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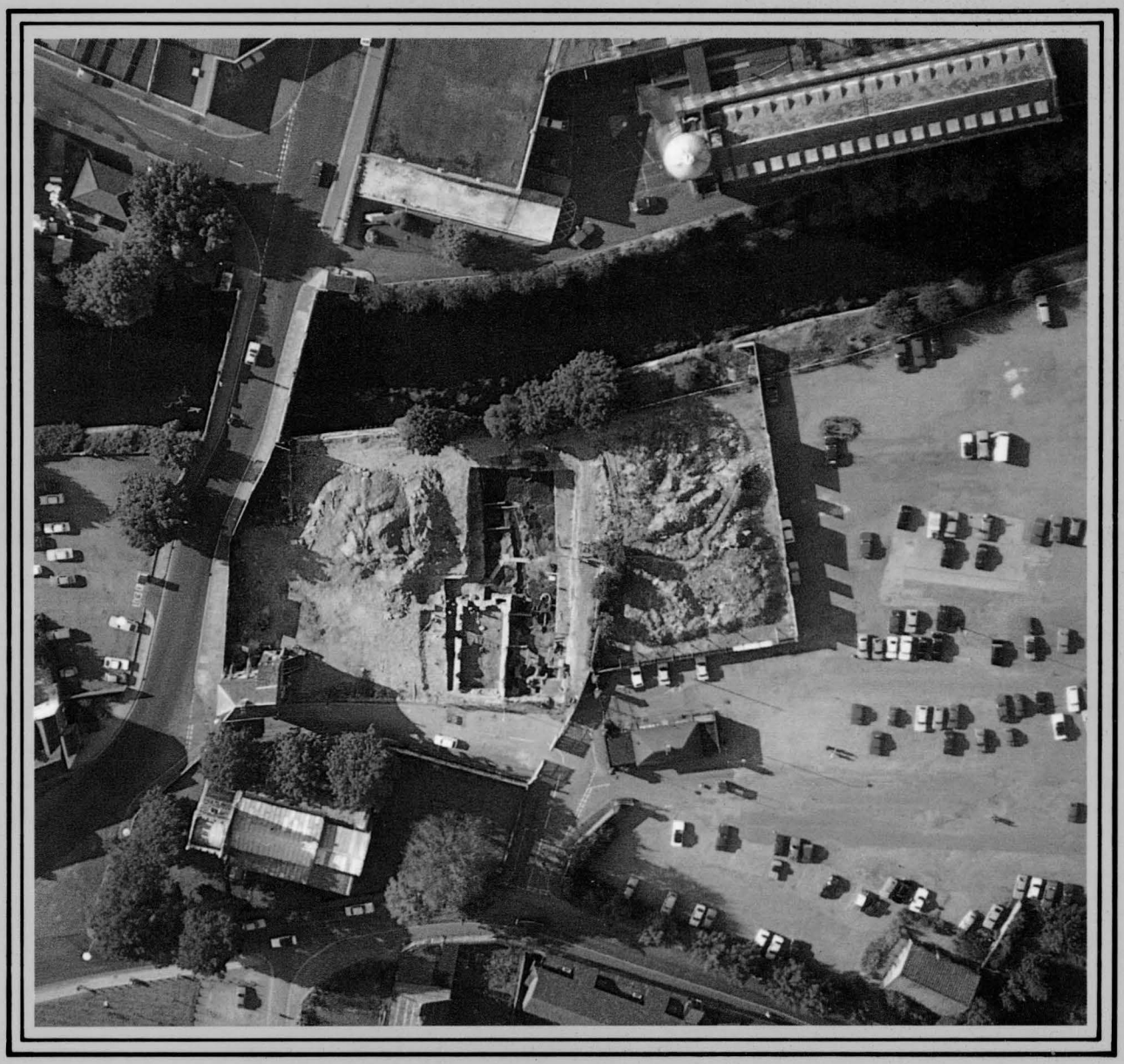
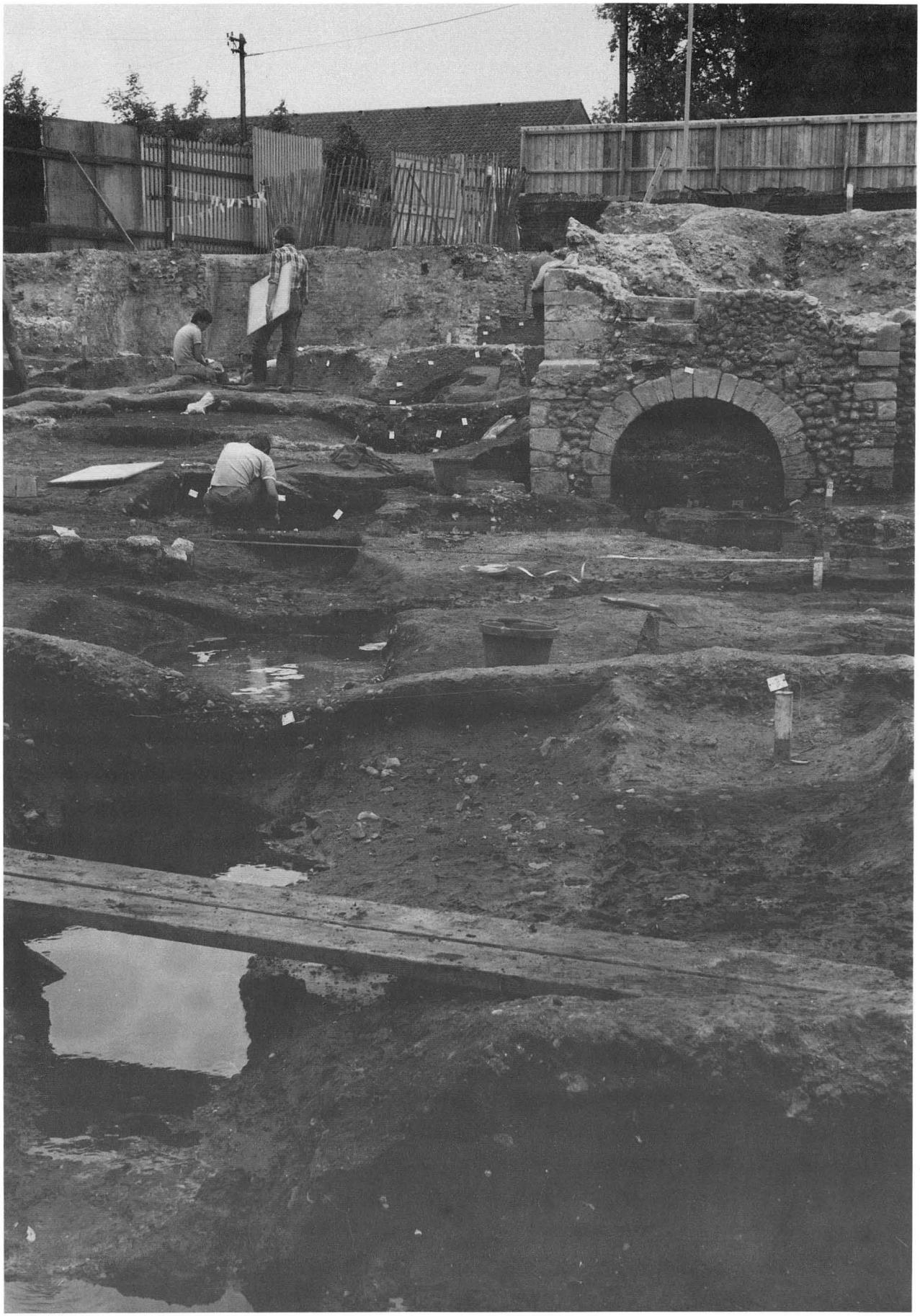


EXCAVATIONS AT ST. MARTIN-AT-PALACE PLAIN, NORWICH, 1981

East Anglian Archaeology

Norfolk Archaeological Unit, Norfolk Museums Service 1988

EAST ANGLIAN ARCHAEOLOGY



Frontispiece: General view of part of the excavation looking south, May 1981 (CSZ 27)

Excavations at St. Martin-at-Palace Plain, Norwich, 1981

by Brian Ayers

with contributions from
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Cover Illustration Air view of excavations at St. Martin-at-Palace Plain, looking north, August 1981 (Ref: TQ2309AK)

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Organisation of the excavation was greatly helped by Norfolk County Council who agreed to fence the site in advance of redevelopment and allowed the Norfolk Archaeological Unit to use a building scheduled for conversion and incorporation into the new scheme as a site office. Officers of the County Council were particularly helpful, notably Bob Goodyear of the Architect's Department while David Allen of Eagling and Allen, the Consultant Engineers, provided much useful advice. Subsequent to the excavation, during groundworks for the

construction of the Magistrates' Courts and conservation of the excavated Norman building, generous assistance and consideration was given to archaeological matters by Billy Nee, Site Agent for R.G.Carter Ltd (the contractor), and Fred White, Clerk of Works for the County Council.

The writer is especially indebted to his assistant, Jayne Bown, who took charge of the excavation in his absence, directly supervised the Manpower Services team and has greatly assisted in the post-excavation work. Val Williams efficiently processed the finds on and off the site. Celia Tordoff acted as on-site environmentalist, sampling and washing material through a Siraf-type flotation unit. She also undertook basic sorting of the material at the Centre of East Anglian Studies, University of East Anglia under the supervision of Peter Murphy; he is most grateful for her meticulous work. The excavation team fluctuated in numbers over the course of the excavation but a 'core' of staff members deserves mention by name: Richard Barnes, Sandy Butler, Peter Cadman, Mik Carr, Jim Heathcote, Phil Hopkins, St. John Simpson and Philip Williams. In addition, all members of the team were revitalised by the energy and enthusiasm brought to site by a German student, Horst Nitsch, during the summer. The recording of the site was undertaken at some stage by nearly all these individuals although Jayne Bown carried the greatest load. The project was helped greatly by local volunteers, some of whom were most regular excavators in all weathers; mention must be made here of Nikki Hurst, Richard Leared, Fran Warns, Judy Sims, Joan and Pam. In addition a party from the Great Yarmouth and District Archaeological Society excavated on most Sundays, enthusiastically led by Mike Teun, and four sixth-form girls from the Blyth Jex School were regular and welcome volunteers.

During post-excavation work the writer has been greatly helped in research by Jayne Bown who also draw all the maps, line drawings and pie charts. Hoste Spalding and Philip Williams drew the pottery while Steven Ashley drew the small finds (with the exception of the bone flute fragment from the 1962 excavation which was drawn by Hoste Spalding). The photographs are by: the author (Frontispiece, Pls II-IV, VI-VII, IX-XIII, XV-XXI, XXVIII, XXIX, XXXII); Richard Barnes (Pls V, VIII, XIV, XXIII- XXVII, XXXI, L); Mick Sharp (Pls XXXVII-XXXIX, XLI); David Wicks (Pls XXXIII, XLIII); D.A.Edwards (Cover); Malcolm Howard (Pl. XL); P.W. Kingsland (Pl. XLIL); Peter Wade-Martins (Pl.I) and Gerry Yardy (Pl.LI). Canon Colin Beswick and the Dean and Chapter of Norwich Cathedral must be thanked for their permission to reproduce a photograph of the list of the Prior's Landgable (Pl. XLIII). Sarah Brown of the Royal Commission on Historical Monuments (England) was most helpful with regard to building records of the demolished buildings on the site and the RCHM must be thanked for permission to reproduce photographs in this report (Pls XLIV-XLVI, XLIX). Colour slides and monochrome prints were also taken by Anglia Television and the Unit is grateful for copies of these (Pls XXXIV-XXXVI). The radiograph on Plate XXXV is by Karen Wardley.

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Summary

Excavation of a large urban waterfront site at St. Martin-at-Palace Plain, Norwich in 1981 uncovered material dating from the Middle Saxon to the post-medieval periods. Actual occupation seems to have been first established in the eleventh century when the area developed as a commercial waterfront with the remains of riverside structures and buildings of that date being discovered. Commercial activity was characterised by a fine sequence of imported pottery fragments which indicated a concentration of trade with the Low Countries and Germany although contacts with both France and Scandinavia could also be attested. Waterlogging of the waterfront area ensured the preservation of organic features, enabling conclusions about function and topographic layout to be drawn more firmly than usual.

In the twelfth century, use of the waterfront for commercial purposes went into decline, being supplanted by small-scale industrial activity. Tenement boundaries were replanned in the third quarter of the twelfth century, largely as the result of the construction of a stone building. This structure survived to a height in excess of two metres with the remains of window openings, doorways, buttresses and a latrine turret complete with effluent arch. Interpreted as a building attached to the Cathedral Priory, it has now been preserved beneath the new Magistrates' Courts. Dating was assisted by coin evidence and high quality metallic finds as well as pottery.

Environmental material was particularly rich from the Saxo-Norman deposits. One large gully, especially, contained numerous articulated fish skeletons, well-preserved eggshell remains, masses of fly puparia and great quantities of compacted plant material. The analysis of these and other deposits has provided much evidence both for the natural habitat and for the impact of human occupation. This latter is characterised by indicators of agricultural production, marine exploitation for foodstuffs, the acquisition of raw materials and industrial activity.

The twelfth-century house seems to have been derelict by the end of the thirteenth century. It remained open to the sky until the mid- fifteenth century when it was reroofed, debris cleared away and reoccupied. To its east a large building was erected in the fourteenth century (dating again helped by coin evidence), parts of which survived until 1962. The structural development of this latter building was established. Commercial waterfront activity appears to have been almost non-existent in the later medieval period although the waterfront area was progressively reclaimed.

Post-medieval developments included the subdivision of the eastern property, a process followed in both the archaeological and documentary records. Documentary research forms the major element of the post- medieval assessment but was also important for the study of the medieval period. Most importantly the research located a previously unknown list of contributors to the Prior's Landgable which in turn enabled an interpretative discussion of topographical development in the area.

The site appears to have been almost continuously occupied for nearly 1000 years with a variety of activities; commercial, industrial and domestic, sometimes co-existing, sometimes not. By the nineteenth century much of the area was redeveloped for large-scale industrial use which led ultimately to decay. At least one, and probably two, important medieval buildings on the site were destroyed in the fifteen years up to 1962. The large excavation in 1981, together with the documentary, environmental and finds' studies, has revealed this lost structural history and has placed it in the context of topographical and social development within the city. The work is thus important within a local context but the wide-ranging nature of the results also enables a discussion of Norwich within the context of the growth of market economies in the medieval period.

Chronological summary

Period I	With the exception of scattered sparse Middle Saxon material this period occupied the eleventh century and the early twelfth century.
Period II	Twelfth and thirteenth centuries.
Period III	Fourteenth and fifteenth centuries.
Period IV	Sixteenth century to the present day.

Period I is sub-divided into three phases, principally on the stratigraphic evidence of the street frontage. Period II is sub-divided into two phases, also on stratigraphic grounds. Phase II1 covers the period from *c.*1100-1170 and Phase II2 from *c.*1170 to *c.*1300. Period III is also sub-divided stratigraphically into three phases of which Phase III1 probably covers the years *c.*1300-70 and Phase III2 *c.*1370-1450; Phase III3 lasted until the mid-sixteenth century. Period IV is not sub-divided.

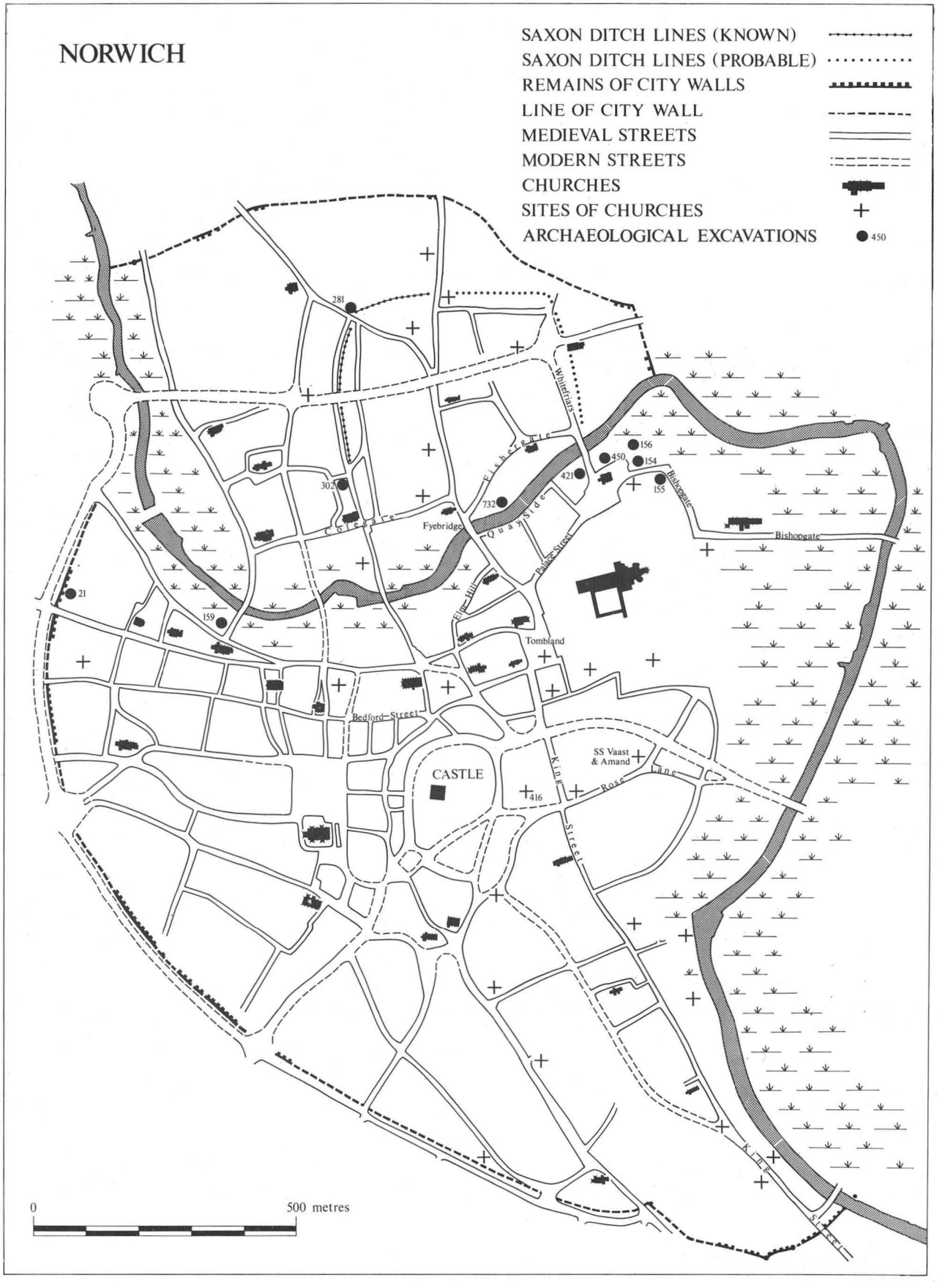


Figure 1. Map of the medieval walled city to show the location of the excavated site (County Site 450) and other sites mentioned in the text: Barn Road 1954/5 (21); Bishopgate 1971 (154); Bishopgate 1971 (155); Bishopgate 1972 (156); Westwick Street 1972 (159); Botolph Street 1975 (281); Alms Lane 1976 (302); Anglia T.V. 1979 (416); Whitefriars Street 1979 (421); Fishergate 1985 (732). Scale 1:10953.

1. Introduction

I. The Site

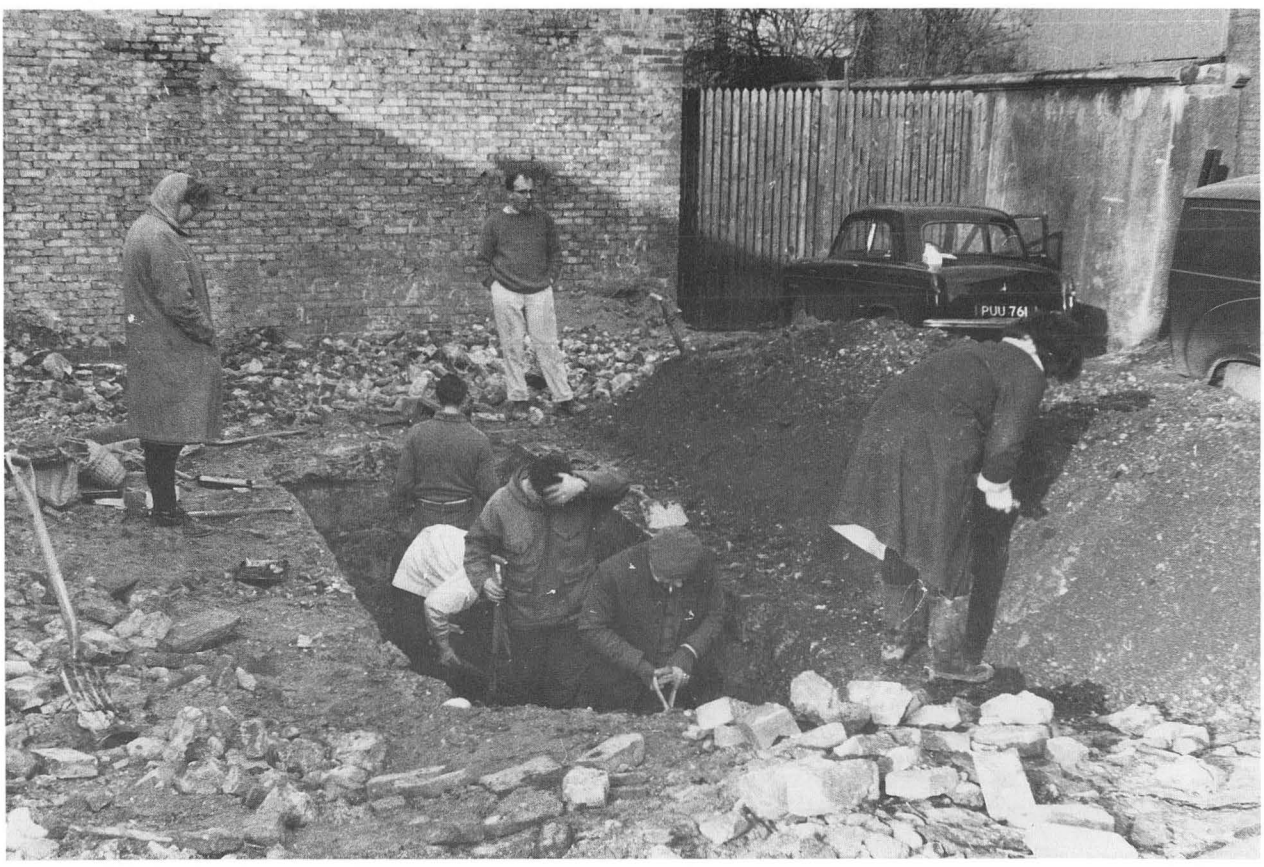
(Figs 1 and 2)

The site of the 1981 excavation (County Site Number 450; grid reference TG 2347 0916) was situated immediately north of the street of St. Martin-at-Palace Plain and immediately east (that is, downstream) of Whitefriars Bridge (Fig. 2). The street runs along the north side of the churchyard of St. Martin-at-Palace, widening west of the church site into an open space or 'plain'. This plain seems to be of considerable antiquity being referred to as *Bichil* in the thirteenth century, a placename with possible pre-Conquest elements[1].

The bridge, which carries the present-day Whitefriars Street across the Wensum from St. Martin-at-Palace Plain, is known to occupy a site that was certainly bridged as early as 1106 and possibly earlier (Ayers and Murphy 1983, 56). There is strong evidence to suggest that such a bridge formed an element within a route system that was severely distorted by the laying out of the Cathedral Close after 1094; a road probably ran southward from Palace Plain through the area subsequently occupied by the Cathedral precinct[2]. This distortion may have affected the prosperity of the Palace Plain area severely. Any road south was ultimately removed, a possible road west from the south-western corner of the Plain was eventually lost [3] and the present road west, Palace Street, came into being along the northern perimeter of the Close. Eastward, however, routes probably survived unchanged with Bishopgate, running south of St. Martin's church, almost certainly increasing in importance as it took traffic diverted by the closure of a direct east-to-west route across the Close. The street of St. Martin-at-Palace continued eastward as World's End Lane until this was removed by an extension of the nineteenth-century gasworks in 1888 (p. 150).

The topographical evidence suggests, therefore, that the area of St. Martin-at-Palace Plain was a route centre of considerable importance prior to the construction of the Cathedral Close. This circumstance is the more likely given that the gravel spur upon which it sits forms the first readily accessible area of relatively high ground above the marsh on the port side for vessels coming upstream. It was thus well-placed for the location of a commercial waterfront, particularly given the proximity of the pre-conquest market place in Tombland. Trial excavation in 1962 by the late Rainbird Clarke revealed a tantalising glimpse of the area's potential for archaeological exploration (Pl. I and microfiche M1). Eleventh- and early twelfth-century activity was notable but thereafter the area seems to have become something of a backwater. Late medieval occupation included the construction of at least one large domestic building.

Proposals in 1981 (now carried out) to construct Magistrates' Courts at St. Martin-at-Palace Plain made available a major archaeological site. The Norfolk Archaeological Unit, working within a rescue environment closely tied to research priorities originally



I. Excavation of trial trench (site 34) by the late Rainbird Clarke (foreground in cap with shovel) in 1962. View looking north (N3)

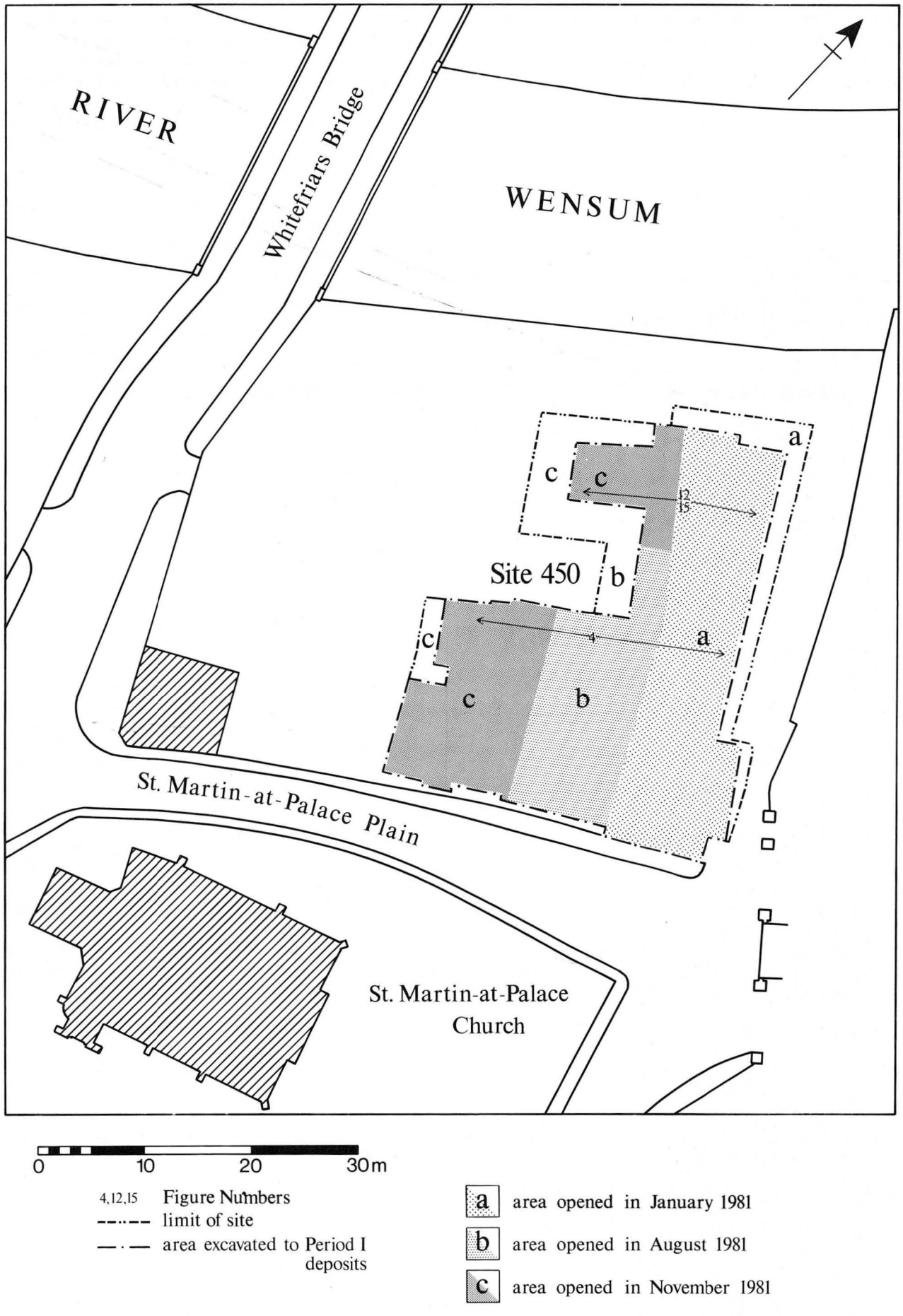


Figure 2. Location of the excavation. The progressive expansion of the site (a, January; b, August; c, November) is explained in the text. Scale 1:500.

established by the Norwich Survey (below), resolved to excavate the site of the proposed Courts prior to construction. The results of that excavation follow, together with a synthesis of the finds, an assessment of the documentary background and discussions of the evidence.

II. Surface Geology

The area is on a spur of sand and gravel which forms part of a terrace extending along much of the south bank of the River Wensum in this part of the City. The gravel at St. Martin-at-Palace Plain averages some 5m in thickness overlying chalk. The deposits are sandy, noticeably so near the river. The spur slopes gently from south-to-north as indicated on Figure 26. The site occupied part of the inside curve of a long bend in the river.

III. Excavation Method

The excavation at St. Martin-at-Palace Plain was conducted over a period of twelve months, from January to December 1981. The area of proposed redevelopment was extensive, being in excess of 3000 square metres, and thus tactical decisions had to be taken prior to the start of the excavation as to which areas should be sampled and which remain undug. This sampling procedure was governed primarily by established research priorities but also by secondary considerations, such as the known incidence of below-ground contamination at the eastern end of the site, an area previously occupied by a gas-works.

The rescue excavation policy of the Norfolk Archaeological Unit in Norwich, since it assumed responsibility for archaeological works in the city in 1979, has been built upon the research priorities established by the Norwich Survey. These priorities were deliberately adopted as a positive response to the overwhelming problem of analysing satisfactorily and cost-effectively the very rich and varied history of settlement within Norwich. The sampling technique that evolved has been summarised by Carter (1978b). One of the major priorities, including the major excavation priority, was and remains the attempt to understand the early origins and development of settlement within regional, national and international contexts. To that end resources have frequently been directed to sites of potential early information such as the site at St. Martin-at-Palace Plain.

It has been described above why the area was felt to be important in the Saxo-Norman period. The 1981 excavation was designed to test this hypothesis, concentrating on the waterfront where anaerobic deposits were expected to preserve organic material not normally encountered on Norwich sites due to the well-drained subsoil of sand, gravel and chalk. In addition, however, it was decided that the waterfront excavation should be linked to the street frontage, so that as clear a sequence as possible could be established across the depth of the area. Accordingly, it was determined that the site of a well-documented late medieval building known as 'Calthorpe House' (now recognised as a mis-attribution, p. 147) should be incorporated into the waterfront excavation. The levels of this building were sectioned in 1962 by the late Rainbird Clarke (Site 34) and well-stratified deposits, apparently free of intrusion, were uncovered. In sum, therefore, the initial sampling procedure consisted of the excavation of the 'Calthorpe House' site in its entirety together with all levels between it and the river (thereafter it was proposed to extend the excavation area west at the waterfront). Clearance of these first areas started in January 1981 with a limited extension of the waterfront in April (Fig. 2a).

The sampling procedure, however, had to be modified after April when it became clear that the adjacent property west of 'Calthorpe House' contained a large, well-preserved Norman structure (below, p. 28ff). Accordingly, this second street-frontage property was excavated from August onwards (Fig. 2b). Finally, the waterfront area was extended, together with a large area west of the Norman building, in October and November (Fig. 2c). These last extensions fulfilled the terms of the original sampling procedure and answered questions raised by the discovery of the Norman structure.

The sequence of excavation thus appears, at first glance, to have been *ad hoc* but actually it had an underlying strategy which needed to be adapted to events. The result was a comprehensive excavation in which more than half of the available site was uncovered. The excavated levels themselves essentially fell into two broad categories: street-frontage deposits and waterfront deposits. From the twelfth century on, the street frontages can be divided between 'Norman structure' levels and 'Calthorpe area' levels. Accordingly, this is how the following report is structured, the periods of the chronological sequence being discussed area by area (see sub-headings within excavation text). Where relevant, material from the 1962 excavation is also included.

On the technical side, the excavation was limited at its southern boundary by the modern pavement as this latter lay above a live electric cable which could not be moved. It was not possible therefore to excavate as far as the medieval street line. At the north end safety considerations meant that work could not be undertaken nearer than 7m to the River Wensum; this relatively broad area of unexcavated material almost certainly concealed deposits of Saxo-Norman and later date (p. 15). No digging was attempted in the area of the demolished gas-works.

The work was undertaken using standard recording techniques for open- area excavation. Extensive use was made of machinery, particularly at the waterfront where deep, relatively recent deposits were necessarily removed by machine to enable more rapid excavation of the medieval levels. Soil sampling procedures were established in consultation with the Environmental Archaeologist based at the Centre of East Anglian Studies and on-site wet sieving was carried out.

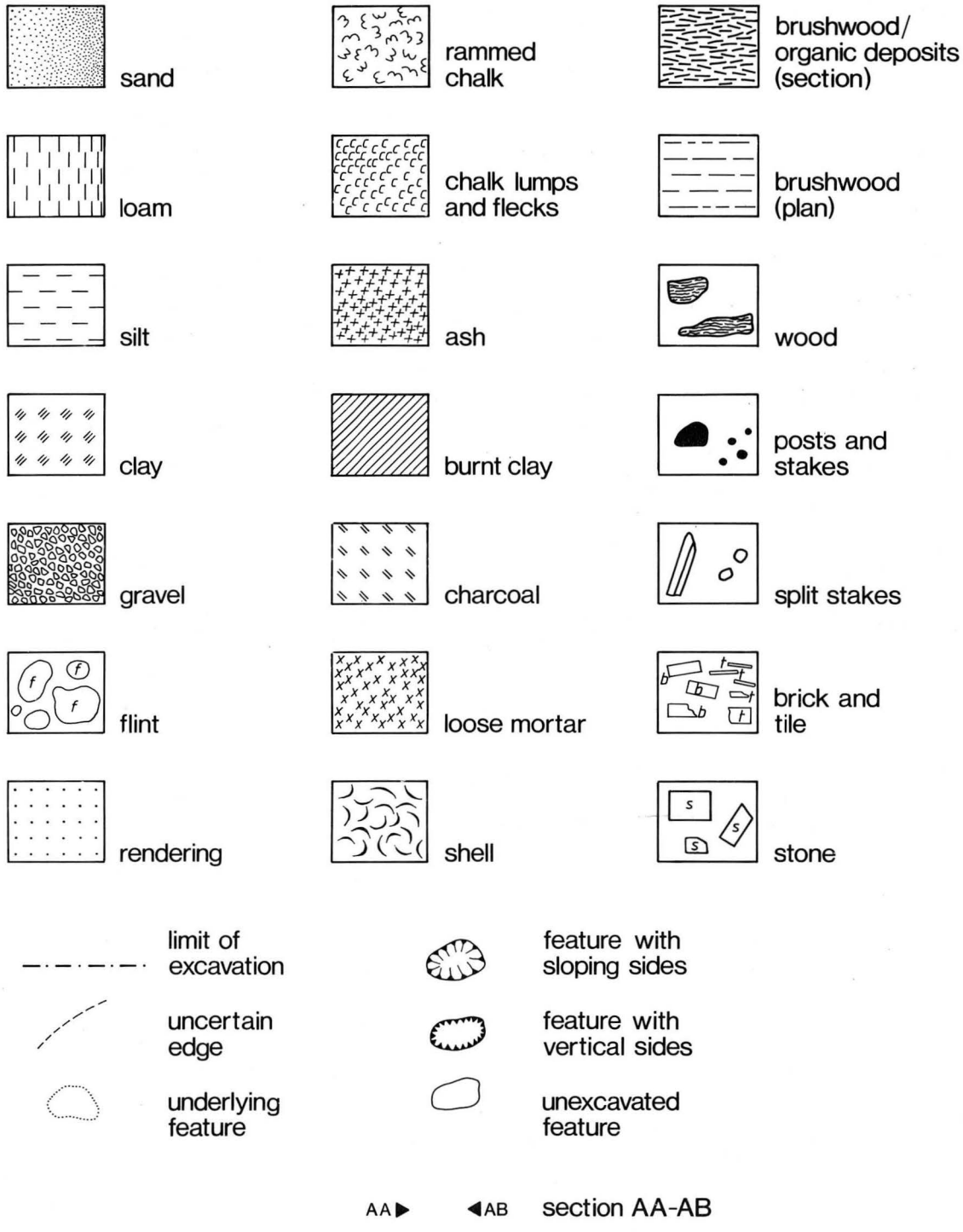


Figure 3. Key to symbols used in the figures.

2. The Excavation Sequence

I. Introduction

Buildings which were clearly recognised as such during the course of the excavation are numbered according to the context number sequence (i.e. Buildings *2100* and *3132*). Other, hypothetical buildings, which only became apparent during post-excavation analysis, are referred to as 'structures' and by letter code (*e.g.* Structure A). Descriptions for all periods run west to east. Where appropriate the waterfront area is described separately after the street frontages.

II. Period I: Structures and Deposits

Middle Saxon material

No features of Middle Saxon date were discovered, either at the street frontage or on the waterfront. Middle Saxon finds consisted principally of a few sherds of Ipswich Ware (p. 75). The only other clearly Middle Saxon objects (both eighth century) were a *sceatta*, the first ever discovered in Norwich (Pl. XXXIII, p. 63, No. 2) and an unfinished equal- armed brooch (Fig. 55, No. 3). Both objects were found in residual contexts, the sceatta within the fill of a Phase III3 post-hole and the brooch within a Phase I3 deposit.

The Saxo-Norman street frontages

(Fig. 4)

Vestigial evidence for timber buildings and associated features was recovered from two areas at the street frontage, west and east of a twelfth-century (Period II) stone building (p. 28), the construction of which had removed practically all earlier material on its site [4]. The excavated features are thus presented on separate figures (*e.g.* Figs 5 and 6). All post-holes and trenches were cut into natural sands and gravel. In the western area the features at the street frontage were sealed by a uniform deposit (*2133*) above an horizon which was not the original ground surface from which the post-holes were dug. Phasing of the excavated features was thus extremely difficult and had to be undertaken on the basis of intercutting post-holes, the evidence of the finds not being sufficiently diverse to discriminate. Figure 4 is a composite plan of all the phases of Period I showing the complexity of data. No clearly-defined floor deposits were located in any presumed structure (a patch of silty clay (*3014*) in Structure K 'felt' like a floor but was only fifteen by seven centimetres).

Period I, Phase 1 (Figs 6 and 7)

Structure A (Fig. 5): This 'structure' had been truncated by the twelfth-century building. The most striking feature

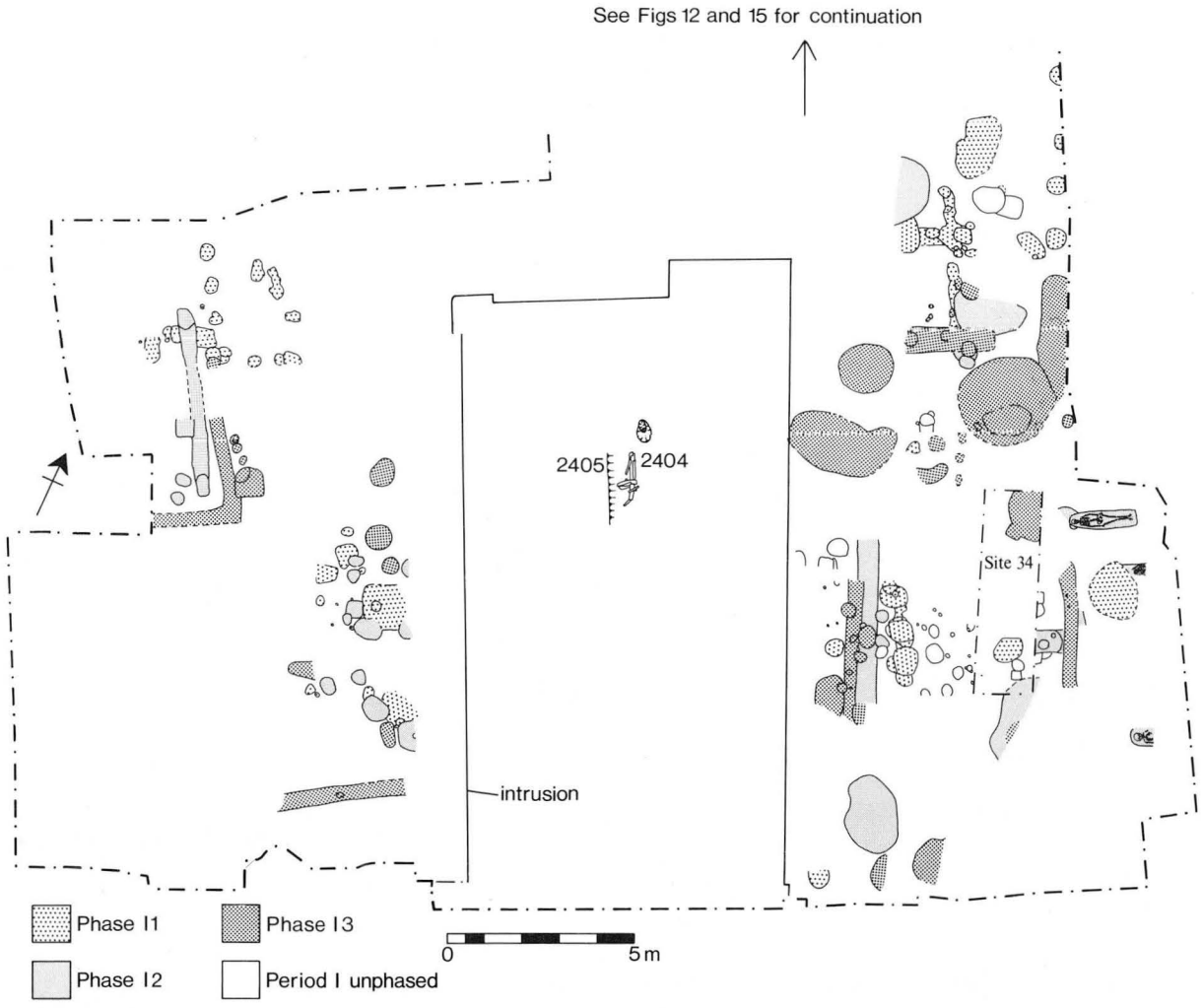


Figure 4. Period I plan. All excavated features. Scale 1:200.

