to another was easily achieved by the insertion or demolition of partitions (e.g. buildings B7 and B8). Thus the development of a particular plan-form owed more to pragmatism than to conscious architectural planning.

Type a) single ground-floor room

The earliest surviving buildings in Norwich with a single ground-floor room are late 16th century in date, but medieval examples are known from elsewhere (e.g. Dereham, Shipdham and King's Lynn). The prominent position of building B2 in Period 5, on the corner of the two street frontages (Fig.58), suggests that this may have been domestic (or possibly a shop), although nothing of the internal arrangements remained. The rarity in Norwich of the medieval form, which may frequently have been two-storied (cf. King's Lynn: Parker 1971, 66) might be due to the ease with which, in peripheral areas such as on Alms Lane, an expanded (i.e. entirely ground-floor) two-roomed plan could be built. The contracted plan may have been more common in the densely built-up parts of the city centre (as yet unexcavated). The plan-type may also exist in its own right when it re-appears in the 16th/17th century as a response to the rapid growth of population of that time (i.e. in newly built structures) but here, typically, it is created by the sub-division of existing properties (as building A6 into A8 and A9, and building B6 into B7 and B8 in the 17th century: Figs 59 and 60).

This sub-division reversed a late 16th-century trend (see below) for an increase in ground-floor area (MFT.28). Buildings A6 and B6 were sub-divided to form four houses, two of them with a single ground-floor room. (The two-room plan of B8 is echoed in the newly-built A7 of Period 10: Fig.60.) This apparent reduction in size was, however, probably more than compensated for by vertical expansion: since at least 1550 most buildings on the site had been fully two-storied (as evidenced by the provision of staircases and stairturrets), and increasingly they probably had attics (Priestley and Corfield 1982, 117).

Type b) linear plan

The most usual medieval ground-plan on site (until the mid 16th century) was of two rooms ranged parallel to the street and on the frontage itself. The plan can be compared with that of the surviving row of six early 16th-century cottages on Gildencroft (Smith and Carter 1983, 16). Originally one room (the hall) was typically larger than the other (the parlour), but was not always heated (cf. buildings A3ii and B1 in Period 5: Fig.58; Pl.XXIX). In building A4 it was the smaller room that was heated (Fig.58). Building B4 had an exceptionally long room *(a)*, but this was probably partitioned off by the oven at its north end (Fig.58). This difference in room size continued into the 16th century (Period 7). The ground-floor area of these buildings varied between 19.5 and 24.96sq.m. (MFT.28). An exception to the general medieval plan is found in the Period 5 building, B3 (Fig.58). This was set gable-end on to the street and the gap in its post-built frontage suggests an open-fronted shop with a surviving area of 10.20sq.m. (Fig.64). It seems that in this case function had determined the anomalous form and alignment. The alignment of the other houses is a reflection of the space available for building at that time. The construction of building B10i in the early 16th century marks the first indication of the pressure on space, as it was built on a two-roomed plan gable-end on to the street.

From the late 16th century (Period 8) the Alms Lane houses became larger, with the average ground-floor area doubling to 41sq.m. It is from this period then (concurrent with the appearance of the L-plan, below), that we date the houses with three ground-floor rooms in line (A5 and B6). It seems no coincidence that in B6 the third room is above a cellar, for cellars are also associated with the L-plan A6 and B10. In all probability both developments are related to greater room specialisation, or to the addition of a shop with chamber above.

Type c) L-plan

The L-plan house is considered to be a characteristic medieval town plan, at least of surviving high-class

houses (Pantin 1964, 204), but while it is known in Norwich and may have been common in 15th-century King's Lynn (Parker 1971, 56), the only examples on the excavated site were late, formed by adaptions from existing buildings, and, in the case of building B5i/B10i, possibly more apparent than real. The construction of B5i/B10i in Period 7 (Fig.59) produced a structure (consisting of two dwellings) roofed with a cross-wing (instead of the normal East Anglian rear wing behind a street frontage range: as building A6). The cellared room (B10*b*) followed the line of the hypothetical rear room of building B3 (Fig.58), built against the tenement boundary on the south side. The alignment of the north wall of the cellar and the south wall of room B5i*b* (which had been rebuilt from a slight partition to what was more likely to have been a load-bearing wall), together with the location of the doorway shown on Fig.59, suggests that the house had been rebuilt so that building B10 was now roofed at right-angles to the street frontage, whilst building B5i continued to be roofed parallel to St George's Street. The absence of any direct access between B5i and B10i suggests that these formed separate dwellings. Had building A5i been completed to its original plan it might have resembled building B5i/B10 (Fig.59). In the event, it was building A6 that was completed on an L-plan as part of the expansion of the building line west on to Muspole Street (Fig.58). This would have had a ?shop/chamber on Muspole Street and kitchen with hall on Alms Lane.

Type d) T-plan

Both the new plan-forms of the post-medieval period (types d and e) were essentially agglomerations, and featured the building of additional ranges into the yard area. That associated with building C4 (room *e*) in Period 11 was the most substantial. The location of a well on the rear wall suggests that part of it may have started as the kitchen (before its transfer to room *b* on the street frontage), or had some semi-industrial or workshop use. By 1827, however, it had been converted to a drawing-room (as described in the contemporary ground-plan, Pl.XXXVIII). Typically, large ground-floor drawing-rooms appear *c.*1780 or later. The recording of a large bay window on the west wall of room *e* in 1827 suggests that the building was not roofed as a double-pile plan, but as two main ranges at right-angles (Fig.65), with room *e* roofed parallel to pre-existing room *c*. The building ended its life as a printing factory.

Type e) pseudo-courtyard plan

The courtyard plan of building A11 and B9 was created in the 18th century (Fig.61) out of the amalgamation of the pre-existing buildings on both street frontages of Tenements A and B (cf. the similar development of this type of plan at Stranger's Hall: Smith and Carter 1983, 10). Here the ranges built out into the yard were little more than lean-tos, probably housing some service or industrial function. Those of building A11ii replaced an initial timber structure in Period 11. Such ranges are a feature of 18th-century buildings in Norwich.

Internal Arrangements

Discussion above was concerned with the ground-floor plan, but from the late 15th century there is increasing evidence that houses were at least part-storied (with a part-loft adjacent to the open hall), and fully-storied from *c.*1550 (Mercer 1975, 28). Evidence for this can be seen clearly on Fig.59 in the provision of a built staircase (building A5ii), a slot for a timber staircase (building B10i) or a stairturret (building B5ii), together with the probable underpinning of a jetty in A5ii, Period 10. The ease with which such features could be swept away by subsequent developments is displayed in Pl.XXXIV, showing the blocked stairturret of building B6i (Period 7: Fig.6). Floors can be inserted into an existing building in a number of ways (Atkin and Sutermeister 1978, 34; Atkin and Smith 1979); here building A3i was probably converted in the later 15th century (as A3ii on Fig.58) by rebuilding its south wall to carry joists and by inserting samson posts to carry the east end of a loft (which may have been reached by ladder). During the same period building B4 may also have had a loft supported by a samson post, although there remains the possibility that such post-holes may simply have acted as central supports to fixed furniture (cf. Clarke and Carter 1977, 60 and fig.29).

Much of the detail of the building sequence hinges on the numerous rebuilds of the fireplaces and their relationship to associated partitions and staircases. The earliest houses on the site (buildings A3 and B1) had no evident form of internal heating (although braziers are a possibility—and were used in Norwich Guildhall until 1540: Dunn and Sutermeister n.d., 5). Both had external hearths but as these were set in what are presumed to have been entrance passages they may only have had a temporary function. In building A3ii the frequent relocation of the hearth (from the side wall, to against the partition, and back again) may have been conditioned by changes in the position of the door. These hearths all probably had some form of hood arrangement associated with them, although structural evidence only survived for A3ii where post-holes 2319 and 2130 may have supported a lintel for a fire-hood.

Built rubble hearths and chimney stacks first appeared in the early 16th century and therefore tended to stabilise the fireplace as a fixed feature. These would have allowed the heating of upper floors, although this can by no means be assumed. With rare exceptions (in the complex plan-forms of buildings A11 and B9) the fireplaces were built on the partition or gable walls. Back-to-back fireplaces which could serve both hall and kitchen were the most common. In contrast to the shallow foundations of the house walls and of the gable end stacks, they were characteristically set in deep foundation trenches (Pls XXXII and XXXIV). The fireplaces in buildings A8 and B5iii both had ovens built against their side, that in building A8 resembling the large hearth, 1418, set in the corner of building B4 in the 15th century. Both the latter may have had a commercial purpose. Hearth 308 in building B5iii is interesting in representing the conversion of an open hearth to a coal-burning fireplace in the 18th century. Feature 1722 in building A6 may well represent a purpose-built hearth of this type in the late 16th century, where it was possibly in association with the use of a rare Dutch firecover (see above, p.193). A similar feature may have been inserted in wall 1734 in building A10.

The absence of medieval cesspits constructed in an integral fashion with the building was in marked contrast to other sites in the city (cf. Pottergate, site 149N, this volume). Only cesspit 2422 was actually sited within a building (A7) and this is a remarkably late occurrence

of an essentially medieval tradition in a late 17th-century house (Pl.XXX). The Period 7 cesspit 2421 (building A5), converted from a well, occupied a common 15th-century position against the rear wall of a house (used from inside, in this case probably from the first floor, but able to be cleaned out from the yard). Otherwise, all the recognisable cesspits on site were set in the yard, progressively sited away from the house during the 17th century. A fuller discussion of the pattern of waste disposal on site follows on p.255.

XIII. Tenement Layout and Exploitation

The origins and development of the tenements

Buildings on the site developed within a complex set of constraints. Some of these were legal—such as the division into tenements; some were customary—like the allocation of space within a sub-tenanted and shared yard; yet others were practical—concerning, for instance, the pre-existence of one house when another was to be built adjacent to it. The legal boundaries, those between Tenements A, A/C, B and C appear to have had the greatest continuity. They were clearly defined in the documents (Section IX) and are well-supported by the archaeological evidence (below).

Each tenement was designed to be able to develop two street frontages, although Tenement C did not, in fact, do so until the 19th century. With the exception of A/C (which was shifted in the 17th century and extinguished in the 18th century) the tenements appear fixed from the period when first documented (*c.*1300) into the 19th century. Within them the archaeologically perceived building plots seem to be just as persistent (Fig.61), and there is only one case (building A5i in the early 16th century; Fig.59) of a building 'trespassing' on to a neighbouring plot. This is all the more remarkable in that the tenements were often investment properties in joint ownership (as for example with A and B in the 14th century, or A/C and C in the 16th century). A reflection of this is seen in the similarity in plan of buildings A3 and B1 in the 15th century (Period 5: Fig.58) and the nature of their common rebuilding in the early 16th century (Period 7) as buildings A5i-ii and B6i (Fig.59).