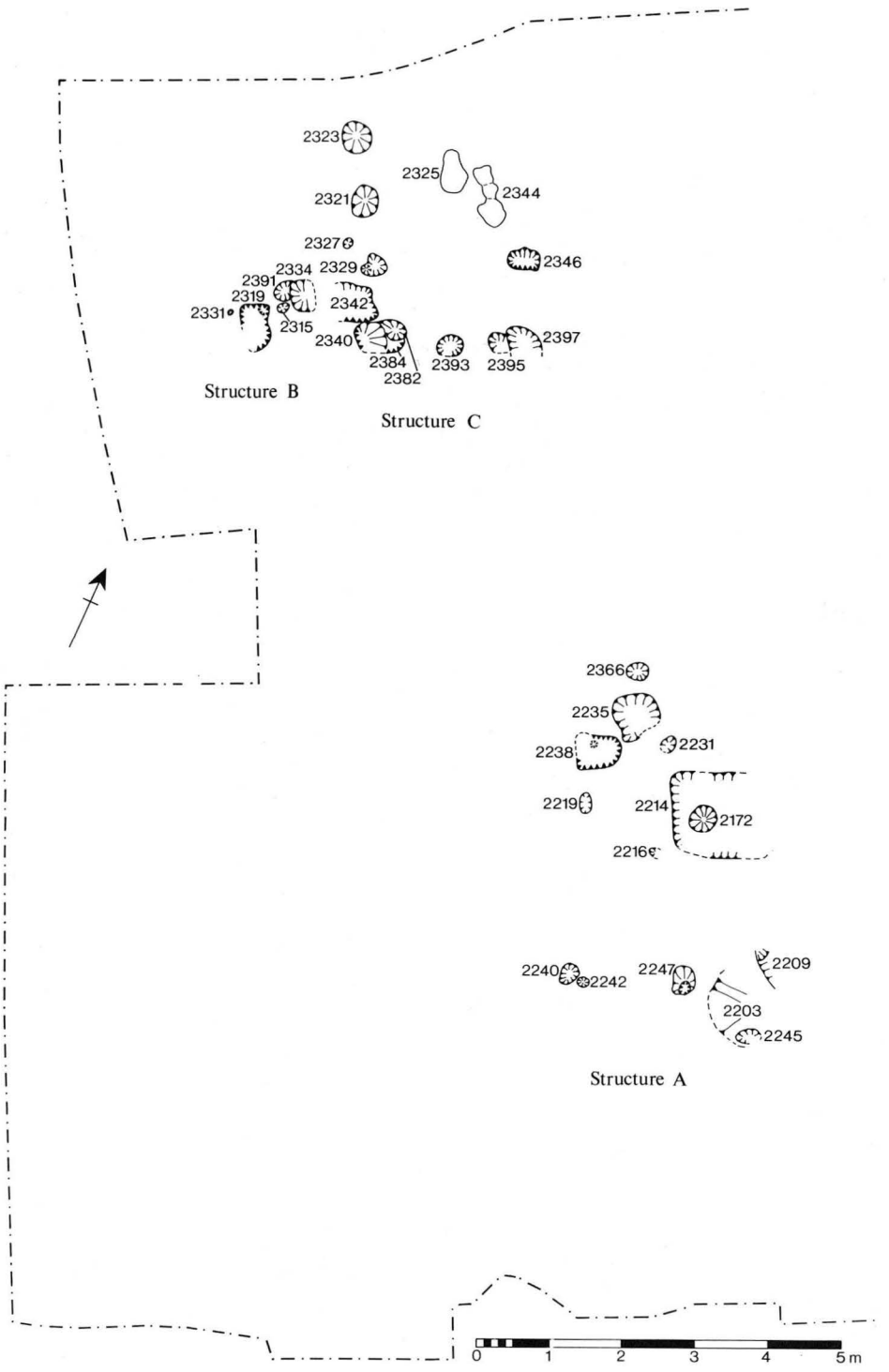


Figure 5. Phase I1 (west) plan. Hypothetical structures A, B and C. Scale 1:100.

was post-hole *2172*, set into *2214*, a construction pit (or perhaps trench). Smaller post-holes to the west, north and south may have been associated with it. No discernible plan could be recognised.

Structure B (Fig. 5): This 'structure' consisted of three post-holes *2319*, *2334* and *2342* outside the west 'wall' of Structure C. Smaller holes were observed between post-holes *2319* and *2334* and west of *2319*. Further features may have been removed to the south by the cutting of a ditch in Phase III (p. 22). It is likely that 'Structures' B and C formed an integrated unit (p. 155).

Structure C (Fig. 5): This was the most complete 'structure'. The surviving evidence suggested a small rectangular building (2m by 1.6 m) supported by timbers in individual holes. A further post-hole (*2323*) implied that the structure could have continued to the north. Two post-holes *2325* and *2344*, could not be excavated because of the appalling weather conditions of December 1981.

Structure D (Fig. 6): The street frontage at the eastern part of the site was cut by two intrusions, namely the twelfth century stone building to the west and by the 1962 trial trench (Site 34). The surviving evidence for 'Structure' D,

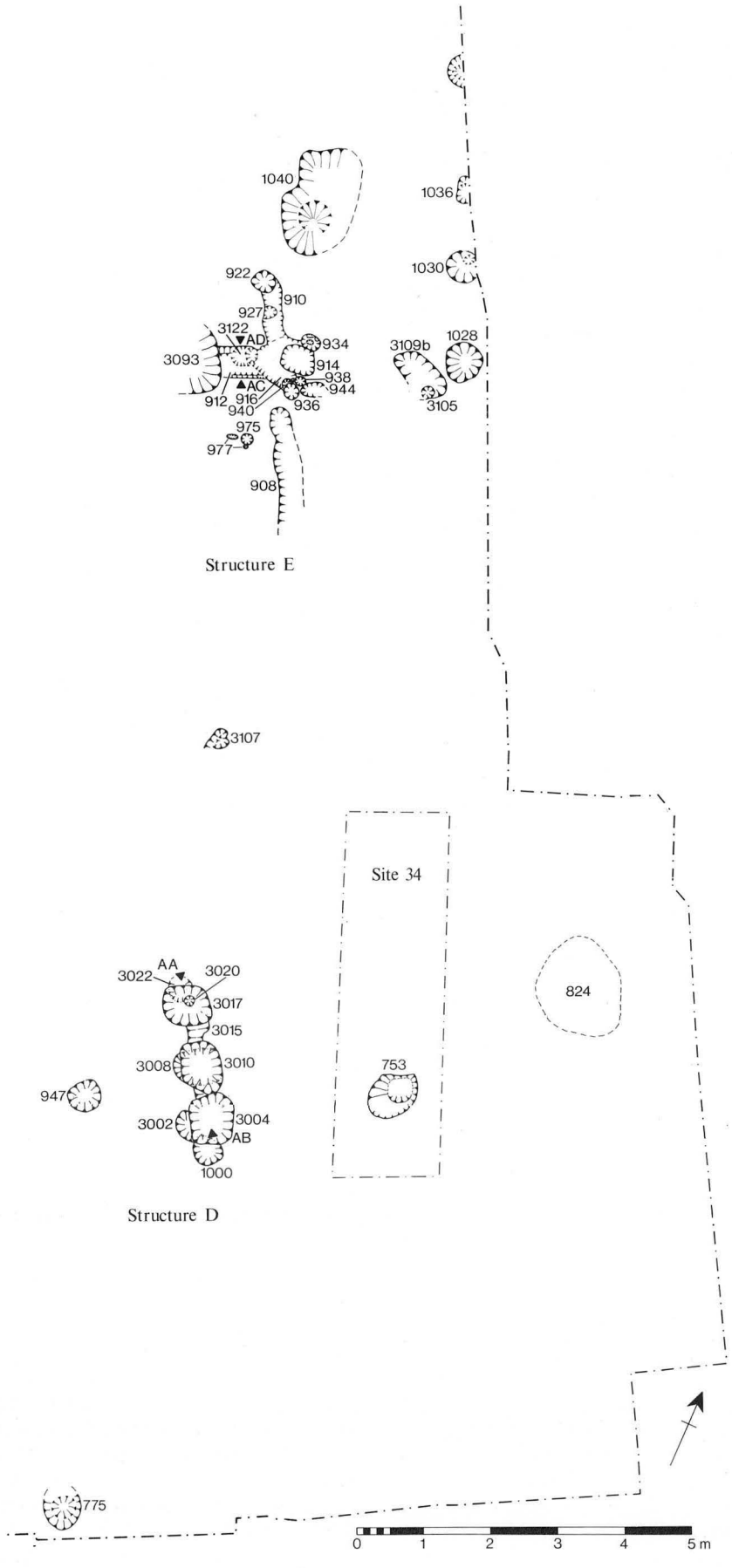


Figure 6. Phase I1 (east) plan. Hypothetical structures D and E. Scale 1:100.

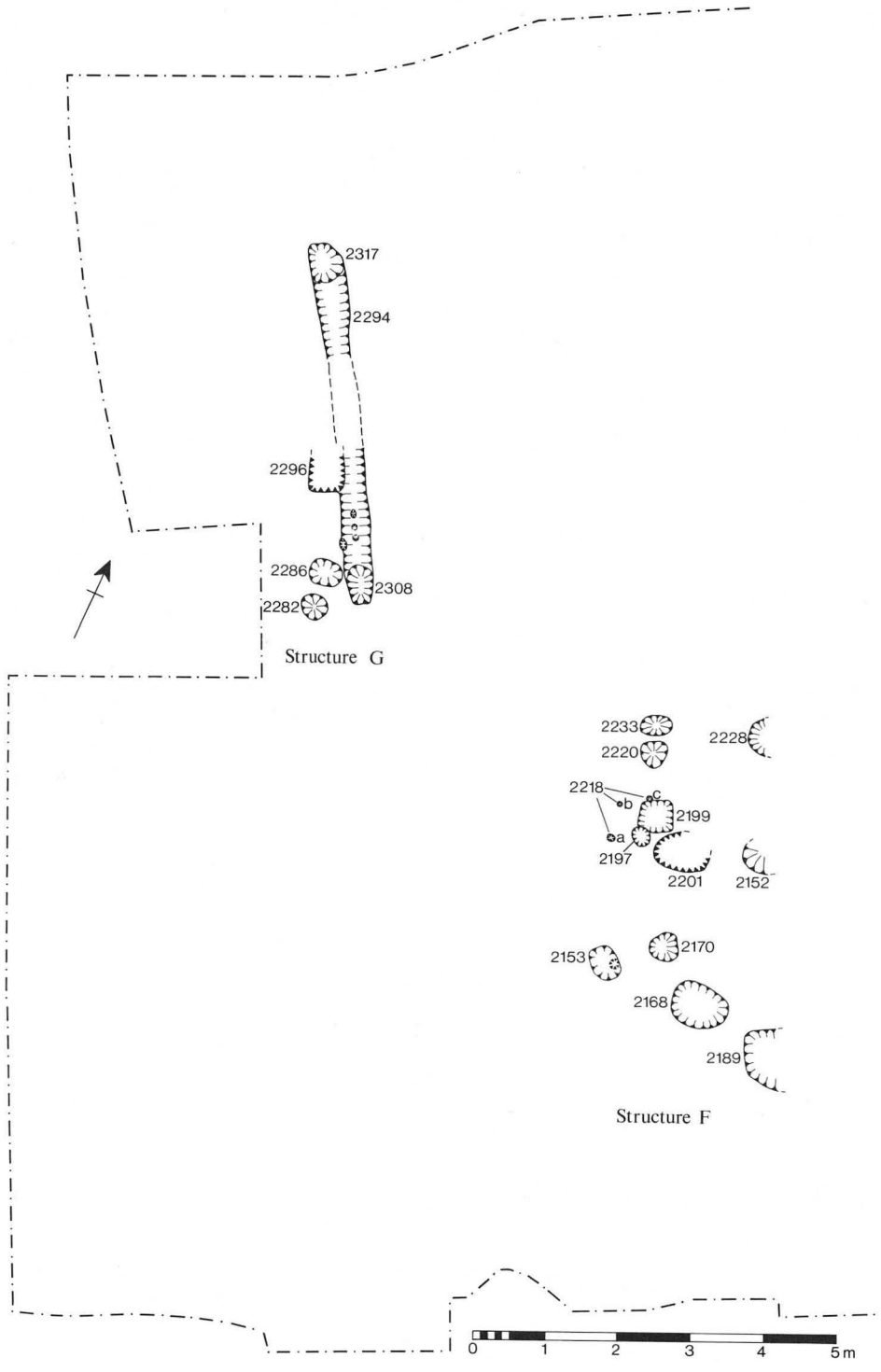


Figure 7. Phase I2 (west) plan. Hypothetical structures F and G. Scale 1:100.

three post-holes (*3004*, *3010* and *3017*) in a north-to- south line between these intrusions, was thus divorced from any return to the east or west. Later pits also cut the area to the south. A post-hole (*753*), located at the base of the 1962 trench, may have been associated as was (probably) post-hole *947* to the west. A small slot (*3015*) underlay the major holes. All features cut layer (*903*), a turfline or similar accumulation above the natural sand terrace. The posts appear to have been extracted (Fig. 11, AA-AB) with the possible exception of that in post-hole *3004*. Post-hole *3010* may have been a recut of an earlier post- hole (*3008*) while (*3017*) overlay an otherwise unassociated post-hole (*3022*).

Structure E (Fig. 6): The surviving post-hole evidence for 'Structure' E suggested a north-to-south alignment. The line of the suggested eastern wall was adjacent to the east excavation section; it is likely that any western wall line was removed by the excavation of gully *562* in Phase II2. A south wall line appeared to run as a slot (*912*) east of feature *3093* with a possible post-hole *3122* (Fig. 11, AC-AD); no evidence was located for a wall to the north. Slot *910* suggested an internal partition. Slot *908* may have been associated with an ancillary structure to the south. The 'structure' was located on the lower slope of the sand and gravel terrace, and was the northernmost structure on

the site until the post-medieval period. The post-holes were sealed by sand *905*.

Two possible pits, *775* and *824* were also located on this eastern part of the site.

Phase II is dated to the first part of the eleventh century, principally on ceramic grounds (Tables 4 and 5), the English pottery consisting almost exclusively of Thetford-type Ware and the very few imports being Rhenish fabrics. Of the other finds, a tooth segment of a 'hog-back comb' (p. 100, No. 1b) is datable to this period although the silver arm ring (Fig. 55, No. 1) is probably residual. Within the waterfront area (below, p. 15) one timber could be dated dendrochronologically, Its late attribution (p. 130) indicates that it must be an intrusion, cut in from a higher level. Such a cut could not be seen, however, in the confused and homogeneous deposits and, regrettably, this timber must remain an anomaly.

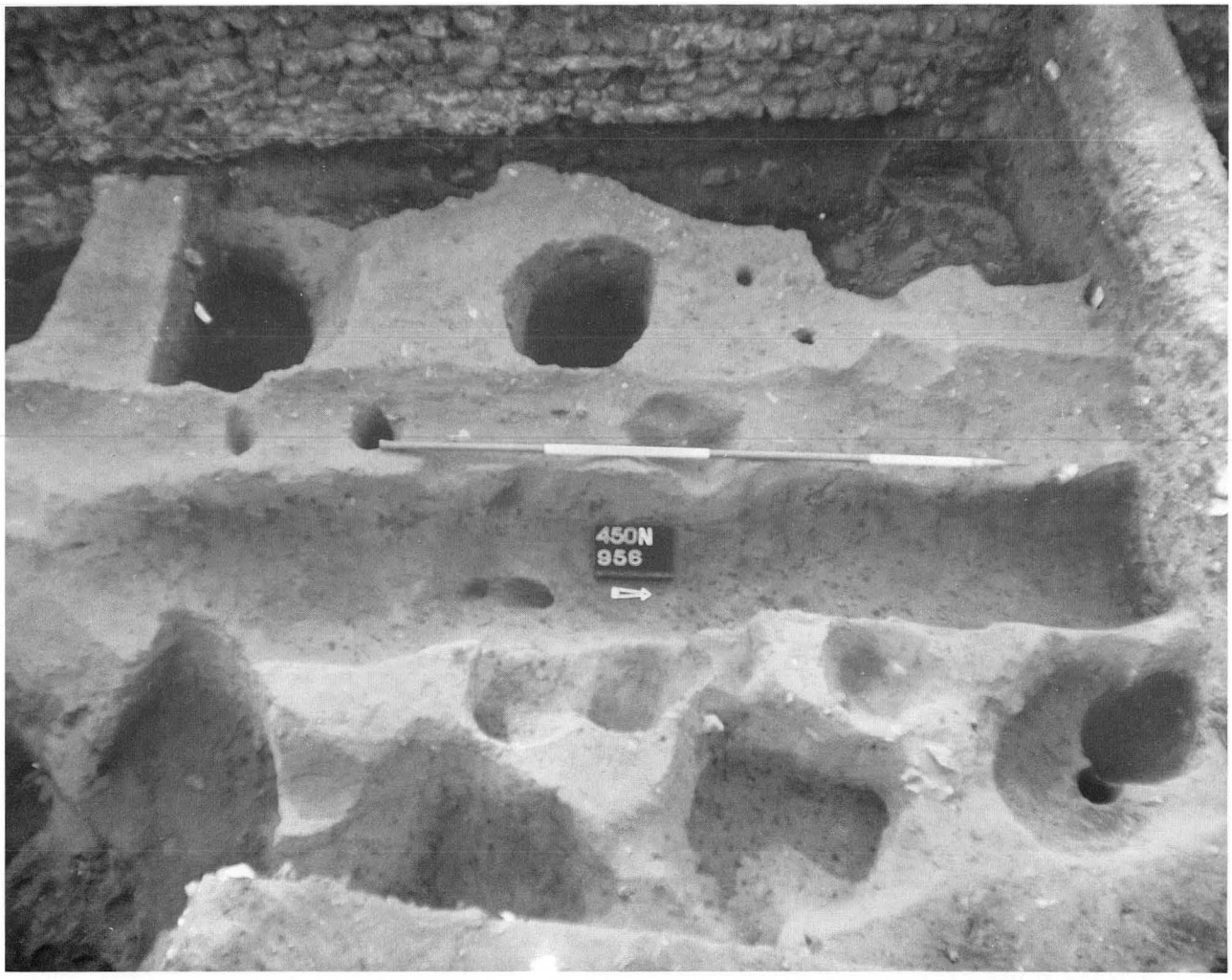
Period I, Phase 2
(Figs 7 and 8)

Structure F (Fig. 7): No coherent plan for this post-hole 'structure' was recognised although a possible north-to-south wall line may have existed between post-holes *2228* and *2189*. The other post-holes would thus have been external. The posts appear to have been extracted. One post-hole (*2153*) contained considerable quantities of daub with traces of wattle.

Structure G (Fig. 7): The plan of this 'structure' was also incomplete. However, a north-to-south aligned trench (*2294*) cutting the natural sand was uncovered in its entirety with a post-hole inset at either end. No obvious return was located although a south wall line was suggested by post-holes *2286* and *2282*. It is possible that a further trench lay to the west, either outside the excavation or removed by a Phase III pit (*2265*).

Structure H and other features (Fig. 8): Although the plan of this 'structure' was incomplete, the principal feature to survive was among the more obvious to be excavated. It consisted of a north-to-south trench (*956*) cut at both ends with one small hole (*954*) as the only interset post-hole (Pl. II and Fig. 11, AE-AF). Two other post-holes (*3012* and *3028*), cutting the eastern edge of the trench, appear also to be of this phase. The trench may have been associated with an east-to-west trench (*3067*) which contained a post-hole *3070*, apparently at its eastern end. However, much of the intervening area was cut by the 1962 trial trench and the alignments of both trenches suggest that the east-to-west trench was very much a subsidiary rather than primary feature.

South of the 'structure', two large pits (*900* and *530*) were uncovered. The fills of the former (Fig. 11, AG-AH) contained considerable quantities of animal bone while pottery of both local and imported wares were recovered. It was filled in the twelfth century, perhaps later than pit *530* where the pottery was almost exclusively Thetford-type



II. Slot *956*, an element within proposed Structure H (Fig. 7) Scale: 2 metres (BWA11)

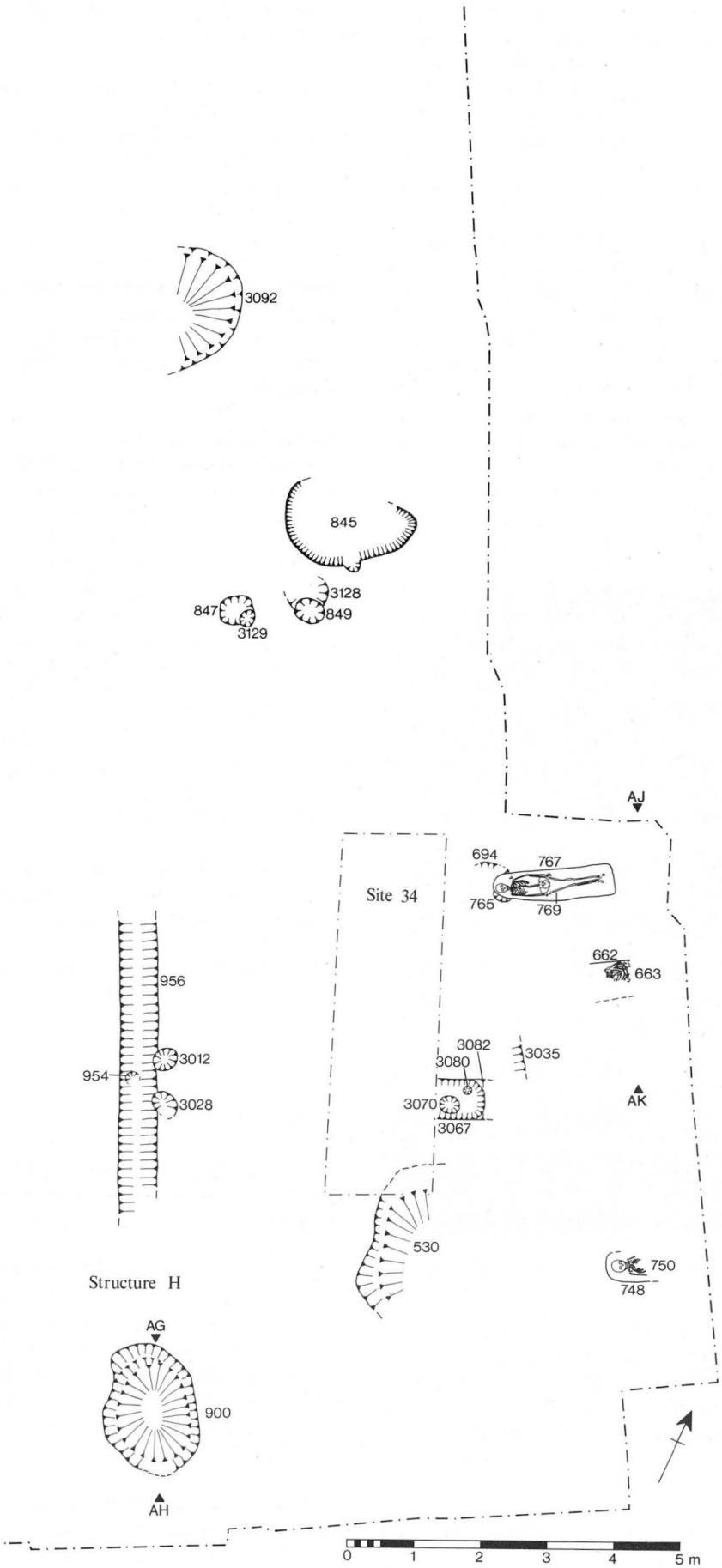
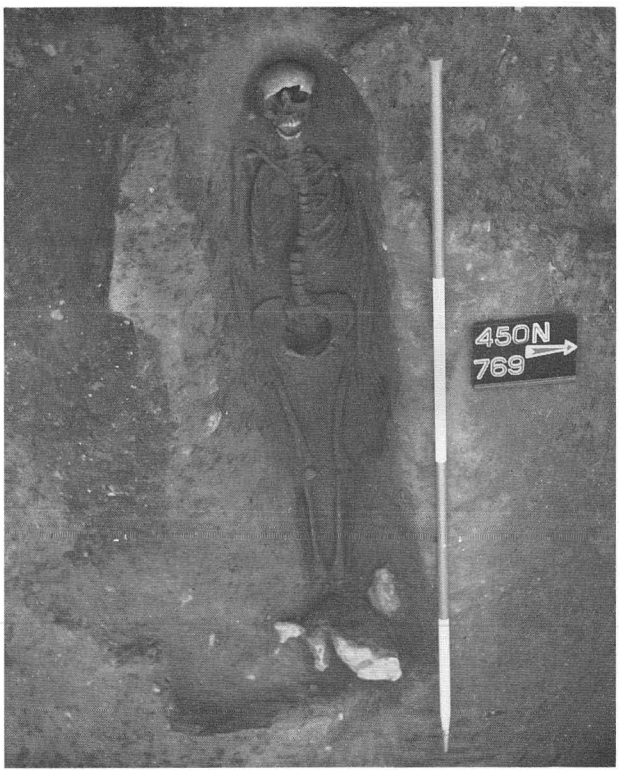


Figure 8. Phase I2 (east) plan. Hypothetical structure H and skeletons *663*, *750* and *769*. Scale 1:100.

Ware. A bone stylus and spoon (Fig. 80, Nos 14 and 15) were also found. Two further pits were uncovered to the north (*3092* and *845*). Both these contained animal bone (pit *845* with large quantities), as well as Thetford-type and imported pottery wares (including Relief-Band Amphora). Several small post-holes in this area may have been associated with pit *845*. A cut edge (*3035*) was located east of the 1962 trial trench.

At the extreme eastern edge of the excavation (possibly east of an apparent boundary subsequently established by cut feature *3033* in Phase I3), the remains of three skeletons were excavated. All were adult, aligned west-to-east and lay in graves without coffins. Two of the skeletons (*663* and *750*) had been badly cut by later intrusions. The complete burial (*769*) contained an extended skeleton with the arms at the sides, flints placed at the feet and one large flint overlying the skull (Pl. III). Pressure from the latter had caused the skull to break above the nasal bridge. In contrast the skull of skeleton *750* was intact, no stone being present. Part of skeleton *663* is shown in section (Fig. 11, AJ-AK). The graves were cut into orange sand which was overlain by a grey-coloured soil (*652*). This latter seems to have formed a narrow AP horizon or 'dug soil'.



III. Skeleton *769* (Fig. 7). Scale: 2 metres (BUV3)

Phase I2 probably occupied the middle years of the eleventh century, spanning the Norman Conquest and possibly extending as late as 1080. Three notable finds (Table 1) dated from the tenth and eleventh centuries, the pottery apparently eleventh-century in character.

Period I, Phase 3
(Figs 9 and 10)
Structural elements were observed in several areas at the street frontage on the western part of the excavation (Fig. 9). Trench *2176* and post-holes *2191*, *2223*, *2362* and *2368* formed two of these areas but only trenches *2278* and *2352* with associated features were sufficiently well-preserved to suggest a building. Two 'structures' were located on the eastern part of the site.

Structure J: A north-to-south trench 2278, cut at its northern end by a Phase III ditch, formed a return to the west with trench *2352*. Ill-defined in the appalling weather conditions of December 1981, *2352* almost certainly ran below the west excavation section. A series of small post-holes parallel to the eastern edge of trench *2278* may have been associated with it. One of these holes was apparently set within a square pit (*2284*) but, in the words of the site notebook, the ground was 'too frozen to differentiate or investigate'. Rapid excavation was eventually undertaken prior to the closure of the site. The 'structure' as a whole appeared to have formed a replacement for Phase I2 Building G.

Structure K (Fig. 10): This 'structure' was cut by the 1962 trial trench but seems to have been aligned north-to-south with a width of 5.4m and a length of at least 4.8m (the great width might indicate that the excavated features represented fences rather than a building). The long 'walls' were formed by shallow trenches (*949* and *3033*). No returns survived although *3033* appeared to be turning westward, or terminating, at its northern end. The trenches did not have post-holes set within them although several small stake-holes were uncovered. Subsidiary post-holes *951* and *962* cut trench *949* (Fig. 11, AE-AF).

Structure L (Fig. 10): This 'structure' lay north of Structure K. Little survived of its plan other than an east-to-west post-in-trench slot (*832*) which had been cut at its western end. It is possible that post-hole (*989*) formed an element within an east gable wall and that the building was thus aligned east-to-west.

The surviving features of 'Structure' K were sealed by deposits of hardpacked charcoal and ash (*798* and *805*). The remains of 'Structure' L were covered by a dark-brown crumbly clay loam (*673/674*) which, amongst numerous finds of interest also contained the residual Middle Saxon equal-armed brooch (p. 63). The uppermost deposits in Phase I3 were layers *675* and *696*, levels of dark-brown loam which were the subdivided parts of level *15*, probably the layer described below 'Floor 6' in 1962 (see microfiche, 1:A.4-5).

Other features (Fig. 10): Numerous pits were located at the street frontage on the eastern part of the site. Of these pit *43*, first recognised in the northeastern corner of the re-excavated 1962 trench, may have lain immediately outside 'Structure' K. Two large pits (*983* and *793*) lay between this and 'Structure' L. Pit *793*, which contained Badorf Ware, cut a further pit (*856*) which ran below the eastern section. Parts of other pits were also observed, notably two immediately adjacent to the street (*804* and *945*). Four small features (*802*, *838*, *840* and *843*) may have been the remains of post-holes but were too slight for clear identification.

Phase I3 extended from the late eleventh century into the twelfth century. It contained significantly greater quantities of imported pottery than the earlier phases although these remained predominantly Rhenish. Domestic pottery fabrics continued to be dominated by

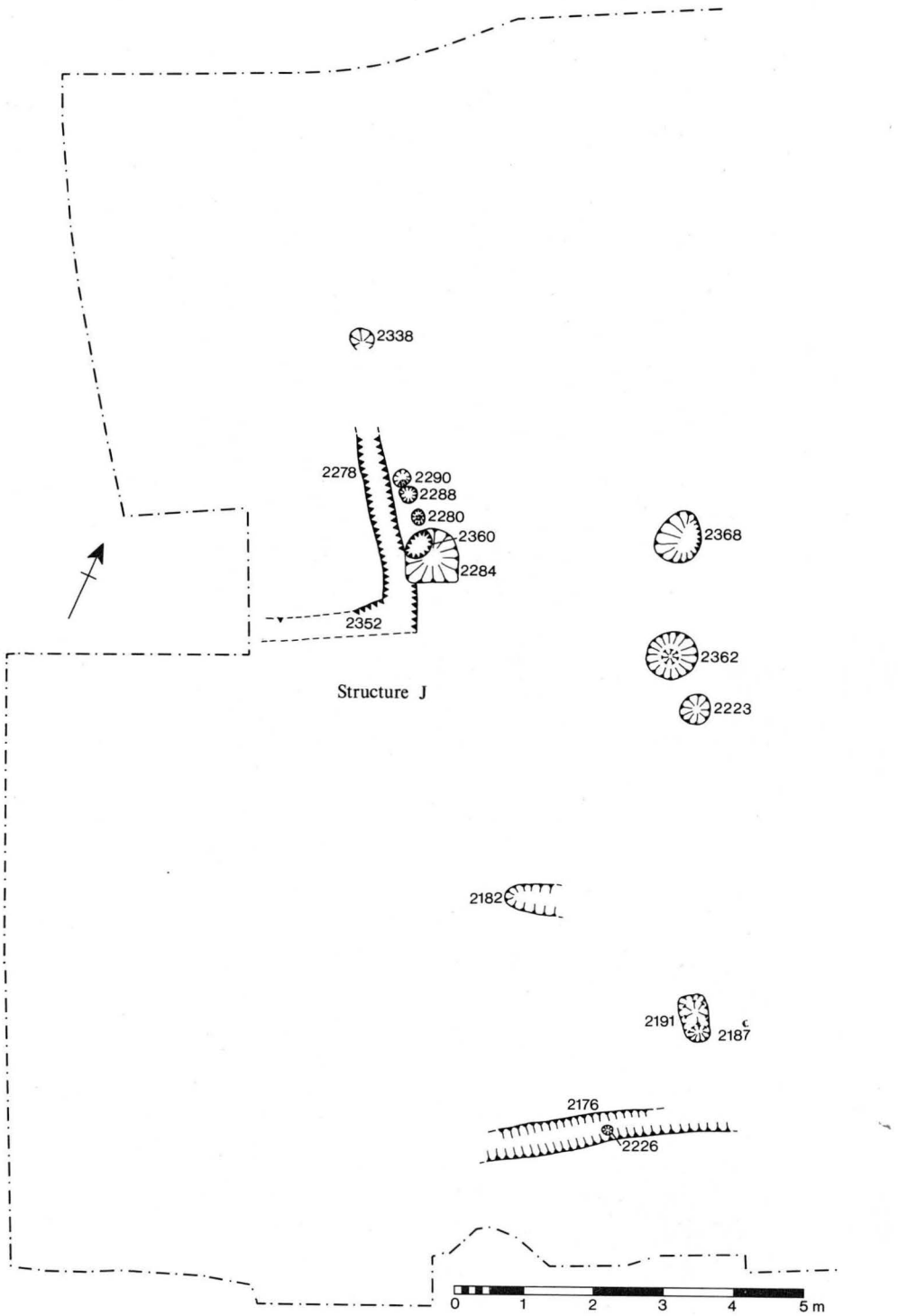


Figure 9. Phase I3 (west) plan. Hypothetical structure J and other excavated features. Scale 1:100.

Thetford- type Wares although Early Medieval Ware was also present in large quantities. The dating is slightly confused by layer *1005* (p. 21) which clearly continued to accumulate into Period II.

Unphased Features

Several features of Period I date could not be phased due to the lack of connecting stratigraphy or clearly-defined assemblage of material (see Fig. 4). Foremost amongst these was an edge (*2405*) located below the earliest floor level of the Phase II2 stone building. The construction of this building had removed all preceding archaeological deposits with the exception of material near its northern end where the sand and gravel terrace fell away towards the river. Here edge *2405* cut in a north-to- south direction through the orange-brown natural sand. It lay with its face to the east and was associated with a large timber (*2402*), also aligned north-to-south. This latter was bedded deeply into the natural gravel with a thickness of at least 0.19m. No carpentry joints were present although some overlaying timbers were aligned as if to suggest a running mortice; these, however, were not part of the larger timber and may have been disturbed or part of a destruction deposit.

Probably also of Period I date were the remains of several skeletons uncovered by deep sewage work in 1984

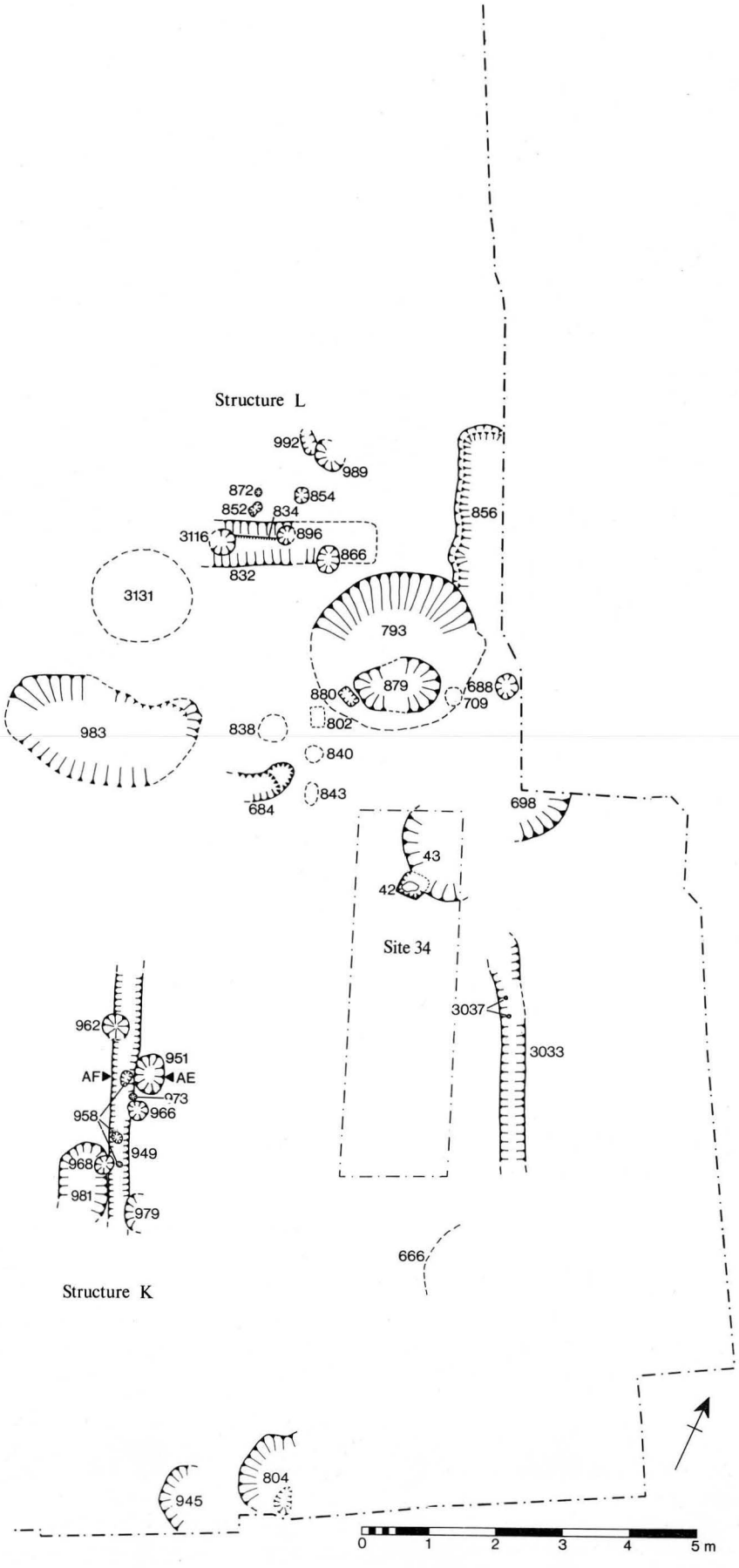


Figure 10. Phase I3 (east) plan. Hypothetical structures K and L. Scale 1:100.

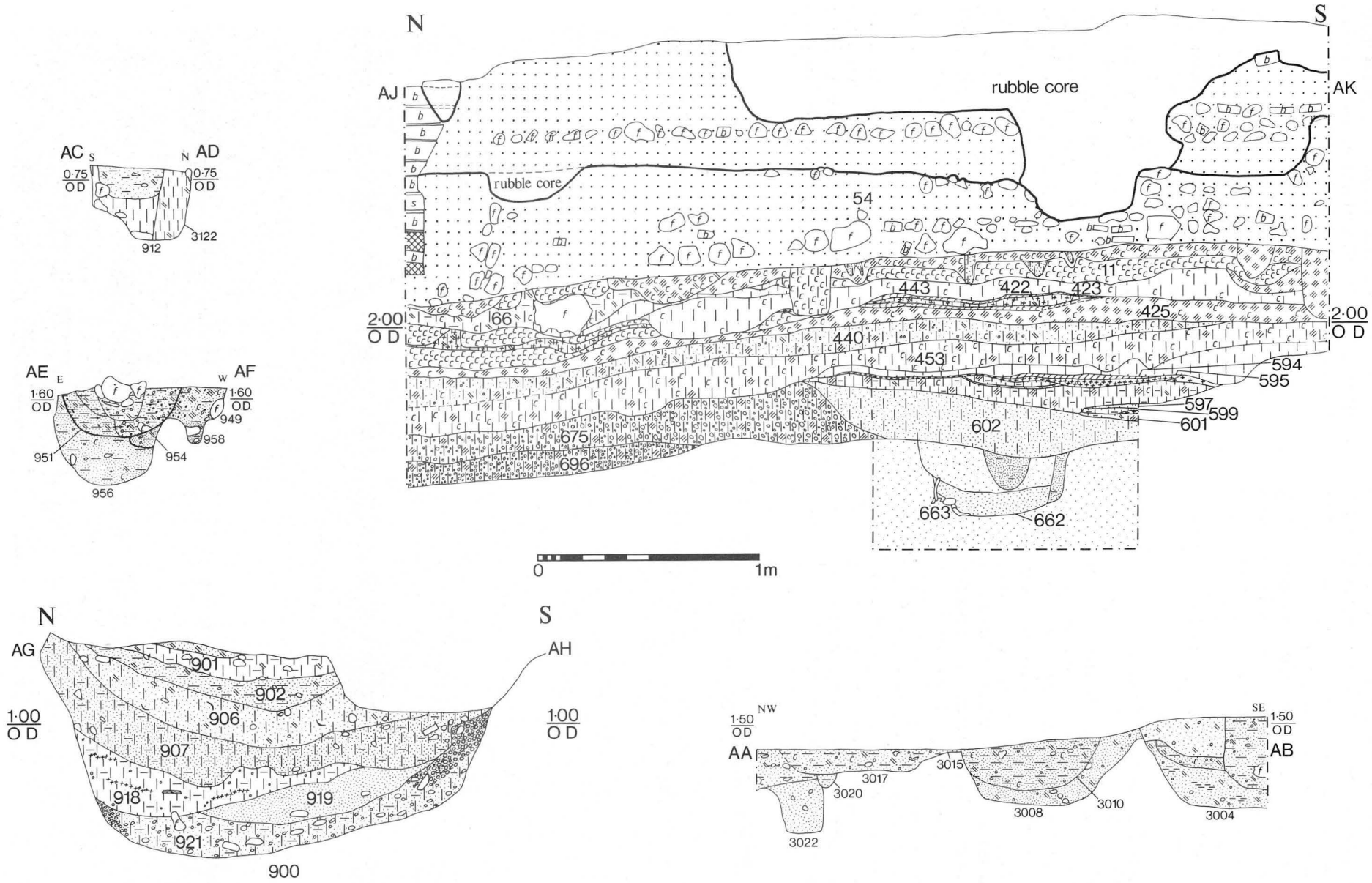


Figure 11. Period I. Sections of structural features and pits together with the east excavation section at the street frontage AA-AB, AC-AD, AE-AF, AG-AH, AJ-AK. Sections located on Figs. 6, 8 and 10. Scale 1:25.

below the line of Palace Plain itself, between the excavation site and the church of St. Martin-at-Palace. It is likely that the burials themselves had already been disturbed by a Victorian sewer trench but this is not known for certain as the material was excavated by contractors. The location of these individuals (now reburied within the trench) is, however, of interest and is discussed below (p. 151).

The other unphased Period I features are shown on the multiphase Period I plan (Fig. 4).

The Saxo-Norman waterfront[5]

(Figs 12 and 15)

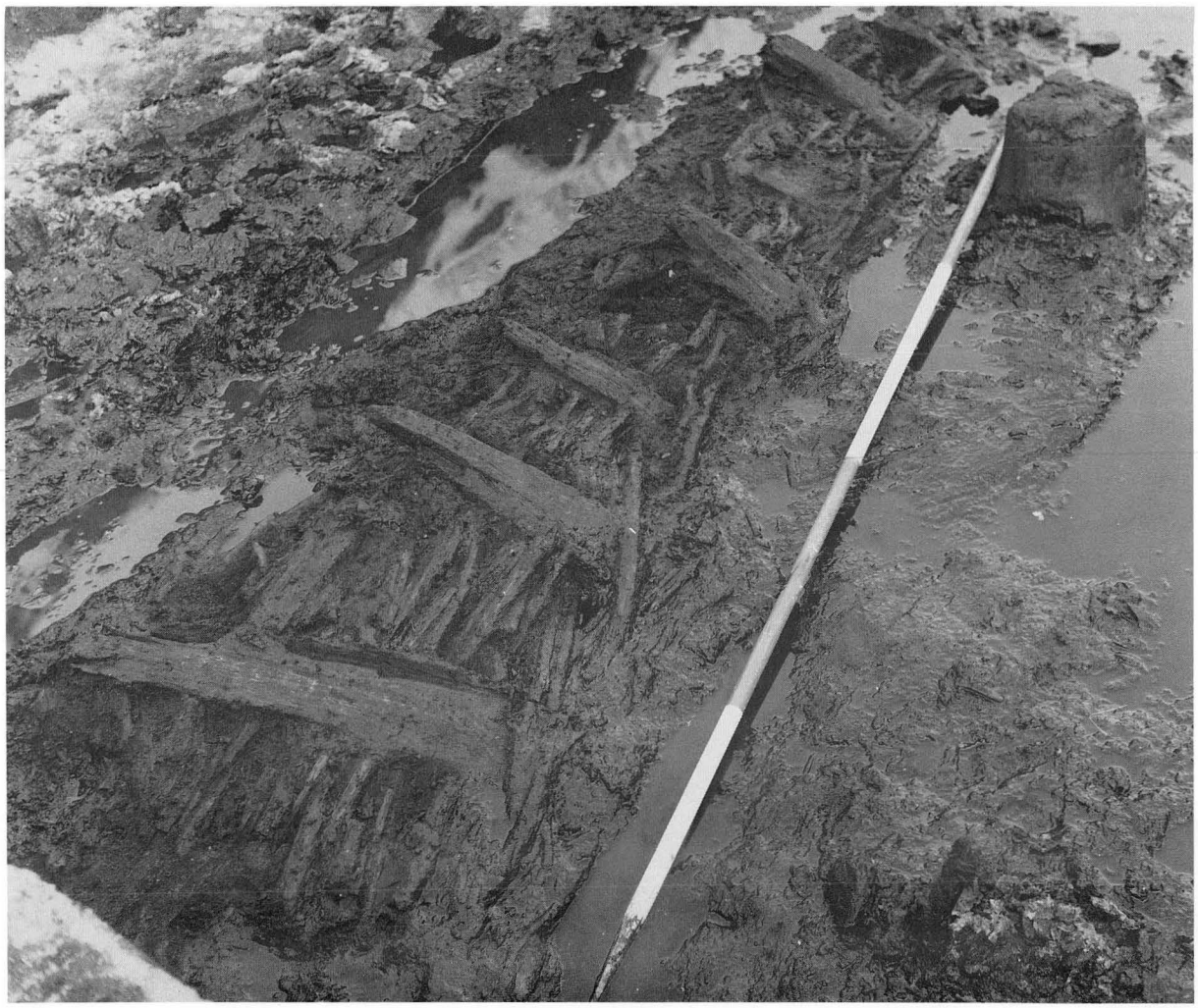
The waterfront levels lay beneath the present day watertable. In consequence, excavation was severely hampered by incoming water, the more so since ordinary pumping could not cope with the innumerable places from which water welled up. Regrettably, densely concentrated pumping[6], which effectively lowers the watertable over a localised area, was not practicable at this site and so it proved impossible to expose large areas of the waterfront at any one time for photography or even planning. Therefore, in the plans that follow, areas of brushwood surfaces are indicated by broken lines because detailed planning at a scale of 1:10 as undertaken in 1979 (Ayers and Murphy 1983) was not practicable.

Preserved organic deposits above the natural gravel were generally only encountered within the northernmost six metres of the excavation although one or two posts were located south of this line where they had been set into pits (below).

Period I, Phase 1 (Fig. 12)

A series of wickerwork fences (*1136*, *1139*, *1188*, *1189* and *1190*), both parallel and at right-angles to the river, were set into the natural gravels by means of driven stakes. The stakes also acted as uprights between which the wickerwork was interwoven. The uprights were either whole, unworked stakes or split stakes (the types are differentiated on Fig. 12). Fence *1189* (Pl. IV and Fig. 13, AL-AM) survived to the greatest height (0.38 m) as it had partly collapsed to the north (Fig. 14) although this meant that the pressure of overlying soil had greatly compressed the timber, rendering identification impossible. Fences *1188* and *1190* only survived in fragmentary condition. The timber from the other fences could, however, be studied (p. 237-8). Fence *1136* (Pl. V and Fig. 13, AN- AP) was constructed entirely of hazel but Fence *1139*, despite its proximity and similar construction (Pl. VI with Fence *1136*), contained holly, oak and possibly hawthorn as well as hazel.

The gravel surface on both sides of the fences, was sealed by generally sparse layers of brushwood intermixed with structured peat formed from organic rubbish material and occasional straw (Figs 14 and 16). One of these (*1192*) contained a curious, small wooden object (Fig. 85, No. 8).



IV. Fence *1189* looking north-east. December 1981. Scale: 2 metres (BWK6)

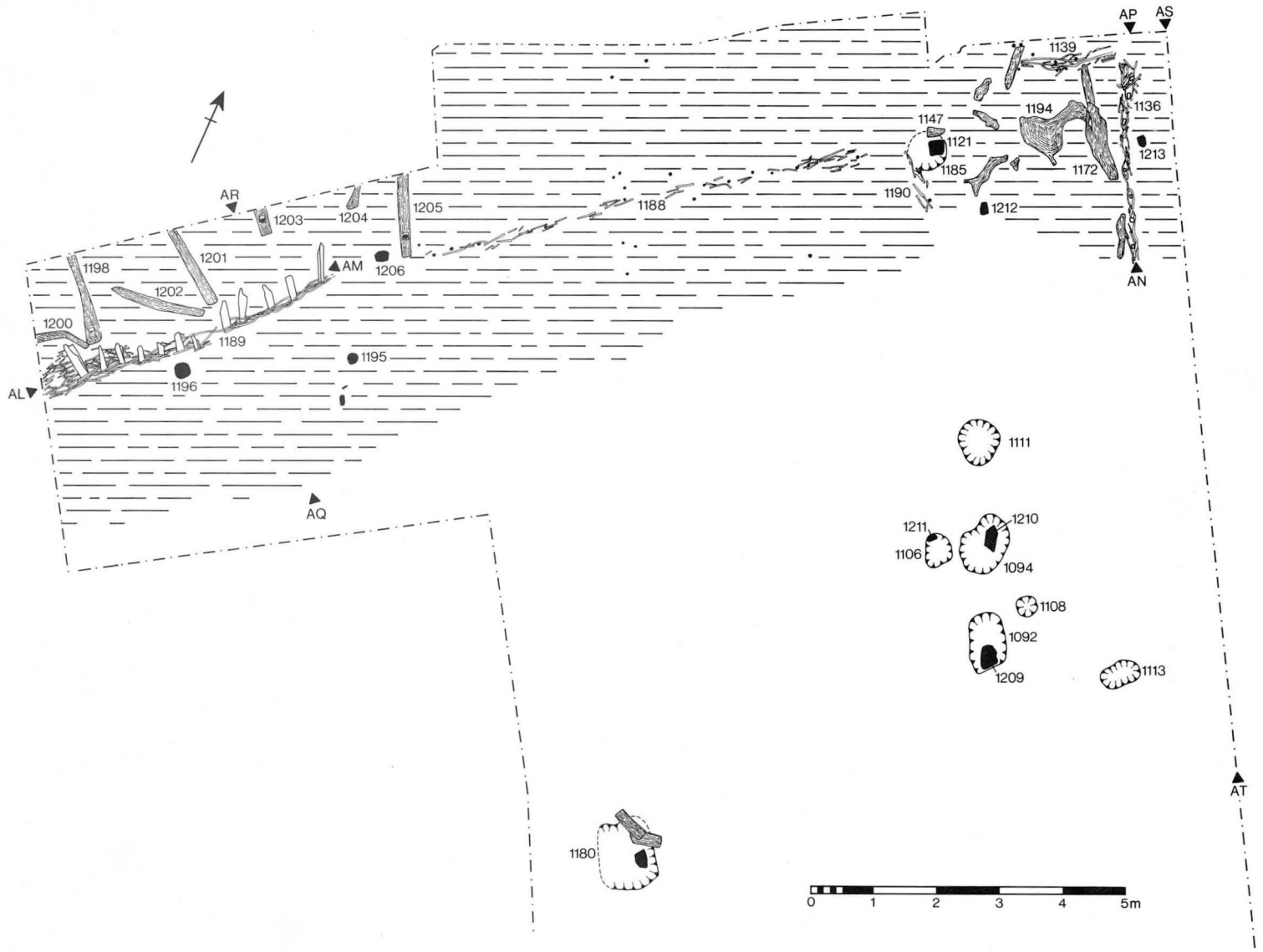


Figure 12. Phase I1. Waterfront plan showing extent of brushwood surfaces, posts, wickerwork fences and other timbers. Scale 1:75.

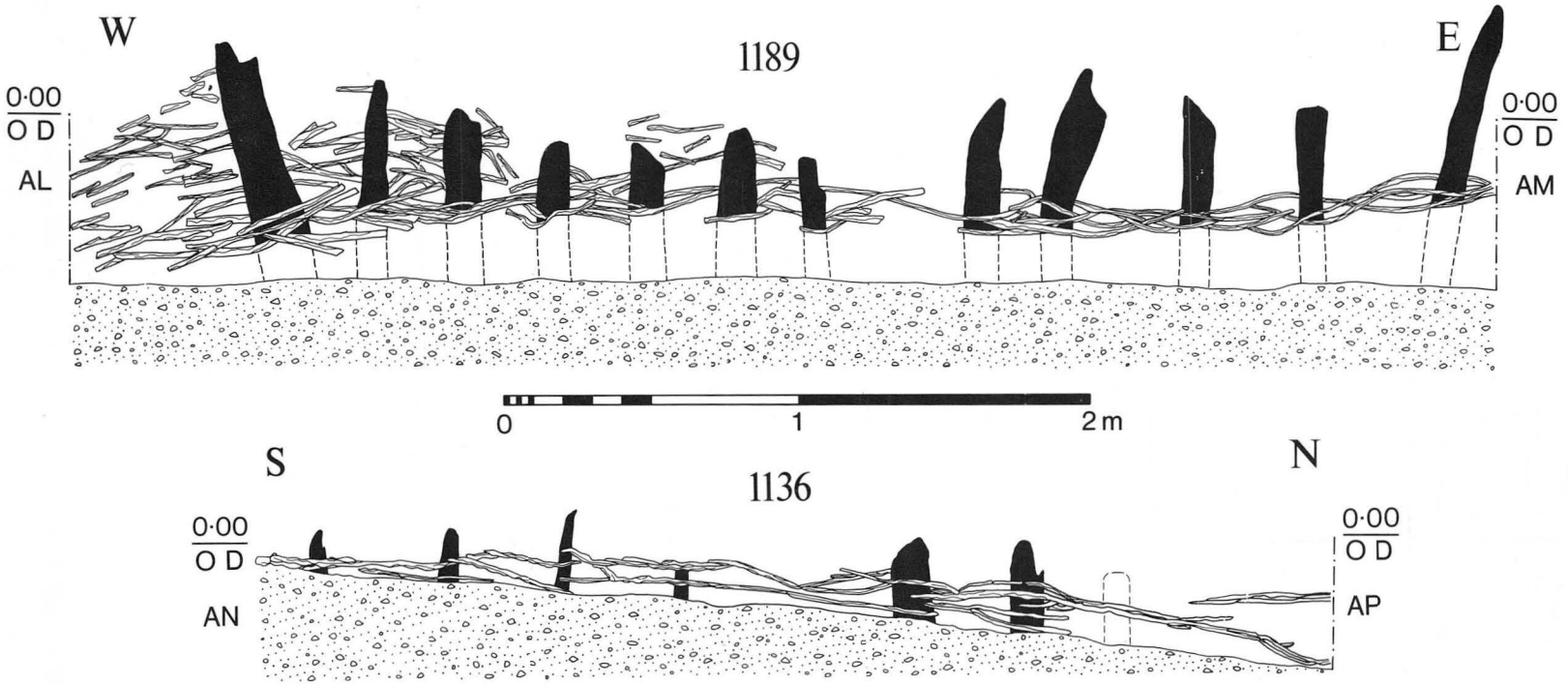


Figure 13. Phase I1. Elevations of wickerwork fences *1189* and *1136*, AL-AM and AN-AP. Elevations located on Fig. 12. Scale 1:25.

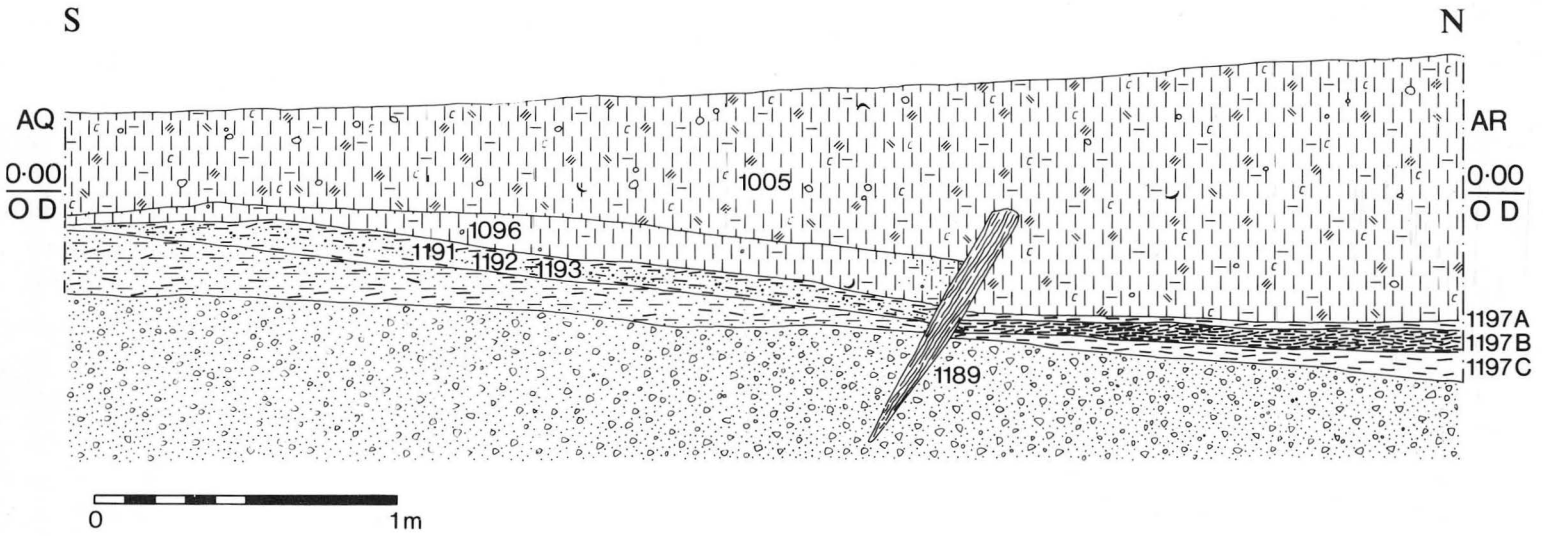


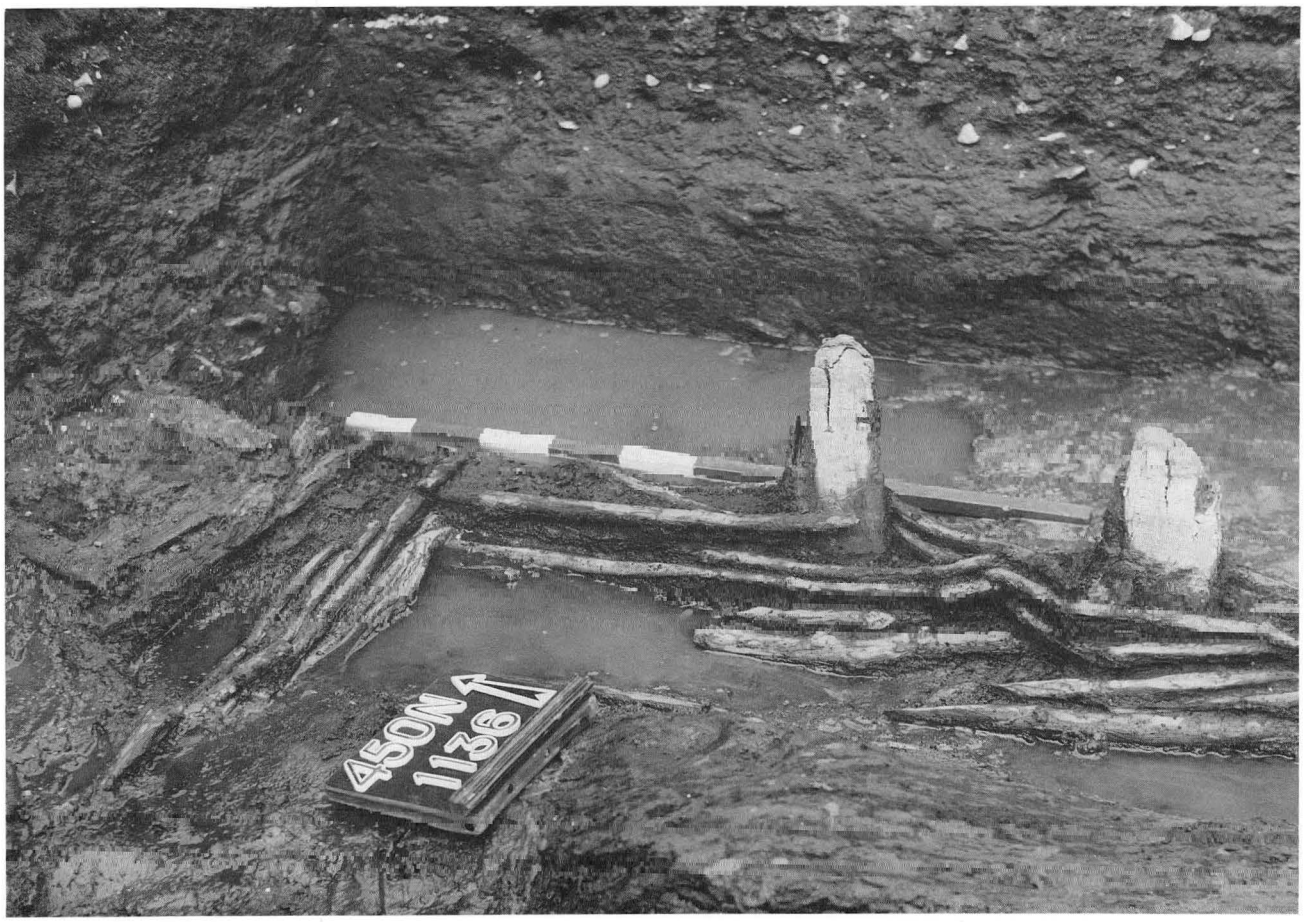
Figure 14. Period I. South-to-north section across waterfront deposits, including fence *1189*, AQ-AR. Section located on Fig. 12. Scale 1:25.

V. Fence *1136* looking south. Scale: 2 metres (BUV6)

Despite the difficult working conditions it was possible to isolate several stages of brushwood consolidation, notably in the areas either side of Fences *1136* and *1189*[7]. Levels of silt were also encountered between brushwood surfaces. It was not possible to isolate a phased progression of surfaces northward as had been observed upstream in 1979 (Ayers and Murphy 1983, figs 4 to 8) although the overall impression was one of initial uniformity with subsequent resurfacing.

North of the western end of Fence *1189*, it appeared that the structured peat (here numbered *1197*) was deposited in order to level the shelving gravel beach. Thereafter a series of at least five timbers (*1198*, *1201*, *1203*, *1204* and *1205*), aligned north-to-south, were secured to the consolidated surface and underlying gravel (Fig. 12 and Pl. VII). These consisted of both squared and unworked oak logs which were pinned to the underlying levels by means of large round pegs (6cm diameter) through irregularly chiselled holes or mortices. The timbers all ran below the north excavation section so their length is unknown. Similarly an unknown number of further timbers may have extended the line westward, below the west excavation section. They were overlain by a layer of brushwood, probably following disuse, which layer was, in turn, secured by a thin organic deposit.

The surfaces were also associated with occasional oak posts, either set into pits or held by the brushwood and peat levels themselves. Three of these were located along the east-to-west line of Fence *1189/1188* of which two (*1121* and *1206*) were squared and the third (*1196*) crudely axed (a fourth post, *1195*, similar to *1196*, lay south of Fence



VI. Junction of fences *1136* and *1139* looking east-north-east. Scale 1 metre (BWA1)

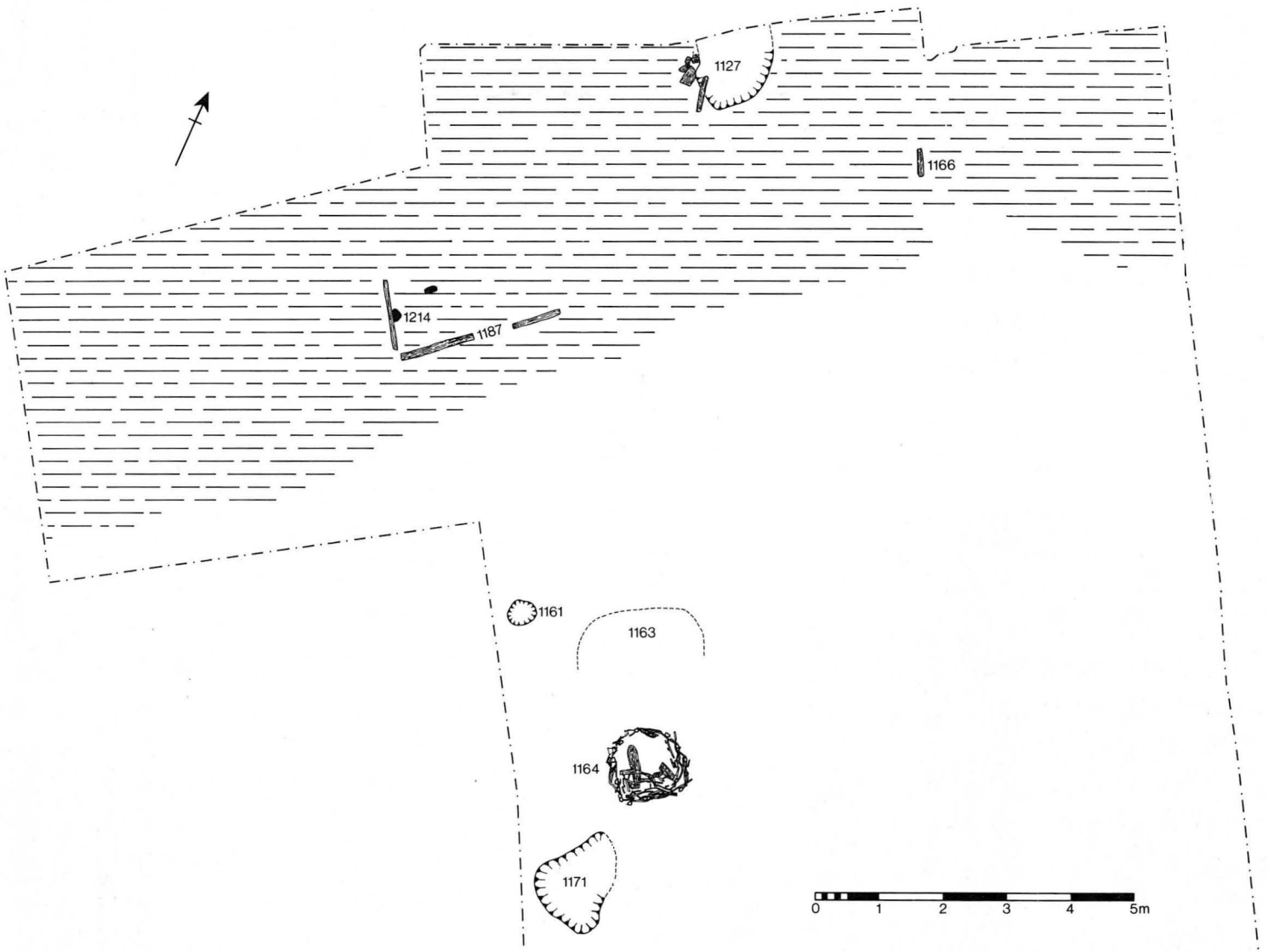


Figure 15. Phases I2 and I3. Waterfront plan showing extent of surfaces, fence *1187* and pit *1164*. Scale 1:75.

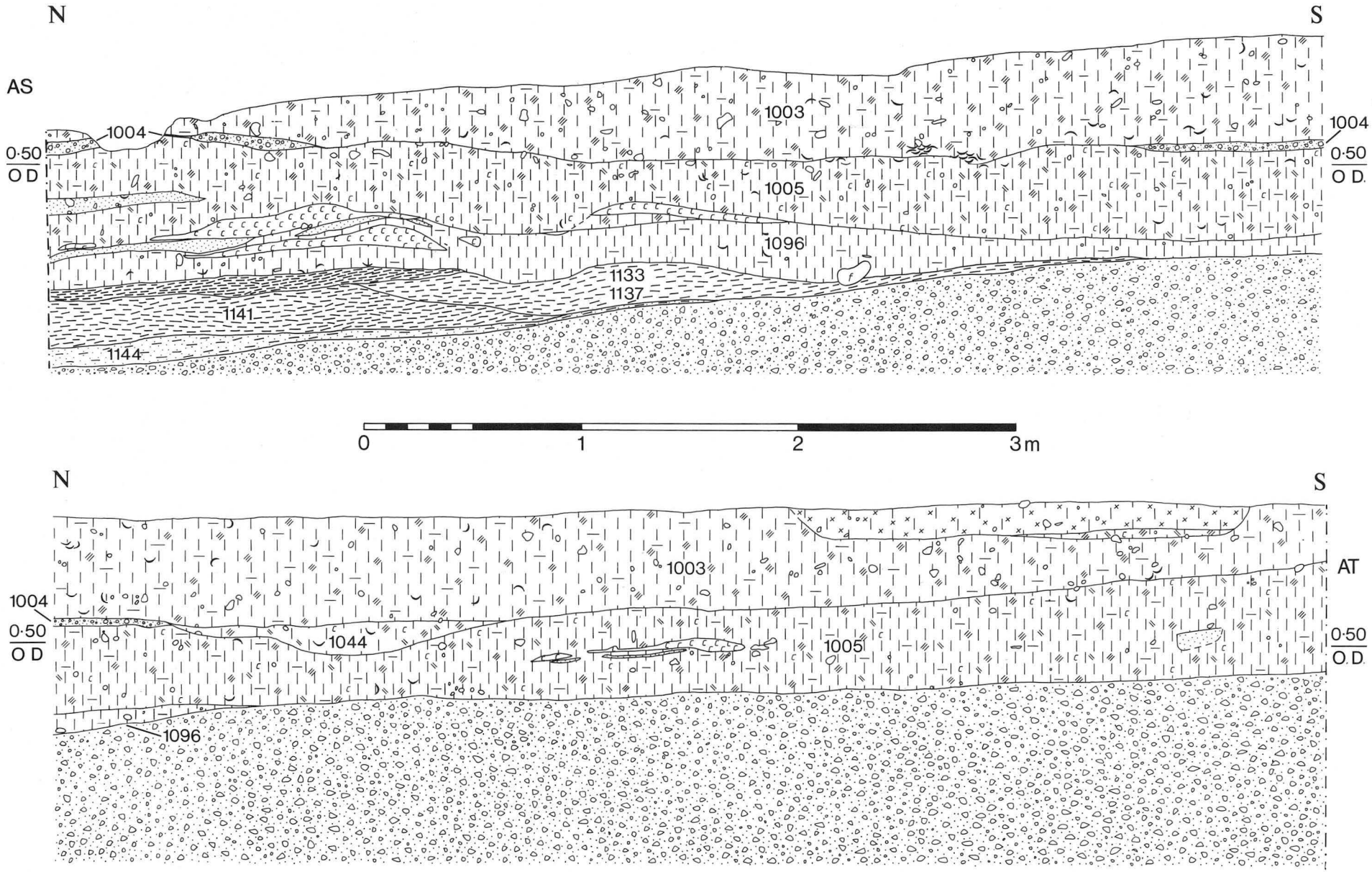


Figure 16. East excavation section, north end of the excavation, waterfront area, AS-AT. Section located on Fig. 12. Scale 1:25.

1189). Only post *1122* was set into a pit although further posts to the south (*1182*, *1209* and *1210*) were similarly positioned (post *1210* in pit *1094* being associated with a silver penannular arm-ring; Fig. 55, No. 1). These latter posts may have been associated with organic layers but no evidence survived. Random stakes were also observed and are marked on Figure 12.

Immediately west of north-to-south Fence *1136* other timber fragments were located. The bulkiest of these (*1194*) consisted of a very large unworked oak log around which peat deposits had accumulated. Of the remaining timbers a crudely-split oak plank (*1172*) may have been associated with other features in the area (p. 166) but, given its position above a thin deposit of grey-brown silt which in turn overlay a brishwood surface, could merely have been a piece of driftwood (Fig. 12).

Period I, Phases 2 and 3 (Fig. 15)

A major levelling, consisting of a layer of dark brown, highly organic, slightly silty loam with very common visible traces of vegetable matter and a pungent odour when trowelled (*1096*), was undertaken across the Phase I1 deposits (the layer contained an almost intact single-sided composite comb, Fig. 79, No. 2). The brushwood surfaces and wickerwork fences were sealed by this level which extended across the breadth of the excavation from west to east (Figs 14, 15 and 16).

Four features were located above this horizon. The most notable consisted of a crude fence of split oak planks (*1187*), revetted by one surviving post (*1214*), which ran north to south from the approximate junction of the preceding fences *1188* and *1189* for some 1.1m before returned eastward. Only fragments survived. A pit (*1127*) adjacent to the north section cut into underlying levels. No other features were recovered.

South of this area, however, four further pits (*1161*, *1163*, *1164* and *1171*) were excavated. One (*1164*) was lined with wickerwork. The horizontal wickerwork was too badly mineralised for identification but the vertical stakes showed that it had been constructed of alder, oak, poplar, hazel and ash (p. 120-2). Analysis of the fill indicated that it had been used as a cesspit.

The apparent dearth of activity in this area during Phases I2 and I3 should be considered in relation to its position on the site, that is at least 7m south of the modern river line (p. 3). Late in Period I the entire area was sealed by a thick homogenous deposit (*1005*) consisting of a mixture of refuse and waterborne material (Fig. 16) and which contained many pottery and other finds, one of which was a double-sided simple comb (Fig. 79, No. 3).

The Period I deposits at the waterfront were divided into three phases in a similar way to levels at the street frontage. However, connecting layers of horizontal stratigraphy were only established between the areas in Phase I3. In consequence the Phase I1 and Phase I2 waterfront deposits exist within a framework that forms a relative chronology vis-à-vis the Phase I1 and Phase I2 deposits at the street but not an absolute chronology. It remains likely that initial occupation of both the street frontage and the waterfront occurred at the same time but this cannot be proven.

VII. Timber *1203* looking east-north-east. Scale in centimetres (BWK12)

III. Period II: The Norman Structures and Deposits (including Site 34 material)

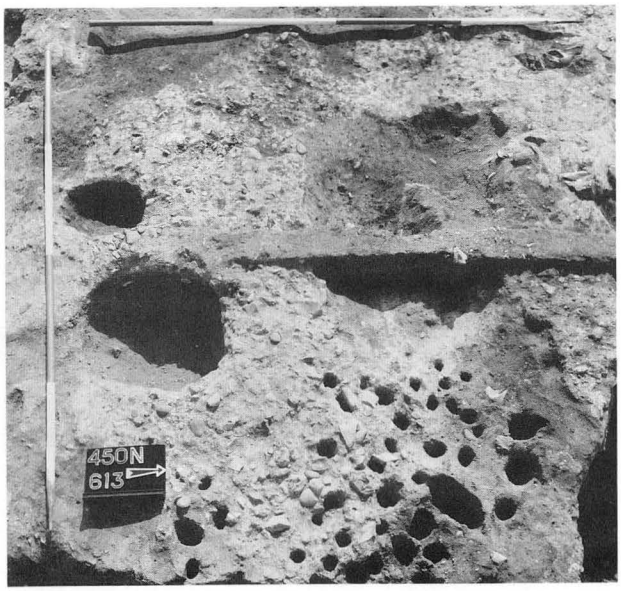
The street frontage and waterfront

Period II, Phase 1 (Figs 17-22)
Levels at the street frontage of Phase II1 date survived west and east of the Phase II2 Building *2100* (Figs 17 and 18).

To the west (Fig. 17), a north-to-south alignment of post-holes (*2380*, *2195*, *2207* and *2178*) may have formed the west wall of 'Structure' M. North of this 'structure', a ditch (*2276*) ran west-to-east with a possible return to the north (*2310*). Cut with slightly sloping sides (Fig. 17) this ditch had two recuts (*2348* and *2350*), the fills of which consisted of sandy silt (Fig. 20, AU-AV).

The infilled ditch and recuts were cut by several pits (Fig. 17), most notably Pit *2304* from which was recovered a wooden shingle (Fig. 85, No. 6). This pit was distinguished from most others in that its position and depth meant that much organic material survived, including some evidence for brushwood and peat, perhaps indicating a lining. Closer to the street several pits were uncovered but hardly excavated[8]. Sections (BA-BB) were, however, obtained of pits *2254* and *2249* by the removal of a modern sewer (Fig. 21, microfiche). All pits cut deeply into the natural subsoil but, in common with the ditch and probably the post-holes, they had been cut originally from a ground surface which did not survive. The pottery recovered from these pits included Thetford-type Ware, Early Medieval Ware, medieval coarse wares and Relief Band Amphora.

It seems unlikely that any of the excavated features uncovered to the east (Fig. 18) represented vestigial evidence of structures although a shallow trench (*876*) may have formed a wall alignment. It contained at least one post-hole (*547*) and a possible post-pit (*544*), within its surviving length. The trench had been constructed within a wider trench (*898*) by the use of boards on edge (Fig. 20, AW-AX). The fills of both trenches and post-holes contained traces of burning. Further trenches (*551* and *513*) were located on a slightly different alignment to the south.



VIII. Surface *613* with stakeholes looking west. Scales: 2 metres (BUU6)

West of the 1962 excavation (Site 34) a crude cobbled surface of flint pebbles (*613*) was associated with a hearth-type feature (*609*). Both were cut by a possible slot (*746*) and subsequently by a further slot (*612*) which was, in turn, cut by a series of stake-holes (*607*) (Pl. VIII). These, however, were probably in use with the cobbled surface and also predate small pit *725* which cut trench *612*. They may also have been contemporary with a deep pit immediately to the south (*370*). This pit contained numerous fills of Phase III date (Fig. 20, AY-AZ) and was partially recut in Phase II2. The majority of the fills were clay-based, frequently burnt, with occasional layers of sand, notably on the pit sides. One fill (*632*) contained a small bronze bell (Fig. 57, No. 16).

Numerous other pits are located on Figure 18. Of these Pit *735* is notable as a deep pit close to the street frontage; Pit *469* cut Period I skeleton *750*; and Pit *579* severely complicated deposits near the east excavation section. This latter pit was cut by Pit *645* which also cut cobbled surface *646*. This surface may have been contemporary with that (*613*) east of the intrusive trench. A large pit (*535*) seems to have been in use at the end of Phase III and was infilled at the start of Phase II2. Several small post-holes were also located.

The most distinctive feature to be uncovered in Phase III, however, was gully *562* (Frontispiece, Pl. IX and Fig. 19, microfiche). This feature (sections on Fig. 22, BC-BD and BE-BF) was cut with a southern end north of surface *613* and ran north, cutting earlier features (*e.g.* pit *3131*), until it petered out 3.7m short of the north excavation section. It cut *1005*, the thick deposit of material which had accumulated in Phase I3 above the waterfront area. The gully was widest and deepest at its southern end with numerous fills tipping into it from both sides. Further north, evidence was recovered of deliberate lining of the feature with hard-packed straw and other vegetable matter in a dark brown, highly organic loam (*1118*). This deposit, which tended to flake apart, contained the most remarkably visual environmental finds from the excavation, namely numerous articulated fish skeletons (p. 114ff and Pls XXXVIII and XXXIX). Finds from the gully included a silver finger ring (Fig. 55, No. 5) and a bronze plaque decorated with a dragon's head in Ringerike style (Fig. 56, No. 11) while one particular fill, an organic silty humic loam (*1120*), contained a considerable number of leather and wooden objects as well as two spindle-whorls.

Much of the area north and west of the 1962 trench was overlain by a mixed burnt deposit containing clay loam, ash, charcoal, burnt clay, patches of crushed chalk and flint pebbles (*633/525*). From this deposit an iron knife with the remains of a wooden handle and an inlaid equal-armed cross was recovered (Fig. 59, No. 14) as well as two cut half-pennies of Henry I (p. 62). The layer was associated with a similar but unburnt level (*573/497*) lying south and west of the trench. Large pit *535* (above) cut this deposit. Late in Phase III a patchy deposit of gritty loam and sand (*235/325*) occupied the area north of the trench while a patchy chalk surface (*14*) and a loam deposit (*13*) lay either side of the intrusion. Of these *14* was almost certainly that recorded as 'Floor 7' in 1962 and *13* part of the level recorded below 'Floor 6' at the same time (Fig. 47 and microfiche, 1:A.4-5). A fragment of Relief-Band Amphora recovered in 1962 and recently published (Jennings 1981, no. 202) can thus probably be associated

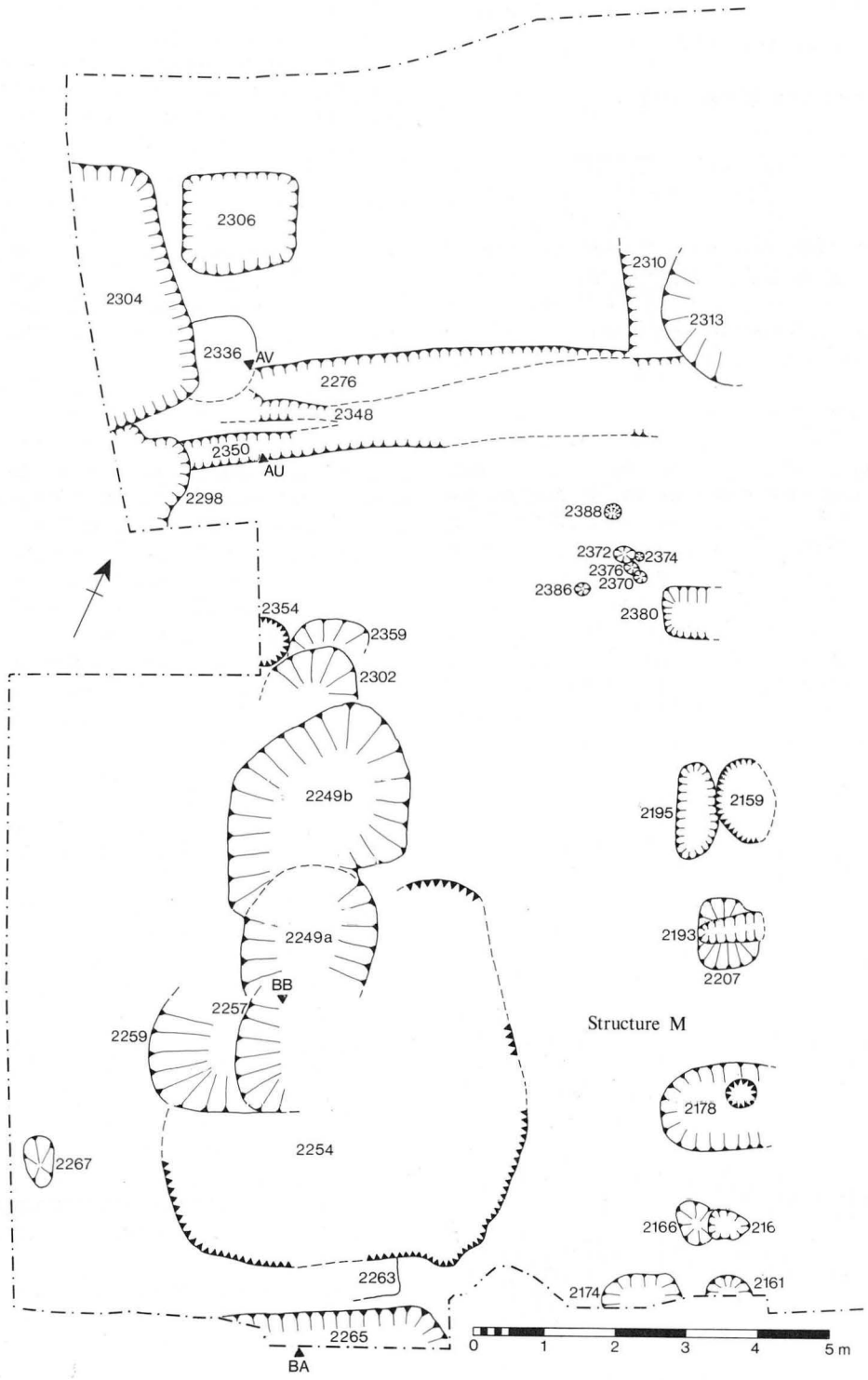


Figure 17. Phase III (west) plan. Hypothetical structure M and associated features. Scale 1:100.

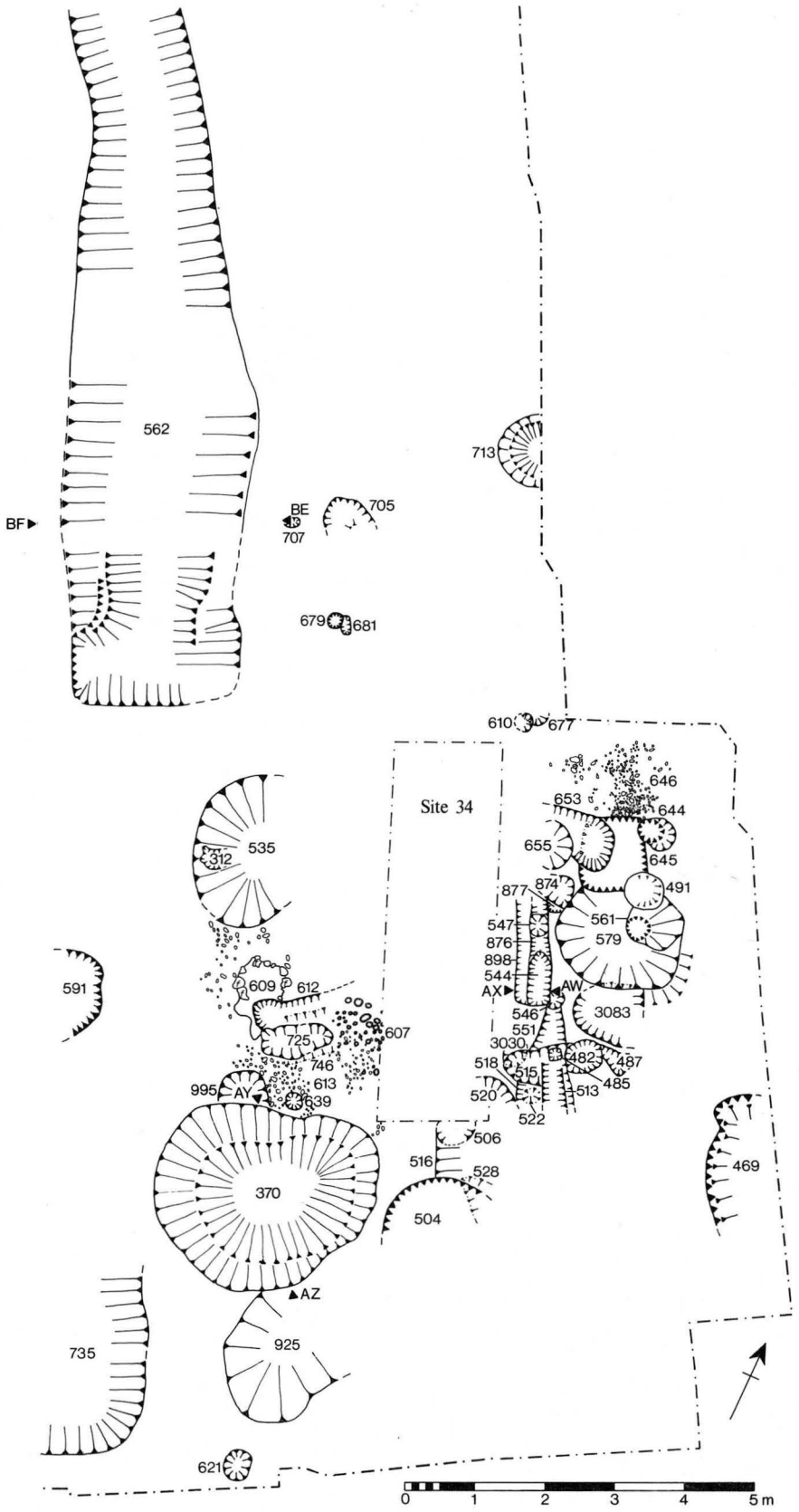


Figure 18. Phase III (east) plan. Excavated features including southern end of gully *562*. Scale 1:100.