The documentary evidence for the site includes few measurements so it is the archaeology that initially demonstrates the existence and permanence of the physical boundaries of the tenements, which are known to have existed through their abuttals (Figs 51 and 52). Those of Tenement C for instance are defined by the north and south walls of buildings C1 and C2 in the 14th and 15th centuries, while the division of A from B is marked by the boundary wall between buildings A3 and B1 (Figs 57 and 58). Both boundaries are confirmed by 16th-century measurements which give the depth of A from Muspole Street as 44ft 3in (13.48m) and the distance from Alms Lane to the boundary with C as 45ft 3in (13.79m) (NRO Case 1 Roll 26 m.96). These measurements, while giving no hint of a module, suggest that although the Muspole Street frontage of A and A/C was not (with the exception of A2 in Period 4) built on until Period 8, the tenement had always been the same shape and size as Tenement B (Fig.59). The late 16th-century reference to A/C having lost its garden or yard to A (Section IX, p.235) indicates that it had originally occupied the whole of plot 3, but no archaeological evidence of this was forthcoming.

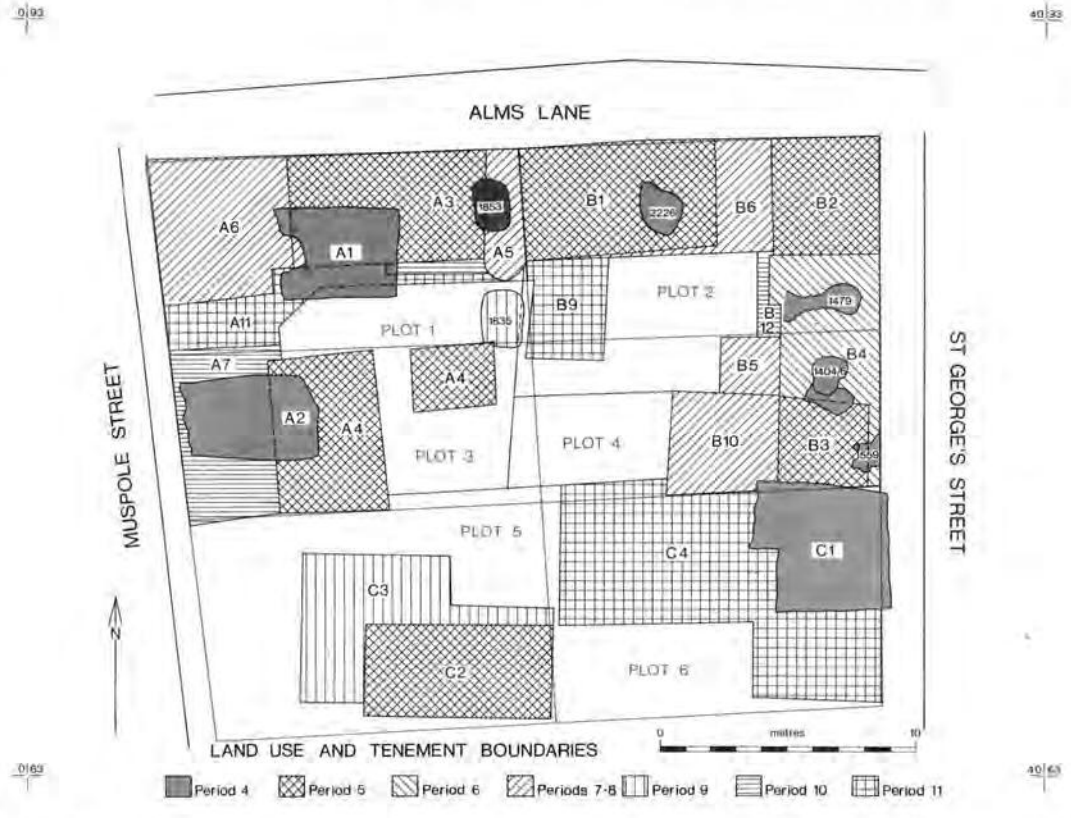


Fig.62 Site 302N. Land use and tenement boundaries, showing suggested plot divisions 1-6 in blue. Scale 1:300

Within, or sometimes overlapping, tenements, the division into occupational sub-tenancies was indicated as much by functional differences as by physical boundaries. In general, though, these respected the nominal sub-divisions into a series of six building plots which were defined by successive building lines (Fig.62). In Period 4, for instance, evidence of brewing was found across the Alms Lane frontages of both Tenements A and B (plots 1 and 2), while iron-working was found only to the south of path 529. This, it should be remembered, was at a time when A and B, if not also C, were perhaps in single ownership (see above, p.235). In the later domestic phases of the site, particularly after 1600, the multiple occupation of Tenements A and B is reflected only fitfully in the division of their yards. From Period 8 onwards, for instance, the yard of B was shared by three, sometimes four, houses, yet the only clear sign of demarcation was a short-lived fence. The line of this subdivision was matched in Tenement A during Period 9 by a fence slot and line of rubbish pits. The picture presented by the documentary evidence is, however, even scantier, presenting an image of the unity of ownership rather than the more complex pattern of occupancy.

The layout of the medieval buildings on the tenements show little sign of pressure on land. With the exception of building B3 they were ranged parallel to the street frontages and a strip of land remained undeveloped on the actual frontage of Muspole Street itself until the late 16th century (Fig.58). The intensification of building development from the 16th century is reflected in the new predominance of right-angled plans (as building B10 and A6), and by increasing sub-division of properties and houses. How uneven such pressures could be in even a small area of the city is displayed in the differing rates of development on the three tenements. Tenement B was divided into three housing units from the early 16th century, not matched in Tenement A until the 17th century, while Tenement C was not built-up on both frontages until the 19th century.

Across the site there was, therefore, a considerable variation in the ratio between open space and that covered by the houses (MFT.28). Increasingly, though, more space was covered by buildings. By the 18th century this ratio was roughly similar on A and B. Tenement C continued to have a house with a large yard behind which extended to the opposite street frontage. The calculations of yard space per building is complicated by the imprecision with which sub-divisions are reflected archaeologically. In the 15th century the alignment of A4*c* along the line of the north edge of plot 3 (used as a possible boundary line in the 17th century) suggests that Tenement A was sub-divided at this time; there is evidence for a fence line dividing buildings B5ii and B6ii in the 16th century. Buildings B5i and B10 may well have shared an undivided yard for most of the 16th century.

With the exception of building A7, however (the fact stressed by its anomalous internal cesspit), all the houses did have a yard. How access was gained to these, other than through the house, is not always clear (that of Tenement B, for instance, is landlocked throughout much of its history from the 15th century) and there is no reflection in the documents of, for example, rights of approach across neighbouring property until the 19th century (see above, p.239). This, though, might seem likely between closely-related Tenements A and B. The developments of the 18th century turned Tenements A and B into two totally enclosed courtyards, with access via narrow passages from the street.

The nature of the problem is only seen when the infrequent incidence of both rubbish and cesspits is considered (MFT.29). The rapid development of domestic building over the site restricted the amount of yard space that is usually assumed to have been used for the disposal of domestic rubbish. Only in Tenement A was there any evidence of intensive pit digging, and these were usually in the nature of insubstantial scrapes, the larger of which were probably dug to collect make-up for floors. The distribution of pits by period is presented on MFT.29 and shows the greatest number associated with Period 4 (20.75%), reflecting the use of much of the site as a rubbish ground at both the beginning and end of that period. It is followed by the pits of Period 7 (14.7%) which reflect the large-scale disturbance of the ground associated with building activity, particularly the large foundation pits and excavations for soil make-up. Thereafter the digging of cellars severely restricted the amount of land available for the disposal of rubbish in pits.

There were few recognisable cesspits on the site: pit 2407 in Tenement B; 2421, 2422 and 1835 in Tenement A; and pit 30 in Tenement C. Layers 93 and 1811 have been interpreted as the remains of levelled middens. The practice of disposing of one's rubbish off the tenement was widespread in medieval and later Norwich; cesspits were basically temporary storage facilities. Thus the majority of the fills of such features only date to the period of final backfill rather than actual use. This practice was intensified from the late 17th century onwards, and is accounted for both by the extreme pressure on space within the tenements, and also by a more general change in the habits of the city (probably as an aftermath of the outbreaks of plague). From this period there are few pits, and the amount of contemporary material found on the site decreases dramatically (see above, p.198). It would seem that much of the rubbish was periodically carted or barrowed off, perhaps to be tipped into the 'common pit' on Pitt Street in the post-medieval period (Hudson 1889, 77) or earlier (illegally) into the river or the City Ditch. In 1452 there were complaints that the river and city ditches were filled 'by muck, muck-heaps and other filth cast there' while in 1514 a rate was levied to pay for the carting away of refuse from the streets. This was followed by the appointment of a 'canelreaker' in 1517, and the provision of two carts to make weekly collections in 1518 (Hudson and Tingey 1910, 109, 110 and 318).

Before *c.*1670 material may have accumulated in the yards for some time, as with the Period 9 midden on Tenement A; thereafter clearance seems not only to have been more regular but also more thorough. Much of the rubbish, of course, accumulated in the street rather than the yards: in 1518, for instance, it was proclaimed that *'euery person dwelling withinne the said citie shall gather all suche ffilthe and vile mater ayenst ther own groundes and leye it upon rounde hepys redye to the carte wekely'* (Hudson and Tingey 1910, 110).

There was little evidence for the actual use of the yards, although a weed-hook was found in Period 6 (from the late 15th century) and a small sickle from Period 7 (from the early 16th century) (Fig.40, Nos 67

and 68). A garden is mentioned in deeds to Tenement B in 1609 (Fig.52B). A formal garden is also shown as laid out in Tenement C in 1885 (Fig.54). The layout of Tenement C is unusual in presenting a long, narrow yard, with the building activity restricted to only one end. The side yard to building C3 had a carefully laid surface, associated with a ?water-tank in the early 16th century (Fig.58). Given the interest of the area it is possible that part of the yard space here was used as an unrecorded tenteryard (as known from the other side of Muspole Street at this time).