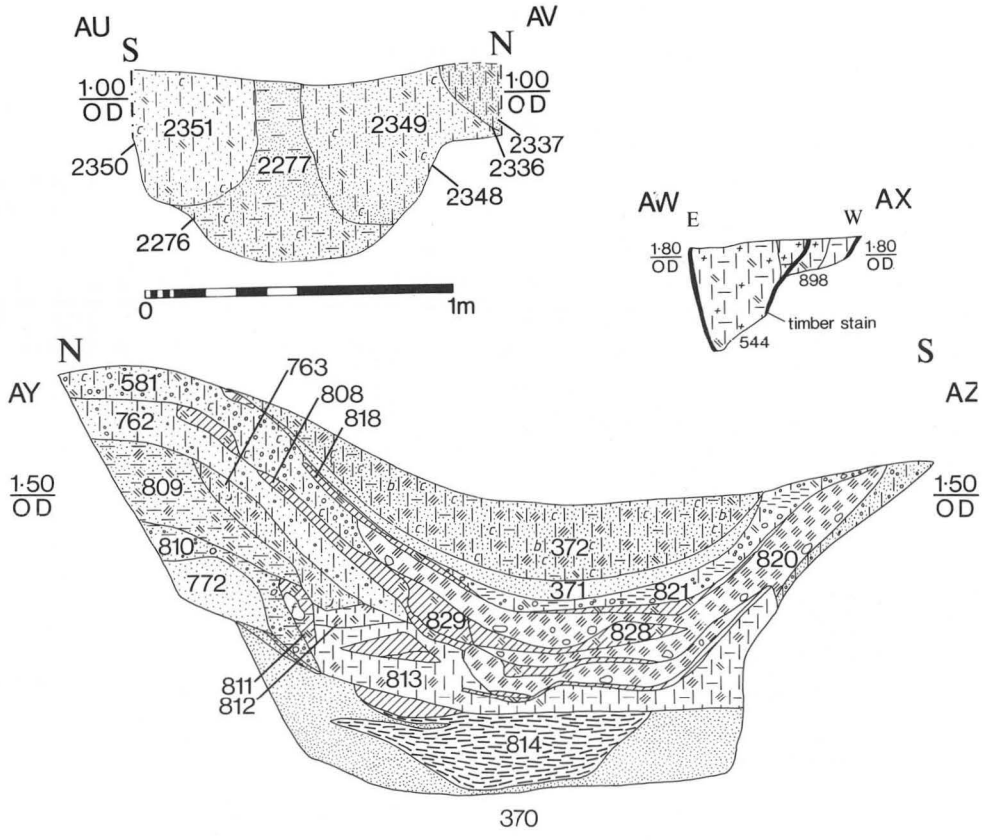


Figure 20. Phase III. Sections of excavated features, AU-AV, AW-AX, AY-AZ. Sections located on Figs 17 and 18. Scale 1:25.

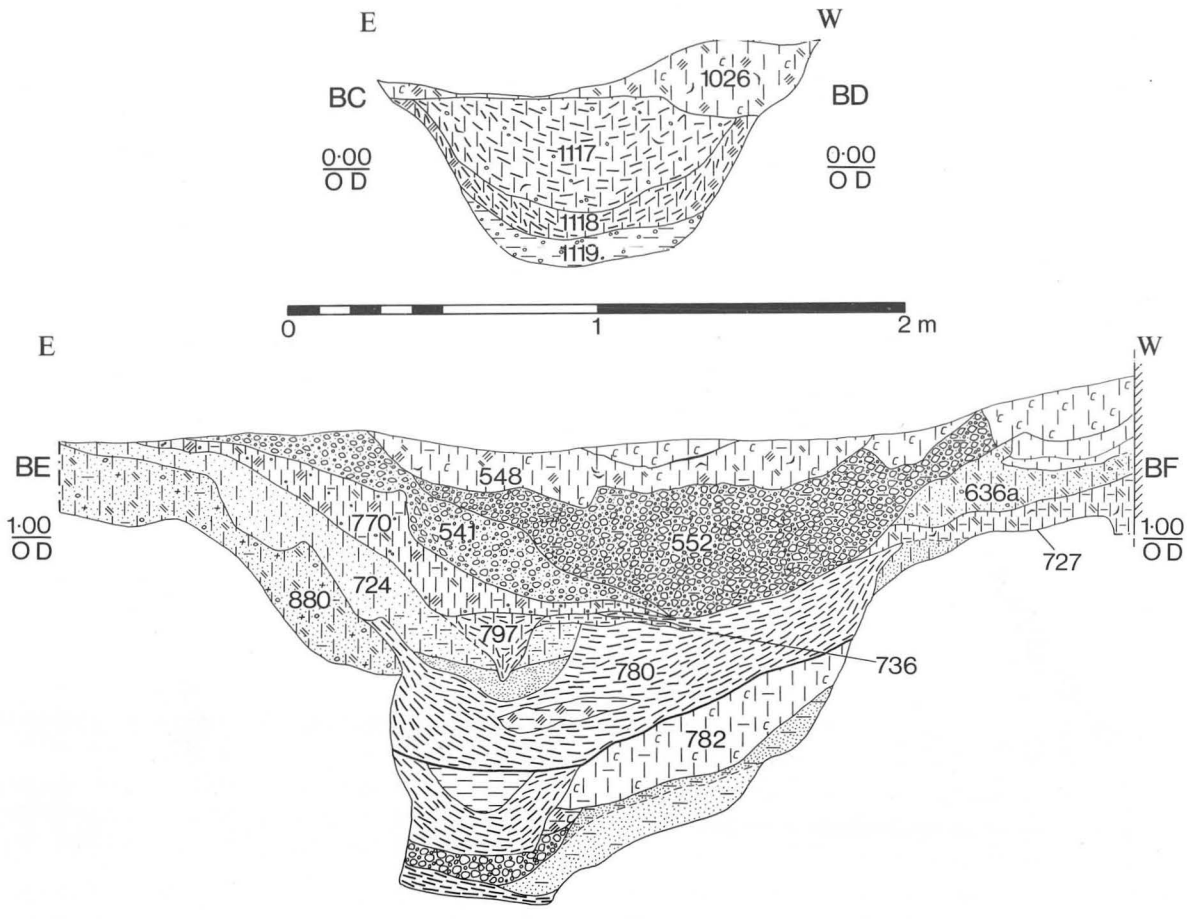
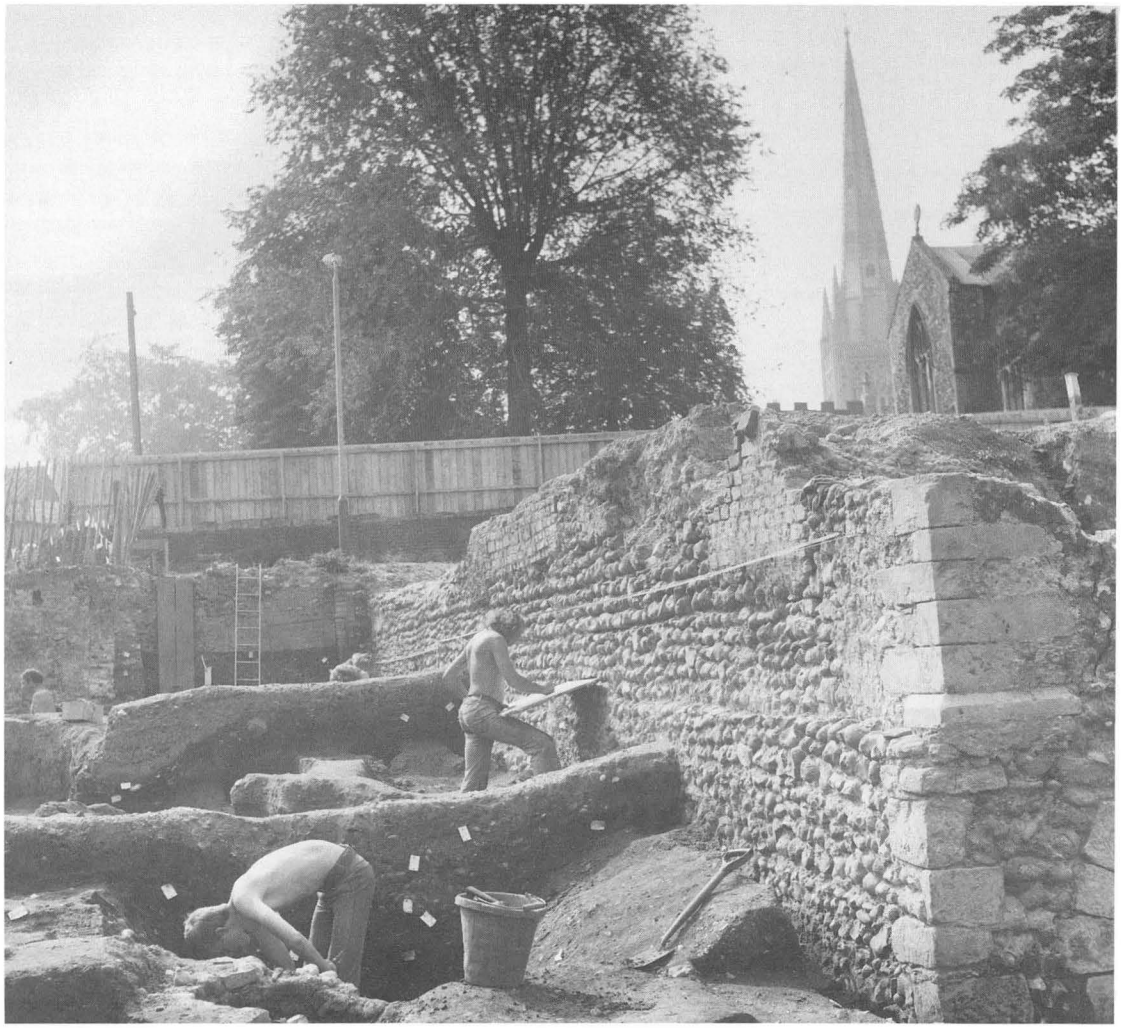


Figure 22. Phase III. Sections of gully *562*, BC-BD and BE-BF. Sections located on Figs 18 and 19. Scale 1:25.



IX. Excavation of southern end of gully *562* and recording of exterior of east wall of Building *2100* (wall *115*), July 1981 (BUW11)

with layer *14* while the Beauvasis spouted pitcher (Jennings 1981, no. 221) and the fragment of a bone flute (Fig. 84, No. 38), also found in 1962, were probably located in layer *13*.

Within the waterfront area, few additional deposits clearly identifiable as Phase II1 were located, although it is assumed that some of the material from homogenous level *1005* was deposited at this time. A sandy deposit (*1004*) which overlay *1005* was most probably the same level as that sandy level uncovered further south (*235/325* above). Several small layers excavated immediately north of Phase II2 Building *2100* were also of Phase II1 date (*e.g. 2148*) being cut by the foundation trench of the later building.

Phase II1 could be dated to the first two-thirds of the twelfth century. Pottery finds, especially closely-dated Stamford Ware (p. 78 and Fig. 74, Nos 115 and 116), help confirm this. In addition, two cut half-pennies of Henry I and a probable twelfth-century finger-ring were associated with deposits of this phase.

Period II, Phase 2 (Figs 23-38)

Deposits of Phase II2 date were encountered along the length of the street frontage. These fell into three distinct areas and will be discussed from west to east.

Early in Phase II2 many of the underlying deposits in the western area (Fig. 23) were sealed by layer *2271*, a silty gravelly loam, which was probably contemporary with Building *2100* (below) as it sealed the top of its foundation trench (Fig. 24). The layer was, in turn, covered by *2126*, an extensive level of gravel and loam, from which was recovered a barrel padlock case (Fig. 58, No. 7). Thereafter features were few, being confined to occasional pits of which the most notable was *2150/2292*. This pit contained a fine group of Grimston Ware vessels (Pl. X), consisting of four baluster jugs, with either strap or twisted handles,

X. Pit *2150* with group of Grimston Ware vessels (Nos 138-40). Scale in divisions of ten centimetres (BWH6)

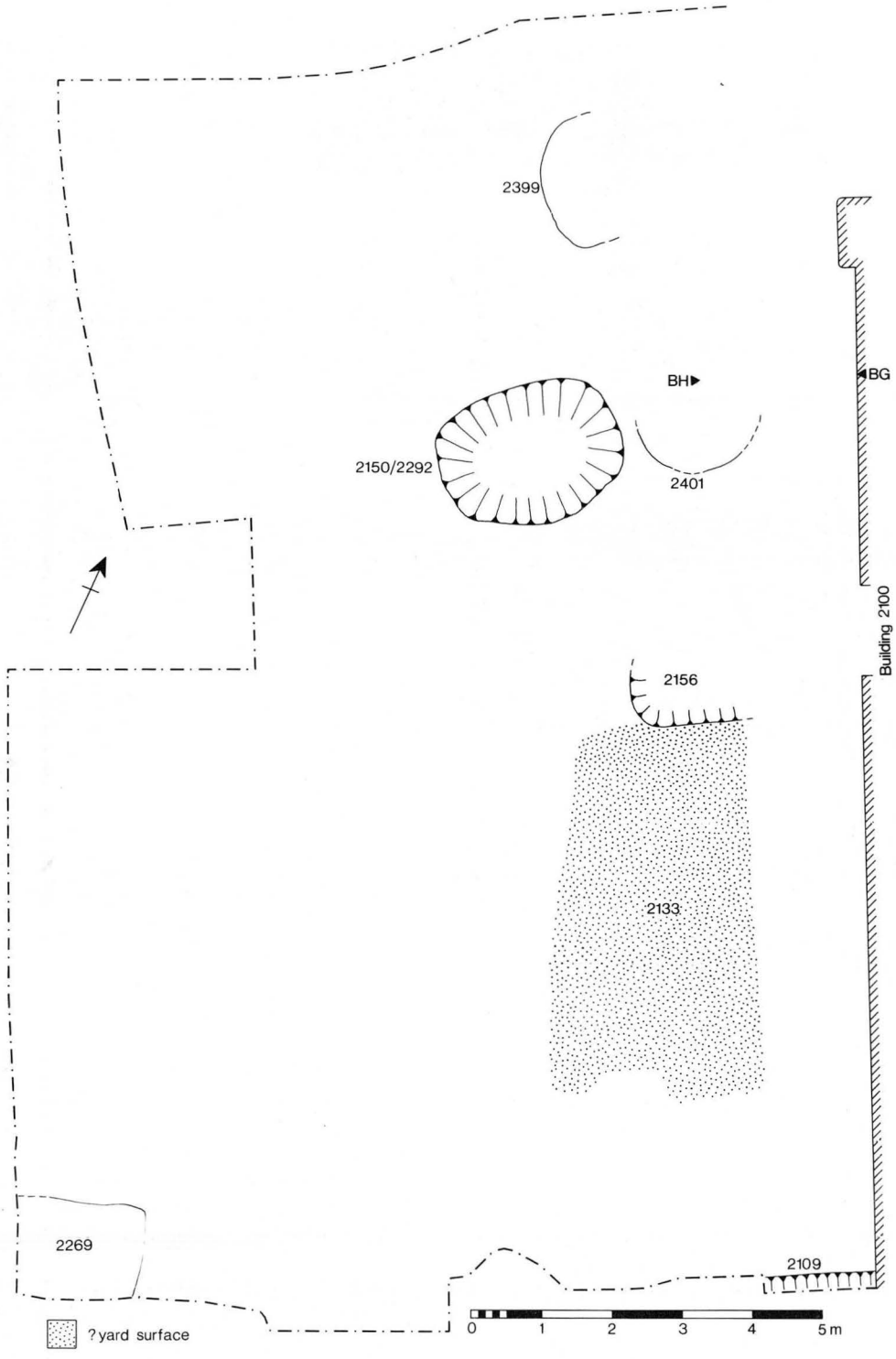


Figure 23. Phase II2 (west). Excavated features including surface *2136* and pit *2150/2292* which latter contained group of Grimston Ware jugs (see Fig. 75, Nos 138-140). Scale 1:100.

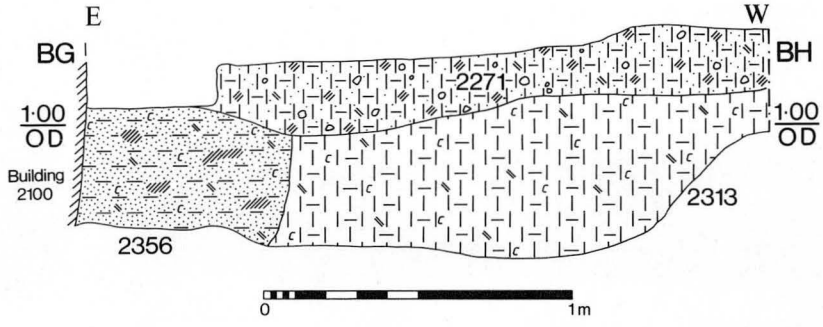


Figure 24. Phase II2 (west). Baulk section against exterior elevation of west wall *2105*, Building *2100*, BG-BH. Section located on Fig. 23. Scale 1:25.

and one small jug (Fig. 75, Nos 138-140). To the south a possible yard surface (*2133*) was laid consisting of slightly silty, gritty clay loam and chalk. With the exception of *2111*, a slightly later fragment of chalk surface, this was the only deposit located in this area in either Period I or Period II which seemed to constitute a surface and its angle of descent to the north indicated that no attempt was made in this phase to level the yard. A wall of flint (*2312*) bounded the area to the south and is discussed below (p. 40 and Fig. 27).

Stone Building (2100): At the start of Phase II2 a large stone building (Pl. XI and Fig. 25) was erected at the street frontage, probably destroying earlier property boundaries (p. 153). Foundations for this structure were effected by cutting deeply into the sand and gravel terrace, essentially creating a three-sided hole as the slope of the hill to the north meant that the northern edge of the hole faded out (see Fig. 26). Within this hole the building was erected, almost certainly from the interior, revetting the cut sides. Where the excavated trench varied slightly from the straight line of the wall an apparent foundation trench was visible on the exterior (this was particularly true of the exterior face of the east wall, 'foundation trench' *700*). Following construction these gaps were filled (Fig. 37).

The building (which survives and is thus described in the present tense[9]) is a rectangular structure at right-angles to the street. Externally it measures 17.50m by 8.50 m; internally 13.50m by 6.70 m (although this measurement is more striking when rendered imperially: 44 by 22 feet) with northern recesses adding a further metre to the length. It is constructed of flint, carefully selected for size in order to be coursed on the faces of the walls, with flint rubble wall cores. In the south wall these flints are quarried nodules; elsewhere the walls are totally faced with river-worn nodules. None of the flints has been knapped or squared. The interior face of the east wall shows clear evidence for the wall having been constructed in 'lifts', several courses at a time, each 'lift' being levelled off with a thick layer of mortar (Pl. XII). This is reasonably uniform throughout the building, being hard, crumbly and sandy. The internal faces of the walls were rendered in a similar mortar, the rendering surviving in the lower courses (Fig. 27, BJ-BK).

The walls are dressed at both the internal and external corners by quoins of Barnack limestone. These dressings are the more impressive on the interior where the north-eastern and south-western corners survive particularly well. Indeed the latter (Pl. XIII, Fig. 28) had fifteen courses of quoins (thirty stones in all) prior to redevelopment work in 1982 (it now retains fourteen courses as the top pair of stones had to be removed to facilitate the insertion of a concrete floor slab). The lower courses of these internal quoins are well-preserved with plainly visible diagonal toolmarks; the upper quoins are quite severely weathered (p. 159).

XI. Building *2100* looking south, September 1981. In the background are the church of St. Martin-at-Palace Plain, the Bishop's Gate to the Close and Norwich Cathedral (BWB6)

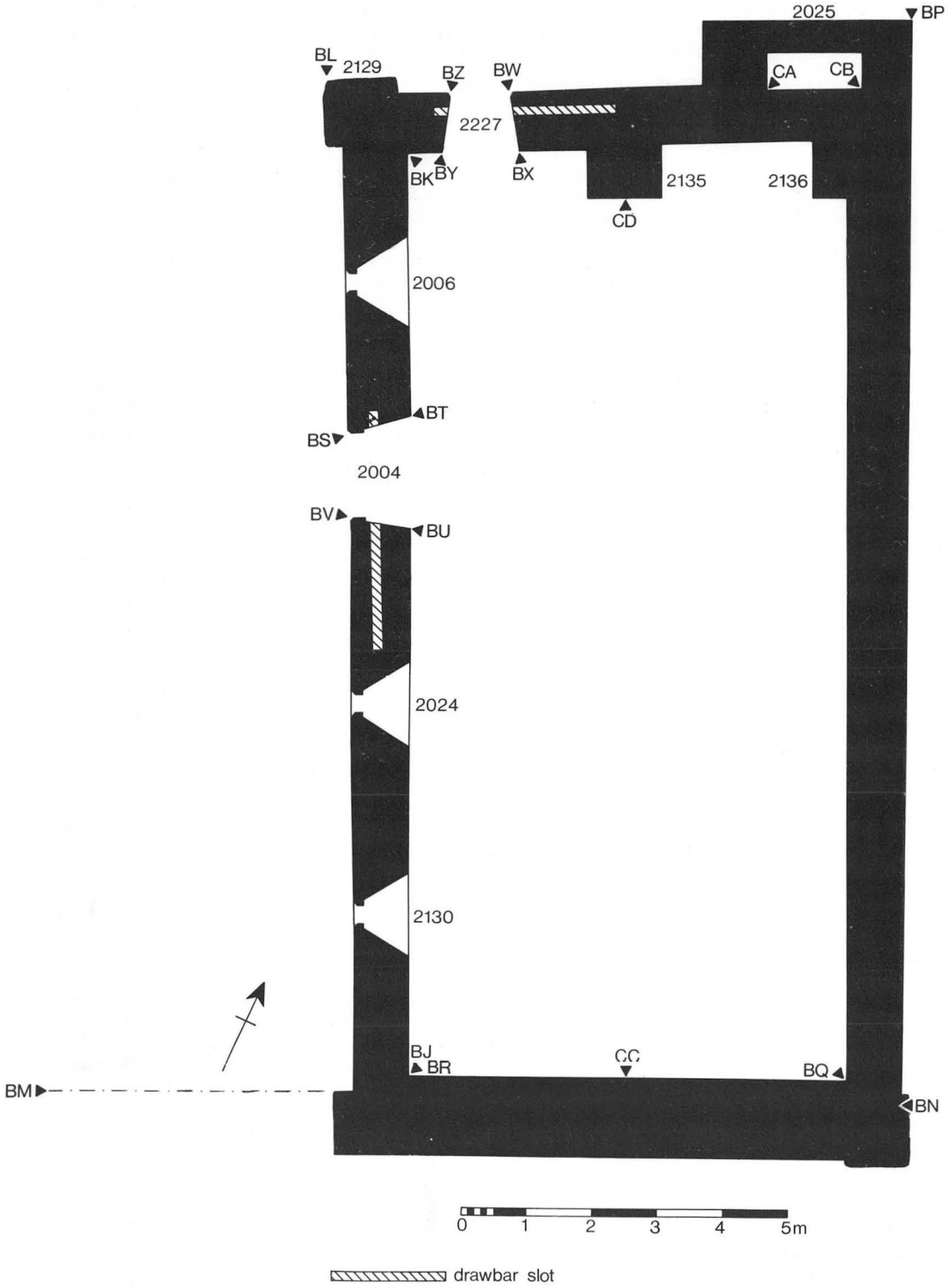


Figure 25. Phase II2 (centre). Building *2100*. Block plan. Scale 1:100.

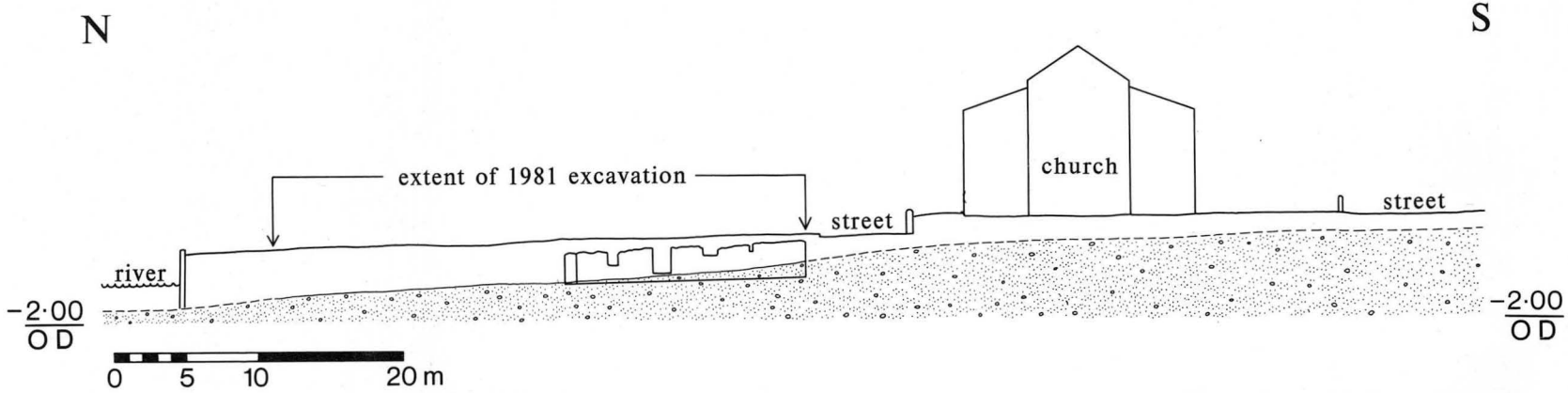


Figure 26. Cross-site section from River Wensum to the church of St. Martin-at-Palace showing the fall of the gravel terrace and the foundation cut of Building *2100*. *Nb.* the street north of the church has been lowered since this figure was completed as part of the landscaping for the new Magistrates' Courts. Scale 1:500.

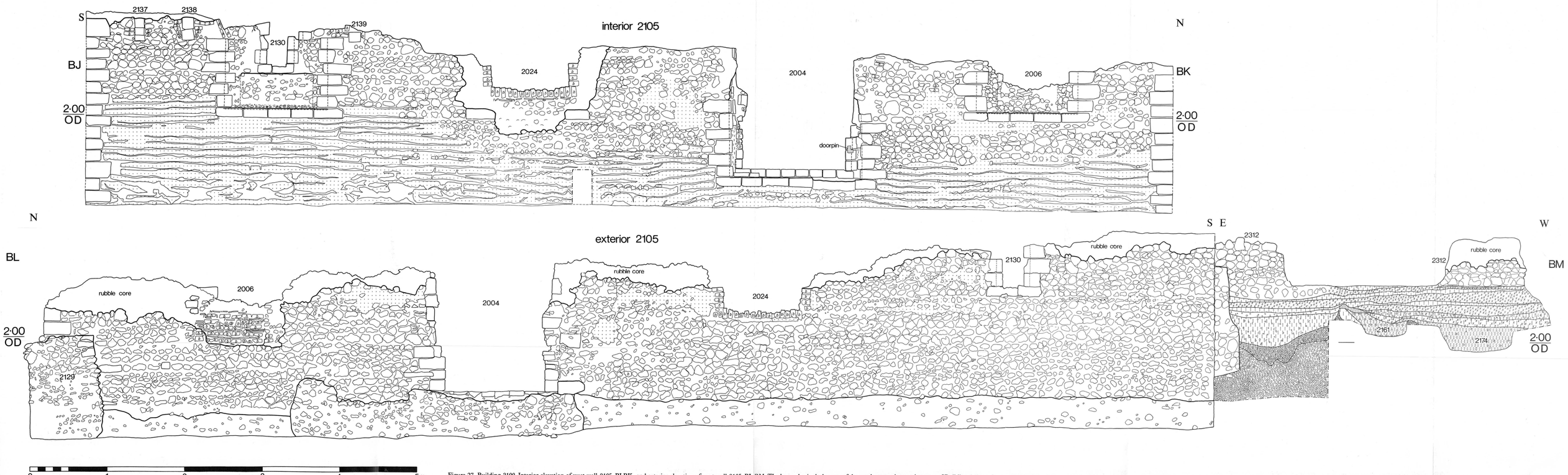


Figure 27. Building *2100*. Interior elevation of west wall *2105*, BJ-BK, and exterior elevation of west wall *2105*, BL-BM. The latter also includes part of the south excavation section west of Building *2100* to show wall *2312*. *Nb.* the internal sills of the window openings are all at the same level; compare with the external sills. Elevations and section located on Fig. 25. Scale 1:25.

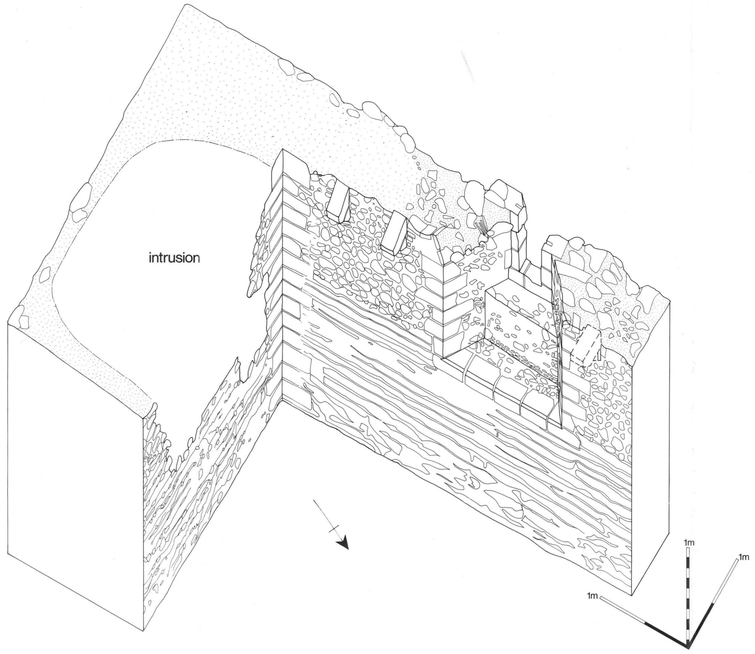


Figure 28. Building *2100*. Axonometric projection of the internal south- western corner showing window opening *2130* and corbels *2137*, *2138* and *2139*, the latter added in Phase III3. Scale 1:30.

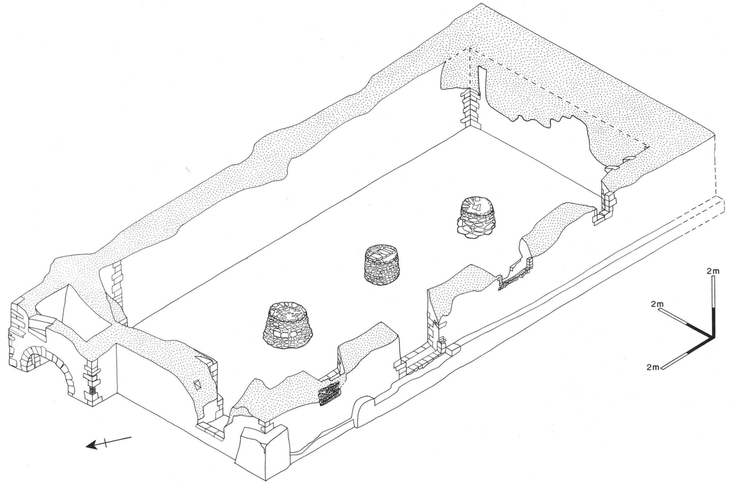


Figure 29. Building *2100*. Isometric projection. The pierbases, blocking of the north window opening and brick repair of the central window opening are of Phase III3 date. Scale 1:100.

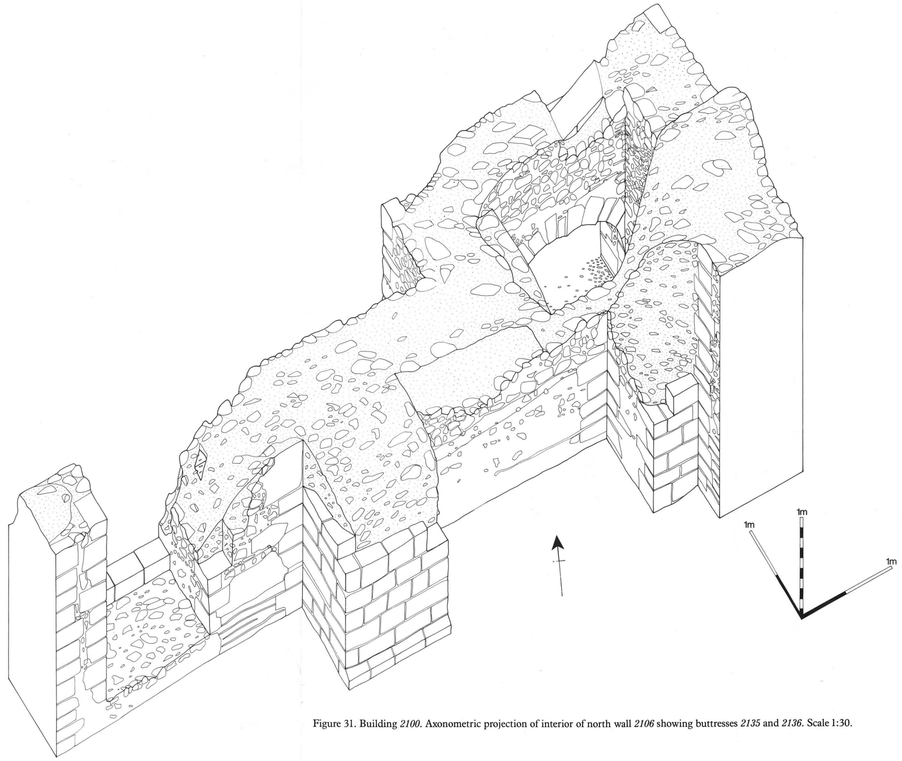


Figure 31. Building *2100*. Axonometric projection of interior of north wall *2106* showing buttresses *2135* and *2136*. Scale 1:30.

XII. Internal face of wall *115*, Building *2100*, showing construction 'lifts' (BWL7)

The exterior quoins are, at the north-west and south-east corners, mounted above small clasping buttresses. The north-west corner is the best-preserved where the flint buttress (*2129*) is surmounted by two Barnack quoins (Figs. 27, BL-BM and 29). This feature is quite clearly an integral part of the original structure rather than an addition. The south-east buttress was only revealed in September 1983 during construction work for the new Courts. It had been damaged, probably in the early twentieth century, but is recognisably of similar construction to *2129*[10]. The exterior south-west corner is furnished with a rudimentary flint buttress although it is essentially a projection of the south wall (Fig. 27, BL-BM). It too, however, was surmounted by quoins although evidence of these was only observed during building work in 1983 (only one quoin survived). The exterior north-eastern corner is unbuttressed and also formed the corner of a small turret; the specific details of this area will be discussed below (p. 38).

The walls rest directly on to the natural gravel. The south wall (*2104*) is the thickest (1.20 m wide) and clearly was designed to revet the street frontage (this position being the deepest part of the foundation hole). The other walls are of a reasonably uniform thickness (0.90 m), coursed on the interior and exterior faces. At the south end of the exterior face of the eastern wall (*115*), immediately below the top of the foundation cut, a rectangular recess was observed (Fig. 30, BN-BP on microfiche and Pl. XIV). This feature runs northwards from the excavation section for 7.80 m, being 0.25 m high and 0.11 m deep. It does not serve any apparent structural purpose (p. 156)[11] An offset foundation course runs the length of the exterior of the west wall (Fig. 27, BL-BM) with offset courses also visible on the exterior of the east wall (Fig. 30, BN-BP).

XIII. Internal quoins in south-west angle of Building *2100*. Scale: 2 metres (BWE5)

XIV. Southern end of exterior face of wall *115*, Building *2100*, showing rectangular recess in lower part of the wall (the number, *735*, on the board refers to the pit, cut by the foundation of wall *115*). Scale: 2 metres (BUU8)

No trace of responds for supporting a vault are present on the interior of either the east or the west wall, neither were the settings of any internal supports for such a vault discernible in the floor. The interior face of the south wall appears to contain a central respond but much of the construction of this is clearly later. It may, however, replace an earlier and similar feature as the face of the coursed flint wall terminates at this point in a straight joint (Fig. 30, BQ-BR, microfiche). Any similar respond in the north wall would have been above the surviving fabric.

The north wall contains, however, two buttresses constructed of flint with Barnack limestone ashlar facing (Pl. XV, Fig. 31). The larger buttress (*2135*) is bonded to the north wall's interior face and has a small plinth decorated with a simple chamfer (Figs 25 and 31). Toolmarks are particularly well-preserved on the ashlar masonry of this buttress (Pl. XVI) and the feature contains the finest dressed stone in the building. The smaller buttress (*2136*) is formed in the north-eastern angle of the rectangular building and incorporates the internal quoins of this corner (Figs 25 and 31). The two features thus provide a recess at the north-eastern end of the room and the spring of an arch between them survives. It is likely that the arch supported a feature on the floor above (p.157).

The other feature in the north wall is a small doorway (*2227*). This is slightly splayed to the interior. The internal corners are dressed with Barnack limestone (Figs 25 and 31), the quoins on the west side coursing through to the quoins in the north-western corner. The exterior step is formed of Barnack while the interior threshold consists of flint cobbles. A recess cut into the limestone dressings at the western side of the doorway acted as a drawbar stop; a deep retraction slot survives opposite within the north wall although here the face of the wall has been destroyed as

XV. Interior of Building *2100* showing floor surface *2142* and buttresses *2135* and *2136* at the north (furthest from camera) end. The pillar bases are later insertions and the scales rest on baulks of soil left by the excavation. Scales: 2 metres (BWE1)

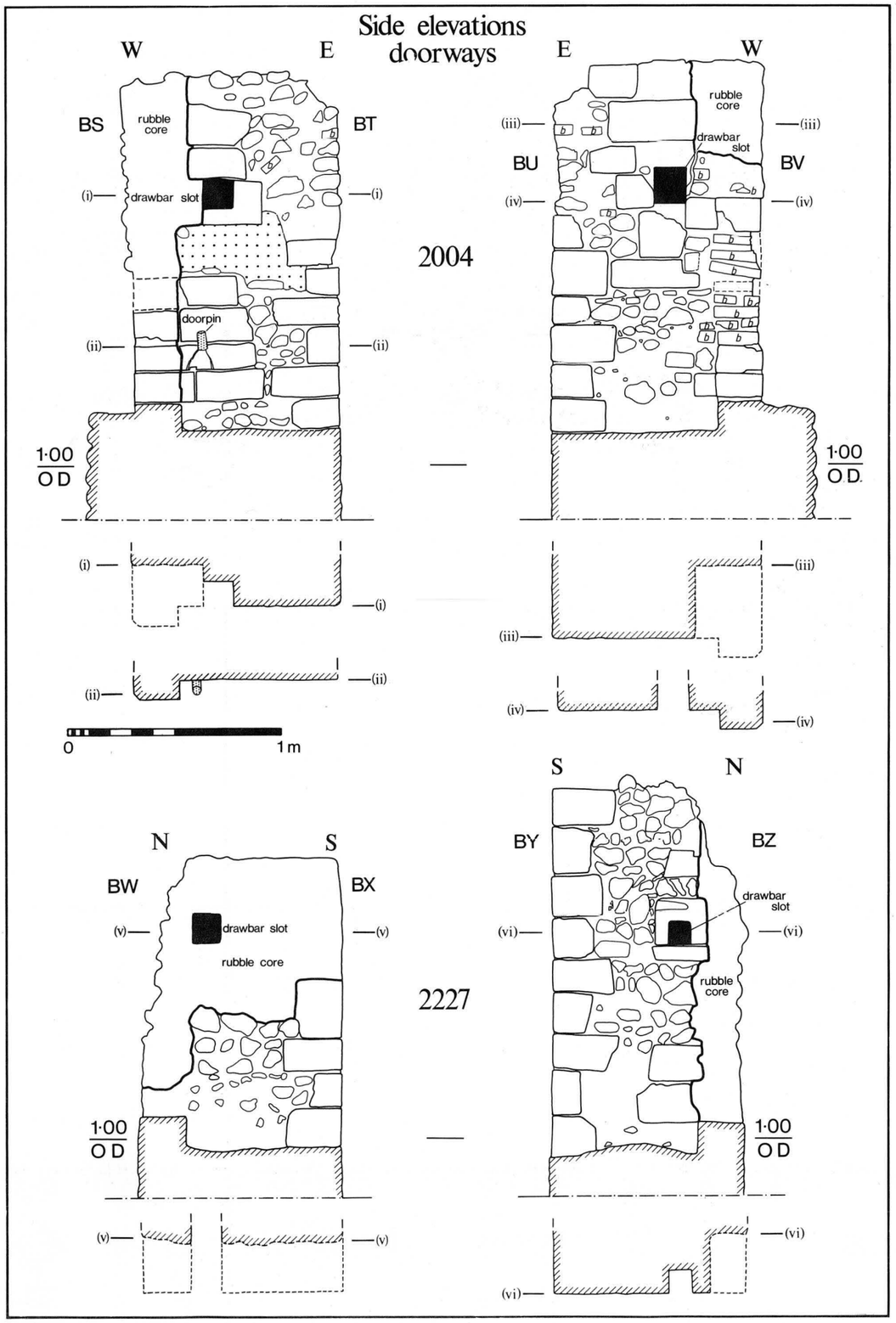


Figure 32. Building *2100*. Side elevations of doorways *2004* and *2227* (BS- BT and BU-BV) (BW-BX and BY-BZ). Elevations located on Fig. 25. Scale 1:25.

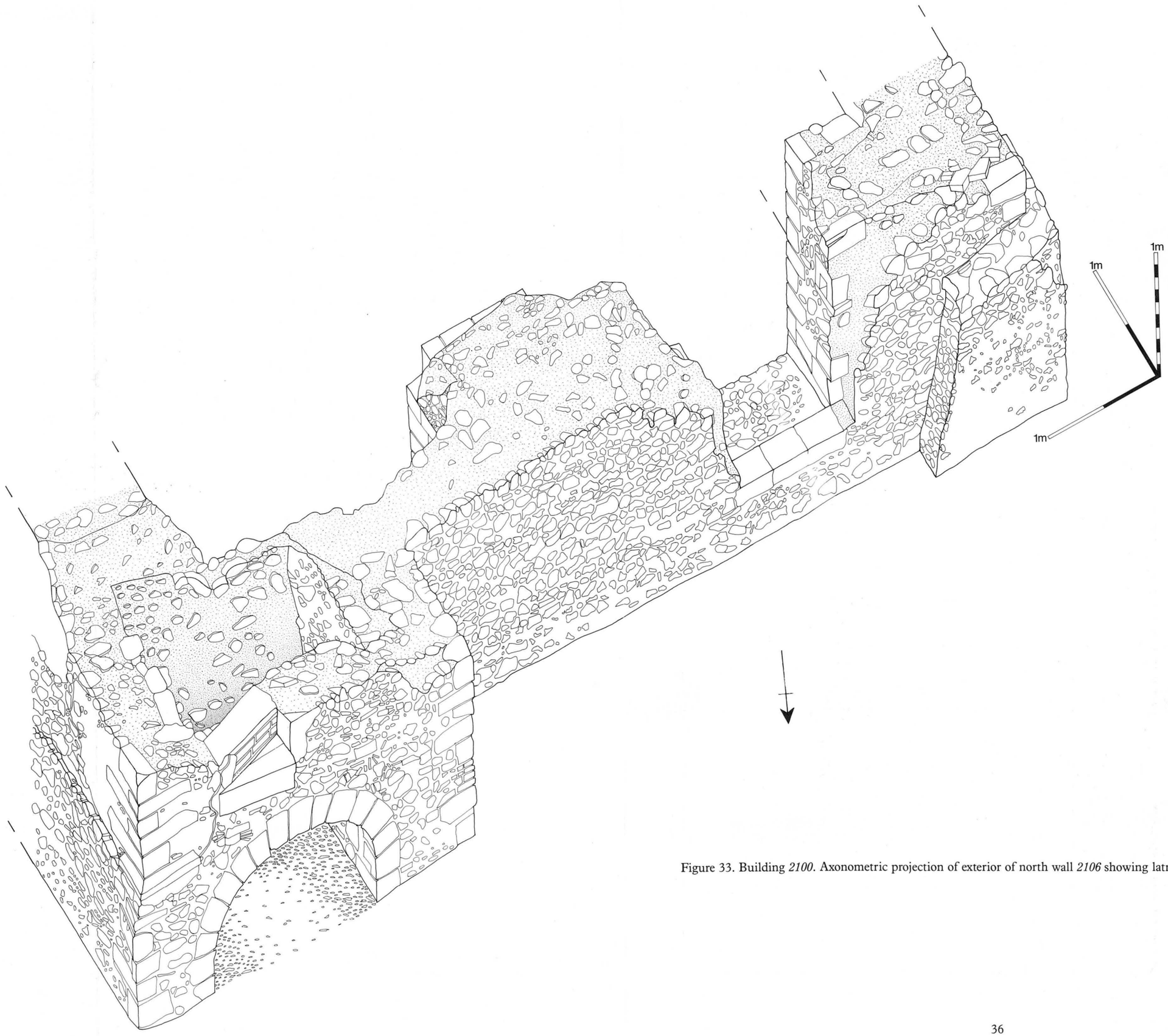


Figure 33. Building *2100*. Axonometric projection of exterior of north wall *2106* showing latrine turret *2125*. Scale 1:30.

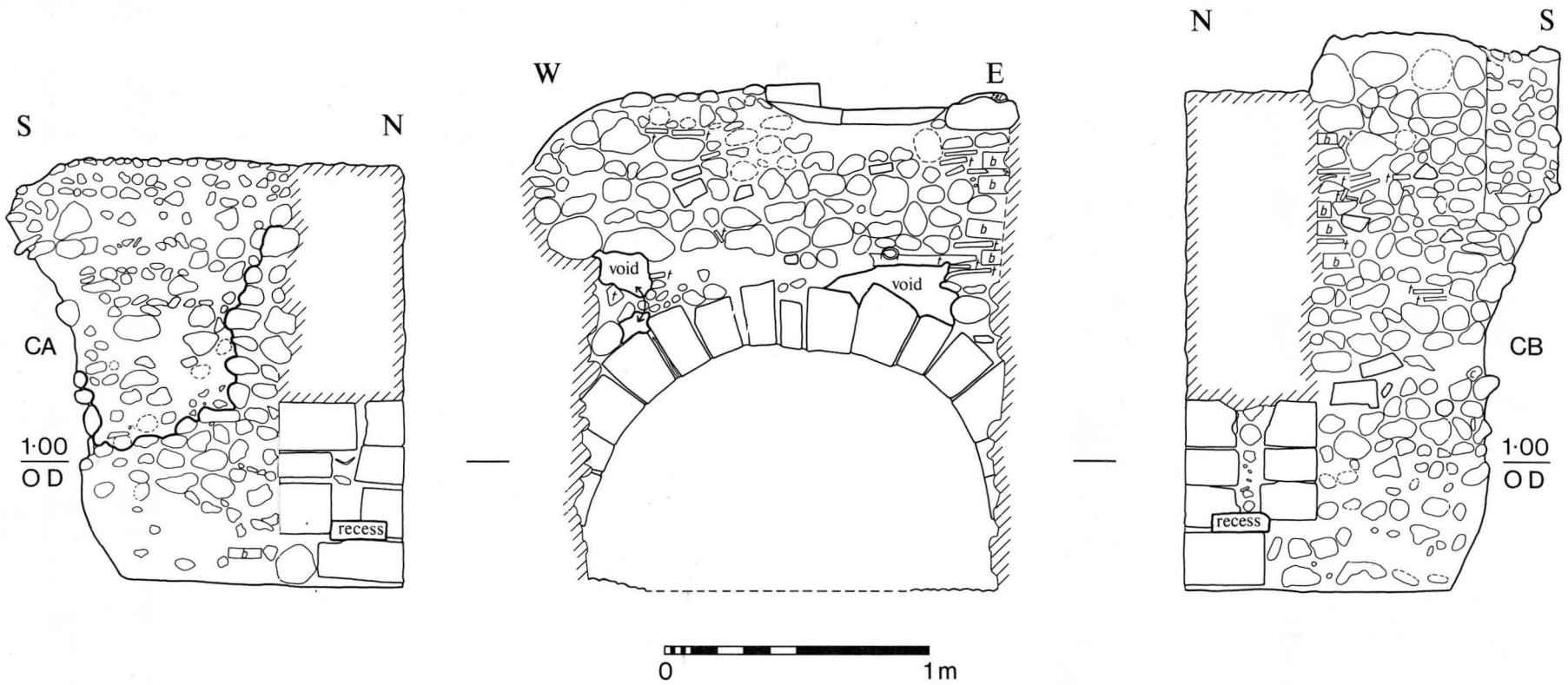
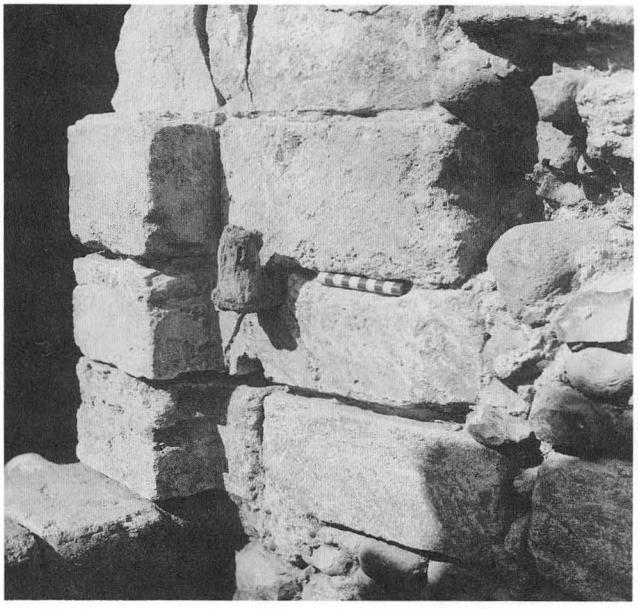


Figure 34. Building *2100*. Internal elevations of latrine turret *2125*, CA-CB. The west side (S-N) collapsed during the construction of the Magistrates' Courts and has now been reconstructed. Elevations located on Fig. 25. Scale 1:25.

XVI. Toolmarks on western face of buttress *2135*, Building *2100* (BWL19)



XVII. Doorpin in northern side of doorway *2004*, Building *2100*. Scale in centimetres (BWC8)

can be seen on Figure 32 (the slot and recess are shown on Fig. 25). The doorway does not have rebated jambs, the splay of the walls presumably acting as a doorstop (Fig. 31).

The principal doorway (*2004*) is situated off-centre within the western wall (Figs 25 and 29). The splay on the doorway is similar to that in the north doorway. Here both the internal and external steps are dressed with limestone, the exterior forming an elevated sill. This step survives intact; that on the interior has been eroded at the north side. The threshold itself is of flint cobbles. Each of the four corners of the doorway are dressed with limestone, the exterior corners being cut to furnish jambs which are themselves chamfered on the exterior (Fig. 32). The side elevations are also dressed in limestone, those on the south side being particularly well-preserved. A recess for the drawbar stop is provided on the north side with a corresponding retraction slot opposite (Fig. 25). The lower doorpin of iron survives *in situ* on the north side (Pl. XVII; Fig. 32).

The western wall is also furnished with the remains of three window openings (Figs 25 and 27, BJ-BK and BL-BM). These are single-splayed embrasures, the southernmost of which (*2130*) is the best preserved (and the only one to retain its loop albeit without its head; Pl. XVIII; Fig. 28). As with the other architectural features, the openings are dressed in Barnack limestone, the exterior of the surviving loop being slightly chamfered. The dressings of the loop are coursed through into the embrasure. The inner sills of the embrasures, edged with limestone but otherwise flint, are at an equal height above the floor for all three windows; the outer sills of the loops, however, are set at varying heights to accommodate the fall of the hill. Thus the southern loop is considerably higher than the northern loop (Fig. 27, BJ-BK). Internally this means that there is a considerable step up from the embrasure sill to the loop in the southern window opening, less of a step in the central opening, and no step at all in the northern one. The central opening has been robbed so that only the southern and northern dressed edges of the inner sill survive; the northern opening has a well-preserved sill but a robbed and blocked loop (Fig. 27, BL-BM). Weathering is noticeable, particularly on the splay of the southern opening and this, taken with other such evidence, has implications for the interpretation of the building's history (p. 159).

Adjacent to, and integral with, the exterior north-eastern corner of the building is a small turret (*2025*), also constructed of flint with limestone dressings (Fig. 33). The structure is formed by three walls, two of which abut the exterior face of the north wall of the main building, forming a hollow enclosure[12]. The walls are built of coursed flint although the upper courses of the northern and eastern walls are crudely-constructed rebuilds (p. 53). The lower part of the south wall (that is, the exterior face of the main building wall) has a battered base (Fig. 34). The external corners at either end of the north wall are dressed with limestone quoins although the upper courses, particularly at the east side, are rebuilds in common with the flintwork. The lower quoins at the west side, not apparently rebuilt, contain four large bricks or tiles (average dimensions 19×16×4.5 cm). The corner formed by the junction of the west turret wall and the north wall of the building is the only arris, inside or out, which is not dressed in limestone (Fig. 29). The floor of the turret is cobbled with small flint pebbles although it is worn in places, especially in the centre (Fig. 33).

The most striking feature of the turret lies at the base of its own north wall where an arch (*1066*) pierces the thickness of the wall to the hollow interior (Pl. XIX; Fig. 33). This arch is essentially two concentric arches of Barnack limestone voussoirs which respectively dress the northern and southern faces of the wall. The second

XVIII. Window opening *2130* at southern end of wall *2105*, Building *2100*. The photograph also shows the apparent rendering on this wall. The corbels and traces of brick vault are later insertions. Scales: 2 metres

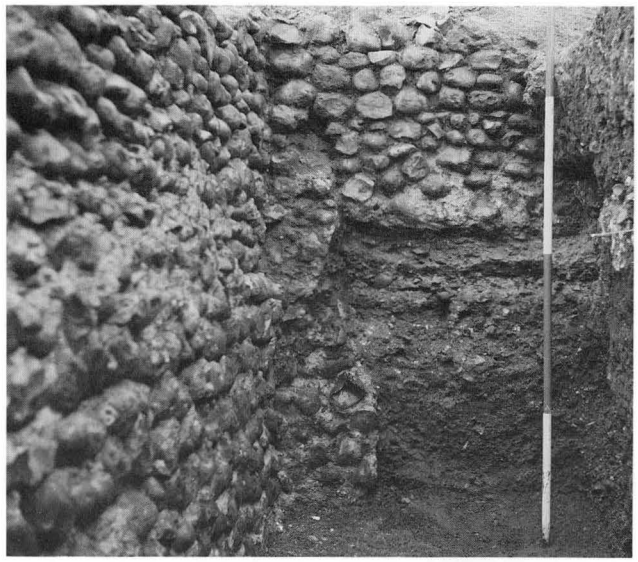
XIX. Arch *1066* in turret *2025*, Building *2100*. The wall above the arch was rebuilt in the fifteenth century. Vertical scale: 2 metres. Horizontal scale: 1 metre (BWE7)

voussoir from the base on each side of the exterior arch is cut by a recess which opens towards the interior (Fig. 34). The function of these recesses and of the arch itself will be discussed below (p. 157-8).

A series of floor surfaces were encountered within the building (Fig. 35). These were removed during excavation and the preserved structure within the new development has a reconstituted floor at the earliest level. The primary surface consisted of crushed chalk (*2402*) which had presumably extended across the entire interior but was missing in certain areas. It was overlain by a further layer of chalk (*2142*) which occupied the entire floor surface except where gravel showed through at the south end (Pl. XV) and contained a sherd of Rhenish pottery. In turn it was sealed by a thick deposit of silty loam with inclusions of flint, chalk and charcoal (*2098*) (pottery fragments included Early Medieval Ware, medieval coarse wares, glazed ware more likely to be of East Norfolk than West Norfolk manufacture, Stamford Ware and a sherd each of Andenne and Badorf-type Wares; Fig. 75, No. 163) above which was laid a deposit of sand and gravel (*2097*). This underlay a third surface, of crushed chalk (*2077*), which extended over the entire area and was packed to a hard, smooth level finish (with fragments of St. Neots-type Ware and 'Group X' Ware (Fig. 76, No. 172). Above this, in the south-western corner, a silty organic deposit (*2081*) was located (Fig. 36), subsequently identified by environmental analysis as the result of flooding (p. 122). Fragments of the 'Group X' vessel were also discovered in this deposit. A shallow pit (*2095*), fed by a gully *2090* (Fig. 36), may also be associated with such flooding. The pit was sealed by a silty loam (*2093*) which also sealed the threshold of the north doorway. Above this layer a blocking of coursed flint (*2046*) was inserted, sealing the doorway (Pl. XX). Several post-holes (Fig. 36) were also located adjacent to the northern ends of the east and west walls. A thin layer of silt and a level of sandy loam partially sealed the underlying chalk surface before a final chalk level (*2011*) was deposited, as extensive as its predecessors save that it also ran into blocked doorway *2227* (and containing a possible Early Medieval Ware socketed bowl handle; Fig. 75, No. 146, and a Rouen-type Ware jug; Fig. 75, No. 166).

West of the building, bounding the street frontage of the western area, a further wall of coursed flint was uncovered (Fig. 27, BL-BM). This wall (*2312*) survived to a height of eight courses and ran west from a junction with the west end of wall *2104* (Pl. XXI). It overlapped and was bonded into the protruding external 'buttress' at the south-west corner of the building. Its western end remains unknown as its line was cut by later intrusion. No return to the north was recovered within the area of the excavation although the line of such a return may have been preserved in later wall *2184* (Fig. 52 and p. 59).

XX. Blocking *2046* in doorway *2227*, Building *2100*. Scale: 1 metre (BUZ9)



XXI. Wall *2312* at its junction with larger wall *2104*. View looking south. Scale: 2 metres (BWE2)

East of the building (Figs 37 and 38) a clear hiatus of occupation was observable, contemporary with its construction. With the insertion of foundation cut *700* containing fill *701* (Fig. 37) a spread of gravel (*480*, *481* and *527*), probably upcast from the foundation digging was spread over much of the eastern area (Fig. 38). Utilisation of the site then resumed above this surface with several features cutting it, *e.g.* pit *484*. A slot (*572*) with post-holes ran west-to-east but was cut by the site 34 trench. No other similar features were located although *571* may have been a post-hole and pit *637* had the remains of a post, possibly burnt *in situ*, within it. Of the other pits, *434* was notable with its fill of soft puddled chalk. Pit *370* continued in use from Phase III; its lower deposits were sealed by sand *371* (Fig. 20, AY-AZ) which survived with a 'castellated' effect on its south side (Fig. 38), probably the result of revetting with timber. North and west of this pit a north- to-south linear feature (*479*) ran parallel to the foundation cut for Building *2100*, possibly a straggling eaves-drip gully for the stone building, while further pits, notably *565*, lay to the south (pit *565* containing a crucible fragment; Fig. 62, No. 5).

Almost the entire area west of the 1962 trench was overlain by *433*, a sandy loam which also sealed the foundation cut of Building *2100* (Fig. 37, CG-CH). North of the trench a similar deposit (*471*) overlay the area, being itself sealed by layer *291*. East of the trench, the area was sealed by a further loam level (*440*) while to the south another such layer (*558*) contained a small bone pin fragment decorated with an animal head (Fig. 83, No. 30). It is likely that these layers all formed a single deposit. Patchy levels of chalk and burnt material (*425*, *423* and *422*) were located above *440* as can be seen on Figure 11, AJ-AK.

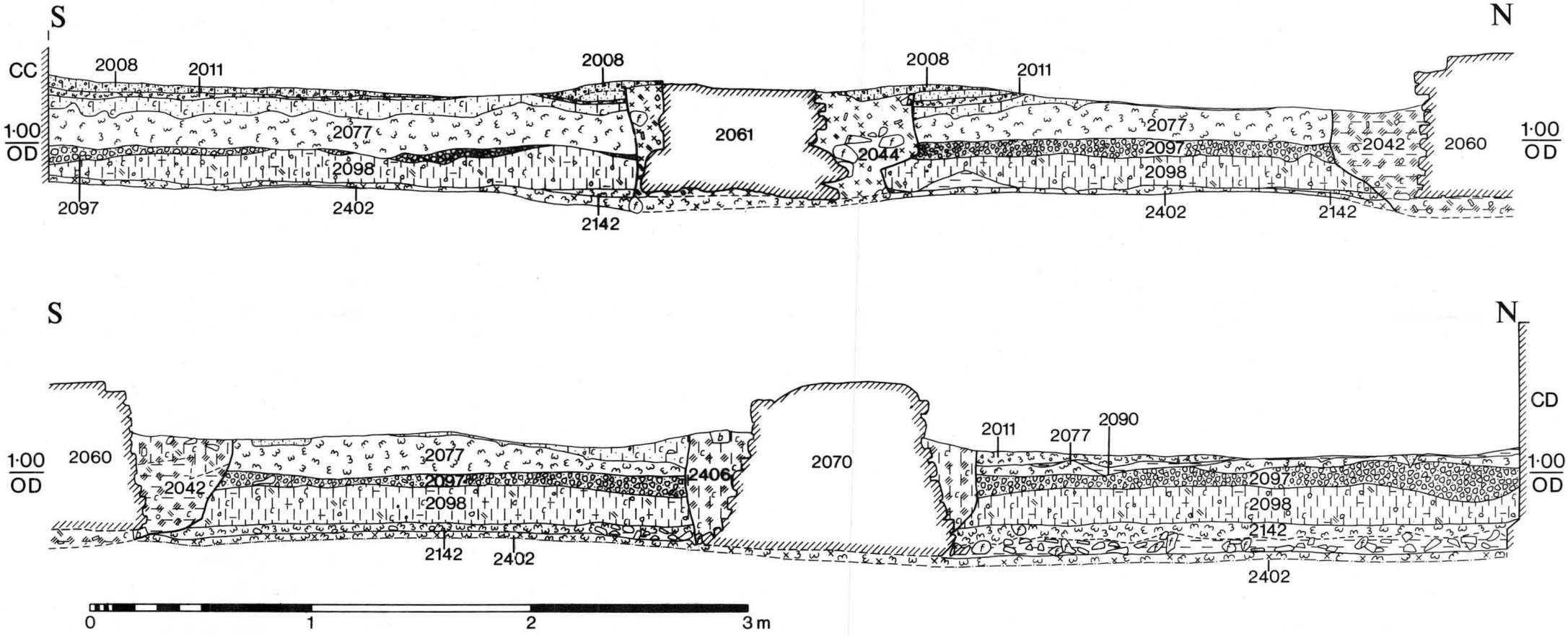


Figure 35. Building *2100*. South-to-north section through floor deposits (CC-CD). Note inserted pierbases. Section located on Fig. 25. Scale 1:25.

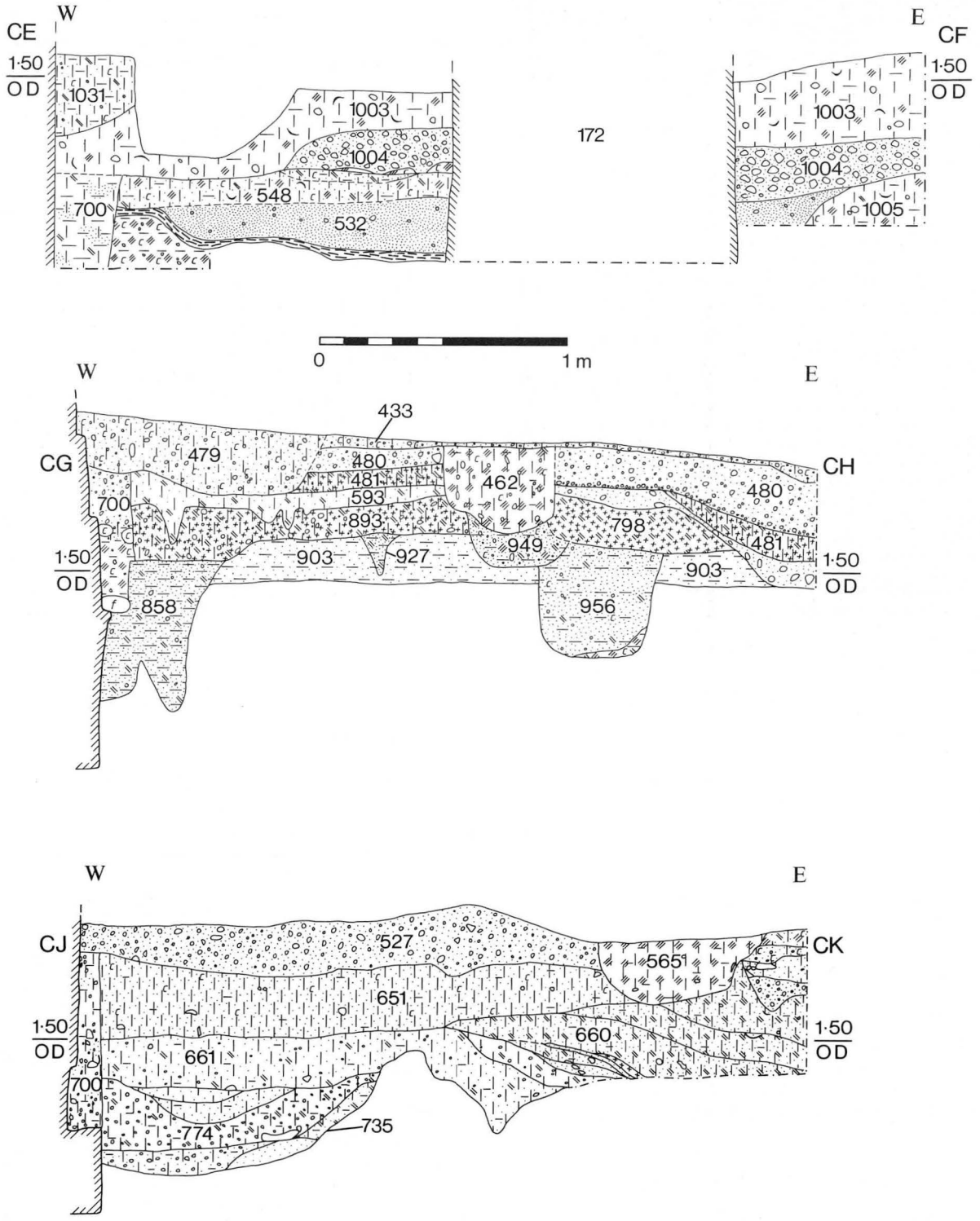
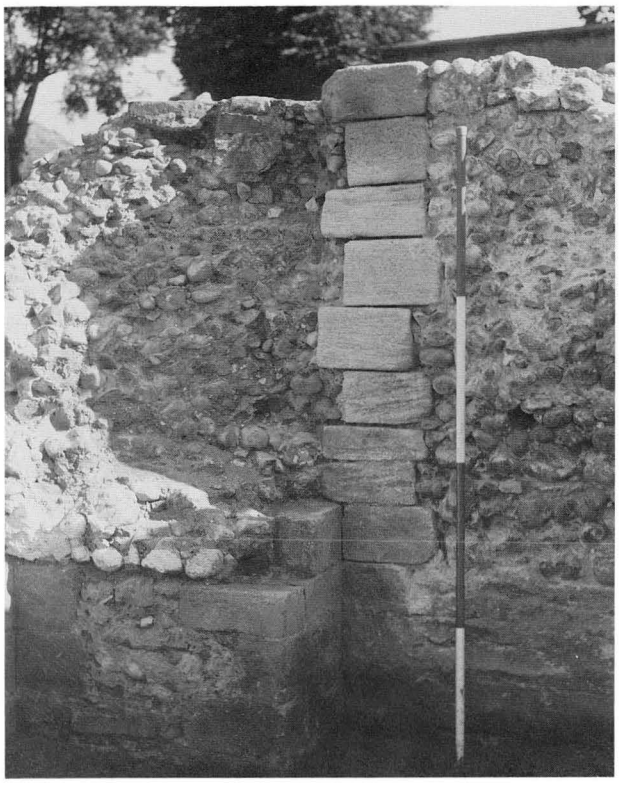


Figure 37. Periods I and II (east). Baulk sections (CE-CF, CG-CH, CJ-CK) against exterior face of east wall *115*, Building *2100*. Sections located on Fig. 38. Scale 1:25.

In the waterfront area (Fig. 41, microfiche), above the Period I levels, deposits were sparse. The line of gully *562*, obscured by fills, was reinstated by recutting and lining of the eastern edge with gravel (*1038*). Thereafter the gully accumulated more material (*1026*) until it was sealed by a silty clay loam (*1033*). This layer, the same level as *291* uncovered to the south, was extensive and sealed sand deposit *1004* and much of thick homogenous deposit *1005* (above, p. 214). It probably also sealed a further, shallow gully (*1084*) which ran west of, and parallel to, gully *562*. Its line petered out to the south and it remains unknown whether it was associated with the building sequence at the street frontage or with traces of a third gully (*1089*; Fig. 41).

Probably late in Phase II2, immediately north of arch *1066* in Building *2100*, a pit (*1061*) was dug or scraped (Fig. 41), into which were inserted vertical posts and horizontal boards (*1069*, a-f). These timbers were all of oak and



XXII. North-eastern internal corner of Building *2100* showing weathering on upper quoins of buttress *2136*. Scale: 2 metres (BWC6)

perhaps associated with the efficient use of the arch and turret. Two other pits were also encountered in the same area (Fig. 41).

The start of Phase II2 can, to a certain extent, be dated on architectural grounds, stone building *2100* being similar typologically to the Music House on King Street, Norwich, dated to *c.*1175 (p. 158). The deposits of this phase contained several intrinsically-dated artefacts of twelfth- and thirteenth-century date (Table 1) while the imported pottery included sherds of thirteenth-century Rouen Ware (Table 5). The English pottery assemblage contained less Thetford-type and Early Medieval Ware than hitherto but significantly greater numbers of medieval unglazed coarse wares with few glazed fabrics (Table 4).

IV. Period III: The Medieval Structures and Deposits (including Site 34 material)

Period III material can only be considered from two areas (central, *i.e.* Building *2100*; and east) as no such material was recovered from the western area (where machine work was necessarily deep). As above (in Period II) waterfront activity is described with the eastern area.

Period III, Phase I (Figs 39-41)
Occupation of stone building *2100* appears to have ceased at the end of Phase II2, the building falling into ruins. The excavated cellar or undercroft was open to the sky, as demonstrated by severe weathering on the upper internal quoins (notably in the south-western and north-eastern corners) (Pl. XXII). The mortar rendering of the internal walls was also weathered away on the upper courses (Figs 27, BJ-BK and 28). However, the lower courses and the lower quoins were presumably protected, probably by rubble, as here rendering and toolmarks survive with little damage. The structure seems to have remained out of use until Phase III3. There was, however, a noticeable dearth of rubble from either the building or elsewhere on the excavation (p. 159).

At the start of this phase much of the eastern area (Fig. 39) was levelled by the deposition of crushed chalk (*11*; *173*; *206*; *466*). Above this surface a working area was established, apparently without buildings. Several hearths (*391*, *424*, *545* and, possibly, *447*) were located of which the most spectacular was hearth *424* (Pl. XXIII). This hearth was constructed of large, rounded flint cobbles which were unburnt and presumably acted as a raised base for the hearth proper of clay which was heavily burnt to a reddish-brown on its western side (that is above the stones) (Fig. 40, on microfiche, CL-CM). The adjacent hearth (*391*), of clay without cobbles, was burnt a vibrant orange-red. A brick plinth (*344*) seems to have been associated with these features as does a series of post- and stake-holes (see Fig. 39) although at least one of these (*406*) postdated hearth *424* (it cut layer *390* which sealed the hearth). The only other features encountered were pits. Two of these were circular and apparently lined with brick (*376* and *229*) (Fig. 39 and Fig. 40, microfiche, CN-CP). One pit (*386*) was very large, if shallow (some 58 cm depth), and was cut against the east wall of the derelict stone building. Pits *459* and *462* were both sealed by thin layers of chalk. The area as a whole was sealed by an extensive deposit of clay loam with inclusions of chalk mortar and flint pebbles (*5*; *373*; *405*).

No deposits firmly attributable to Phase III1 were located in the waterfront area. Dating of the phase as a

XXIII. Hearths *424* (foreground) and *391* looking east. Scale: 1 metre (BUM11)

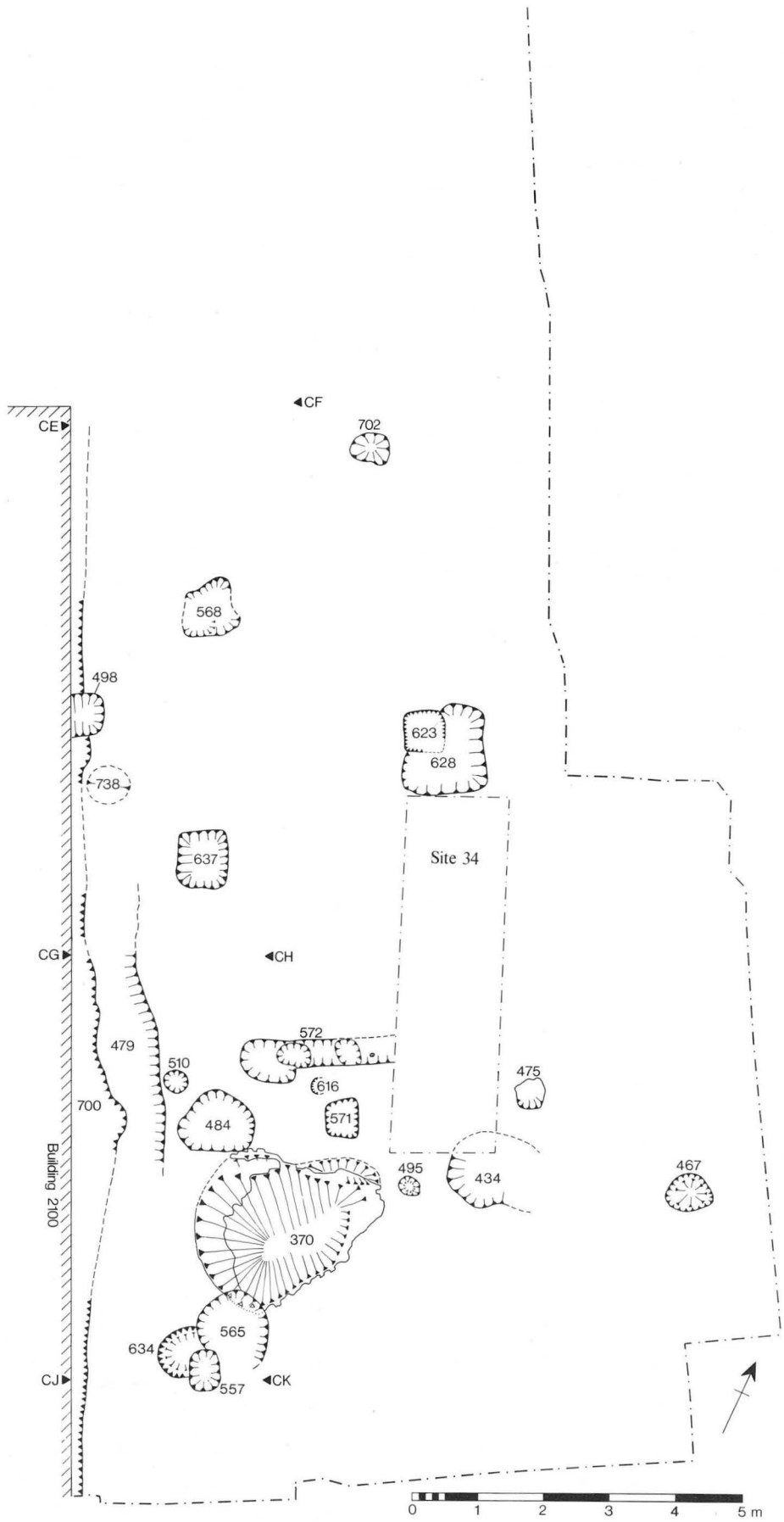


Figure 38. Phase II2 (east). Plan of excavated features. Scale 1:100.

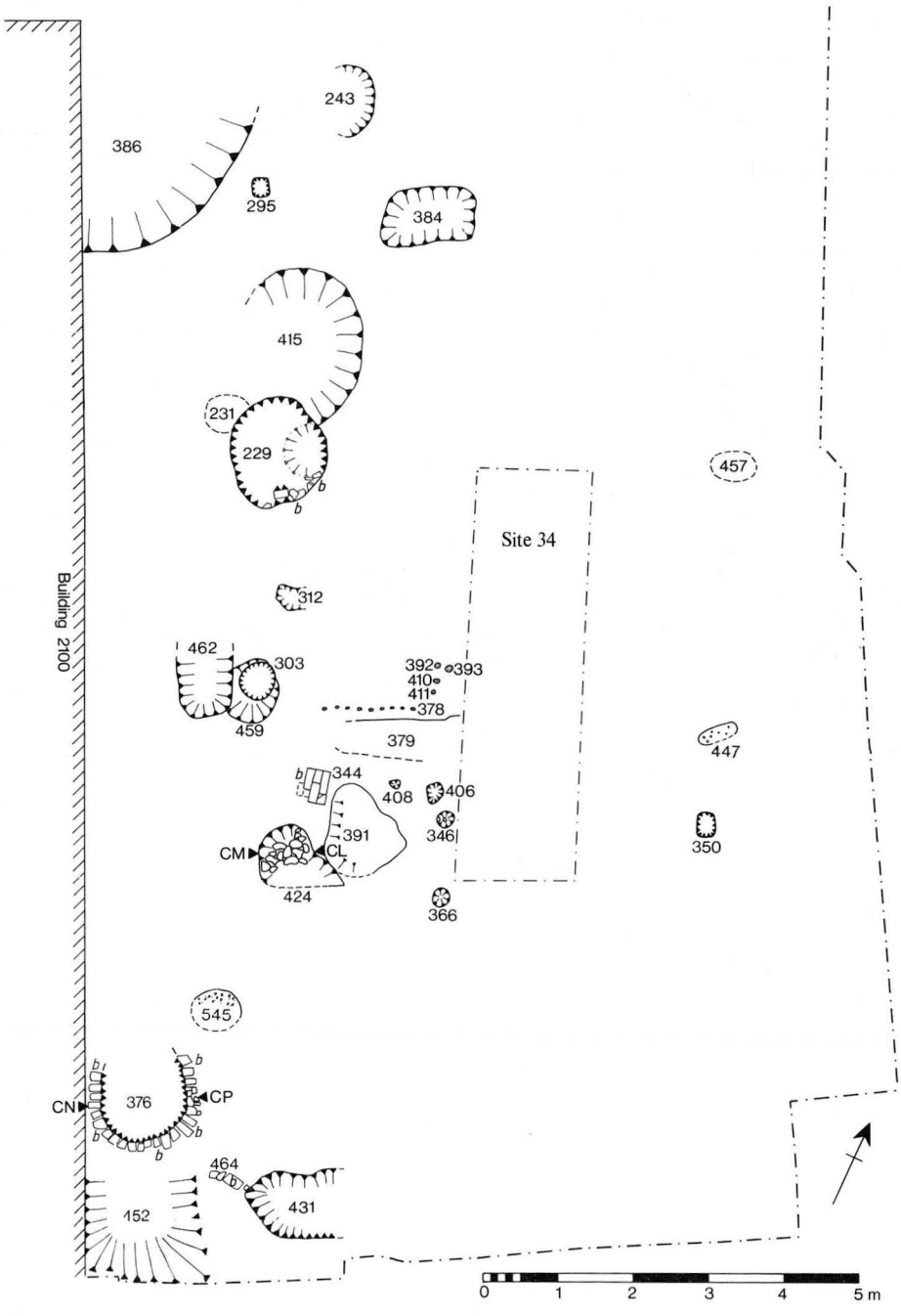


Figure 39. Phase IIIl (east). Plan of excavated features. Scale 1:100.

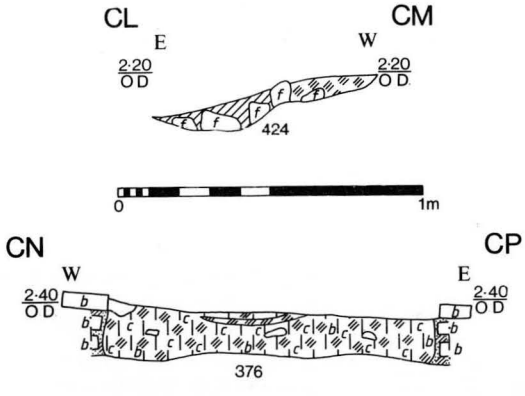


Figure 40. Phase IIIl (east). Sections of features *424* (CL-CM) and *376* (CN-CP). Sections located on Fig. 39. Scale 1:25.

whole is problematical, few finds being recovered. It seems likely that the deposits accumulated in the first part of the fourteenth century.

Period III, Phase 2 (Figs 42-49)

The dereliction of stone building *2100,* observed in Phase IIIl, appears to have continued throughout Phase III2. Although destruction deposits might have been expected, these did not exist (p. 43).

A major building (*3132*) was erected in the eastern area during Phase III2 (Figs 42 and 43). Only part of the structure was recovered as it seems likely that it continued eastward below the east excavation section. The remains within the excavated area probably consisted of part of a front range with a wing at right-angles to the rear.

The street frontage wall had been largely destroyed by a modern cellar although the western end did survive (wall

336; Fig. 44). Here it was constructed of irregularly-bonded brick and flint and abutted the exterior of the east wall of the (apparently) derelict stone building. The re-entrant angle was concealed by a square brick pilaster *334* (Fig. 43). This was constructed of flat bricks laid with thick joins (2 cm) in English bond (Fig. 44), although it also contained some large flint cobbles in its upper courses (Pl. XXIV). This pilaster and the wall formed the southern boundary of the front range, the western boundary being formed by the pre-existing wall of building *2100*. No eastern boundary was located, either because of destruction by the modern cellar or, more probably, because the range continued beyond the excavation. The northern boundary was provided by wall *81* at the western end, an irregularly bonded wall of brick and flint (Fig. 43), but east of this a wall as such did not exist, the front range merging with the southern end of a rear wing set at right-angles. Here the boundary of the range was probably delineated by a timber partition as will be made clear below (p. 160).

Within the front range deposits survived at two levels: 'ground-floor' and 'basement'. The 'ground-floor' layers and features are described below. The 'basement' features, however, formed part of the structure of the building. In the centre of the range evidence survived to indicate the existence of a brick undercroft subsequently destroyed by a modern cellar (Fig. 42). A north-to-south aligned brick and flint wall bounded the western edge of the apparent undercroft (Fig. 42) and formed, with a further such wall (*450*), an entrance from the north side of the front range. Two steps of brick-on-edge (*448*) survived between these walls. A further wall (*222*) formed part of the north side of the undercroft and all other evidence was destroyed[13]. However, north of the presumed undercroft, a vaulted side chamber (*187*) survived intact (Figs 42 and 45). This roughly square enclosure ran beneath the wing of the building and was constructed with walls and a barrel vault of brick[14] (Pl. XXV). The interior of the vault was rendered. Its northern wall was unseen in the 1962 trial excavation, being some 5cm or less behind the south excavation section of the trench.

The right-angled wing had walls of coursed flint (walls *51*, *6* and *54*, Fig. 43) (Pl. XXVI). These were all set into foundation trenches, noticeably so in the cases of walls *6* (trench *4*) and *51* (Figs 43 and 46), less obviously in the instance of wall *54* which alone was not removed during the course of the excavation as it followed the line of the east section. Yards bounded walls *6* and *51* and almost certainly wall *54* as well. All three wall were rendered internally. A doorway (*9*) opened through at the west end of wall *6* (Figs 43 and 46). Brick piers *85* and *86* were constructed at each side of the opening, pier *86* built in such a way as to form an external jamb. The bricks used were squints, possibly chopped rather than stock-made [15], with the chamfered edge on the interior of the doorway. The brickwork was probably rendered but the only place where this survived at all well was in the joint for pier *86*. A small recess (12×12×18 cm) lay partly within pier *86* and partly within the thickness of wall *6* on the interior. This may have been associated with a feature within the wing itself (p. 47). A threshold (*192*) was formed above layers *293* and *3*.

A further doorway (*236*) occurred at the junction of walls *51* and *81*. Here dressings, if they ever existed, did not survive. A jamb was apparently effected internally on the south side. An opposed doorway in the east wall is known from other evidence (*e.g.* Ninham's print of 1842, Pl. XXX) but the lack of archaeological data in this area means that it is not possible to say whether this latter doorway was an original or inserted feature.

Levelling for surfaces within the wing was essentially effected by a dump of clay (*3*) together with an extensive area of orange-brown, burnt, gritty silt loam (*12*) at the southern end (this latter being cut by post-hole *361*). Above this a series of features was uncovered (Fig. 43). The earliest of these was a line of post-holes running the length of wall *51* (from north-to-south, *341*, *211*, *213*, *209* and *203*). All these probably preceded the earliest floor surface and may be associated with the construction phase Other post-holes were recovered adjacent to the east wall (from north-to-south), *254*, *301*, *264*, *320*, *318*, *308*, *310* and *268*. These latter were overlain by a small area of crushed

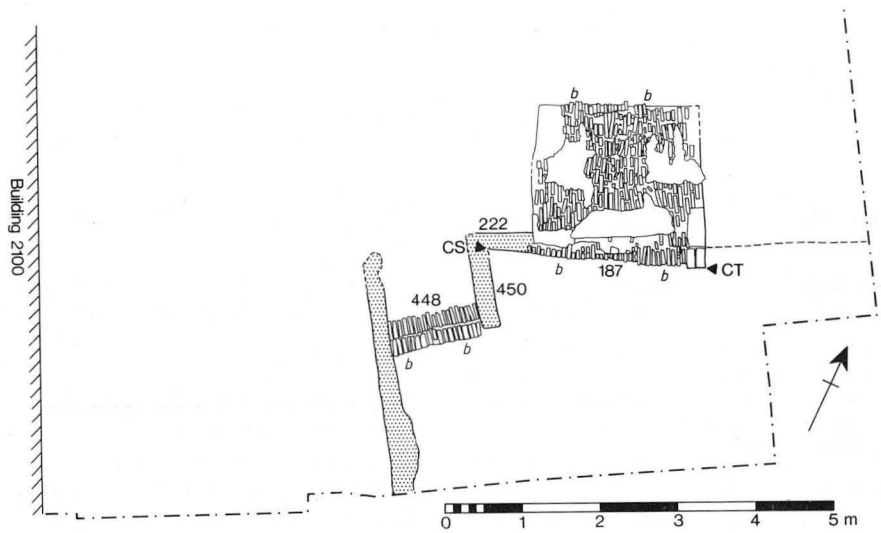


Figure 42. Phase III2 (east). Building *3132*. Basement plan showing the roof of Vault *187* and Steps *448*. Scale 1:100.