The Reconstructions (Figs 63-65)
These give an overall view of what the site may have looked like at five significant periods in its history and should be read in conjunction with Figs 57-61. While much of the detail is a matter of speculation, they do provide a very useful overview of the building and tenement development (see also p.253 for the problems of reconstructions).

*Period 4 (c.*1275-1400) (Figs 57 and 63)
Occupation first extended on to the site in the late 13th/14th century in the shape of a brewery and iron-working complex. Building A1 (top left) is shown with a wattle and daub superstructure, based on a sill-beam construction. Although this was the brewhouse, there was no evidence of such fire-proofing as is seen in the tiled roof of smithy C1 (bottom right). The various grain-roasting ovens, smelting furnaces and iron-roasting hearths are shown around the margins of the block of property. There was little sign of activity towards the centre of the site, but a slag heap has been shown in the area destroyed by the 18th-century cellar of building C4. Also shown is the probable use made of building A2 as a windbreak for a smelting furnace after it had become derelict as a cottage. The overall aspect of the site is of a busy industrial quarter, set between the domestic cores of Coslany (west) and Fyebridge (east). Some indication is given of how noxious this particular site may have been, one of the factors in the removal of industry to the margins of the growing medieval town.

*Period 5 (c.*1400-1450) (Figs 56, 58 and 64)
This shows the site after the construction of the first houses within their tenement boundaries. Buildings A3ii, B1 and C2 are both shown with clay walls to eaves level, although those of building A3i, and probably B1, concealed timber lacing (Fig.56). Buildings A4 and B2 are drawn as though built with timber-framing on a clay

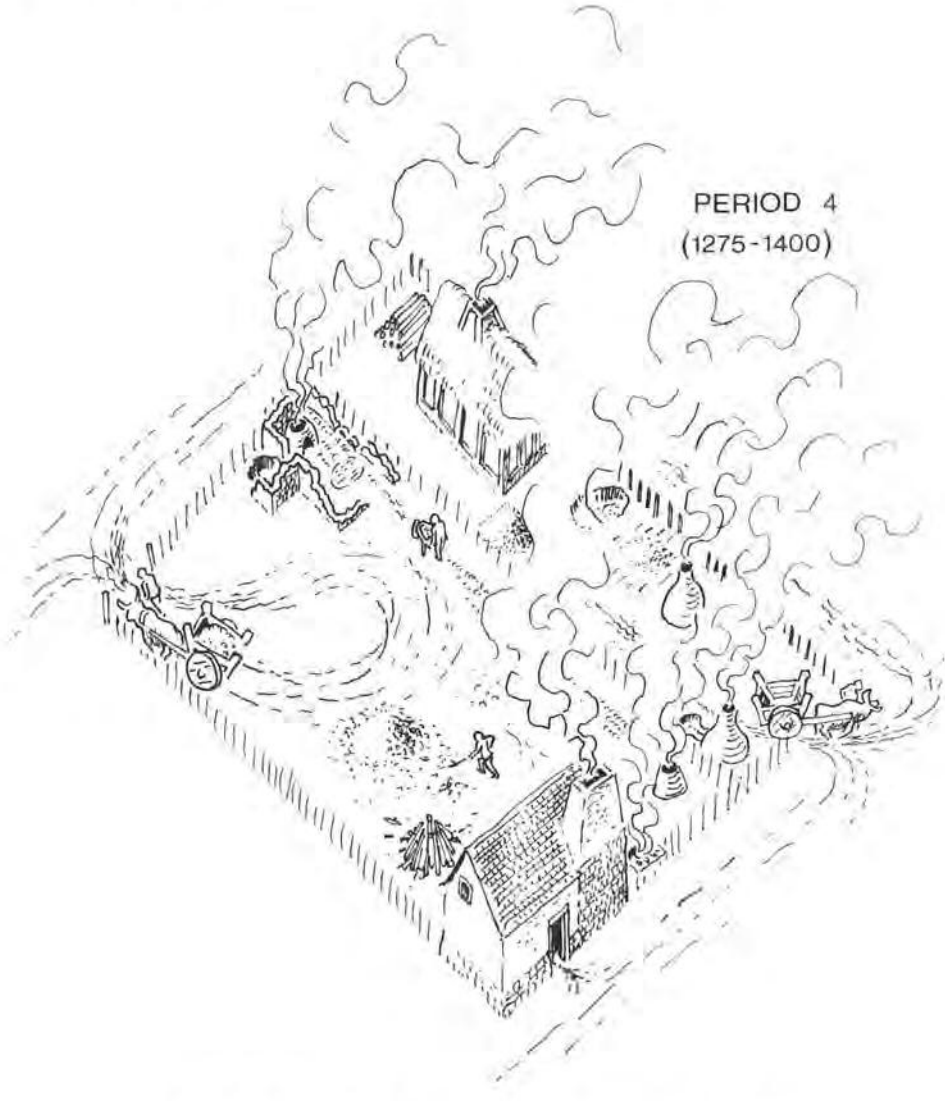


Fig.63 Site 302N. Reconstruction of the site in Period 4

plinth to show the possible range of techniques employed on the site. There was no evidence for other than thatched roofs. B3 is shown with earth-fast posts. This, as with buildings B2 and C2, may have been heated but no evidence survived. Buildings A3ii and B1 are shown with simple louvres and building A4 with a side-stack. Note the presence of the ?industrial outhouse associated with building A4. The fences surrounding the site are purely hypothetical, but there was evidence for the boundary (a fence set in a clay plinth) between Tenements A and B. A similar wall is referred to in 1287 where 'a wall of earth shall be built at the joint expense of the parties' (Hudson and Tingey 1910, 6).

Period 7 (*c.*1500-1550) (Figs 59 and 64)
Although the ground-plans of the houses of this period were similar to the medieval ones, the houses themselves would have looked quite different. They were still largely timber-framed, but were now two-storied and (with the exception of B5i) set on rubble plinths. The newly-built rubble fireplaces are reflected by the widespread adoption of chimney stacks. The width of the rear wall of B6i suggests that it was built in flint rubble to its full height (the normal pattern in the surviving 16th-century buildings of Norwich: pers. comm. Robert Smith), but that of A5ii probably had a jettied, timber-framed, first floor (underpinned in Period 10—see above, p.168). Although the occurrence of jettying on a rear wall is unusual, here it is probably to be explained by the open aspect to the south and more of a prestige position along the passage-way of a shared yard. It is equally likely that the facade of B5i was jettied, in this case partly above a ground-floor clay wall (that survived in room *a*). The roofs are shown tiled (with an increasing scatter of roof-tile on the site) but it is debatable whether the contemporary anti-thatch legislation was really that effective.

Of particular interest in reflecting the first, uneven, signs of land pressure is the construction of building B5i with B10i. This has the appearance of a substantial house (with a rare cross-wing: pers. comm. Robert Smith) but did, in fact, represent the sub-division of an existing house to give a gable-end-on plan against the south boundary of the tenement.

Building C3, with its large side-wall oven, may have been used in the dyeing industry. If so, its long rear yard could have housed tenter-racks. The overall impression of the site is one of increased wealth as houses have become more substantial, and the land is still very open.

Period 9 (*c.*1600-1675) (Figs 60 and 65)
This period reflects a considerable increase in the density of settlement, with six rather than three houses on Tenements A and B. Apart from the extension westwards of A8 and C3 to the present line of Muspole Street in Period 8 this was arrived at largely by sub-division (with some vertical expansion). The former L-plan is preserved in A8 and possibly also in the modified C3ii (see p.164). To the rear of this a fireproof ?bakehouse/brewhouse is shown. The possibility of some houses being dormered ('blind' ones are known from this date) is suggested by putting them onto those buildings (A8 and 9) probably inhabited by Low Countries immigrants. The tidying-up of facades is reflected in the underbuilding of the jetty on B5ii. In the yards, there is the midden on Tenement A (containing the evidence for Low Countries occupation), the sub-division on B, and the expansion (and possible sub-division) of C which encroaches on plot 3.

Period 12 (*c.*1720-1800) (Figs 61 and 65)
The change in the appearance of the site is now quite dramatic, not least because the area occupied by buildings almost doubled (MFT.34). Buildings B9 and B5 remain largely intact, although B9 has gained both large dormers and an outbuilding (probably the one described as a warehouse in 1827). On Tenements A and C, however, there is the construction of two large and complex houses. Building A11 (top left) unites the disparate elements of the previous buildings on the tenement, while its outhouses are of the type known to have been associated with the textile industry. A large privy has been built in the south-east corner of its yard (built on the site of a similar feature recorded in the late 16th century which it had destroyed). The St George's Street frontage, with building C4 (bottom right) was fully built up for the first time in the history of the site, and has been reconstructed here as a rather grand house (Pl.XXXVIII). It was the first one on the site to have been largely constructed of brick. Note also that the roofs are now shown with pantiles, a type that first appeared on site in the late 17th century.

XIV. General Conclusions

The preservation of a well-stratified sequence is a rarity in Norwich, and at Alms Lane was largely due to the absence of extensive cellars. However, as its deposits were frequently worked and re-worked, finds inevitably were drawn up into residual contexts. Indeed, many of the finds were already residual when first introduced to the site in rubbish or soil make-up (Fig.17). Movement of soil was widespread around the city from the Saxon period onwards; this means that extreme caution has to be employed in using the mere presence/absence of types of pottery to try to establish the extent of settlement at any given time. This is especially true of peripheral areas that were used extensively for rubbish dumping (Atkin and Evans forthcoming (b)). The isolated sherd that might otherwise be considered intrusive may, in fact, represent the true date of its context.

The range of evidence that survived was wide, but it should be remembered that it relates to a site that was, throughout much of its history, almost suburban in its position (as, indeed, have been most of the excavations in Norwich). City centre sites might be expected to have had an even more complex building history, but this has in itself made the survival of such evidence less likely. Alms Lane lay outside the 10th-century defences, although well within the total extent of the 11th and 12th-century town (General Introduction, Fig.02). The excavation makes it clear that development did not proceed in a uniform fashion as, unlike areas to the east, west and south, it remained unsettled and used for quarrying and rubbish dumping until the 14th century. The initial character of the occupation was industrial. It seems likely that, as with the potters (Atkin *et al.* 1983), the ironworkers and brewers had been forced out of areas that were attractive for settlement in a period of rapidly rising population. For their purposes the site was ideal, able to serve the various concentrations of settlement on each side.

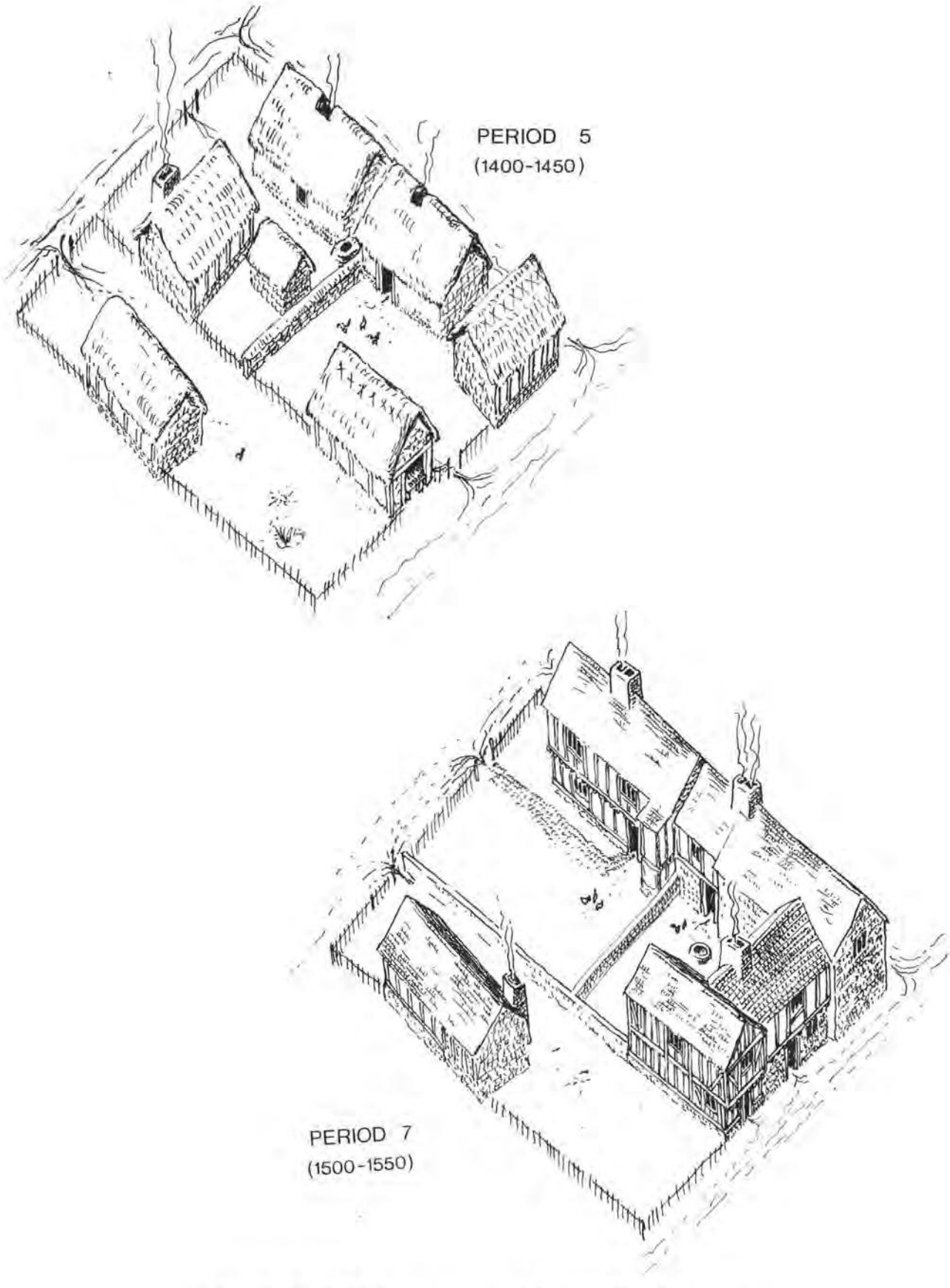


Fig.64 Site 302N. Reconstructions of the site in Periods 5 and 7

Fig.65 Site 302N. Reconstructions of the site in Periods 9 and 12

Perhaps inevitably, the site as seen by the archaeologist at this period does not resemble that pictured in the documents, for the evidence of the former relates to the occupiers, and of the latter to the owners. The owners were generally prosperous individuals who owned property elsewhere in the parish and the city (such as John de Shotesham). It is thought that to some extent their occupations may have been reflected by their tenants: by leatherworkers and smiths in the 13th and 14th centuries, but increasingly by a concentration in the textile trades. Other industries, some perhaps only in the vicinity of the site, are reflected in the finds of waste bone products and wood-working tools.

Most of the bone found on the site was the product of domestic consumption, although there are clear indications of cattle having been slaughtered or butchered there. It seems likely that chickens were being raised on the site over much of its history. Frequent complaints are recorded of the nuisance that such practices caused. In 1437, it was granted 'that all sows and ducks wandering in the streets of the said city to the nuisance of the neighbours shall be expelled out of the city' (Hudson and Tingey 1910, 81-2). Diet on the site seems to have changed little over the centuries, although more fruit was eaten from the 16th century onwards. Fish was always important but, with the exception of freshwater eel, was largely confined to herring and other east coast fish. This contrasts with the preoccupation of the local courts with infringements of fishing rights on the river but eight fish-hooks were found on Tenement A in contexts ranging from the 14th to 18th centuries (Fig.37, No.38).

The pattern of housing on the site is closely related to it having been divided into a series of investment properties. Joint ownership of adjacent tenements might mean the construction of near identical houses (e.g. buildings A3 and B1) on neighbouring blocks. All the houses were probably let on repairing leases, which resulted in frequent patching up, either by the outgoing tenant or by the landlord trying to improve his return on the investment. The form and quality of the houses suggest that throughout much of their history they were lived in by quite prosperous artisans. Before *c.*1500 the buildings were clay-walled, probably single-storied (with the exception of A3ii) and characteristically two-roomed. They are of a type and construction that do not generally survive (below that of even the 'craftsmen' of 13 Friar Street, King's Lynn: Parker 1971, fig.12). In the post-medieval period materials change, the houses become two-storied and initially increase in ground-floor area.

The layout of the early buildings (Fig.58) reflects the ready availability of land in this part of medieval Norwich. In the period between *c.*1550 and 1600 there is a great diversity of plan-type and greater use made of the yard area: one development being sub-division to form houses with a single ground-floor room. This is associated with vertical expansion into increasingly used roof or attic space and coincides with (is ?caused by) a massive growth in population. This latter resulted from large-scale immigration, including thousands of Dutch and Flemish refugees. The Stranger community in *Ultra Aquam*—'Norwich over the water'—rose from 1471 in 1568 to 4679 in 1583 (Rickwood 1970, 82). We rely on excavations such as this and those on Botolph Street to identify the houses in which they actually lived. The incidence of imported pottery from the Low Countries increases considerably from the late 15th century but it is only possible to talk confidently of occupation from the 17th century. The principal evidence consists of finds of late 17th century 'Dutch' pottery on Tenements A and A/C (Figs 33 and 34, Nos 253-61 and 290-4). These represent concentrations over and above the usual increase in imports to Norwich at this time. Comprising forms not present in local assemblages, they represent a foreign tradition of use. The other evidence is slight: two fragments of decorated pipe-stem (Fig.42, No.9), and a copper alloy buckle for which there are Dutch parallels (Fig.35, No.9) from the same area of the site.

The buildings were modified less frequently in the later 17th century but house types continued to diversify into the 18th century (Fig.64). On Alms Lane itself the older pattern persisted but on both principal street frontages large buildings appeared. That on St George's Street was particularly impressive, and is a reminder of how rich and poor(er) continued to live cheek by jowl in the city.

These properties, whilst not being the houses of the poorest of the city (for which there is still very little clear evidence), have added significantly to our knowledge of the standard of housing and the relationships of individual properties to each other; set within the framework of the broad development of the city the evidence provides a valuable contrast to the surviving architectural evidence—which is exclusively of the wealthier classes. The site was small but it typifies much of the variety which once characterised Norwich.

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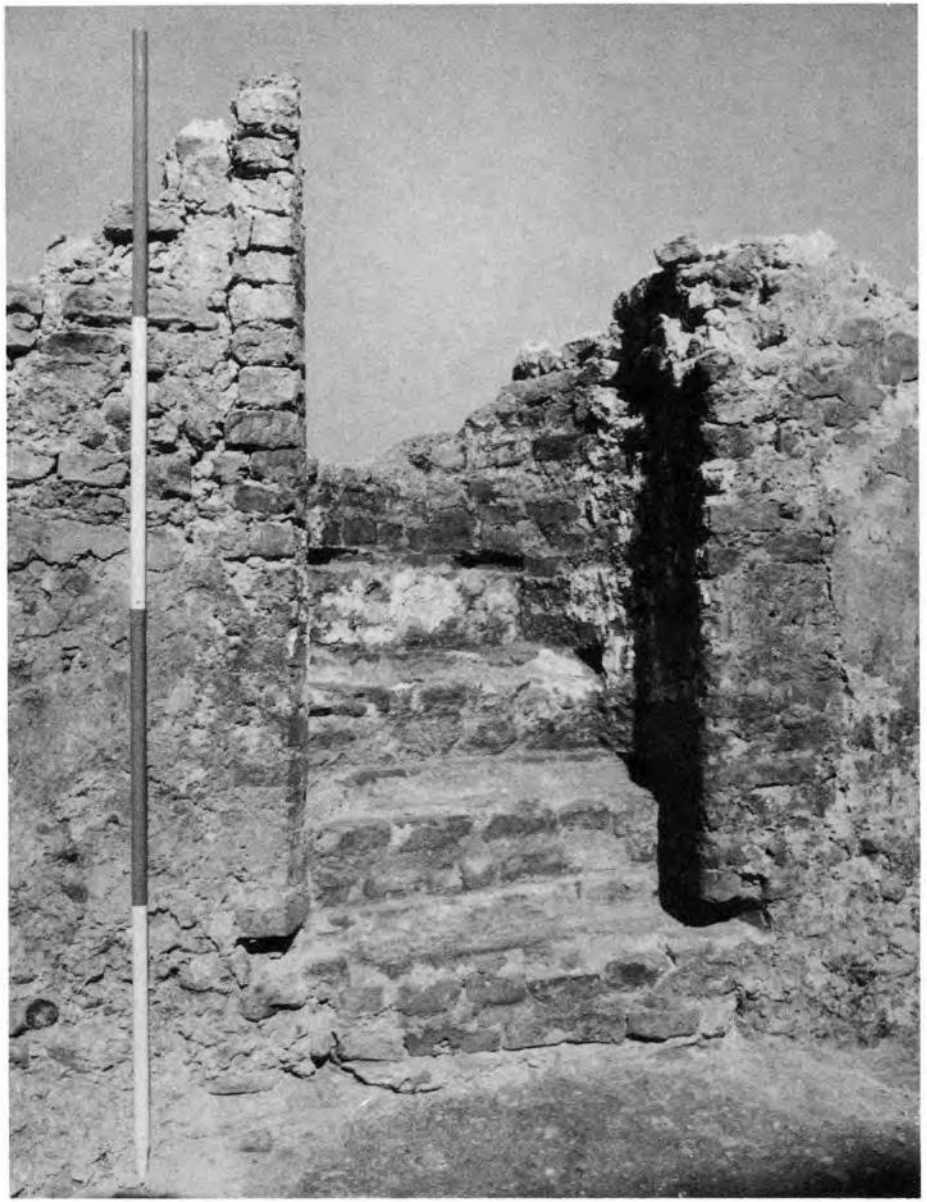