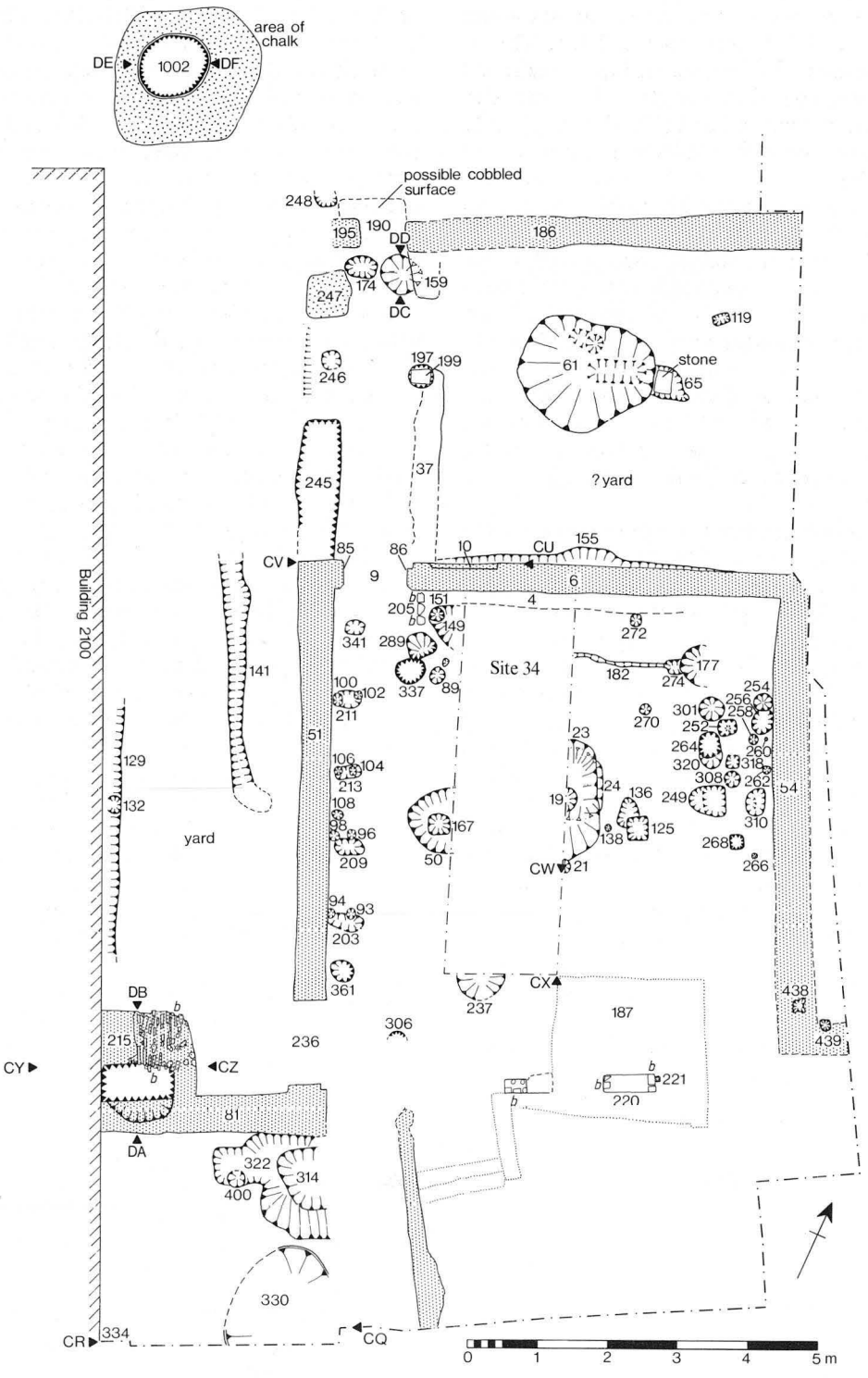


Figure 43. Phase III2 (east). Building *3132*. Ground floor plan showing excavated features. Scale 1:100.

chalk (*251*) which was only observed east of the 1962 trench. The remaining post-holes in this part of the wing were all apparently in use with this chalk (the only exceptions being features *177* and *182*) as was feature *24*. This shallow depression, located centrally, contained a burnt silty clay loam (*28*) and was interpreted as a 'hearth' in 1962. This is possible if unlikely although some such similar function may explain its existence (p. 160). A north-to-south line of bricks (*205*) adjacent to the east side of doorway *9* may have been associated with the recess in wall *6*.

A further surface (*2*), consisting of sandy clay loam and containing numerous fishbones, lay mainly to the west of the 1962 trench. Probably associated with this surface, however, were post-holes *237* and *167* (this latter in a post-pit) as well as *337* and *149* (Fig. 43).

A second surface of chalk (*1*) extended across the centre of the wing (sealing the top of vault *187* which previous levels had only lapped against) save for the north-east corner where it had been removed by later activity. It contained a jetton of Edward II (p. 62) and was cut by Feature *23* which superseded Feature *24* and contained

XXIV. Brick pilaster at western end of wall *336*, Building *3132*. Scale 1 metre (BUN11)

XXV. Remains of undercroft, Building *3132* looking north. Only the steps, vaulted sidechamber and wall linking them are medieval. Scales: 2 metres (BUK4)

XXVI. Right-angled wing of Building *3132* following initial clearance looking north. The trench is re-excavated Site 34, dug in 1962 by the late Rainbird Clarke. Scales: 2 metres (BUA6)

numerous loamy or clay fills of which three (*25*, *27* and *162*) were either completely or partly burnt. The floor was overlain by a deposit of sandy silt loam with common charcoal streaks (*80*) which, in turn, lay below a layer of sandy mortar (*79*). Layer *79* also overlay a north-to-south strip of clay (*90*) adjacent to the east face of wall *51* which sealed a rectangular feature (*134*) cut by nine post-holes (*93*, *94*, *96*, *98*, *100*, *102*, *104*, *106* and *108*). This feature (Fig. 43 for the post-holes) can perhaps be best explained as a piece of furniture or fitting (p. 160). The overlying layer (*79*) may have been patched by crushed chalk and pebbles (*84*) before both were overlain by silty loams *17* and *16*. An attempt has been made to equate these layers with those observed in 1962 (see Fig. 47 and microfiche, 1:A.4-5).

Within the front range, ground floor deposits only survived at the west end (Fig. 43). Here a small room was probably entered from the south-west corner of the wing. A strip of sandy loam ran north-to-south across the room, effectively dividing it. In the eastern part a large cut feature (*322*) seems to have acted as an oven. Late in the phase it was cut by pit *314*, perhaps contemporaneously with the cutting of pit *330*. The western part of the room contained clay loam deposits *444* and *166*, both of which contained chalk flecks while *166* also contained flint and tile rubble as well as fragments of whitewashed or painted plaster. The north wall of the room (*81*) appears to have had a chute within it (Figs 43, and 48 DA-DB), presumably to facilitate the disposal of waste to cess or rubbish pit *215* in the yard (p.161).

Pit *215* (Fig. 48) was constructed in the external angle formed by wall *81* and pre-existing wall *115*, the west wall of the stone building[16] (Pl. XXVII). It was built of flint cobbles, seventeen courses in all, and survived to its full height. At the top it was partially vaulted in brick at the north side as indicated on Figure 43 and shown in cross-

XXVII. Pit *215*, Building *3132*, constructed immediately adjacent to wall *115*, Building *2100*. View looking west. Scale: 2 metres (BUJ9)

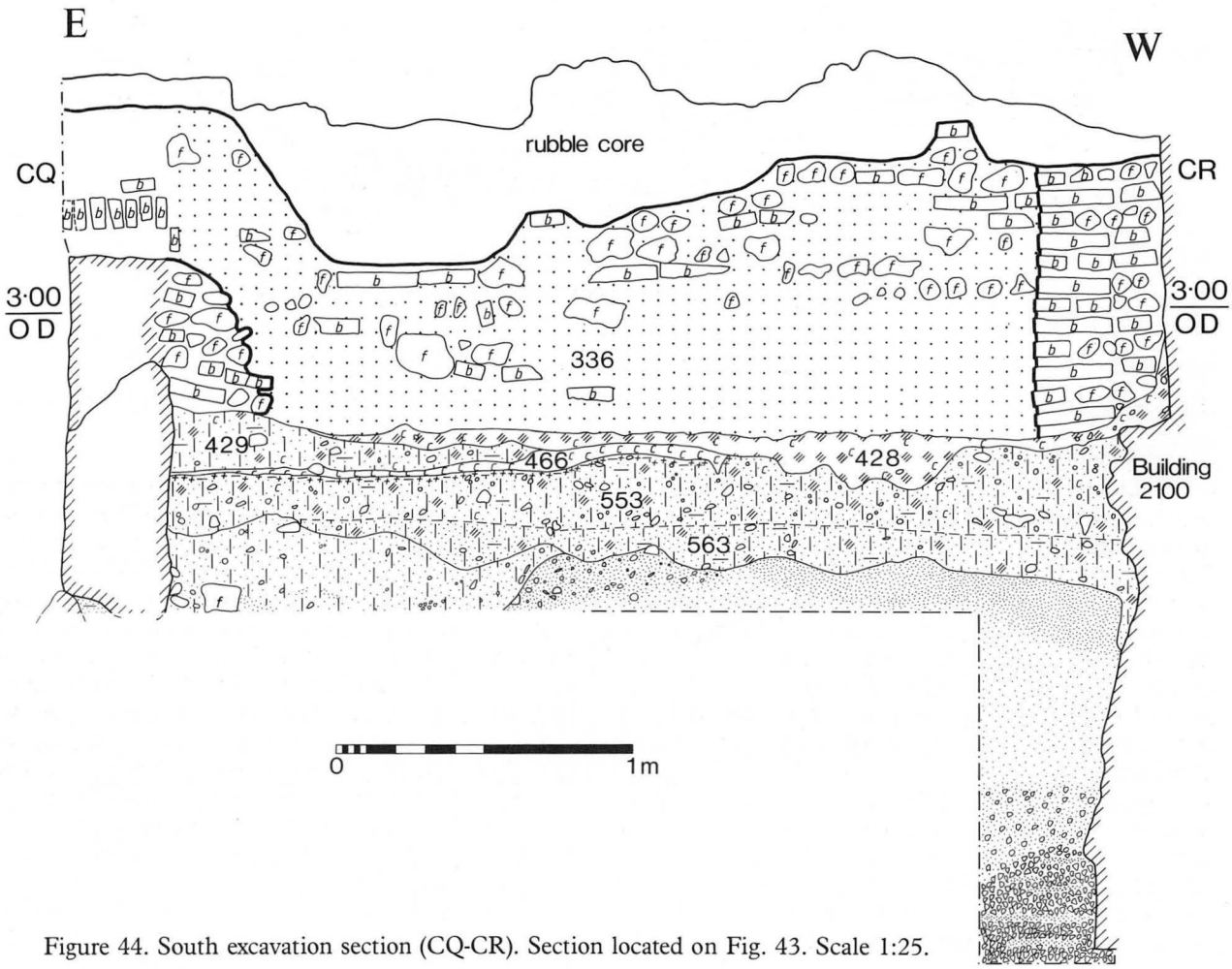


Figure 44. South excavation section (CQ-CR). Section located on Fig. 43. Scale 1:25.

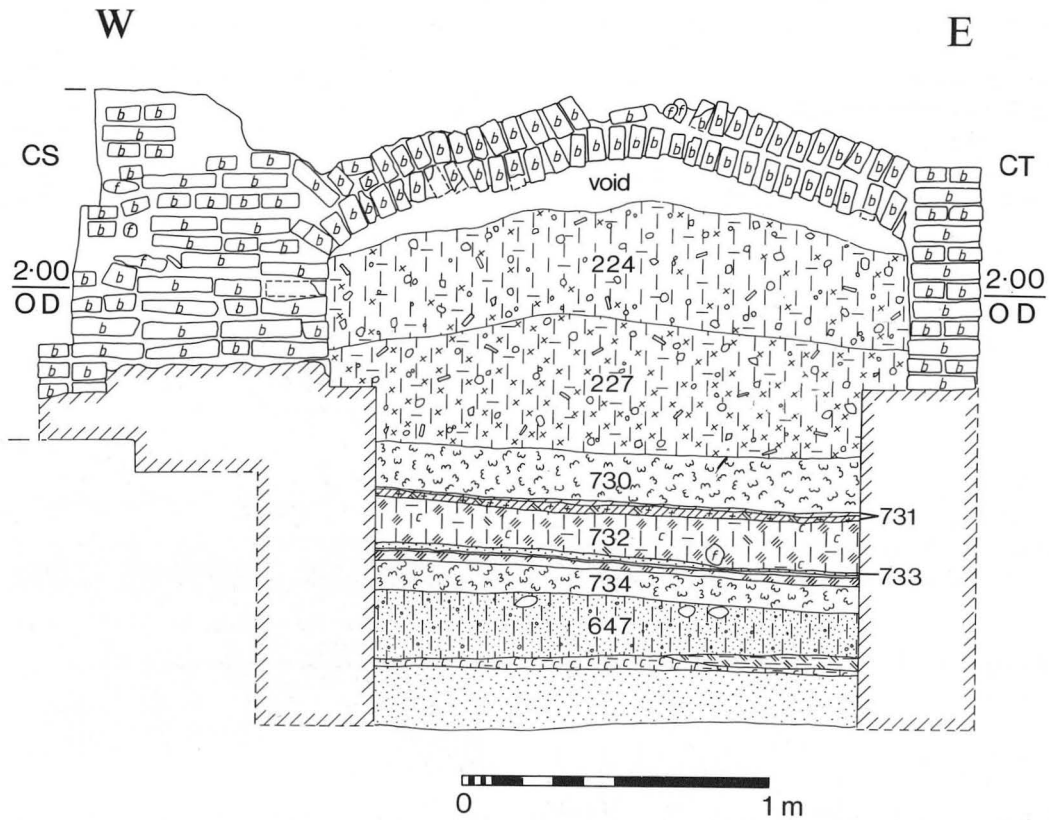


Figure 45. Phase III2 (east). Building *3132*. Elevation of vault *187* (CS- CT). Elevation located on Fig. 42. Scale 1:25.

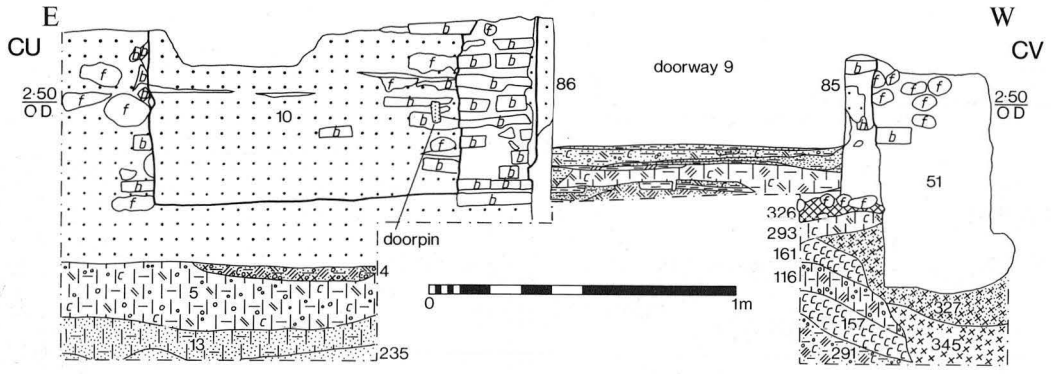


Figure 46. Phase III2 (east). Building *3132*. Elevation of wall *6* (CU- CV). Elevation located on Fig. 43. Scale 1:25.

section on Figure 48. The vault consisted of two courses of brick headers. The pit was cleaned out prior to infilling and did not contain finds of medieval date. It lay at the south-western corner of a side-yard which ran between Building *3132* and (apparently derelict) Building *2100*. Only two features were recovered within the yard in Phase III2: shallow gullies or slots *129* and *141*. The former of these had a base of rammed chalk into which was set a possible post-hole (*132*). The yard was covered by deposits *131* and *143*, respectively clay loam and mortar with flint and brick rubble, which sloped gradually downhill towards the river.

North of the building's wing, a further yard seems to have been enclosed (Fig. 43). The northern perimeter of this yard was delimited by a flint rubble wall (*186*)[17] which had been cut at its western end although its western abutment (*195*) survived. Any eastern boundary lay beneath the east section while the western boundary was formed by a beam slot (*245*) and at least one post-hole (*246*). The southern boundary was marked by wall *6*, a foundation trench for which (*155*) was sealed by *116*, a layer of silty clay loam with common to very common small flint pebbles which extended across much of the yard. It was overlain by an extensive layer of silty, slightly gritty reddish-brown loam (*66/67*) which was very similar to layer *12* in the wing to the south. At this stage the western part of the yard was covered by clay (*75*) and a structure erected above the beamslot and post-hole observed to the west (above) and a parallel strip of packed mortar (*37*) to the east (p. 161). The mortar was but by a post-hole (*197*) within which lay a sandstone padstone (*199*). At the south end of *37* a door may have opened eastward and sat in recess *10* in wall *6* (Figs 43 and 46) where a doorpin survived. The 'corridor' or 'passage' thus enclosed may have acted as a pentice, such as existed at Suckling House, St Andrew's Hill, Norwich (Alan Carter, pers. comm.). It had a threshold of flint cobbles (*190*) at the north end. Immediately south of this two small pits (*174* and *159*) were uncovered, the latter of which (Fig. 49, microfiche, DC-DD) contained a fragmented but almost complete pottery vessel (Fig. 76, No. 187) as well as numerous fishbones which may originally have been contained within the pot. A northern extension of *37* partly overlay this pit.

In the approximate centre of the yard a further small pit (*65*) also contained a sandstone padstone, set at a similar height[18] to that in pit *197*. Pit *65* cut layer *66* but was, in turn cut by a much larger pit (*61*). This had near vertical sides and a rounded almost flat base which latter was cut by a sub-rectangular depression (Fig. 43). It was filled with cream-coloured sandy mortar with small brick and flint rubble (*57*) and was sealed, along with the entire yard, by sandy silt loam *8*.

North of threshold *190* a fragment of a cobbled surface survived (Fig. 43). Otherwise the only feature probably connected with Building *3132* was a barrel well or cistern

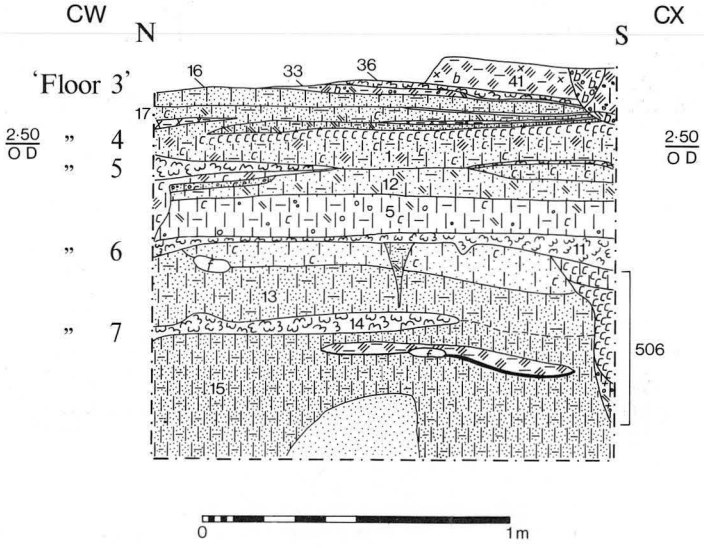


Figure 47. East section of 1962 excavation (Site 34). Detail showing interpreted correlation of 'floors' recorded in 1962 with stratigraphy recorded in 1981 (CW-CX). Section located on Fig. 43. Scale 1:25.

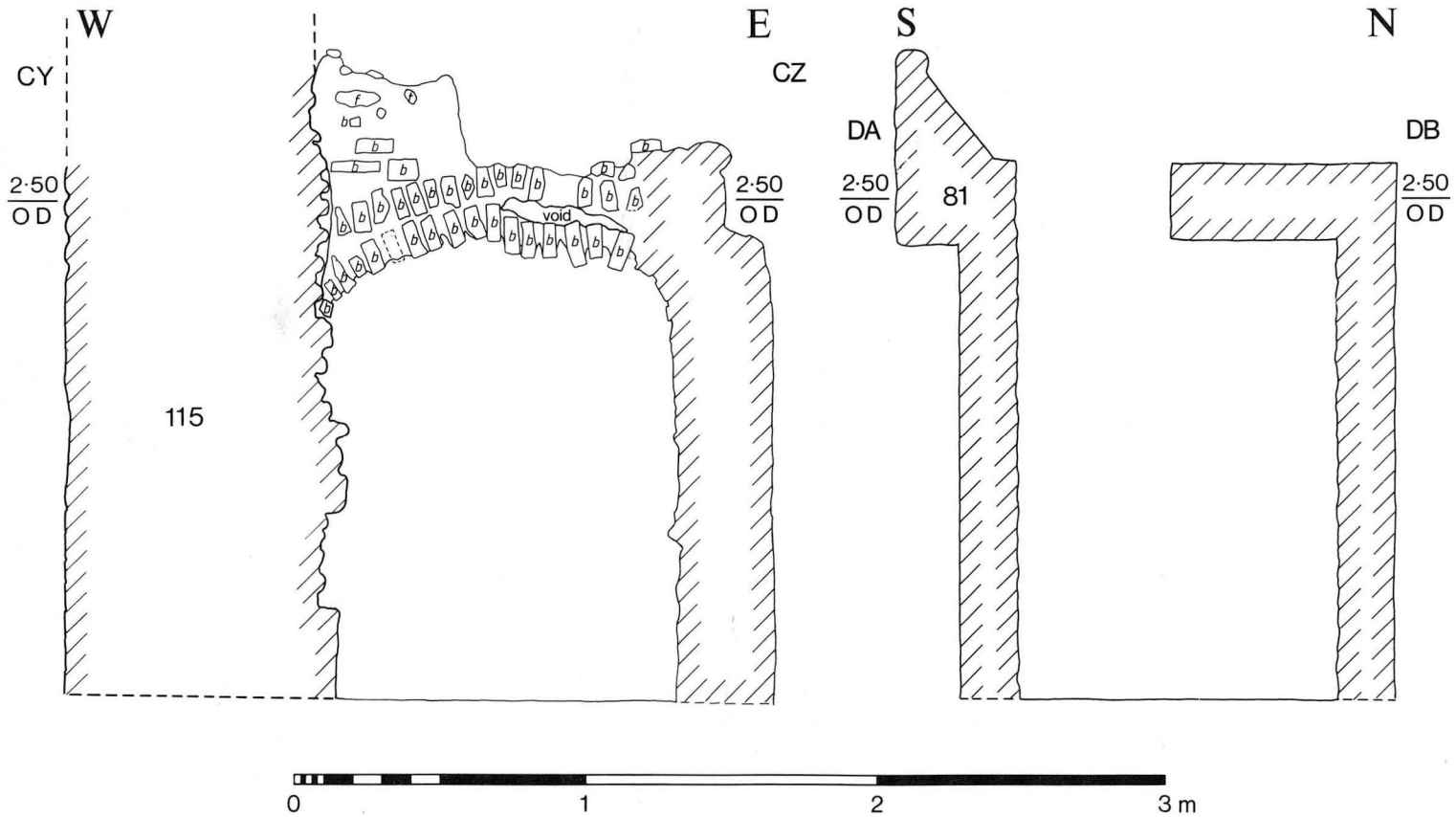


Figure 48. Phase II2 (east). Building *3132*. Elevations of semi-vaulted pit *215* (CY-CZ, DA-DB). Elevations located on Fig. 43. Scale 1:25.

(*1002*) which was lined with twenty-one vertical oak staves (one with a bunghole and the decomposed remains of a large bung) held together by external hoops of willow withies (Figs 43 and 49, microfiche, DE-DF). Some of these retained their bindings of bark strip closely wrapped vertically. Inside, a groove for a lid or base ran round the bottom of the barrel. It was clear that a barrel had been inserted into the well pit rather than the latter being lined with barrel staves. The gap between pit and barrel was filled with clay. Around the top of the pit a roughly symmetrical layer of crushed chalk (*1016*) was deposited. No other features of Phase III2 date were found within the waterfront area. Several layers abutted the walls of Building *2100* (*e.g. 1057*; *1058*).

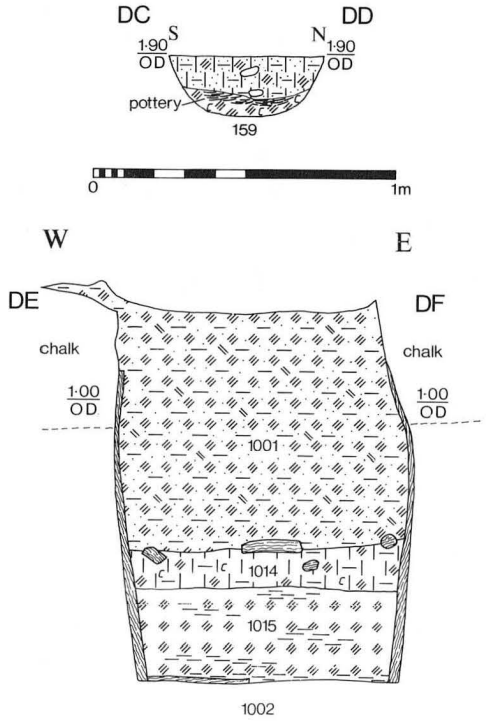


Figure 49. Phase II2 (east). Building *3132*. Sections of pit *159* (DC-DD) and well *1002* (DG-DF). Sections located on Fig. 43. Scale 1:25.

Dating of Phase III2 hinges on Building *3132* which seems to have been erected in the mid-to-late fourteenth century. One of earliest surfaces in the structure (layer *1*) contained a jetton of Edward III or Richard II (p. 62) suggesting this date while a beam slot associated with the primary building phase (*245*) contained a fourteenth century rowel spur (Fig. 60, No. 32). Pottery evidence was less clear cut although the quantities of Grimston-type and other lead-glazed wares (Fig. 64) do not contradict the dating.

Period III, Phase 3 (Figs 50 and 51)

During this phase Building *2100* was brought back into use (Fig. 50). The ruins were cleared to the top of Phase II2 floor level *2011* and any rubble thereby recovered was removed from the site. Three pits were dug centrally along the long axis of the structure as foundation pits for piers. In each pit a pierbase constructed of flint and brick survived (Figs 29, 35 and 50). No uniform build was adopted for these features; pierbase *2061*, for instance, is constructed with a base of large flints and upper courses of header and stretcher bricks while *2060* is of a more mixed build using flint cobbles and brick (both pierbases are extant and are displayed *in situ* below the new Magistrates Court; the northern base, *2070* (Pl. XXVIII), was unavoidably destroyed by the new development). The uppermost surviving course of base *2060* may represent the bottom of the pier itself, in this case probably an octagonal brick structure.

The three piers divided the internal area into eight regular units or bays (each bay being 11 ft or 3.35m square; Pl. XV). These bays were then vaulted in brick and evidence survived for this vault immediately south of the southern window where traces of brickwork were located at the top of the wall (Fig. 27, BJ-BK)[19]. Stone corbels, presumably acting in concert with the piers to support the vault, were also added to the walls (now removed for the new development). Evidence for three corbels survived at the southern end of the west wall (from south-to-north, *2137*, *2138* and *2139*; Fig. 27, BJ-BK and Fig. 28). The two southernmost corbels were intact, each consisting of two stones set into a cut recess in the wall and held by brickwork (Pl. XVIII). The lower stone of each had a rounded external face, the upper stones chamfered faces. Both slumped slightly, presumably as a result of carrying overlying weight. Only one stone survived of the northern corbel, its face damaged[20].

The reroofing went hand-in-hand with other structural repairs. The internal face of the east wall is considerably patched with brick and flint, particularly at the north end, and much of this may date from this phase. A possible central respond in the south wall (Fig. 30, BQ-BR) may also be a build of this phase, perhaps replacing an earlier example. The northern and western walls of the turret were partially rebuilt in a rather crude manner. The regular flint coursing evident at the base of the arch (Fig. 33) was not duplicated higher up where an irregular wall

XXVIII. Pierbase *2070*, Building *2100*. Scale: 1 metre (BWH10)

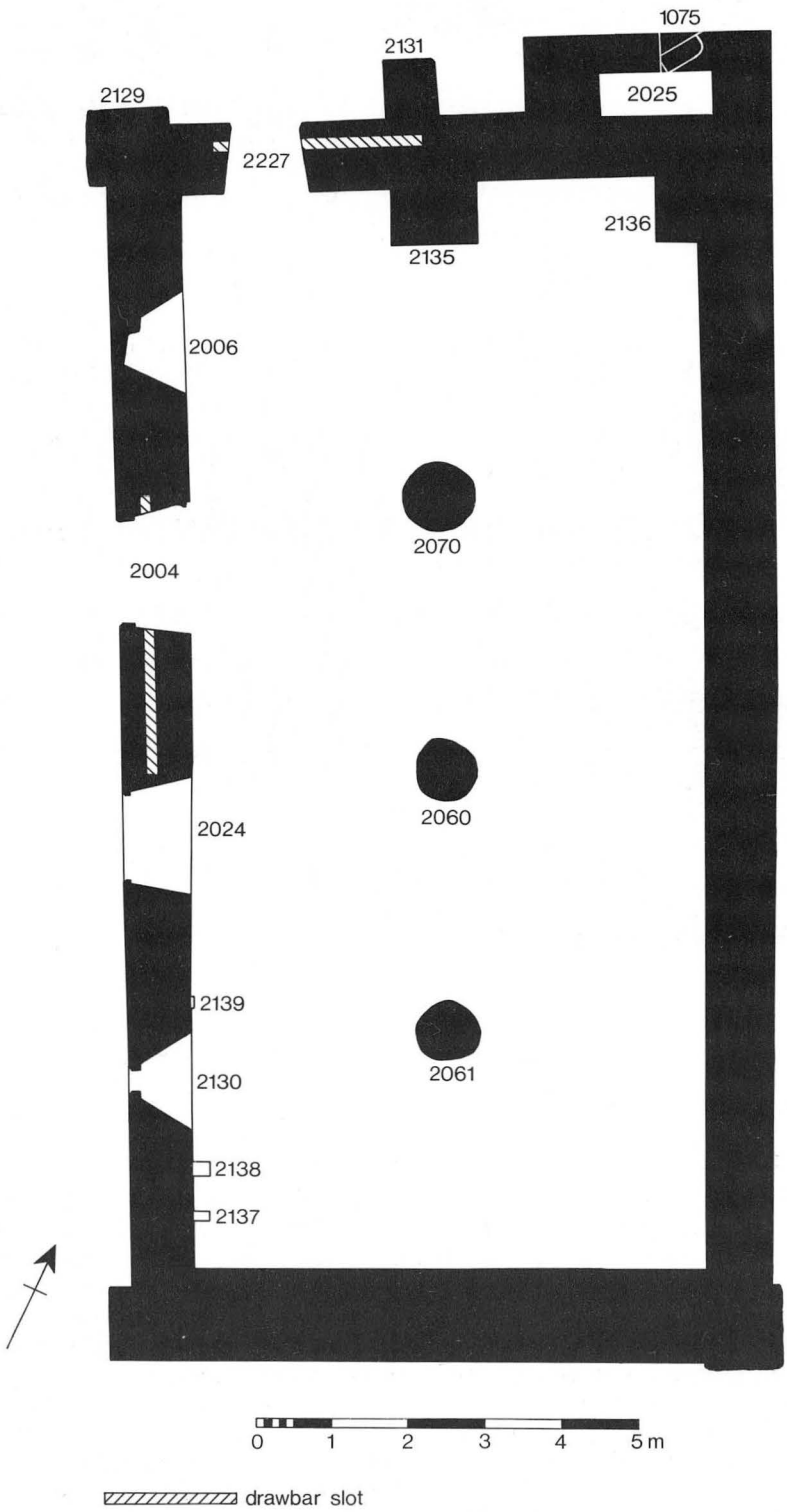


Figure 50. Phase III3 (centre). Building *2100*. Block plan. Scale 1:100.

was botched together, using both flint and tile including, on the interior, two fragments of ridge tiles, both with traces of settings for curfews (Figs 34 and 78, No. 2; Pl. XXIX). Externally it seems likely that the dressed stone on the north-east angle was also reused from the chamfered plinth upwards. These quoins (which may be Caen stone) are remarkably well-tooled and unweathered, indicating that they have probably been relocated from an internal use as well as being rapidly protected from the elements by encroaching deposits following their re-use. Diagonal toolmarks are very clearly visible, in contrast to the lower quoins which are weathered. Re-use is perhaps emphasised by the incongruous use of a chamfered plinth half-way up a wall. It is likely that the arch and turret had ceased to function at this phase and, indeed, the turret was partially blocked by rubble[21]. Two steps of brickwork were fashioned in the rebuilt wall above the arch, turning in such a way as to suggest three steps in total, presumably

XXIX. Interior of latrine turret *2025*, showing repairs using ridge tiles. Scale in half-metres (BWC1)

leading to a newly-fashioned doorway (p. 159). Brick steps also seem to have been fashioned in the wall at the north-western exterior corner (archive plan 450N82).

Whatever superstructure was added to the refurbished Norman hall[22], it clearly needed additional stabilisation, as a buttress (*2131*) was added to the exterior of the north wall (Fig. 50). This buttress had a base of flint with courses of brickwork above and was clearly designed to retain the wall at a greater height than that which survives as it did not quite abut the existing wall[23].

Details of the structure were also altered. The southern window (*2130*) was probably truncated to allow the insertion of the vault but otherwise preserved its original form. It may, however, have been given a leaded light as traces of lead flashing were found. The central window (*2024*) was, or already had been, robbed of dressed stone save for a stone at either end of the inner sill. The sill, with the embrasure, was left as a rubble void but the outer sill was crudely reinstated with brick-on-edge (Fig. 27) and probably also had a glass light as a leaded fragment was located in this area (p. 74, Cat. No. 1d). The northern window (*2006*) had its loop removed, to be replaced with reveals of brick. At some later date this reconstituted light was blocked (Fig. 27, BL-BK), by brick and tile.

Use of the doorways was re-established although the internal step of the main doorway (*2004*) was now completely buried. A new threshold of sorts (very rough cobbling above the earlier cobbles) ran across the entrance at the same height as the outer step which ceased to act as a door stop. Below the threshold was a fine iron knife of probable fifteenth-century date (Fig. 59, No. 16). The southern jamb of the doorway was repaired in brick. Doorway *2227* retained its added threshold of late Phase II2 date (p. 40) but some rebuilding work may have been undertaken on the exterior. Here the stonework was confused and collapsing (it has now been consolidated) but it is possible that at least one dressed stone, with a recess containing window lead, may have been reused from elsewhere. A surface of hardpacked sandy loam (*2008*) was deposited within the building. No stratified deposits were recovered above this level.

A dramatic restructuring of Building *3132* was also undertaken in this phase (Fig. 51). Much of the excavated area of the building remained as it was but it seems likely that this part was divorced from any structures further east. Deposits at the eastern end of the front range were destroyed by a later cellar but other evidence suggests that it was truncated at the approximate line of wall *54* rather than running eastward. Wall *154* itself was cut at its southern end and *its* eastward return also removed. The surviving length of wall was the thickened (compare Figs 43 and 51) and strengthened to the west in concert with added walls *179, 184* and *185.* These structures of heavily-mortared flint cobble and brick, singularly massive in the case of *185,* supported an arch (known from pre-demolition photographs and drawings) to be a bay window (Pl. XXX and Fig. 51). This window, which has been re-erected at 10, St. Martin-at-Palace Plain[24] was not,

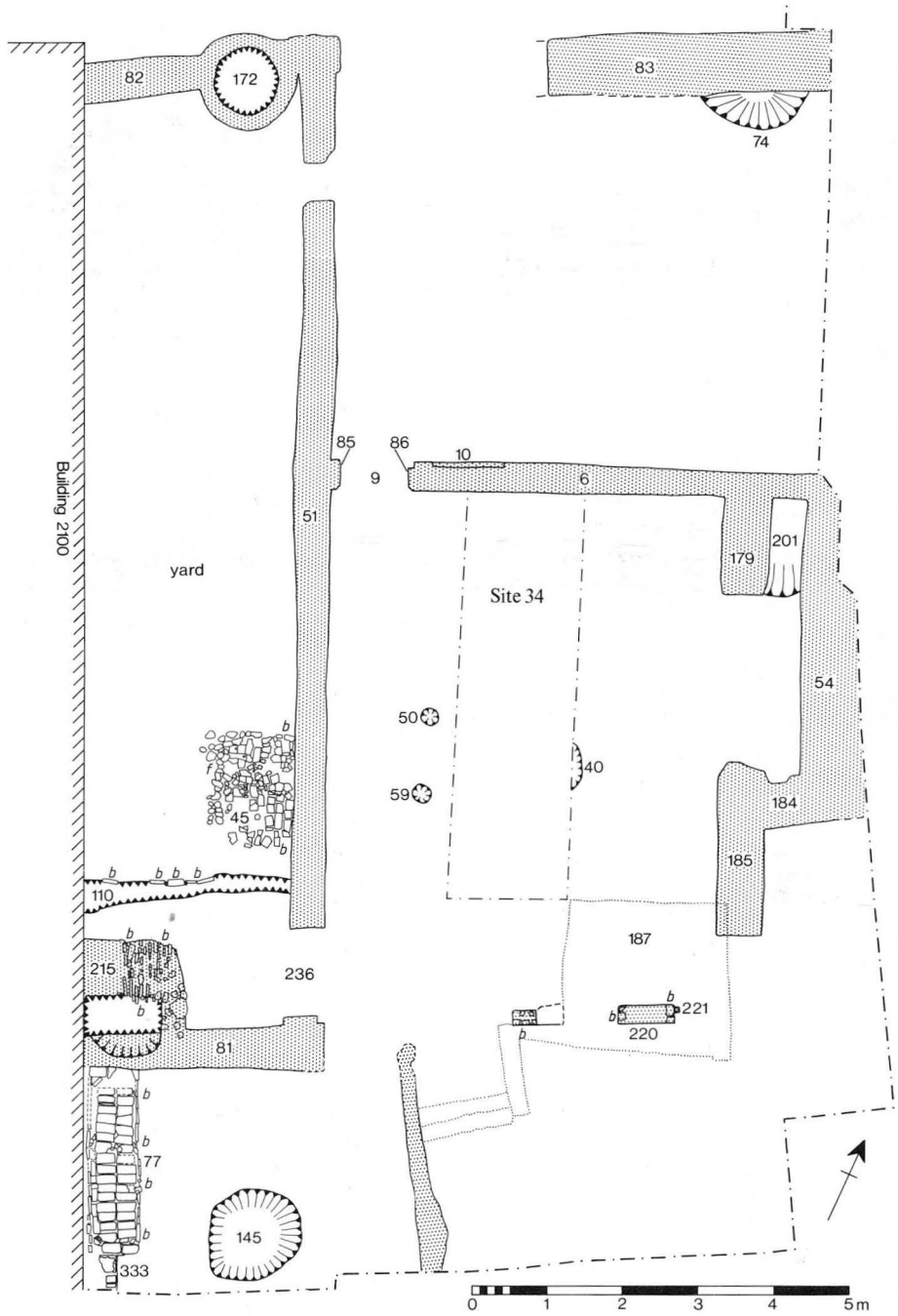
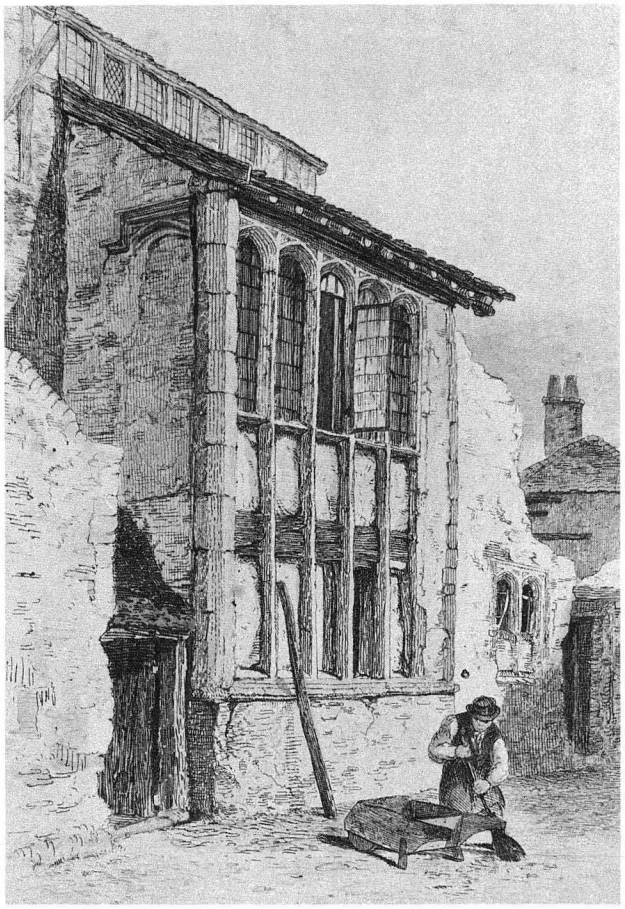


Figure 51. Phase III3 (east). Building *3132*. Ground floor plan showing excavated features. Scale 1:100.

however, a true bay as it was only lit on its eastern and southern sides. The northern side was formed by the eastern end of wall *6*, emphasising the curious circumstances of its construction. Rather than extending the available floorspace within the enclosed wing, the fashioning of the window had the effect of truncating the width of the room. Furthermore, in order for the southern light to be lit, the south-eastern angle of the room had to be removed and, possibly, part of the front range as well.

Doorways seem to have remained unchanged with the probable exception of a new doorway (*236*) inserted at the south end of wall *185* (see Fig. 51). Floor surfaces consisted of a levelling of clay *33* which occupied the entire area below a surface of white crushed chalk (*36*). Thereafter the only surviving deposit was a patch of clay with mortar and brick flecks (*41*) in the south-eastern part of the room. Two post-holes (*50* and *59*) may have had a structural function (p. 162) while pit *40* may have been intrusive. A further pit (*201*), at the northern end of the bay window, contained quantities of flint rubble including shattered hammerstones.

As in Phase III2 there was little to excavated within the front range itself. It is likely that the undercroft (Fig. 42) remained in use but all traces of surfaces above had, of course, been destroyed by later cellars. The western room, however, was available for excavation and here, initially, activity seems to have been divided into two areas. The western part of the room was covered by clay loam (*140*) while the eastern part was cut by a large pit (*145*). The unity of the space was restored, however, by overlying silty clay deposit *113*[25]. This was then covered by a surface of sandy mortar (*112*) which was contemporary with a large brick hearth (*77*; Pl. XXXI). The hearth was built into the east face of wall *115*, the east wall of the stone building. It



XXX. Bay window, Building *3132*, in 1842 by Henry Ninham. (*Copyright Norfolk Museums Service*)

was bordered by brick-on-edge with flat bricks forming the hearth itself and occupied the breadth of the room. Detritus of charcoal and ash within a sandy loam (*161*) was recovered in front of it. No further stratified deposits were encountered.

To the north, the yard area of Phase III2 was enclosed by an extension of wall *51* (which possibly contained a doorway near its northern end, although this may have been a breach of later date[26], and the construction of a more substantial northern wall (*83*) to replace the earlier wall (*186*) which seems to have been largely robbed (Pit *74* cut the line of *186*). Within the enclosed area only one surface remained for excavation: a layer of crushed chalk with occasional small fragments of flint pebbles. It was impossible to tell whether the area was used as a yard or additional room although consideration of other evidence tends to support the latter (p. 161). It seems likely that a doorway was maintained in the northern boundary as traces of a further threshold (*194*) were discovered.

A further east-to-west wall (*82*) extended the line of wall *83* westward to abut the east wall of stone building *2100*. This wall, of flint rubble, also abutted north-to-south wall *51*. A well or cistern (*172*) was constructed at the same time as wall *82*, within the wall itself (Fig. 51). The well was built with flint cobbles and occasional brick. It and the wall enclosed a yard which was covered with an extensive deposit of clay loam with common flint, mortar and brick rubble (*114*). This, in turn, was overlain by a brick surface (*45*) which included green-glazed bricks. Only a fragment of this surface survived (Fig. 51) but a silver penny of Henry IV was found near its southern end (p. 62, No. 5). A brick-lined gully (*110*) to the south of the brick surface was the last stratified cut feature and may date from Period IV rather than Phase III3. Although it had sides of brick-on-edge, robbed in places, it did not contain a brick base. It is likely that pit *215* continued in use but the chute into it from the kitchen may have been abandoned once hearth *77* was built.