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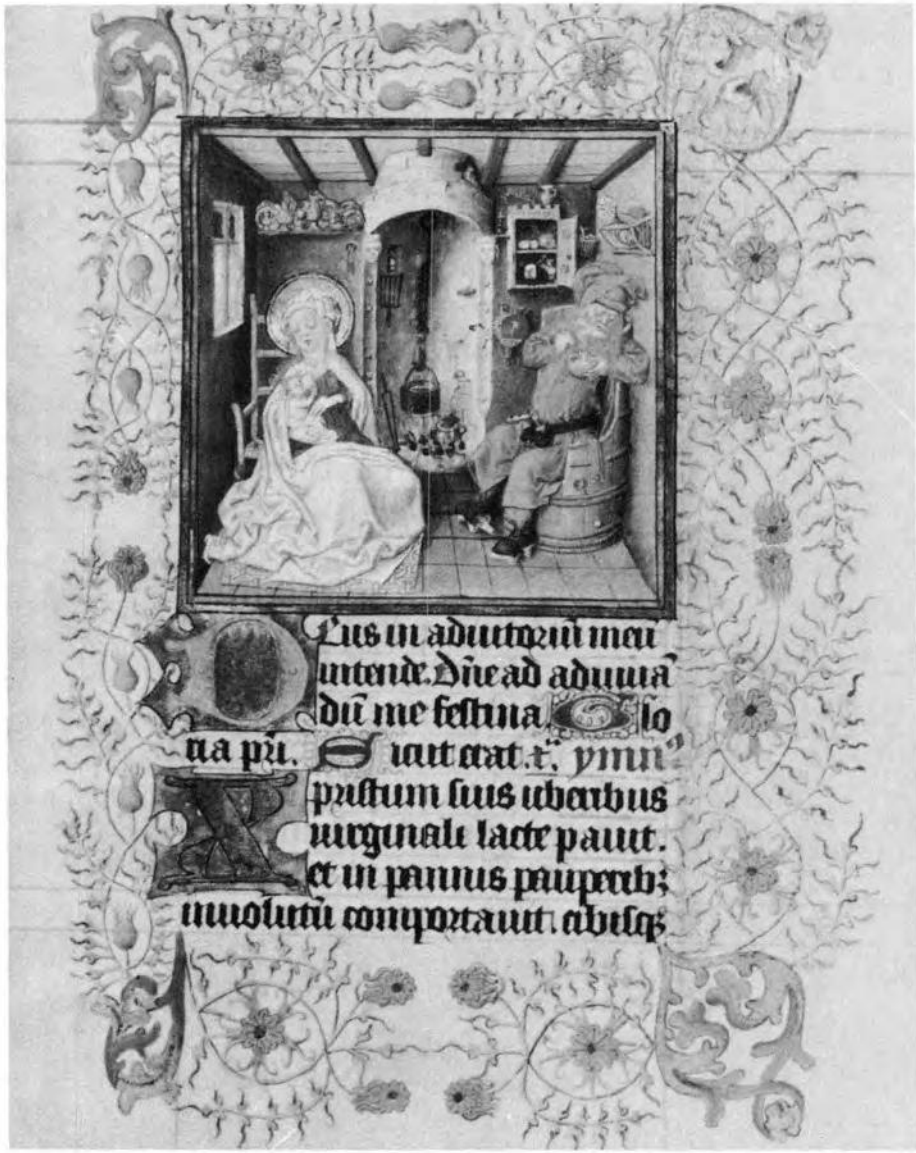
(Norfolk Museums Service)



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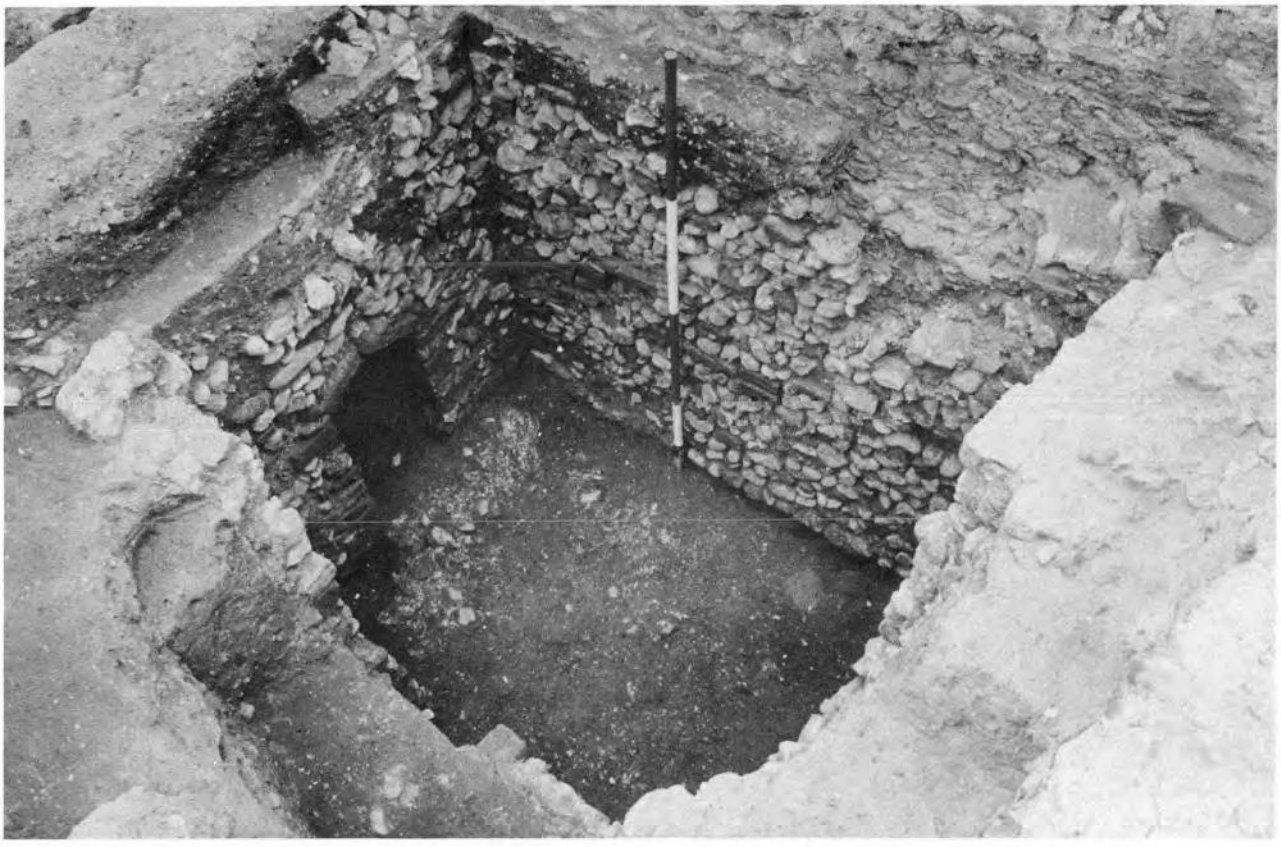

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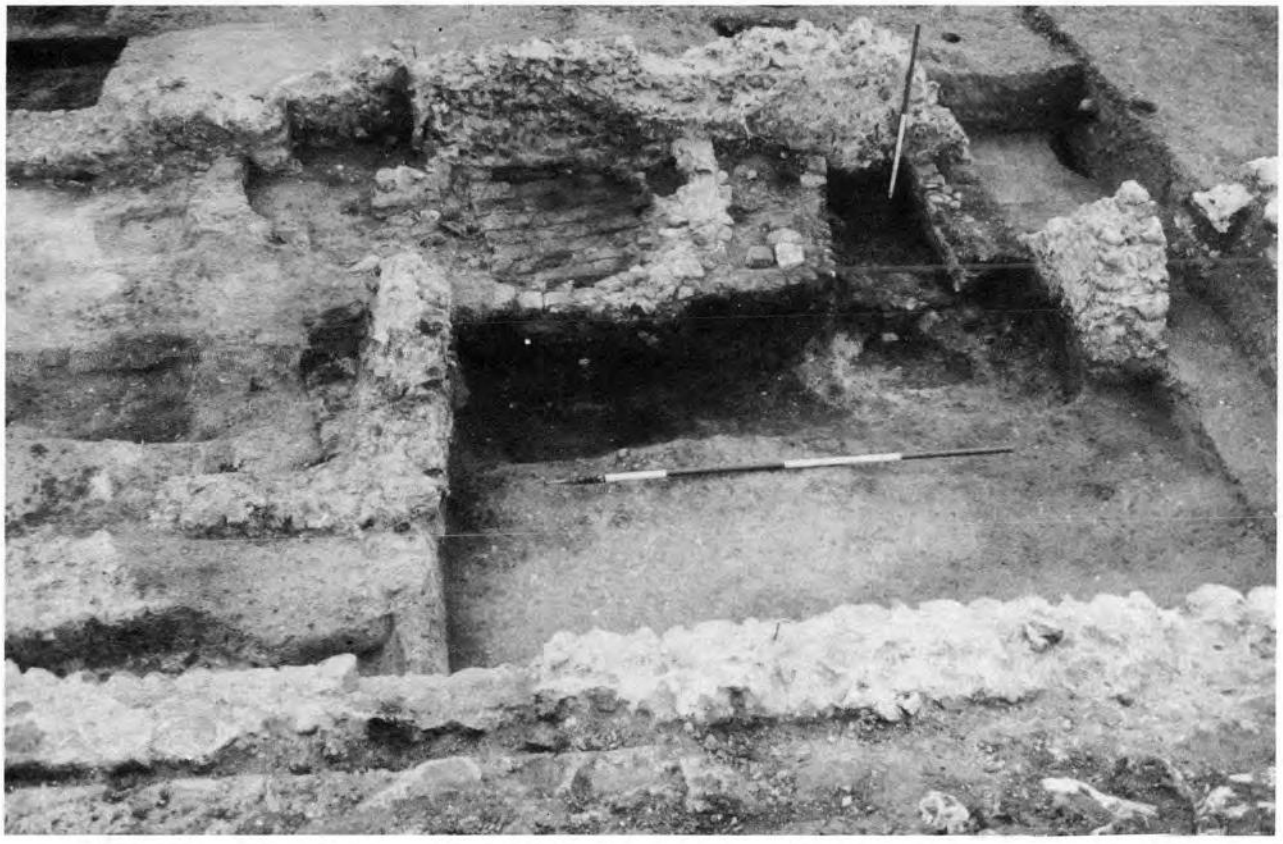

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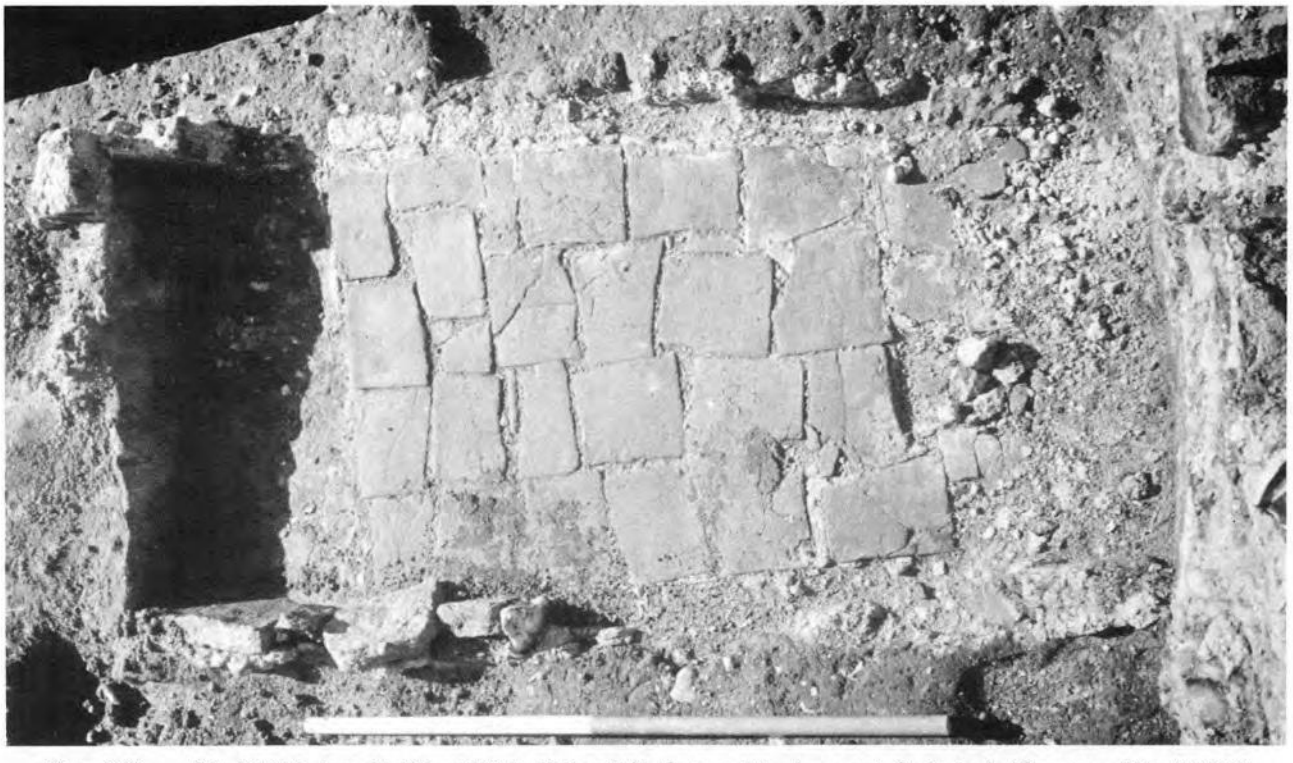

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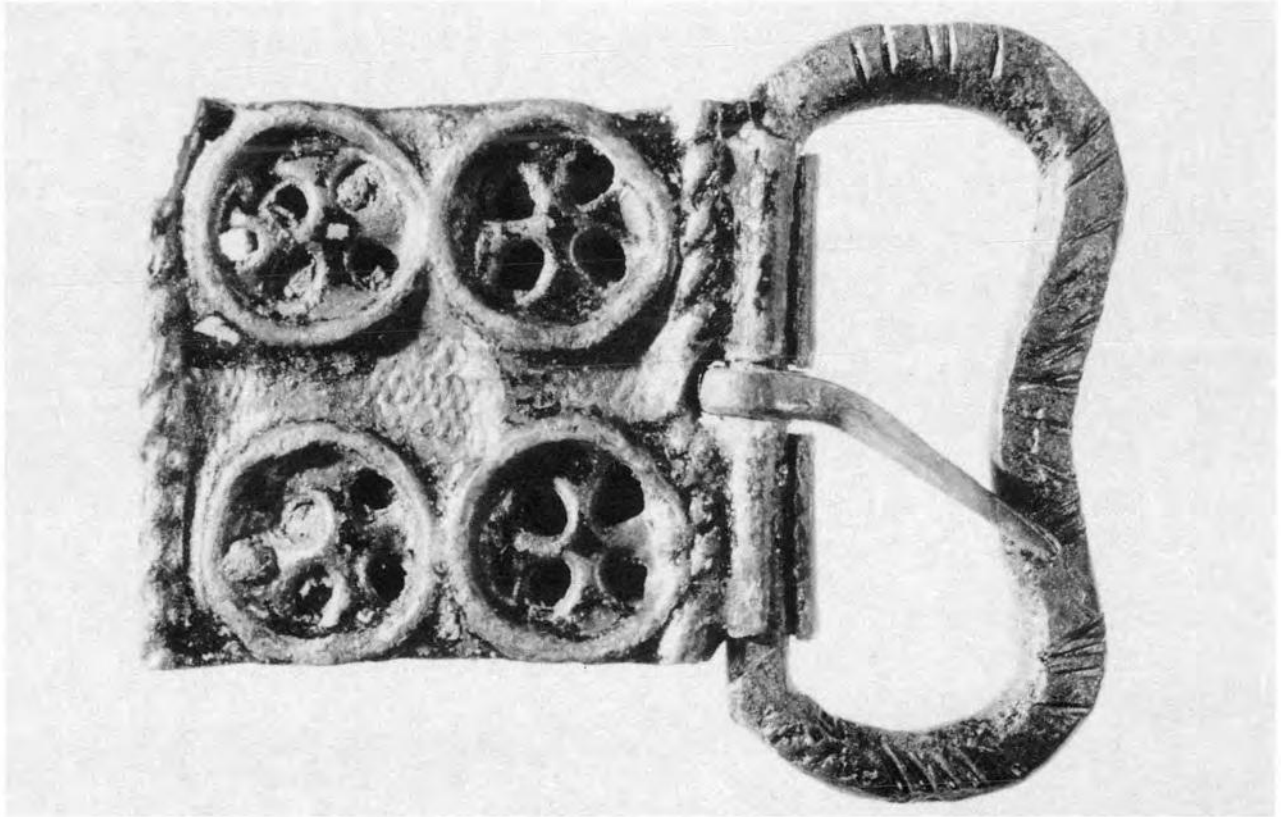

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Plate XXIII Site 302N. General view facing east, excavation of 18th-century levels on Alms Lane frontage in progress. *Neg.76.27.1*

Plate XXIV Site 302N. Hearth 1404, view west. Scale in half metres. *Neg.76.19.12A*

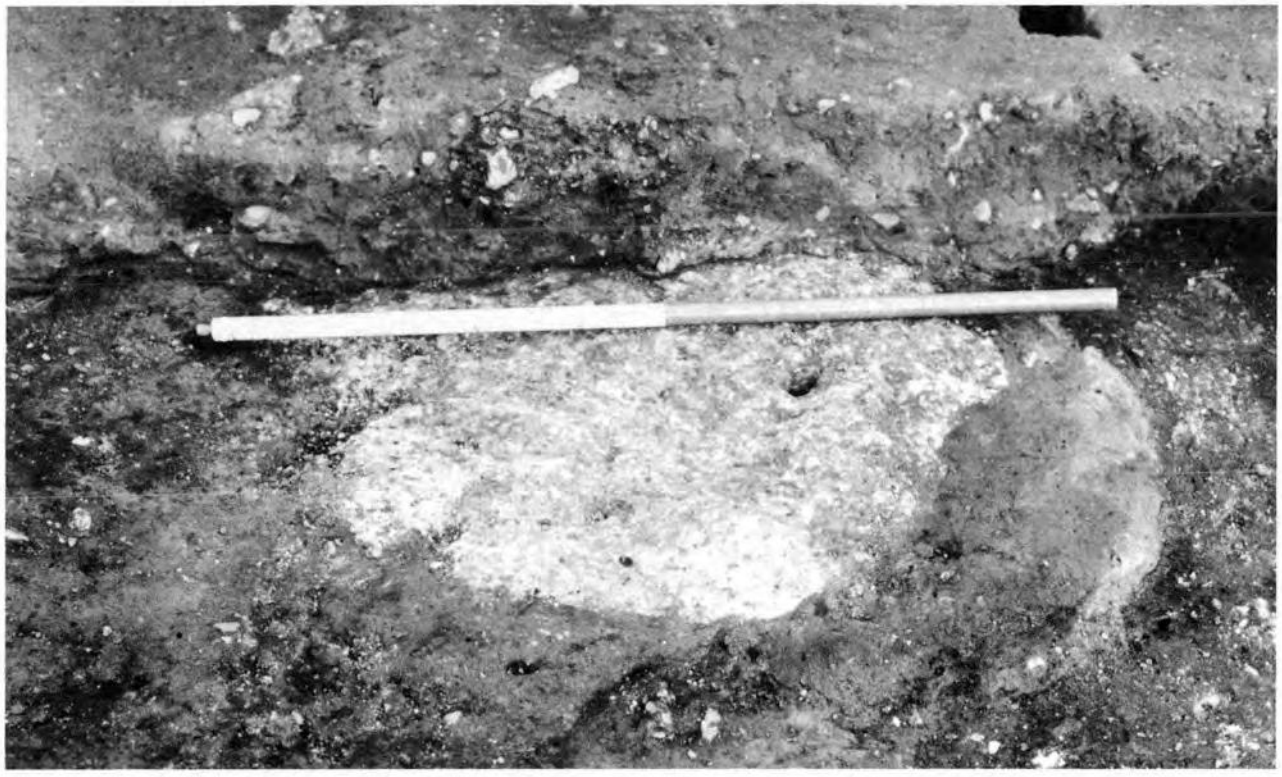

Plate XXV Site 302N. Furnace 470, view east. Scale in half metres. *Neg. 76.23.12*