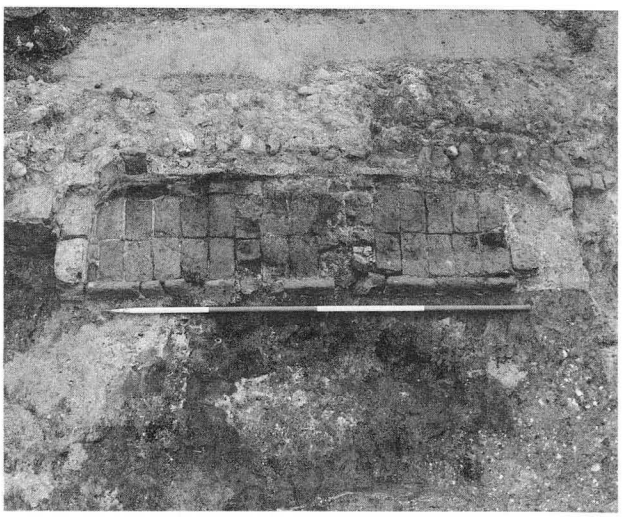
North of Building *3132* it is possible that the waterfront area began to be sub-divided into smaller properties during Phase III3. However this cannot be proved stratigraphically or from the finds and so the features located will be discussed below in Period IV.

Phase III3 can be dated to the latter part of the fifteenth century, extending into the sixteenth century. The alteration of Building *3132* involved the construction of a bay window which survives and can be dated to the late fifteenth century (p. 165). The insertion of a brick vault into Building *2100* is a characteristic structure of the fifteenth century. In addition a silver penny of Henry IV was found in an highly abraded condition within a yard, implying a late deposition. Both the sherds of Raeren stoneware recovered from the site were also located in this phase.

V. Period IV: The Post-Medieval Structures
(including Site 34 material)

Nearly all the Period IV material was unstratified. Hardly any archaeological deposits survived although this was partly due to an extensive policy of deep machinework on the western part of the site where it was necessary to locate rapidly the Saxo-Norman levels at the end of the excavation. Most features recorded from this period were walls, used either as parts of buildings or as boundaries.

The only Period IV features recorded in the western area formed a series of flint and brick walls (Fig. 52). Four of these were aligned west to east while a fifth was orientated north to south. The three northernmost west-to-east walls were cut by a deep modern sewer-trench; wall *2118* was cut by a modern cellar. Because of the need for rapid excavation in late 1981 none of these walls were drawn in elevation although photographs were taken.



XXXI. Hearth *77*, Building *3132*, set into exterior face of wall *115*, Building *2100* looking west.
Scale: 2 metres (BUC3)

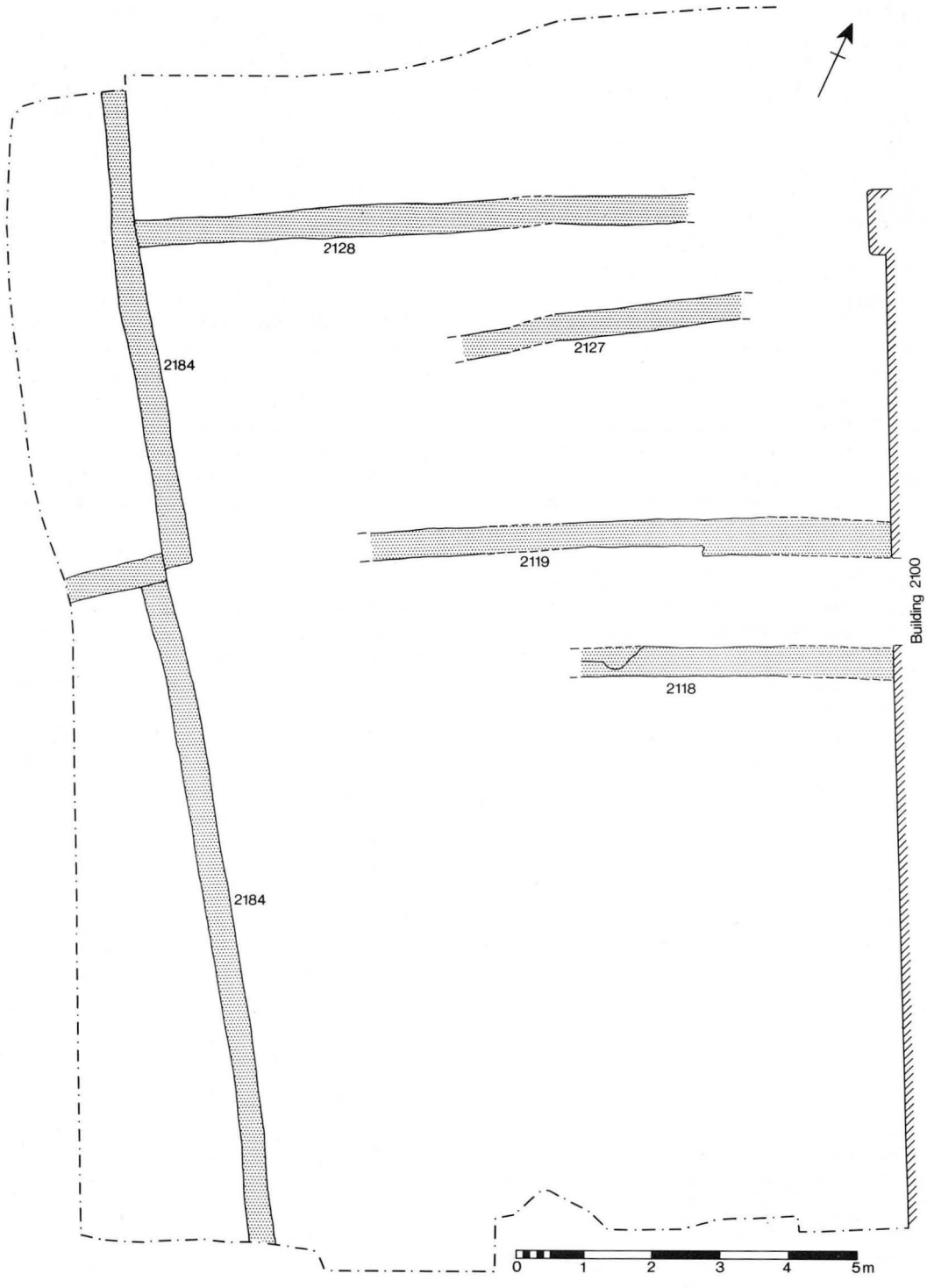


Figure 52. Period IV (west). Plan of excavated walls. Scale 1:100.

Walls *2118* and *2119* originally ran to the exterior west face of Building *2100* and were butted against the wall either side of doorway *2004*. The east ends of these walls were removed in August 1981 before it was known that financial support would allow further excavation to the west. They were built with an indeterminate brick bond[27] and a considerable amount of flint (particularly in wall *2118*) and survived up to eight courses in height. Some indication survived that wall *2119* may have originally met wall *2184* although no such evidence was seen with regard to wall *2118*. The function of these walls was almost certainly associated with the continued use of doorway *2004* in Building *2100* (p. 159).

The other west-to-east walls, *2127* and *2128*, did not run east to meet Building *2100*. Wall *2127* quite clearly stopped at its eastern end and seems to have been constructed as a footing for a timber superstructure: traces of recesses for possible uprights survived at intervals along the wall. Wall *2128* was more complicated with an initial build almost entirely of rounded flint cobbles with a rebuild of brick in a poor, indeterminate English bond which overlay the lower wall on the south face. Elements of three drains, at least two of which were bricklined, were seen cutting the wall and a fragment of tile-on-edge floor survived adjacent to the south face of the lower wall. The upper wall met the north-to-south wall (*2184*) and was

partially rendered on the south face, which rendering ran on to the east face of wall *2184*.

Wall *2184* was built in at least two major sections. Of these the northern end could be divided into two, either side of its junction with wall *2128*. The length north of this point was crudely coursed with flint and brick rendered on the east face; the length to the south was also crudely built but mainly of brick and some flint. Once again it was rendered on the east face. The wall probably predated the rebuild of *2128* but was not as early as the lower courses of that wall. At its southern end, this northern section of *2184* was butted off and, as mentioned above, may have had a return to the east as wall *2119*.

The southern section seems to have been undertaken as part of a development to the west, perhaps an indication of boundary ownership. The wall was constructed predominantly of flint rubble with occasional brickwork. It was bonded into a section to the west some 10 m north of the south excavation section.

Stone building *2100* (Fig. 50) continued in use during much of Period IV. Refurbishment probably accompanied the deposition of a stoneware bottle immediately inside the north doorway in the seventeenth century (Pl. XXXV and p. 82). It is likely, however, that the exterior ground surface gradually built up and inhibited use of the doorways although *2004* may have remained in use due to the construction of walls *2118* and *2119* (above and p. 159). Eventually this doorway was blocked and a new entrance effected in the south-east corner (Pl. XXXII) where a spiral staircase *2134* was inserted. This stair cut into walls *115* and *2104*, removing the upper courses of internal quoins *2272*. The sides of the spiral are formed (the feature is extant) by brick-on-edge and flint cobbles with the destroyed treads presumably of brick. Three recesses for treads survive. The stair originally projected into the interior of the building and projections of brick and flint were built out from walls *115* and *2104* to accommodate it. It is possible that a door existed at the foot of the stair, as a recess was built into wall *2104*, perhaps to accommodate a door when open (Pl. XXXII). Use of this stair effectively turned the structure into a subterranean undercroft. Fragments of a Dutch cauldron were recovered from the blocking of window *2024* (Fig. 76, No. 207).

XXXII. Inserted stair *2143* in south-eastern corner of Building *2100* (contemporary surfaces removed). Recess in wall on the right may have been for a door to the stair. Scale: 2 metres (BWE4)

Late in Period IV, probably in the nineteenth century, the brick vault inserted in Phase III3 was demolished and the structure divided internally by walls of brick to make six cellars. The pier bases were sealed by the cellar floors (of brick above a layer of soot) and the interior of the west wall at the north end was rendered, obscuring doorway *2004* and the north window opening. A large hole at the top of the south wall, close to the south-west corner, may be associated with this work (Fig. 28) as may a drainage, sewage or cable hole near the base of the wall in the same area.

The cellars were probably infilled in the 1920s as beer and lemonade bottles recovered from the fill occupy a date range of *c.* 1895 to the early 1920s[28]. After the Second World War a large shed was built above the site for Frazier's Joinery, stanchion pits cutting the top of wall *115*. A fragment of wall *115* however, survived above ground until late 1980[29].

Within the eastern area, very few features of Period IV date were located. Much of the building continued in use and remained standing until 1962. The front range was substantially altered, probably at the beginning of the nineteenth century, and most of the medieval undercroft was destroyed at the same time. A new cellar was constructed with the entrance to the surviving medieval sidechamber (*187*) being blocked with brick. This cellar had a chute in its south wall and, possibly added at a later date, a floor of concrete inserted, incidently above the presumed floor of the previous undercroft[30]. At ground-level old wall alignments were reused but others also inserted. An entrance from the street was effected by narrowing the westernmost room at the frontage (see Fig. 53) and more substantial walls were constructed between the new range and the standing wing, probably effecting a passage from the side door. It is known that an additional floor was inserted into the hall, bisecting the Phase III3 window. Doorway *9* in wall *6* was blocked as was doorway *236* in wall *51*. Post-war photographs (*e.g.* Pls XLV and XLVI) indicate that the front wall of the front range was generally built of flint and brick to first-floor level.

North of the original wing, the enclosed area bounded by walls *83* and *51* was an open yard in 1962 although there seems to have been a building on it into the twentieth century. At some stage wall *83* was cut by a bricklined well or cistern (*1021*). In the sideyard, the vaulted cesspit was cleaned out and backfilled, probably in the seventeenth century. A later cesspit (*60*) was cut adjacent to wall *115* with its remaining three walls being built of brick. It too was cleansed before infilling.

As much of the Period III building remained standing until 1962 some records of it survive. These are assessed in a more thorough account on p. 162-5.

Activity returned to the waterfront area in Period IV (Fig. 54). A barrel-well (*1079*) was cut through the accumulated deposits at the northern edge of the excavated area, probably in the late sixteenth century[31]. It consisted of twenty-four staves varying in width between 9 and 16cm. The barrel survived to a height of 1.30m and contained fills of silt and gritty loam within which was located a wooden spoon (Fig. 85, No. 7).

The barrel-well was probably associated with late sixteenth-century development at the water's edge, immediately outside the area of the excavation. The waterfront area that was excavated began to be divided up in Period IV by the construction of north-to-south flint rubble walls (Fig. 54). The earliest of these seems to have

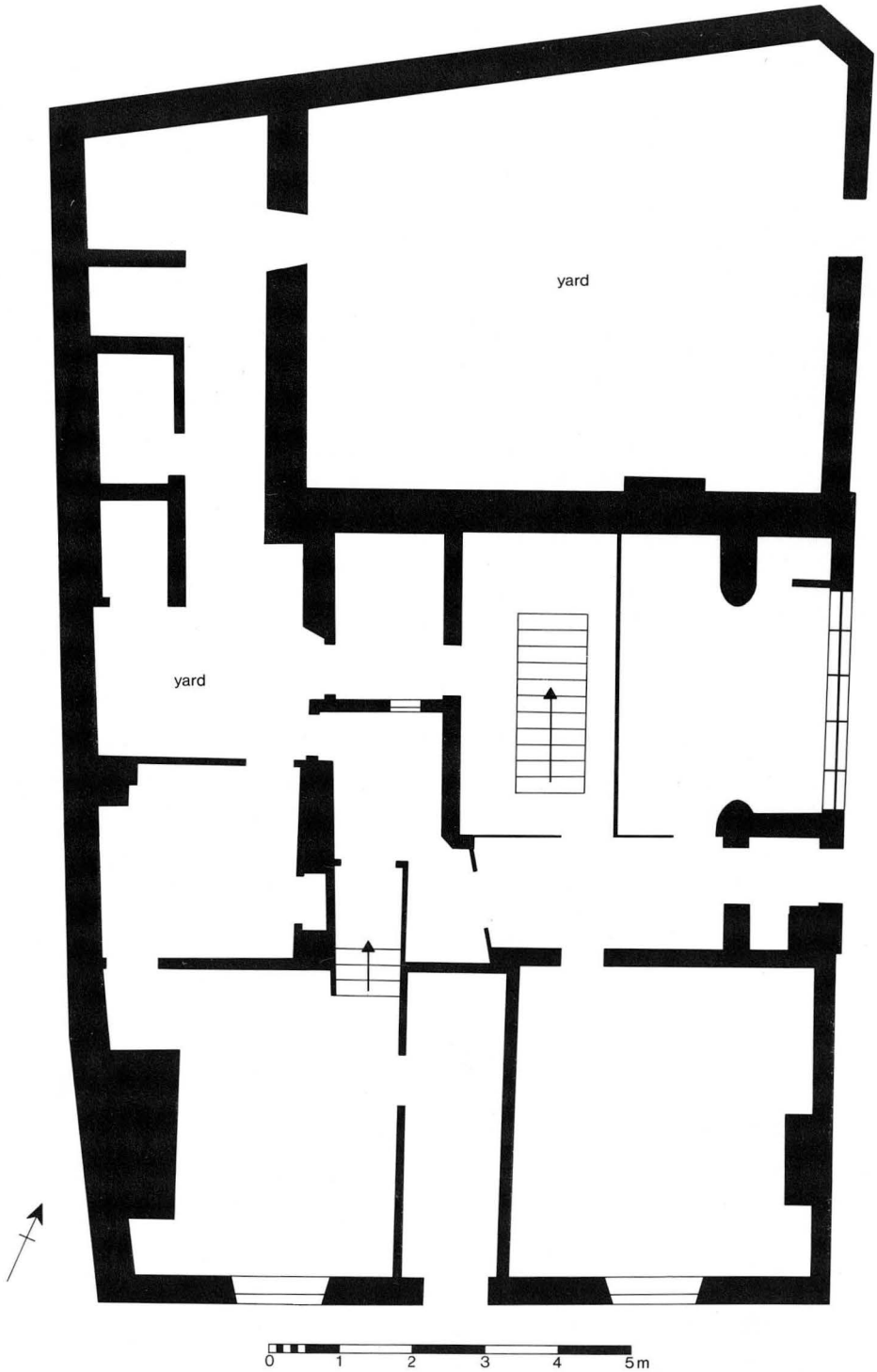


Figure 53. Period IV (east). Building *3132*. Block plan (After A.P.Baggs, 1962). Scale 1:100.

been the northern part of wall *1007*, as far south as its junction with wall *1009*. This northern end of *1007* was rendered and contained a low, brick-faced embrasure as well as two, possibly three, niches set at irregular intervals. These latter, in the east face of the wall, could have acted as sockets for vertical posts. Wall *1007* seems to have reflected an earlier property division as it overlay the line of Period III gully *562*.

Wall *1007* also overlay a clay deposit *1010* as did a further wall *1008* which cut into the clay at its north end but also abutted its eastern edge. Wall *1008* returned west as wall *1009*, into which it was bonded. *1009* merely abutted the northern part of *1007* but was bonded into a southern extension of *1007*. This extension, and a similar one for *1008*, rang south to meet walls *82* and *83* at the northern edge of Building *3132*. Wall *1007* was neatly squared off at its south end and merely abutted wall *82*; wall *1008* may have been cut by well *1021* and its end subsequently squared.

Both walls *1007* and *1008* (together with a fragment of a further north-to-south wall *1215* uncovered at the eastern edge of the excavation) were aligned at right-angles to the river rather than to the street. Hence their alignments were at variance with the structures on the street frontage. Late in Period IV it is likely that an extension was made to a property situated adjacent to the river as a cellar (*1020*) was inserted between walls *1007* and *1008* immediately south of the north excavation section. This cellar was effected by digging through the underlying deposits and retaining the sections with walls of flint and brick (*c.*80% flint). These

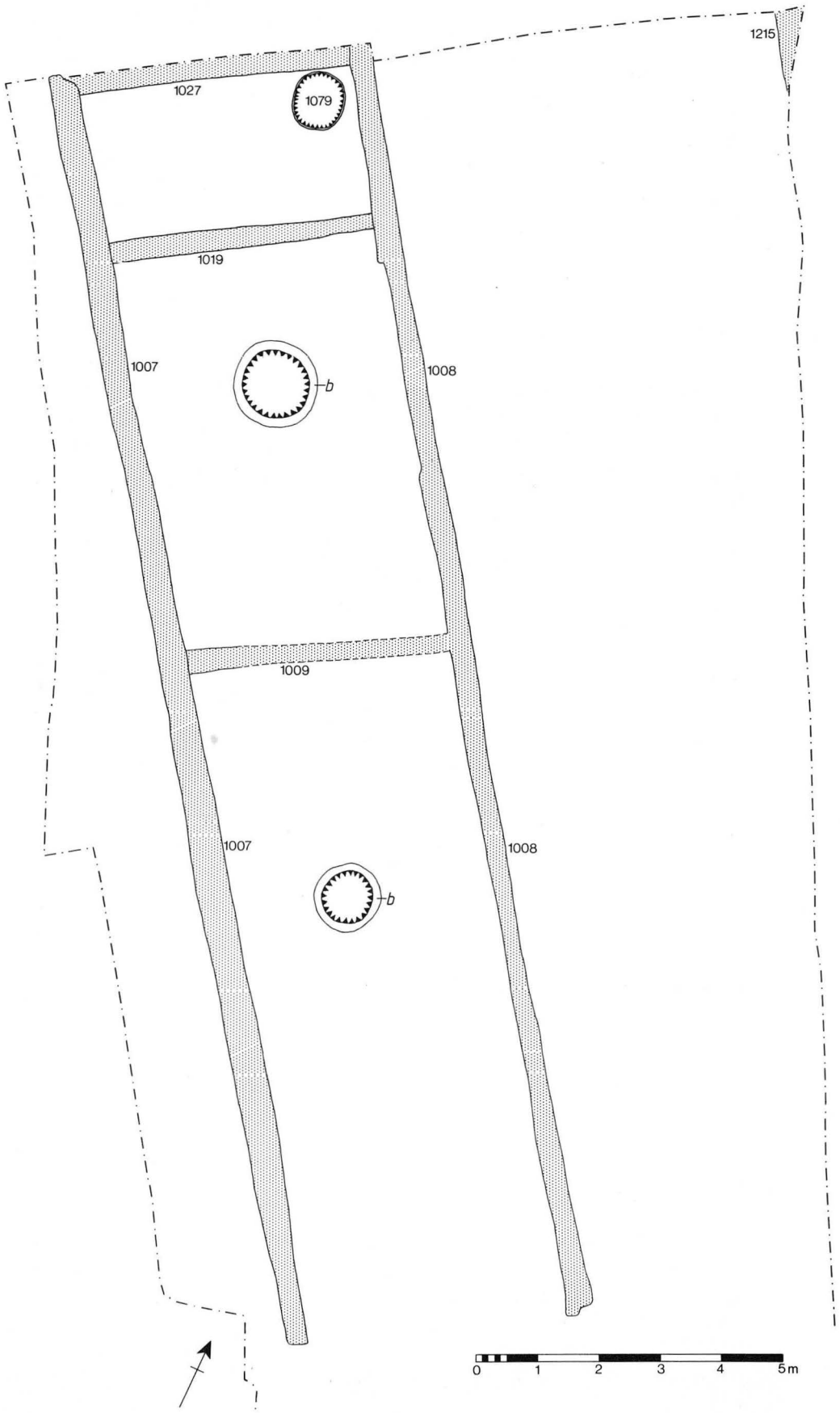


Figure 54. Period IV (waterfront). Plan of excavated features. Scale 1:100.

walls (*1019* and *1027*) were neatly faced on the interior but crudely finished on the exterior, emphasising the method of construction. A farthing of James I (p. 63, No. 6) was found in the south-east corner of the cellar but was probably residual. The only other features recorded were a series of concrete blocks close to the modern ground surface which probably acted as retaining blocks for the present day river wall.

3. The Artefacts

I. Introduction

by Val Williams

The artefacts from the excavation generally date from the Late Saxon and medieval periods with some post-medieval material. In addition, isolated Roman and Middle Saxon finds were recovered but these were stray finds, unassociated with occupation and utilisation of the site. The Late Saxon material was largely located within street frontage deposits on the eastern part of the site and from contexts associated with the waterfront area. Medieval and later finds were recovered from all areas of the site but especially from those contexts east and west of Building *2100* and subsequently levels associated with Building *3132*.

The dominant activity in the Late Saxon and Saxo-Norman periods appears to have been trade. This is perhaps best illustrated by the significant quantities of imported pottery (p. 80ff) but can also be seen from the fragments of Rhenish lava (microfiche, 1:C. 11-14) and the hones of Norwegian Ragstone (Fig. 61, No. 1 and Catalogue). Trade may have been complemented by small-scale industry, probably involving local leatherworking (p. 108) but possibly also including other activities such as dying, particularly from the twelfth century onwards when trade was in decline (p. 169). Domestic activity was an integral feature of the site's occupation: finds include bone pins and needles (Fig. 80, Nos 7-12), pinbeaters (Fig. 81, No. 16 and Fig. 82, No. 21), awls (Fig. 59, No. 18 and Fig. 60, No. 25), a spoon (Fig. 81, No. 15), knives (Fig. 58, Nos 11-13) and combs (Fig. 79, Nos 2-6). Some of these objects could have augmented industrial work, pinbeaters, for example, being used in weaving.

Trade appears to have continued as an important activity into the twelfth century with further finds of imported pottery, lava fragments and Norwegian Ragstone hones. A balance fragment (Fig. 57, No. 19) as well as coins and tokens testify to forms of transaction but do not necessarily imply international trade in the way that the imported pottery does. Industrial work remained small-scale and probably domestic in character being represented by spindle whorls (Fig. 61, Nos 3-4 and Fig. 82, No. 22) and heckle teeth (microfiche 1:A.13-C.10). Notable finds were made of high quality metalwork including an inlaid knife (Fig. 59, No. 14), gilt bronze rivets and mounts (Fig. 56, Nos 9, 12, 13), a bell (Fig. 57, No. 16) and pieces of decorative stripwork (Fig. 56, Nos 10 and 14). High quality bonework was also recovered including casket mounts (Fig. 82, Nos 27, 28 and Fig. 83, No. 36), a die (Fig. 83, No. 35) and gaming pieces (Fig. 82, No. 26 and Fig. 83, No. 29).

Paradoxically, finds in the later medieval period were limited due to the quality of the buildings constructed on the site. The twelfth-century stone building (*2100*) had been kept scrupulously clean and the late fourteenth-century building (*3132*) had a similar paucity of material within its walls. Nevertheless, objects of late medieval and post- medieval date were recovered and these include a wooden spoon (Fig. 85, No. 7), knives (Fig. 59, Nos 15 and 16), a hammer (No. 286) and a large quantity of drawn wire pins and tags (microfiche, 1:B.5-C.10). Finds which could be dated and tied to outside parallels are listed in Table 1.

In the following catalogue the artefacts are ordered by material. Each section is ordered by function and each object classified by phase, small find (S.F.) number and context number. Separate sections of discussion are included for the pottery, architectural fragments, brick and slag. Individual authors are credited at the head of each section. The criteria used for selection of the material were as follows: material datable by typology; material of significance within its context; and material of intrinsic interest. The catalogue is supplemented by a complete finds list on microfiche, arranged according to material, phase and, where specific groups can be separated, function.

A lower case letter after the catalogue number indicates that the object is not illustrated.

II. Coins and Tokens

(not illustrated)

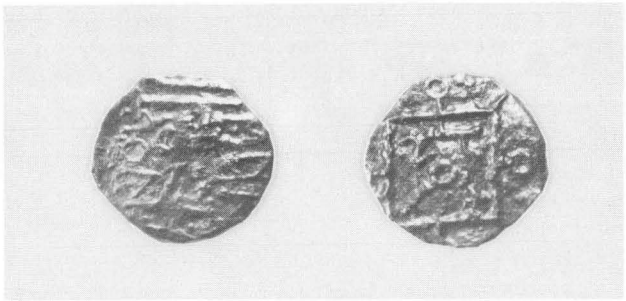
by Val Williams, with identifications by Marion Archibald (Nos 2-4), Tony Gregory (No. 1), Sue Margeson (Nos 5, 12, 14) and Val Williams (Nos 6-11, 13)

Phase	*Context*	*Small Finds*	*Date*
I1	*1095* pit fill	Silver arm ring (Fig. 55, No. 1) *SF410*	early tenth century
I2	*846* pit fill	Disc brooch (Fig. 55, No. 2) *SF678*	tenth century
	1096 organic layer	Key (Cat. No. 1a) *SF530*	tenth-eleventh century
	1134 organic layer	Knife (Fig. 58, No. 11) *SF664*	pre-Conquest
I3	*674* layer	Key (Fig. 58, No. 3) *SF558*	tenth-eleventh century
II1	*525* layer	Two cut-halfpennies Henry I (Cat. No. 3 and 4) *SF411*	1100-1135
	1117 gully fill	Finger-ring (Fig. 55, No. 5) *SF7894*	prob. twelfth century
	836 gully fill	'Ringericke'style mount (Fig. 56, No. 11) *SF719*	eleventh century
	632 pit fill	Buckle (Fig. 60, No. 31) *SF392*	twelfth century
II2	*433* layer	Hooked tag (Fig. 55, No. 6) *SF325*	Late Saxon
	433 layer	Annular brooch (Fig. 55, No. 7) *SF331*	thirteenth-fourteenth century
	2126 layer	Barrel padlock case (Fig. 58, No. 7) *SF852*	thirteenth century
	552 gully fill	Discoidal gaming piece (Fig. 83, No. 29) *SF354*	twelfth-thirteenth century
III1	*390* layer	Strip fragment (Fig. 56, No. 14) *SF269*	twelfth-thirteenth century
III2	*1* layer	Jetton Edward III or Richard II (Cat. No. 12) *SF1*	1327-99
	241 fill of beamslot	Rowel spur (Fig. 60, No. 32) *SF926*	probably fourteenth century
III3	*45* yard surface	Silver penny Henry IV (Cat. No. 5) *SF13*	1399-1413
	63 foundation trench	Nuremburg jetton (Cat. No. 13) *SF19*	sixteenth-seventeeth century
	227 part fill of vault	Nuremburg jetton (Cat. No. 14) *SF226*	sixteenth-seventeenth century

Table 1 Dated artefacts tied to outside parallels

Coins

1. Roman. FAUSTA. SALUS REIPVBLICAE. AD 324-330. Legend mainly illegible. *Phase I3; S.F. 647.761.*
2. Sceatta (Pl. XXXIII). Secondary series ?720-740. 'APA' group (Runic). Radiating bust facing right. (see Rigold 1960-1961, 7-53; Rigold 1977, 21-30). *Phase III2; S.F. 230.250.*



XXXIII. Sceatta. Secondary series ?720-740. 'APA' group (Runic). Scale in millimetres (CKM15, CKM18)

3, 4. Henry I, 1100-1135. Two cut-halfpennies, BMC type XIII. Although these fragments appear to constitute one coin, they cannot be fitted together. Nos 3 and 4 were found together. *Phase III: S.F. 411.525.*

3. *Obv:* + (*****). *Rev:* (*****) S: O (*****). *Weight:* 0.17 g (2.6 gr). *Mint:* possibly Thetford. *Moneyer:* possibly Acus.
   There are few moneyers whose names normally end in S. Among the local mints which are the most likely source for a casual find, Norwich has no normal **S moneyers and Thetford has only one, Acus. Some English names are however found Latinized at this period *e.g.* Godwinus so it is impossible to be certain without a die link. Acus is not known in this type although his participation is likely since he is recorded in types VII and XIV.
4. *Obv:* (*****) CVS (***). *Rev:* +ASCH (*****). *Weight:* 0.34 g (5.2 gr). *Mint:* probably Thetford. *Moneyer:* Aschetil.
   The moneyer's name is Aschetil and he is only known to have been active in Thetford. The sole recorded coin of his in this type is BMC 100 which is from a different die, so certainty of attribution is not possible. (Other similar names (Chetil and Ulfchetil) occur at Norwich).
5. Henry IV, 1399-1413. Silver penny. Highly abraded. Mint illegible, but probably York because of the quatrefoils in the centre of the reverse. *Phase III3: S.F. 13.45.*
6. James I, 1603-1625. Farthing. Mint mark illegible. *Unstratified: S.F. 6.U/S.*

Tokens

7. Edward III, 1327-1377 or Richard II, 1377-1399. English Jetton. Berry type 5. King seated under canopy. *Rev:* AMOR 'VINCIT' OMNI??... Pierced from reverse. *Diameter: c.* 22 mm. *Phase III2; S.F. 1.1.*
8. Jetton, Nuremburg. ?Sixteenth-seventeenth century. *Obv:* Reichsapfel in tri-lobe. *Rev:* Seated figure. Fictitious legend. *Diameter:* 22 mm. *Phase III3; S.F. 19.63.*
9. Jetton, Nuremburg. Sixteenth-seventeenth century. Reichsapfel in tri-lobe/3 crowns and 3 lys. Fictitious legend; repeated BVE. *Diameter:* 21 mm. *Phase III3; S.F. 226.227.*
10. ?Coin/token. Features indistinguishable. *Phase III3; S.F. 148.158.*

III. Non-Ferrous Metal Objects

by Val Williams

Personal ornament and dress fittings

(Fig. 55)

1. Plain penannular silver **arm-ring** made from a single rod which expands slightly at both of the overlapping ends. Irregular section, varying from circular to octagonal, possibly due to wear. *Phase I1; S.F. 410.1095.*
   Similar arm-rings frequently appear in Viking age hoards. *e.g.* Cuerdale, Lancashire (Roesdahl, *et al.* 1981, cat. no. E25), deposited *c.* 903, and Skaill, Sandwick, Orkney (Graham-Campbell 1980, no. 235 and pl. 235), deposited *c.* 950. The Norwich example probably dates to the late tenth to the eleventh century.
2. Copper alloy **disc brooch** with iron pin. Possibly a copy or derivative of a 'coin brooch'. The decoration on the face is indistinct. Probably dates to the tenth century. *Phase I2; S.F. 678.846.*
3. Unfinished Middle Saxon (? eighth-century) copper alloy **equal-armed brooch** (identified by Leslie Webster). There are prominent casting flashes on the bow and on the terminal. The catch plate, which is placed off centre, has still to be bent over, while the pin mount is unpierced. One end terminates in a pointed animal head, which is consistent with an eighth-century date. *Phase I3; S.F. 546.673.*
4. Cast copper alloy D-shaped **buckle frame** with possible traces of gilding. Post-Conquest. *Phase I3; S.F. 713.675.*
5. Small cast silver **finger ring**, possibly belonging to a child. Probably twelfth century. *Phase II1; S.F. 794.1117.*
6. Fragmentary copper alloy **hooked tag**. Possible remains of one perforation still visible. *Phase II2; S.F. 325.433.*
   Hooked tags were probably used to fasten garments, and are known throughout the Saxon period, but are especially common from the ninth to the eleventh centuries. For a discussion on hooked tags see Margeson and Williams 1985.
7. Small copper alloy **annular brooch**. Pin broken at end. *Phase II2; S.F. 331.433.*
   Similar small brooches from Northampton (Oakley and Webster 1979, fig. 107, no. 4) and Glenluce, Wigtownshire (Jope and Jope 1959, fig. 95, no. 1) date from the thirteenth to fourteenth centuries.

7a. Subcircular copper alloy **belt fitting**. Central hole with two flanking smaller holes, one of which still contains an iron rivet for attachment to the belt. Undecorated. *Diameter:* 20 mm. *Phase III2; S.F. 70.87.*

8. Circular copper alloy **belt fitting** with repoussé design and border. Unlike S.F. 70 above (unillustrated; No. 7a), this example would appear to be more decorative than functional. *Phase IV; S.F. 225.224.*
   Nos 7a and 8 were used to strengthen the fabric of the belt to prevent damage by the buckle pin which would fit through the central hole.

8a. Copper alloy **annular brooch pin**. *Length:* 49 mm. *Unstratified; S.F. 722.U/S.*
   Comparable examples from Alms Lane, Norwich (Margeson pers. comm.) and Thetford (A.R.Goodall 1984, fig. 109, no. 9), date from the thirteenth to fourteenth centuries.

Other fittings for wood, leather and metal

(Fig. 56)

9. Copper alloy '**dumb-bell' shaped mount** with gilding on the larger terminal plate. Hooked shank on back for attachment. *Phase II1; S.F. 283.13.*
   A similar, although slightly more elaborate example of post-Conquest date was recovered from Thetford, Norfolk (A.R.Goodall 1984, fig. 112, no. 50). The Norwich example is probably twelfth century.
10. Gilt copper alloy cast **strip** fragment. Running interlace design. *Phase II1; S.F. 391.631.*
11. Decorative copper alloy **mount** in the form of a dragon's head with foliate terminals in the 'Ringerike' style (Pl. XXXIV). Traces of solder on the back probably indicate intended attachment to a metal object or base plate. Dated on stylistic grounds to the eleventh century. *Phase II1; S.F. 719.836.*
   A mount from Cambridgeshire (Shetelig 1940, 72) decorated in the same style, is interpreted as being part of the cheek piece of a bridle.
12. Small copper alloy **stud** with a square head and convex profile. Originally gilded. The length of the shank indicates use on material of approx. 5-6 mm thickness. *Phase III; S.F. 737.926.*
13. Large copper alloy **rivet** with traces of gilding. The form of the punched decoration is indistinct but may be abstract. The length of the shank (*c.* 17 mm) suggests that this rivet was intended to decorate a substantial object, for example a saddle or item of furniture. *Phase II2; S.F. 402.527.*
14. Cast copper alloy **strip** fragment. Loop terminal with the stubs of two running interlace strips. *Phase III1; S.F. 269.390.*
   Nos 10 and 14 both belong to a type-group of strips commonly found on high class domestic sites of the twelfth and thirteenth centuries, although the Norwich examples are probably representative of a higher quality of stripwork. The convex

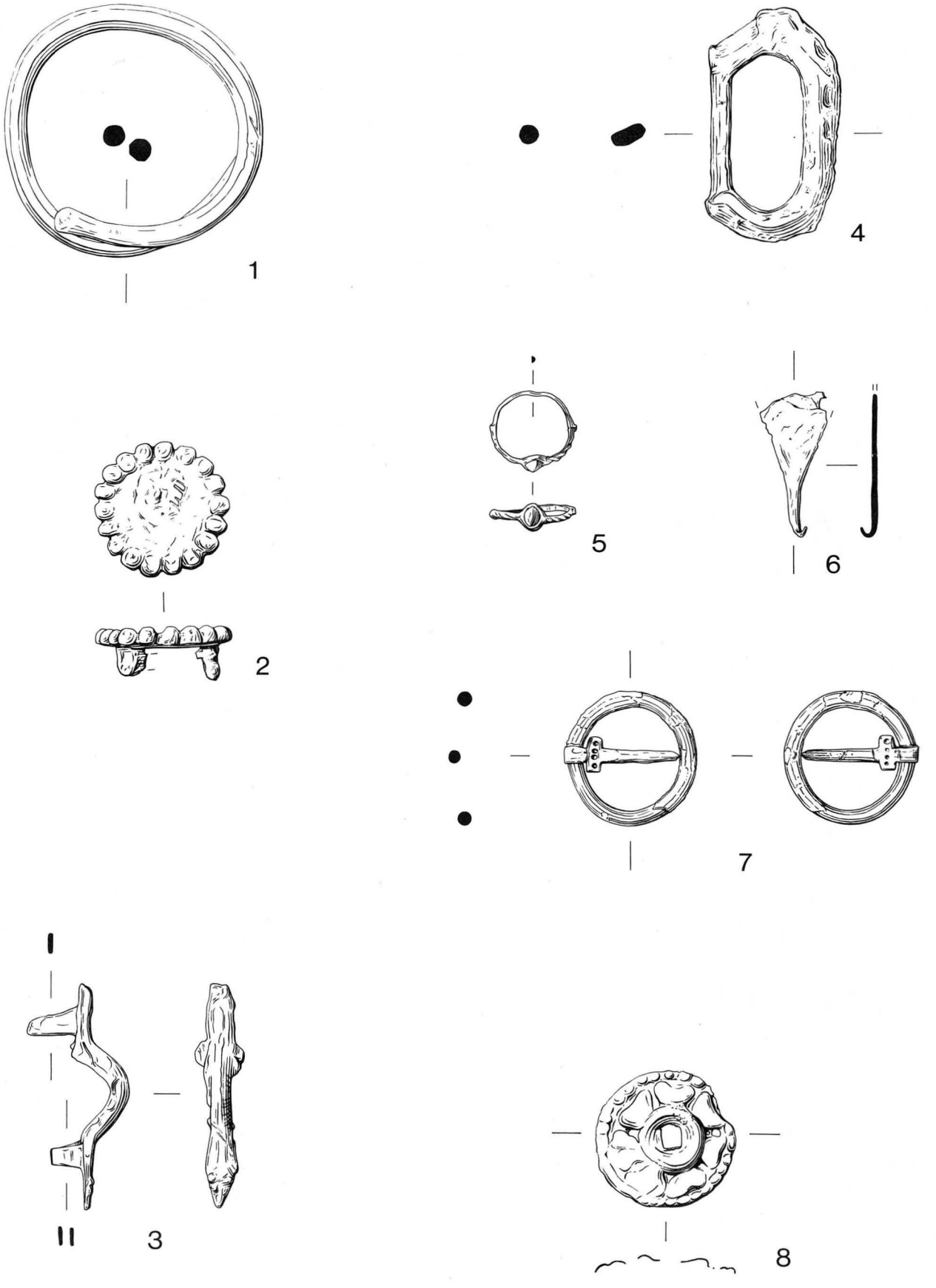


Figure 55. Non-ferrous metal objects. Nos 1-8. Scale 1:1.

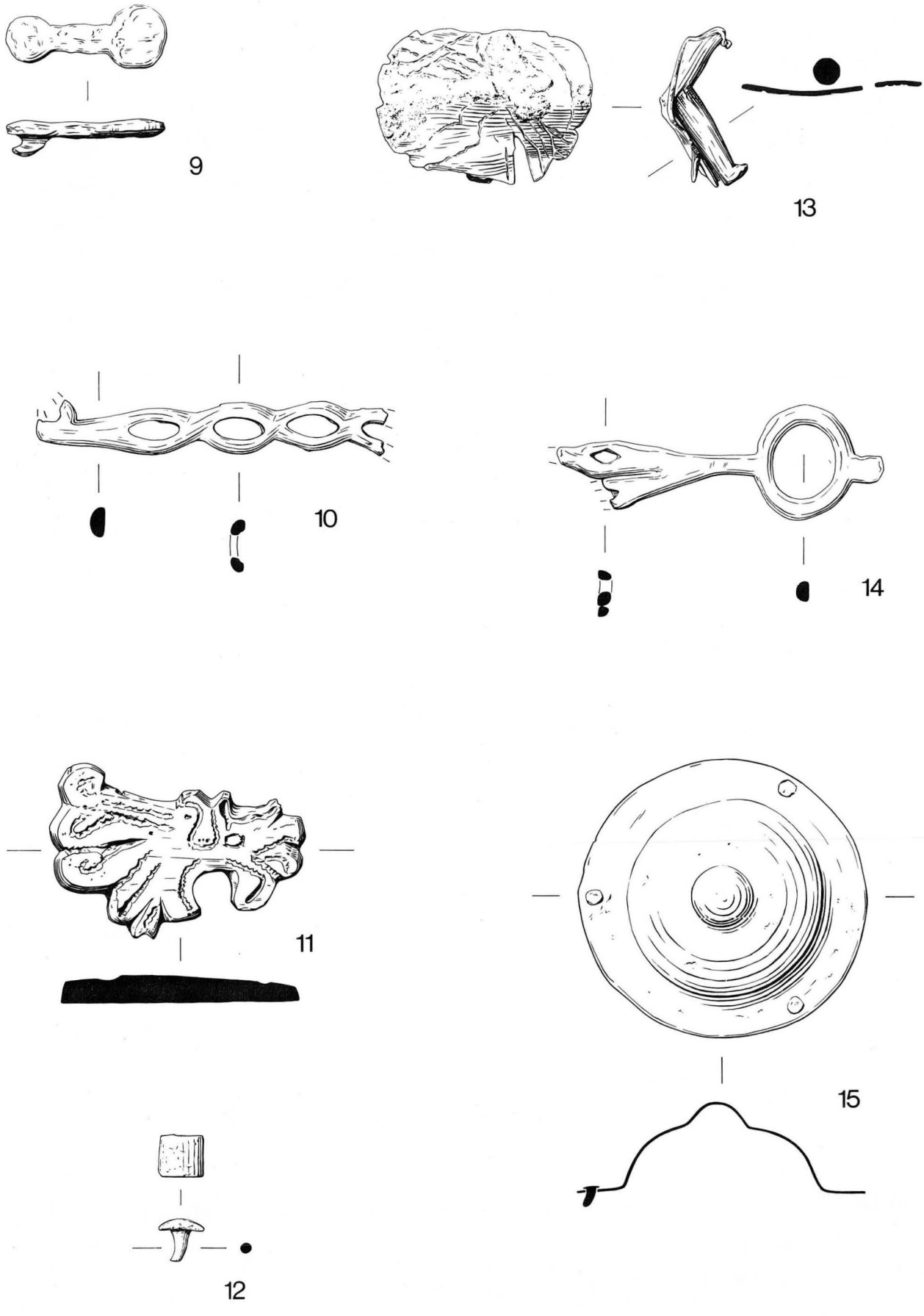


Figure 56. Non-ferrous metal objects. Nos 9-15. Scale 1:1.