Plate XXVI Site 302N. Oven 731/221, view south. Scale in half metres. *Neg. 76.16.12*

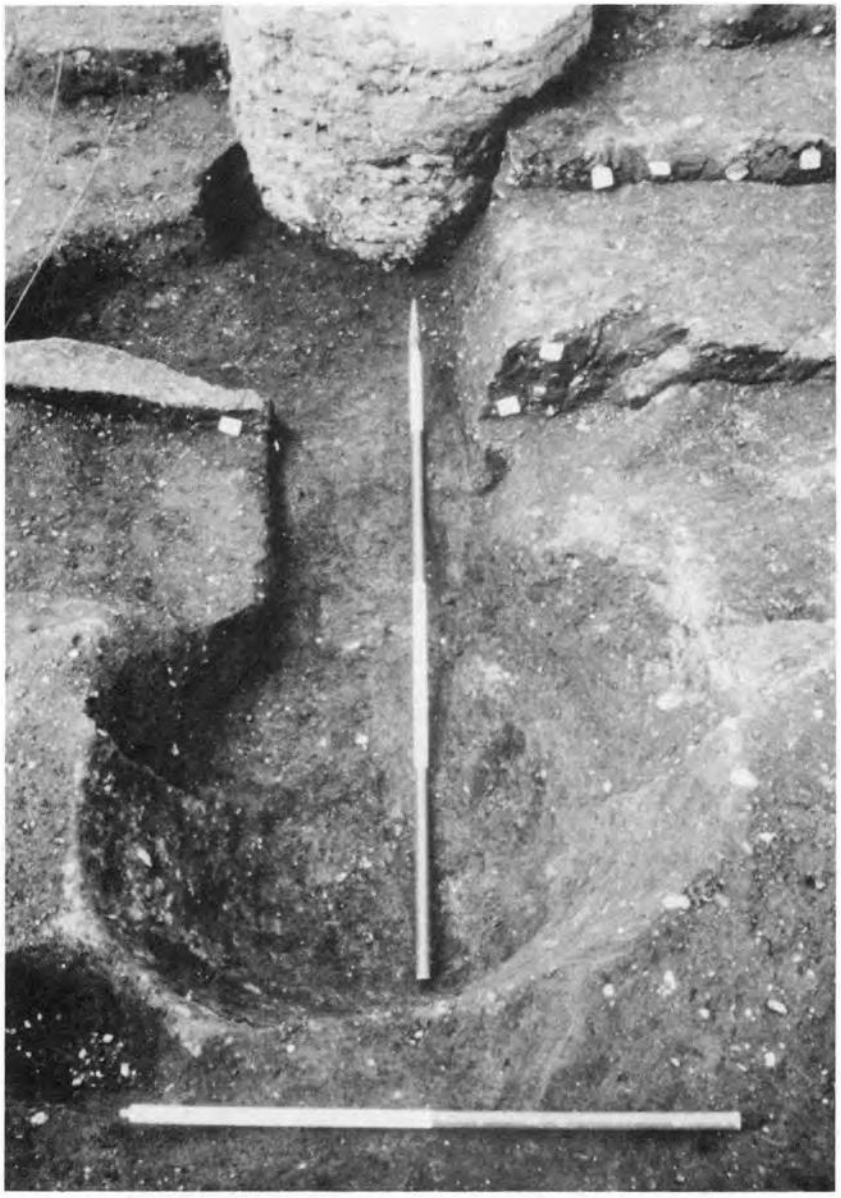

Plate XXVII Site 302N. Malting oven 1479, view west (well 325 at rear). Scale in half metres. *Neg.76.27.2*

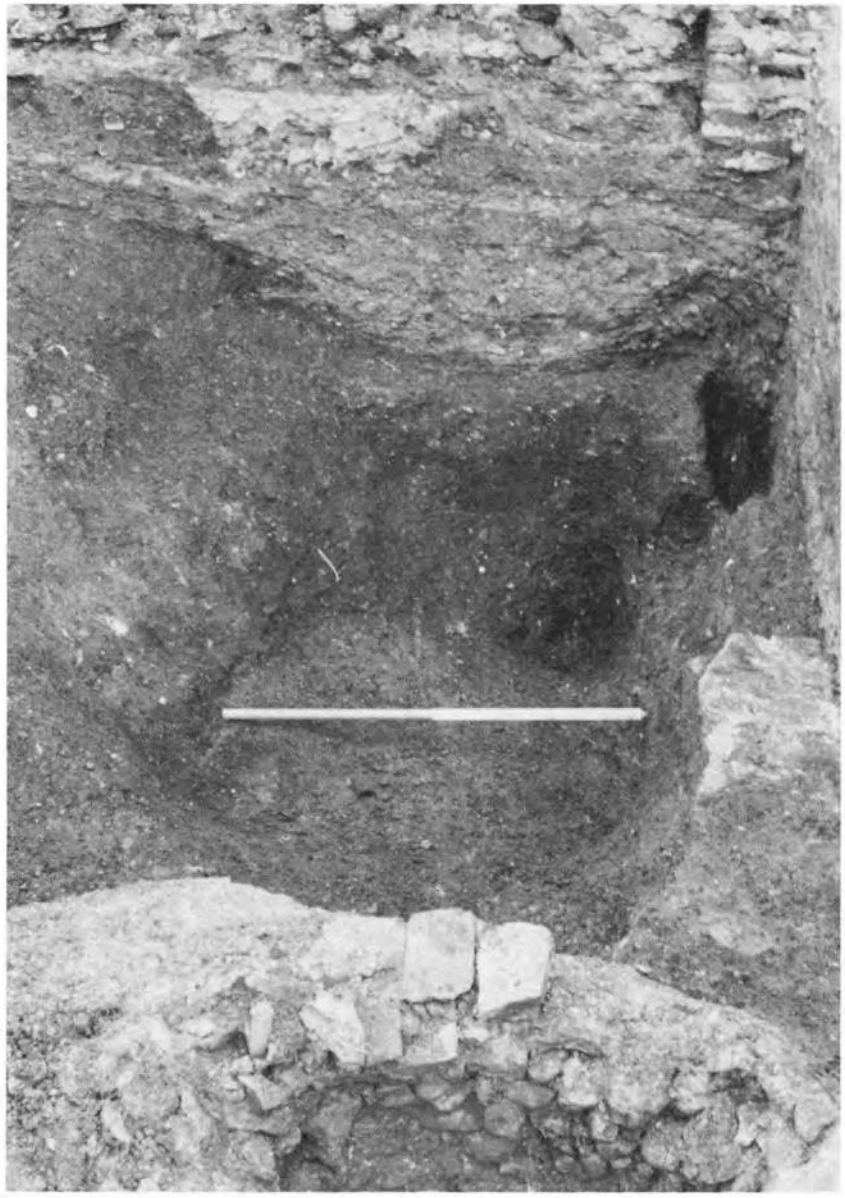

Plate XXVIII Site 302N. Soaking pit 1853, view north. Scale in half metres. *Neg.76.27.6*

Plate XXIX Site 302N. Building A3, view east. Scale in half metres.
Neg.76.24.5

Plate XXX Site 302N. Cesspit 2422, view north. Scale in half metres.
Neg.76.27.3

Plate XXXI Site 302N. Wall 1889, showing tiled surface, from above. Scale in half metres. *Neg.76.27.4*

Plate XXXII Site 302N. Section S42, view east, showing robber trench 1969 in foreground. Scale in half metres. *Neg.76.27.5*

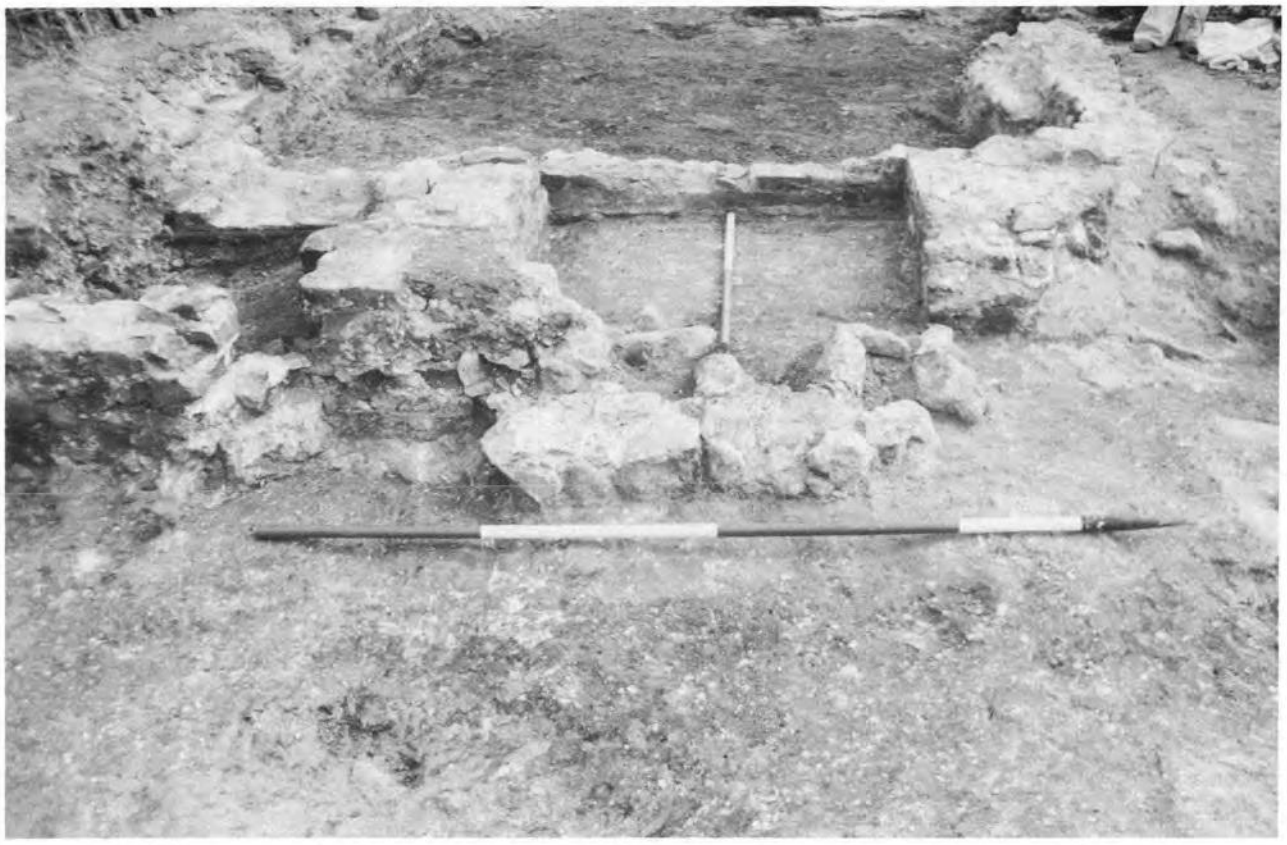

Plate XXXIII Site 302N. ?Staircase complex 1710/1779 in building A10, view north. Scale in half metres. *Neg. 76.19.18*

Plate XXXIV Site 302N. Fireplace complex 2000/2150, showing blocked stairturret 2027 in building B6i-ii (vertical). Scale in half metres. *Neg. 76.24.17*

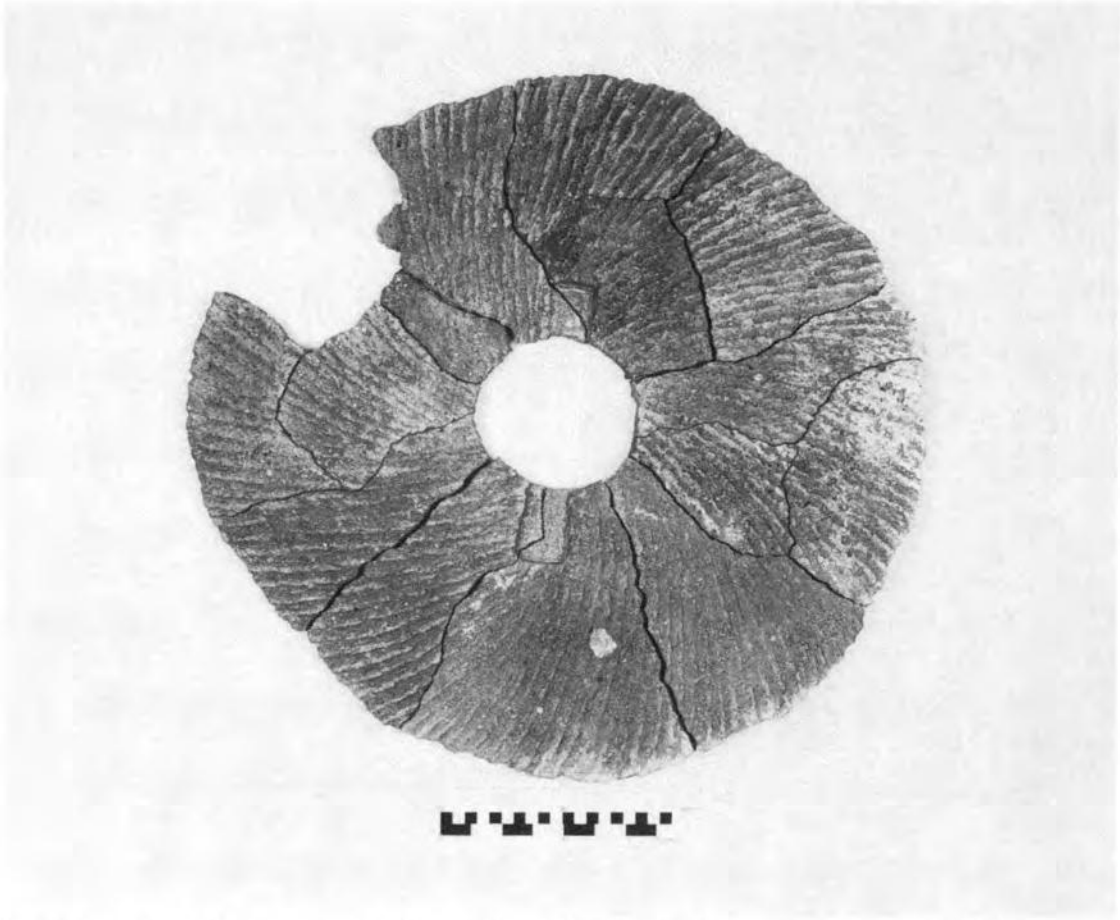

Plate XXXV Site 302N. Millstone, SF302N/*2421* (Period 4.1). Scale in centimetres. *(Norfolk Museums Service)*

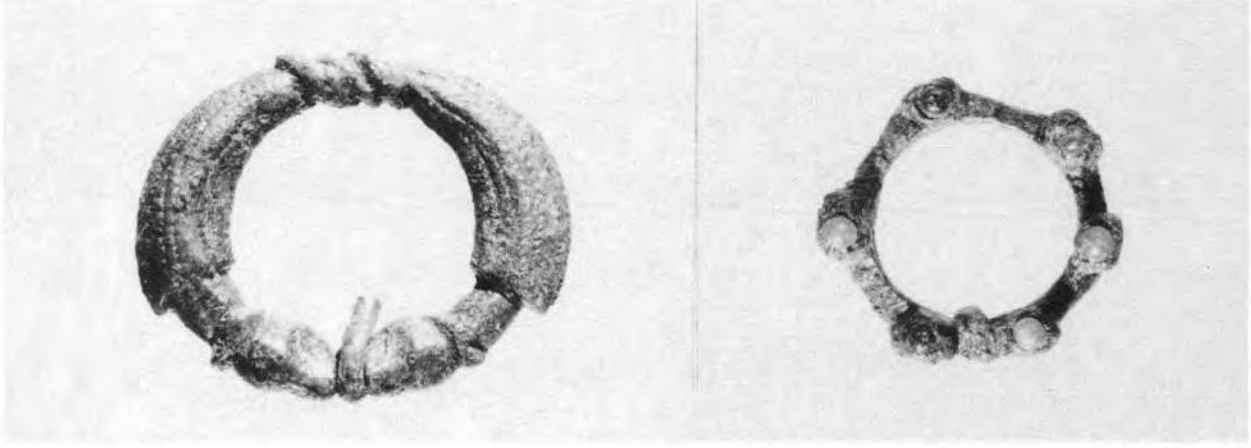

Plate XXXVI Site 302N. Copper alloy brooches: SF302N/*2296* (Period 4.5), *max. dia. 26mm*; SF302N/*2214* (Period 4.6), *dia. approx. 13mm. (Norfolk Museums Service)*

Plate XXXVII Site 302N. Copper alloy brooch, SF302N/*2209* (Period 5), *length of pin 39mm.* Copper alloy compass dial, SF302N/*634* (Period 12), *dia. 34mm. (Norfolk Museums Service)*

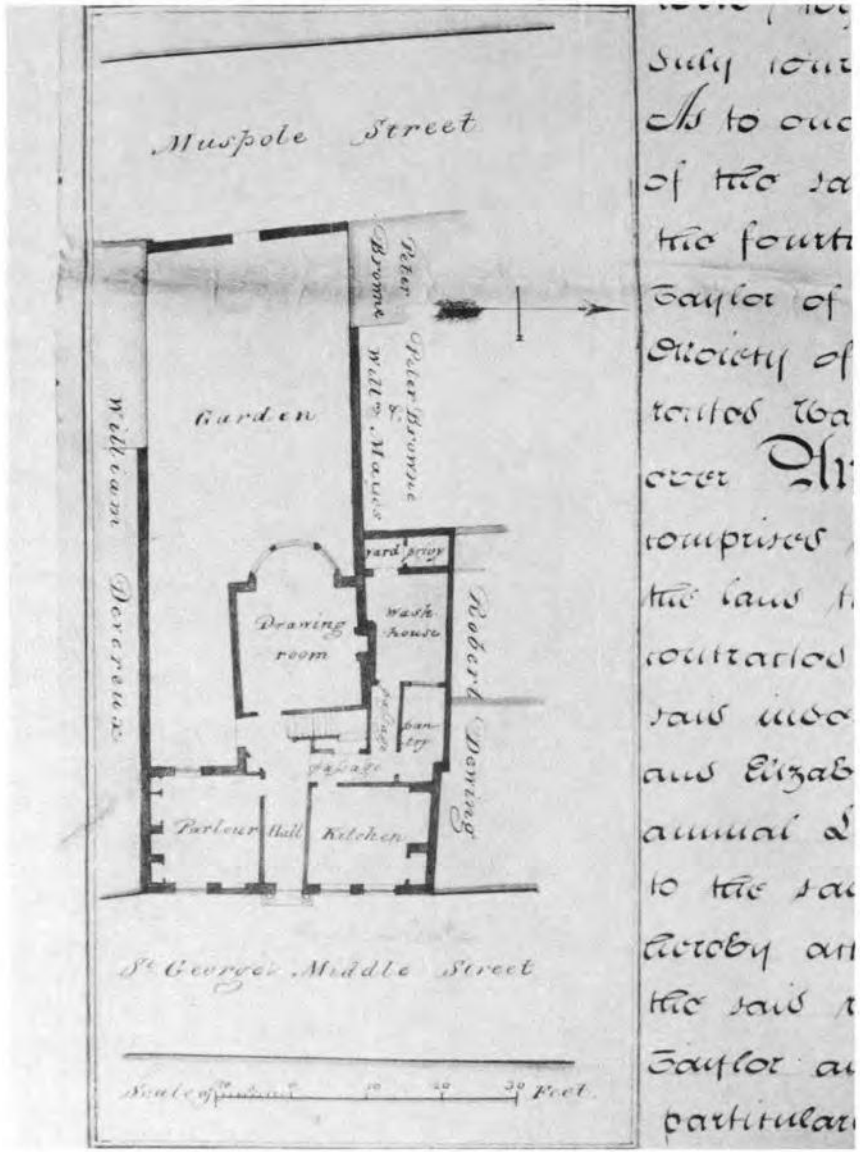

Plate XXXVIII Site 302N. Plan of building C4 in 1827. *(Norfolk Record Office)*

Abbreviated Index to Microfiche

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