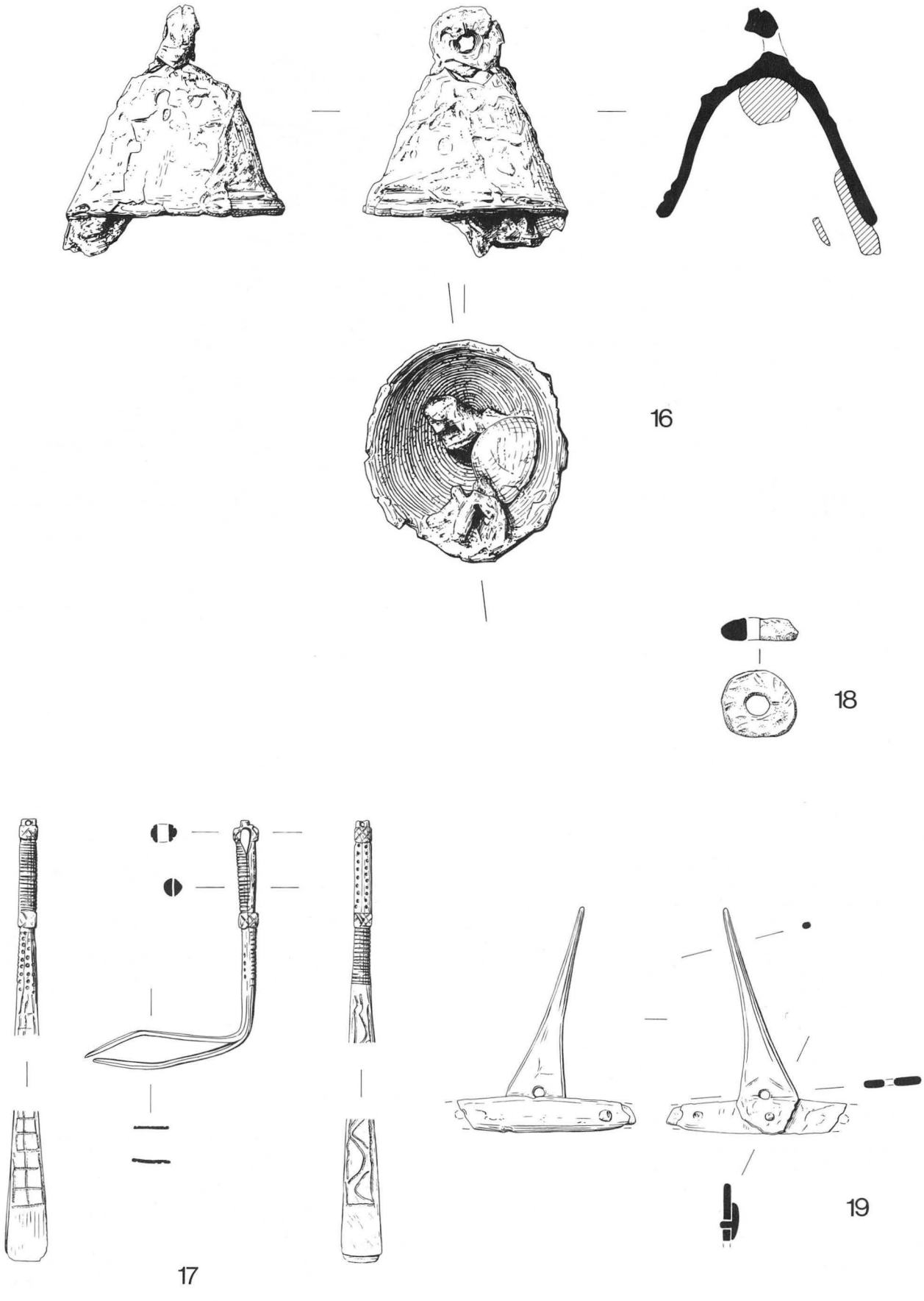
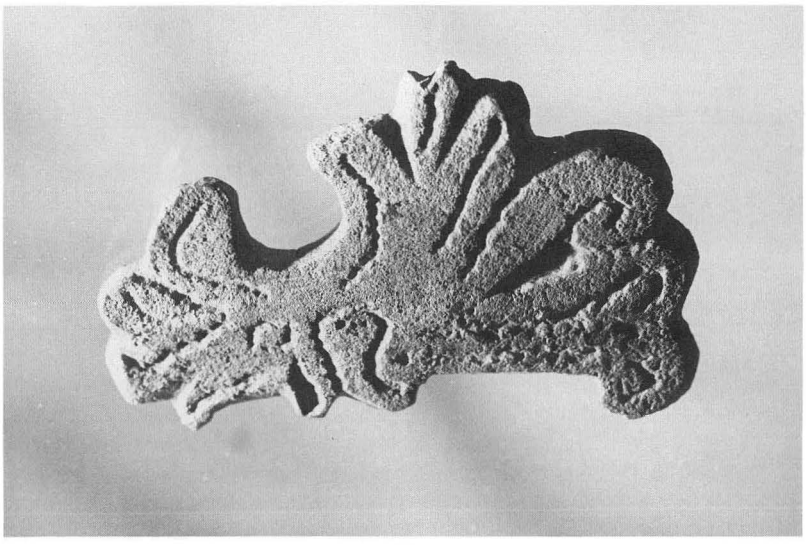


Figure 57. Non-ferrous metal objects. Nos 16-19. Scale 1:1.



XXXIV. Decorative mount. 'Ringerike' style. Catalogue No. 11. Scale 2:1

profile, flattened at the back suggests an intended use as casket or box mounts, as with the examples from Porchester, Hants (Hinton 1976, fig. 139, no. 62) and those from Castle Acre Castle, Norfolk (A.R.Goodall 1982, fig. 43, nos 1-23), while a use on either wood or leather is suggested for the examples from Northampton (Oakley and Webster 1979, fig. 110, no. 54) and Ascot Doilly, Oxfordshire (Jope and Threlfall 1959, fig. 21, nos 1-6).

15. Copper alloy **boss**. The three retaining rivets are still *in situ*, the length of which suggest a use on material of approx. 2-3 mm in thickness. Probably late medieval. *Period III; S.F. 879.2125.*
Such bosses are generally interpreted as furniture mounts, as with a centrally riveted example from Cheddar, Somerset (Wilson 1979, fig. 93, no. 74), and one recovered from Oak Street, Norwich (Margeson, forthcoming), although use as a bridle boss is also possible, as with an example in iron from Northampton (Oakley 1979, fig. 121, no. 117).

Other non-ferrous objects

(Fig. 57)

16. Copper alloy **bell** with the remains of an iron clapper. *Phase II1; S.F. 393.632.*
A similar bell dated to the ninth or tenth century was recovered from North Elmham Park, Norfolk (A.R.Goodall 1980, fig. 264, no. 55), although this example has no provision for a clapper. It is possible that the Norwich example served as a harness bell as it was found in conjunction with a large iron buckle interpreted as a harness fitting (see below Iron Object, No. 31).

17. Pair of copper **tweezers** with decorated bow and arms. Pierced terminal on top of the bow. The tweezers appear to have been manufactured in one piece, then folded and probably brazed together. Arms both angled. The decoration on the upper part of the arms is well executed using incised lines and punched dots, while on the lower part it degenerates to erratic punched linear designs. Probably medieval. *Phase II2; S.F. 265.291.*

18. Sub-circular lead **weight**. Central hole. Probably a line or net weight, as with an example from Kings Lynn, Norfolk (Geddes and Carter 1977, fig. 131, no. 39). *Phase II2; S.F. 809.2098.*

19. Part of the **pointer mechanism** from a **folding balance**. One iron rivet still *in situ*. *Phase III3; S.F. 101.56.*
Balances of this type are known from both pre- and post-Conquest contexts, for example York (MacGregor 1978k fig. 28, no. 7), North Elmham Park (A.R.Goodall 1980, fig. 264, no. 61), Fullers Hill, Great Yarmouth, Norfolk (Rogerson 1976, fig. 51, no. 3), and Goltho, Lincolnshire (Beresford 1975, fig. 44, no. 37).

IV. Iron Objects

by Val Williams

Keys and locks

(Fig. 58)

1a. **Key**. Hollow stem tapering towards the ring shaped bow. Bit missing. *Length:* 92 mm. *Phase I2; S.F. 530.1096.*

2. **Padlock key** with swollen stem. *Phase I3; S.F. 74.1005.*

3. **Key**. Ring shaped bow. *Phase I3; S.F. 558.674.*

4. **Padlock key** with swollen stem. *Phase I3; S.F. 931.1005.*

5. **Padlock key** with swollen stem inlaid with a spiral of non-ferrous wire. *Period I; S.F. 472.660.*

5a. **Key** *(identified only from X-ray).* Tapering stem and applied bit. The stem is collared immediately below the bow, only a small part of which now survives. *Length: c.* 56 mm. *Phase III; S.F. 529.1120.*

6. **Padlock key** with swollen stem inlaid with a spiral of non-ferrous wire. *Phase II2; S.F. 495.1032.*
Numbers 1a and 3 are both forged and rolled in one piece. The ends of the bows have been folded round and fitting into the stem. Similar keys from York (Richardson 1959, fig. 18, nos 13 and 14) and Thetford (I.H.Goodall 1984, fig. 132, no. 185) date from the tenth and eleventh centuries. Numbers 2, 4, 5 and 6 are of a type known from the tenth to the sixteenth centuries, probably originating in Scandinavia. Comparable examples were recovered from Trondheim, Norway (Long 1975, fig. 10, d,e), Thetford (I.H.Goodall 1984, fig. 132, no. 179), York (Roesdahl *et.al.* 1981, cat. nos YDL18-YDL21) and Northampton (I.H.Goodall 1979, fig. 116, no. 8).

7. **Barrel padlock case**, with heavy fin. Strengthening and decoration are provided by non-ferrous strips along and around the case. Neither of the end-plates survive. *Phase II2; S.F. 852.2126.*
Examples from Trondheim (Long 1975, fig. 10g) and Kings Lynn (Goodall and Carter 1977, fig. 132, no. 2) both date to the thirteenth century.

8. U-shaped **padlock bolt** with a circular end-plate and spine, now lacking leaf springs. The shape of the end-plate probably indicates use in a barrel padlock. Probably twelfth century. *Phase III; S.F. 453.1117.*

9. Possible **padlock spine** and **spring** *(identified only from X-ray). Phase III1; S.F. 243.348.*

10. Fragment of **fin** from a **barrel padlock**. *Phase III1; S.F. 250.207.*

Knives

(Figs 58-59)

11. **Knife** with **whittle tang**. The tang is possibly broken as it is uncharacteristically short. *Phase I2; S.F. 664.1134.*

12. **Knife** with **whittle tang**. Tang incomplete. Probably eleventh century. *Phase I3; S.F. 364.1005.*

13. **Knife** with a long **whittle tang**. Blade and tang incomplete. *Phase I3; S.F. 710.1005.*
Numbers 11 and 13 both have the tang offset from the blade and separated from it by distinctly drooping shoulders. The backs of the blades are straight while the cutting edges have an elongated S-curve profile. Knives of this type, with the tang characteristically of greater length than the blade, have been recovered from York (Waterman 1959, fig. 7, nos 4-7; Richardson 1959, fig. 18, no. 9) and Thetford (I.H.Goodall 1984, fig. 124, nos 84-89; fig. 125, nos 90-92; 96-102), as well as

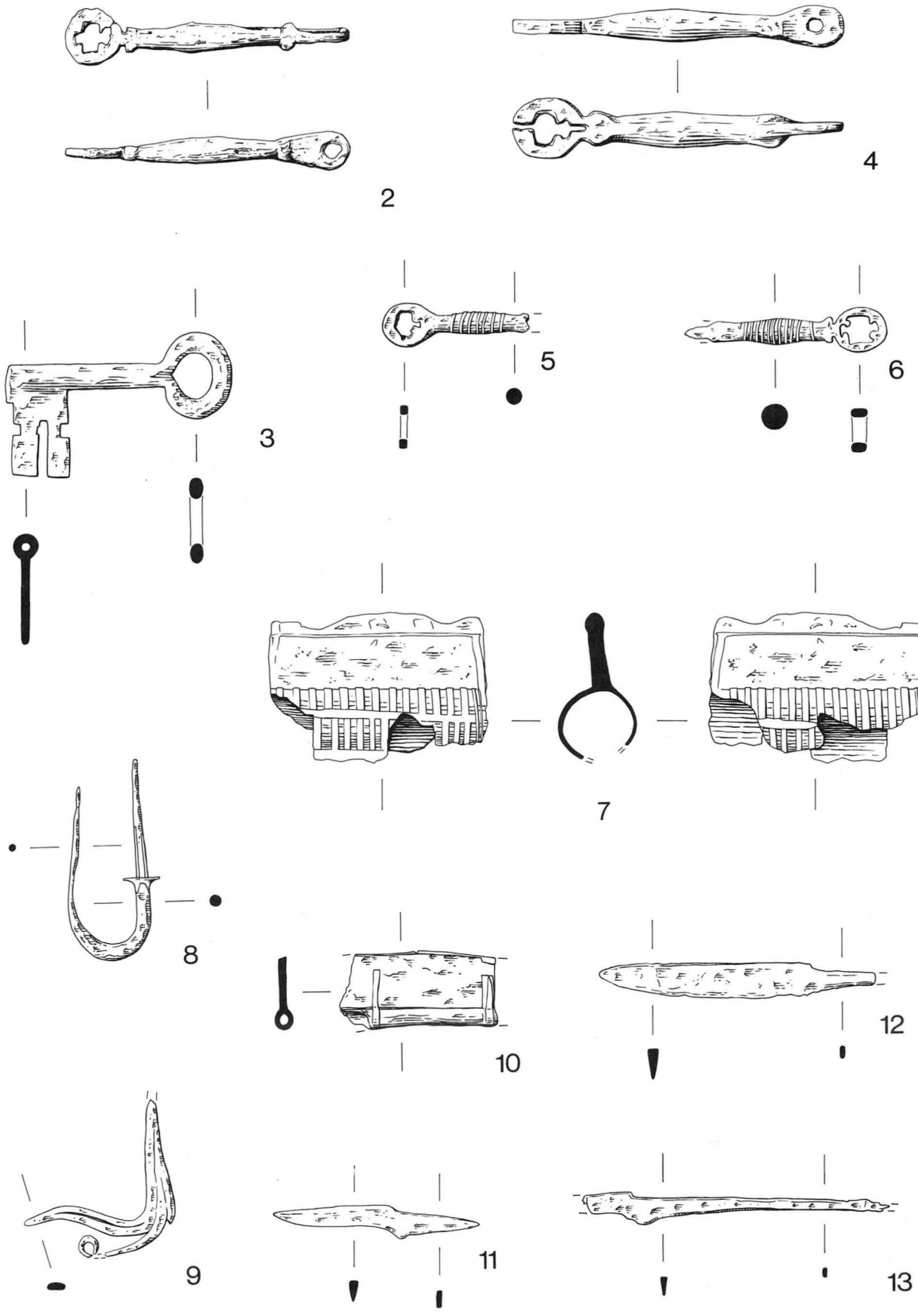


Figure 58. Iron objects. Nos 2-13. Scale 1:2.

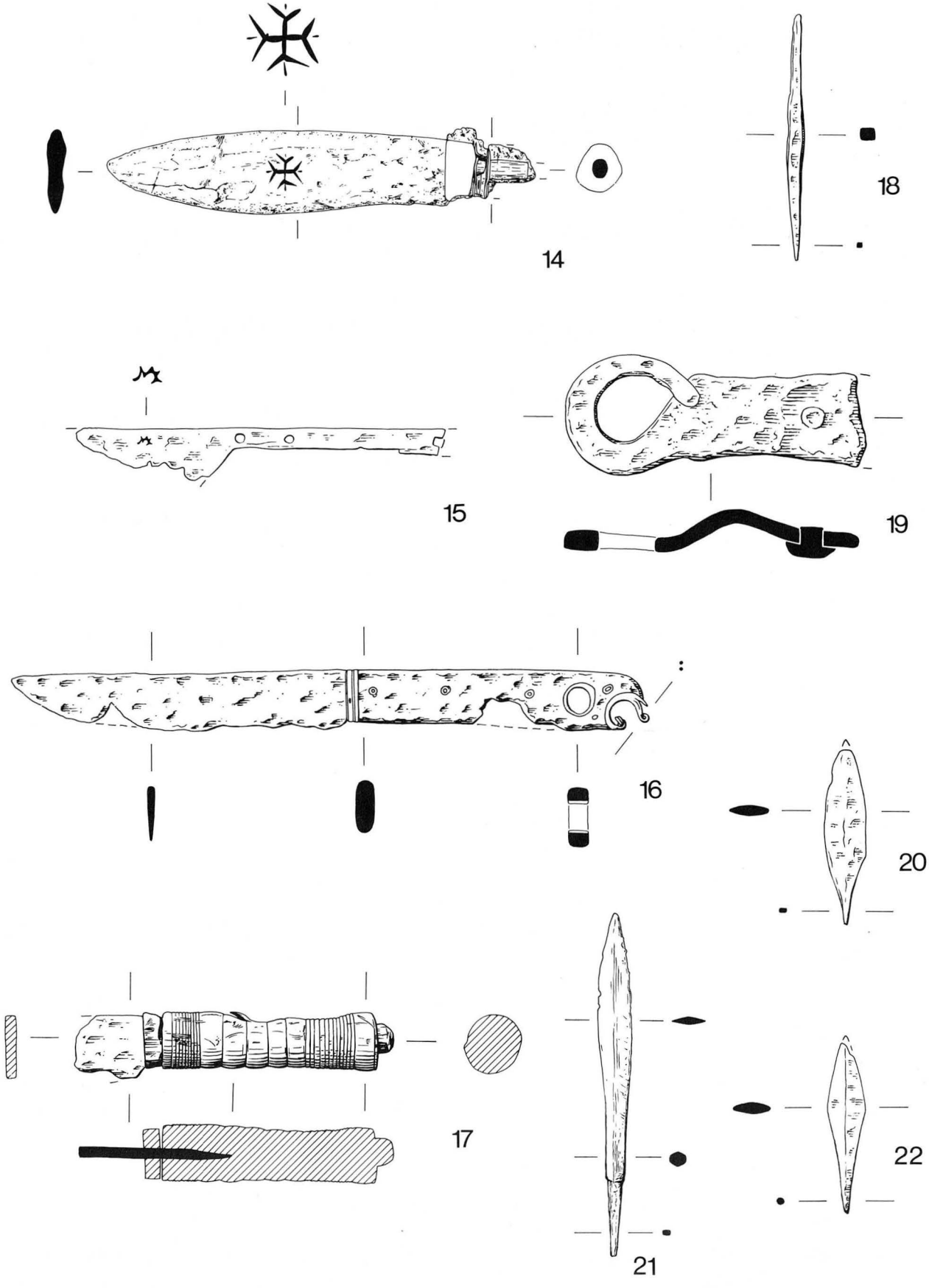


Figure 59. Iron objects. Nos 14-22. Scale 1:2.

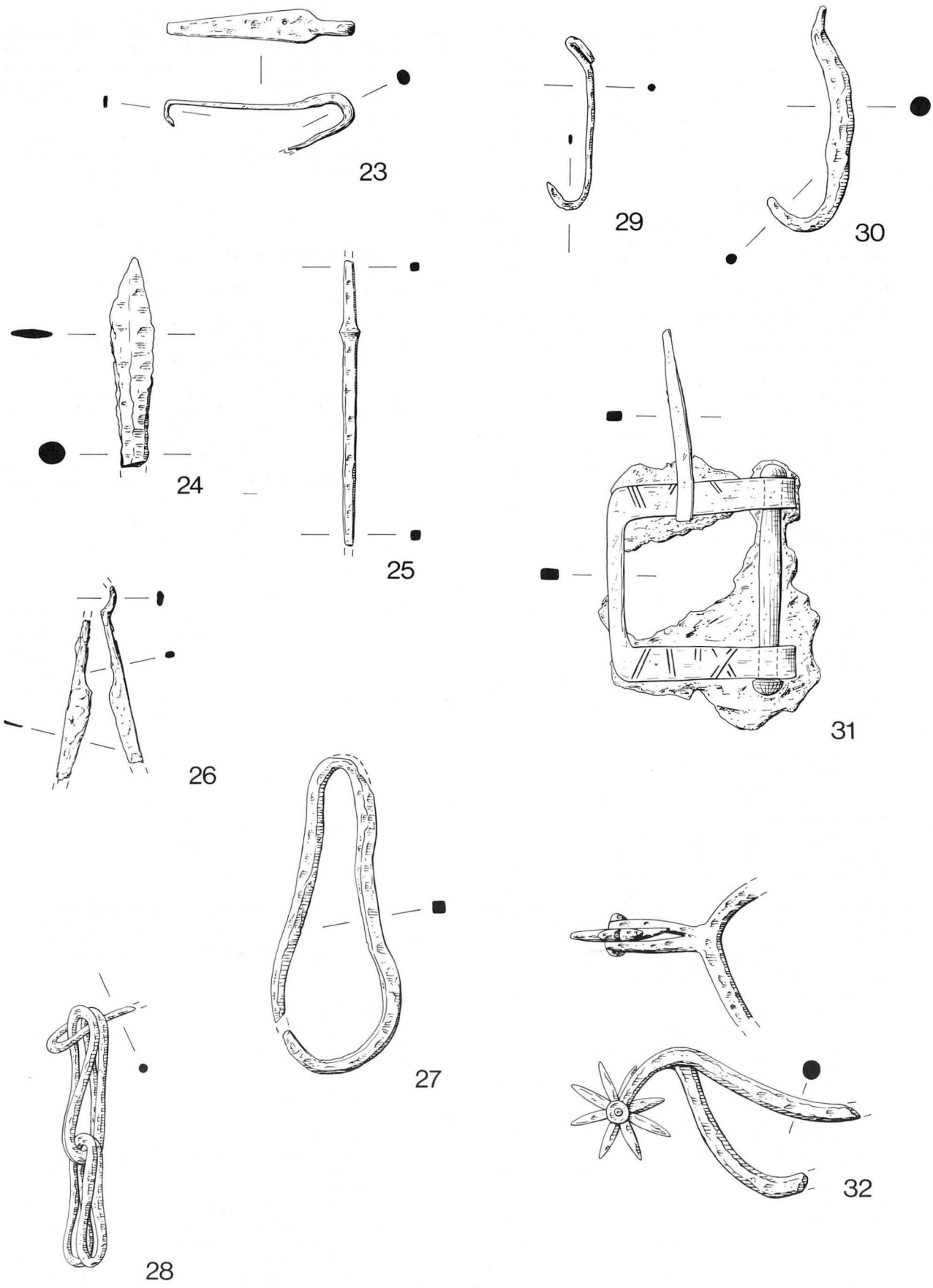


Figure 60. Iron objects. Nos 23-32. Scale 1:2.

contemporary Scandinavian sites, for example Birka, Sweden (Arbman 1943, pl. 181-2), and are exclusively pre-Conquest in date.

14. **Knife** with **whittle tang**. Traces of iron-impregnated wood on tang. Non-ferrous shoulder plate and ferrule. An inlaid cross on the blade is of a type commonly used from the thirteenth to the sixteenth century. Considerable traces of leather on the blade are probably the remains of a sheath. *Phase III; S.F. 429.633.*

15. **Knife** with **scale tang** with three surviving rivet holes. Traces of iron-impregnated wood on tang. Inlaid cutler's mark on blade. Probably fourteenth or fifteenth century. *Phase II2; S.F. 854.2126.*

16. **Knife** with **scale tang**. Considerable remains of iron impregnated wood on tang. Non-ferrous shoulder plate and tubular rivets. Also two non-ferrous collars, probably for suspension, one complete at the centre of the tang near the butt and one ?open on the lower edge of butt. The latter collar is looped at either end with a non-ferrous ring through one loop. *Phase III3; S.F. 723.2004.*

Knives from Northampton (I.H.Goodall 1979, fig. 118, no. 44) and Amsterdam, Netherlands (Baart *et al* 1977, 332, no. 631) with similar use of non-ferrous features are dated to the fifteenth to sixteenth century.

17. **Knife** with **whittle tang** and complete turned wooden handle. Blade incomplete. The handle is closed by wooden stops at either end. *Unstratified; S.F. 1243.U/S.*

The form of the blade and handle and the decoration used are paralleled by a knife from Kings Lynn (Goodall and Carter 1977, fig. 133, no. 20) which is dated to the twelfth to thirteenth centuries.

Other tools, utensils and fittings

(Figs 59-60)

18. **Awl**. Tapering evenly toward either end from a central expansion. *Phase I2; S.F. 400.1087.*

19. **Object with folded loop terminal**. One large incomplete bolt or rivet still *in situ* in shank. Shank incomplete. Traces of iron-impregnated wood over entire object. Use is uncertain, but Ian Goodall (pers. comm.) suggests that it is either the end of a hinge or, if mounted with the loop at the top, the side-strap from a bucket through which the handle looped. *Phase I2; S.F. 838.1187.*

20-2. **Tanged arrowheads**. No. 21 is of a type which probably originated in Scandinavia, the examples there dating to the tenth and eleventh centuries (Roesdahl *et al.* 1981, cat. no. H17), and is for hunting or military use. **20.** *Phase I3; S.F. 129.1005.* **21.** *Phase I3; S.F. 464.1005.* **22.** *Phase I3; S.F. 516.690.*

23. **Strap hinge** fragment. The tapering strap, bent round at the tip, has two pin holes with one pin still *in situ*. The U-shaped loop has a ring terminal positioned over the upper pin hole. Traces of iron-impregnated wood overall. *Phase I3; S.F. 645.761.*

Similar hinges have been recovered from, for example Thetford (I.H.Goodall 1984, fig. 129, nos 146-147), Northampton (I.H.Goodall 1979, fig. 117, nos 16 and 17) and Kings Lynn (Goodall and Carter 1977, fig. 133, nos 14 and 15).

23a. Probable **implement shoe**. Two plates joined at either end and along the base with a cavity at the centre containing traces of iron impregnated wood. *Length* 163 mm; *Width* of cavity *c.* 10 mm. *Phase I3; S.F. 718.805.*

23b. **Ferrule**. Length 88 mm, Diam. *c.*16mm. *Phase I3; S.F. 1023B.1005.*

As I.H.Goodall (1984, 97) comments, ferrules were normally used to protect the bases of staffs *etc.*, but also served to tip skating poles used in conjunction with bone skates (MacGregor 1976, 61-3, fig. 2). Two skates were recovered from the excavation (see below, Bone Object, No. 17 and microfiche 1:D.7-10), one from the same context.

24. Possible broken lanceolate terminal from an **auger bit.** *Phase III; S.F. 451.651.*

Similar bits and bit fragments have been recovered from, for example, Thetford (I.H.Goodall 1984, fig. 117, nos 14-17).

25. **Awl**. Tapering slightly from either side of a stop. *Phase III; S.F. 639.799.*

26. Pair of small **shears** with a looped bow. Possibly miniature. *Phase II2; S.F. 173.1006.*

27. Sub-oval **loop**. *Phase II2; S.F. 210.1004*

Similar examples from Northampton (I.H.Goodall 1979, fig. 119, no. 78) with the more common figure of eight shape, and Bordesley Abbey, Northants. (Wright 1976, fig. 35, no. 4) are described as chain links, while those from Thetford (I.H.Goodall 1984, fig. 131, nos 164-167) are identified as hasps, used for securing doors, gates, chest lids *etc.*

28. Three **links** from a double link chain. *Phase II2; S.F. 805.2092.*

28a. **Shears blade**. The back of the blade continues straight from the arm, while the cutting edge dips sharply from the arm at the shoulder and then continues parallel with the back. The tip is possibly rounded although it may be incomplete. *Length:* 77 m. *Phase II2; S.F. 851.2134.*

28b. Large **hammer head** with long flanges down the shaft. A considerable proportion of the wooden shaft remains, now iron-impregnated. *Length:* 172 mm. *Period IV; S.F. 220.224.*

Other iron objects

(Fig. 60)

29. **Fish hook** with looped head for line attachment. *Phase I3; S.F. 281.1005.*

30. Large, heavy **hook**, possibly a spade head fish hook. *Phase I3; S.F. 169.1005.*

31. Large **buckle**. Two sides of the frame are decorated with incised linear geometric patterns, while a third side comprises a swivelling bar with enlarged terminals. *Phase III; S.F. 392.632.*

A comparable buckle from Ipswich, Suffolk (West 1963, fig. 54, no. 11), from a twelfth-century ditch fill, is interpreted as a harness buckle and the Norwich example was found in conjunction with a bronze bell, probably used as a harness fitting (see Non-ferrous Metal Object, No. 16).

32. **Rowel spur**, terminals and buckles missing. 8 pointed rowel within a plain rowel box with slightly expanded terminals. Probably fourteenth century. *Phase III2; S.F. 926.241.*

V. Slag

by Justine Bayley

The site produced a small amount of iron smithing slag (9.5 kg) and a further amount (1.3 kg) of fuel ash slag. Smithing slag forms in a blacksmith's hearth but any fire at sufficiently high temperatures can produce fuel ash slag. This forms when a silicate material such as clay or sand is fluxed by the ash in the fire. It is only an indicator of a high temperature fire and not necessarily associated with metal-working.

Weights :	smelting slag	1.4 kg (J.B. i.d.)
		8.1 kg (BSA i.d.)
	fuel ash	0.8 kg (J.B. i.d.)
		0.5 kg (BSA i.d.)

Note: Quantities of slag recovered during post-excavation sorting were identified by Brian Ayers using the slag already identified by Justine Bayley as a guideline.

VI. Stone Objects

by Val Williams, with stone identification and petrological analysis by David Moore

Norwegian Ragstone hones

(Fig. 61)

1. Fragment of an **irregular-section hone**. Smoothed overall, three faces by transverse honing. Ends broken. One surface has two sharpening grooves, both truncated by breakage. *Phase I2; S.F. 399.1087.*

1a. Fragment of a **plano-convex-section hone**. One edge smoothed, but otherwise the stone is rough and only basically shaped. *Length:* 63 mm. *Phase I3; S.F. 881.1005.*

1b. Fragment of a **rectangular-section hone**. Smoothed overall. Ends broken, but wear patterns at either end suggest that the hone continued in use after breakage. A small depression at the centre of one face near the end may indicate an attempt at perforation. *Length:* 66 mm. *Phase I3; S.F. 886.1005.*

1c. Fragment of **irregular-section hone**, probably of Norwegian Ragstone. Smoothed overall, one end broken. A bulbous effect at

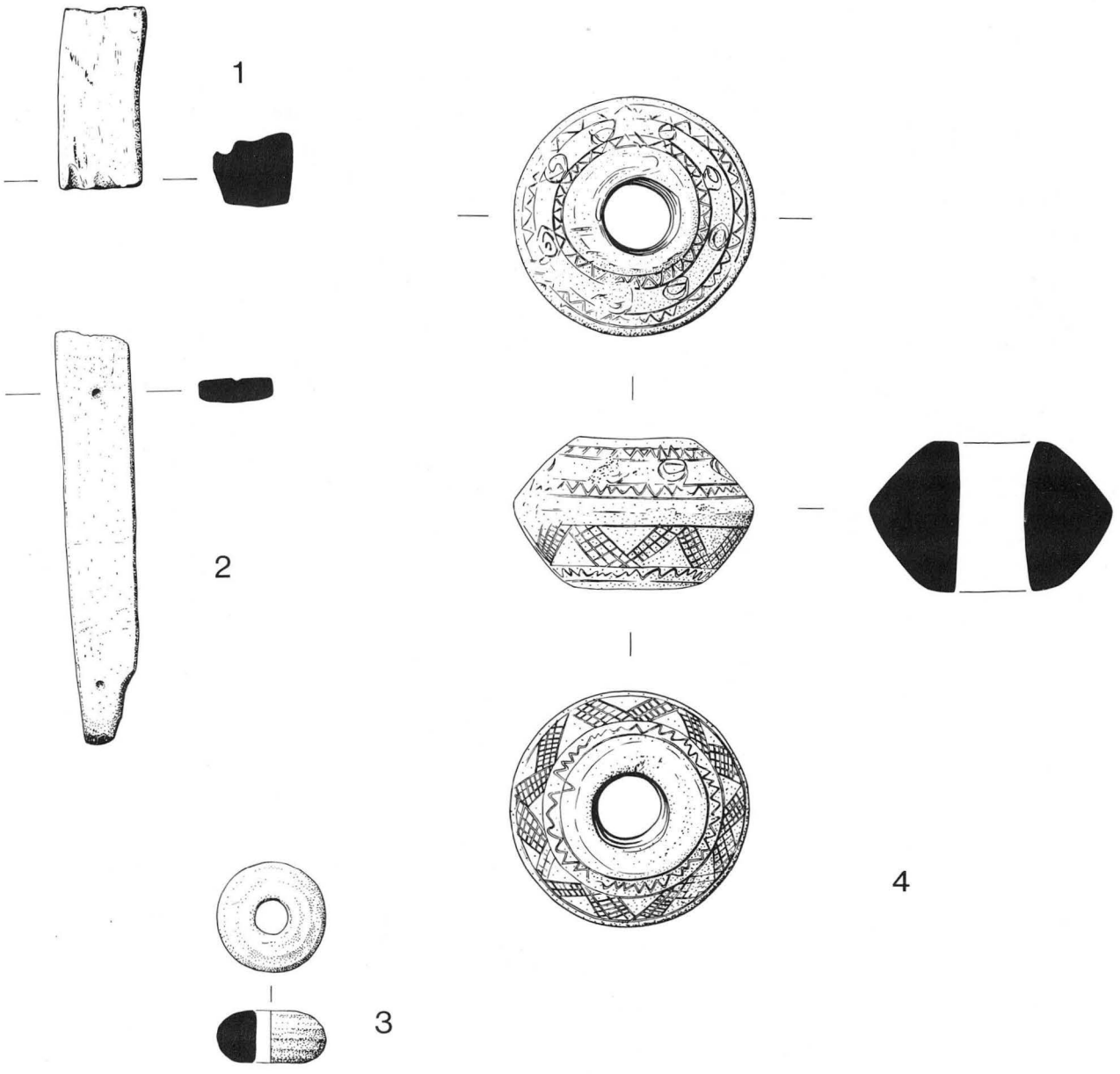


Figure 61. Stone objects. Nos 1-4. Scale 1:1.

one end is probably due to transverse honing. *Length:* 53 mm. *Phase II1; S.F. 328.470.*

1d. Two fragments of a **triangular-section hone**. The stone is rough and only basically shaped, but wear on two faces suggests the beginning of use as a hone. *Length:* 77 mm. *Phase II2; S.F. 316.453 and S.F. 323.440.*

2. Complete **trapezoidal hone**, smoothed overall. Three circular depressions, two on one face and one on the opposing face represent one or two partly drilled suspension holes at the narrow end of the hone. *Phase II2; S.F. 382.620.*

Eleven pieces of Norwegian Ragstone were recovered, all from contexts of the eleventh to the thirteenth centuries. They all appear to have been used as hones, probably primary sharpening stones. The minimal wear on some pieces and the unfinished perforations on Number 2 and possibly Number 1b may suggest, as at Lincoln (Mann 1982, 29) that the stone was imported rough, and shaped and finished on site.

Other hones and polishing stones

(not illustrated)

2a. Fragment of a tourmaline-bearing sandstone **hone**. Smoothed on at least two faces. One face has a possible point sharpening groove. Origin of stone probably central England. *Length:* 33 mm. *Phase I1; S.F. 802.1154.*

2b. Fragment of a rectangular-section purple phyllite **hone**. Smoothed overall. One end broken. Provenance unknown. *Length:* 48 mm. *Phase I3; S.F. 492.1005.*

2c. Fragment of a sub-rectangular-section blue phyllite **hone**. Three faces are smoothed, one by transverse honing. This latter face and the one opposing it, both have deep point sharpening grooves, which in places have cut the stone to a sufficient depth to cause breakage. Provenance unknown. *Length:* 57 mm. *Phase I3; S.F. 887.1005.*

2d. Fragment of a quartz-carbonate **slab**. One surface is smoothed and scratched. Possibly a polishing stone. Probably a coal measures sandstone from Yorkshire, Lancashire or Nottinghamshire. *Length:* 108 mm. *Phase II1; S.F. 662.664.*

Of the seven hones and polishing stones in this group, only one, Number 2a, is of coarse stone, and this was probably intended for use in initial sharpening. The others, all of fine stone types, were probably used for producing a fine cutting edge. All were recovered from contexts of the eleventh to the thirteenth centuries.

Lava fragments

(not illustrated)

Identified by Dan Smith

2e. Large fragment with several inclusions. Both upper and lower surfaces retain the quarry marks. Part of the central perforation survives. This has been cut through from both sides and measures 35 mm diameter at the surface and approximately 25 mm at the centre. *Length:* 180 mm. *Phase I2; S.F. 818.1143.*

A total of forty fragments were recovered ranging in size from 20 mm x 20 mm x 13 mm to 180 mm x 98 mm x 64 mm. The exact origin of these pieces is unknown but petrological analysis of lava from, for example York (MacGregor 1978, 39), Bedford (Baker *et al.* 1979, 265-6) and Southampton (Faulkner 1975, 307) suggests it originates in the Rhineland from Mayen and Niedermendig, possibly being exported through Dorestad from the Saxon to the early post-medieval period. This date range is well supported by the Norwich examples, two of which come from Late-Saxon contexts, eighteen from Late-Saxon- to early-medieval contexts, eighteen from early-medieval contexts and the remaining two from late-medieval kitchen contexts of about the fourteenth century.

Other objects of stone

(Figs 61-62)

2f. Fragment of a slab of sparry limestone (marble). Provenance unknown. *Length:* 140 mm. *Phase III; S.F. 433.633.*

2g. Small fragment of a cherty limestone **lamp** or **crucible**. Provenance unknown. *Length:* 64 mm. *Phase III; S.F. 442.592.*

3. Symmetrical, rounded bi-conical limestone **spindle whorl**. *Weight:* 19.6 gm. *Phase III; S.F. 485.1120.*
Cut or lathe turned with the turning grooves forming the only decoration as with examples from Northampton (Oakley and Hall 1979, fig. 126, nos 5-8). Viking Age whorls of a similar type have been recovered from, for example Trelleborg, Norway (Norlund 1948, pl.li, nos 7-13) while comparable whorls from Kings Lynn (Geddes 1977, fig. 144, nos 6-15) are dated to the thirteenth to fourteenth centuries.

4. Symmetrical bi-conical limestone **spindle whorl**. *Weight:* 31.6 gm. *Phase III; S.F. 491.1120.*
The decoration is incised onto the surface, as with examples from Kings Lynn (Geddes 1977, fig. 144, nos 2, 4-5) and Lincoln (Mann 1982, fig. 21, no. 188; fig. 22, nos 192-198).

5. Fragment of an octagonal **cresset lamp** or **crucible**. Consistent use has caused extensive blackening of the interior and the rim as well as discolouration of the stone to a depth of between 7 mm and 17 mm. There are no traces of burning on the exterior. *Phase II2; S.F. 362.564.*

6. Fragment of the lower part of the side and base of a stone **mortar**. Wealdon or Purbeck marble. The wear marks are consistent with those produced by grinding rather than pounding (Dunning 1977 321). Traces of building mortar may suggest that after breakage it was used as structural material as with an example at Kings Lynn (Dunning 1977, 321). For a full discussion on stone mortars see Dunning (1977, 320- 347). *Phase III2; S.F. 224.143.*

VII. Glass Objects

by Val Williams

Decorated vessel glass

(not illustrated)

1a. Small fragment of highly devitrified **vessel glass** with applied trail decoration. Possibly twelfth to thirteenth century. *Phase II2; S.F. 385.624.*

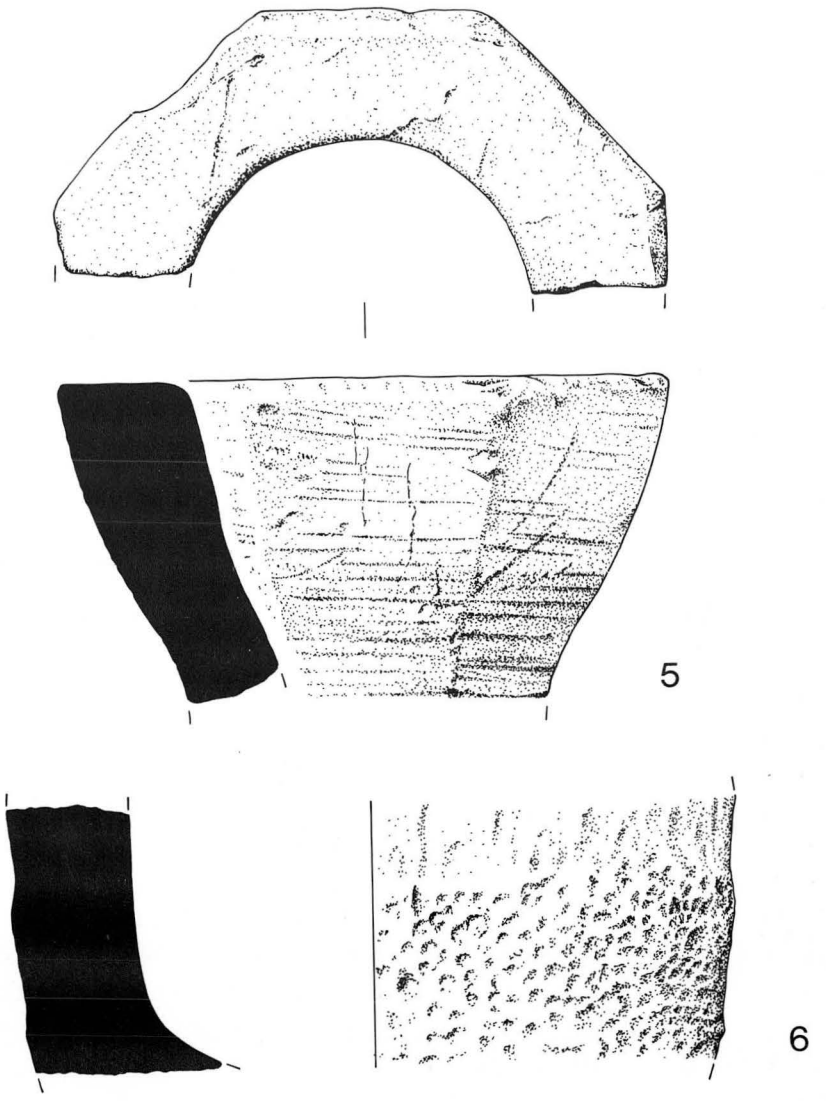


Figure 62. Stone objects. Nos 5-6. Scale 1:1.

Window glass and window fragment

(Fig. 63)

Identified by David King

1b. Small fragment of completely devitrified glass. The core is vivid green and this may be the result of a residual colouring agent within the glass. Post Conquest. *Phase I2; S.F. 898.3068.*

1c. Fragment of possible **glazing waste** of twelfth- to thirteenth-century date. *Phase II2; S.F. 266.291.*

1d. **Window** fragment. A completed leaded cell with the remains of a highly devitrified diamond-shaped quarry still *in situ*. A secondary came strip running across the centre of the cell probably represents a repair. Came studs indicate the presence of at least three adjacent cells. The glass appears to be clear and may have been painted. Fifteenth to sixteenth century. *Phase III3; S.F. 725.2024.*

2. Fragment of **painted glass**. Only one grozed edge remains. Possibly blue glass. Insufficient was found to be certain, but David King feels that the design is either purely decorative from a border or forms part of a garment or drapery pattern. The possible use of smear shading indicates a fourteenth-century date. *Unstratified; S.F. 164 U/S.*

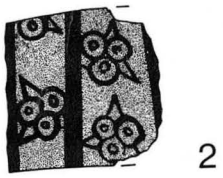


Figure 63. Glass objects. No 2. Scale 1:1.

Beads

(not illustrated)

2a. Small dark glass **bead.** *Diameter:* 4 mm. *Phase I1; S.F. 946.1095.*

2b. Small **bead**. Opaque light green. *Diameter:* 4 mm. *Phase III; S.F. 944.719.*

VIII. Pottery

Introduction

The analysis of the pottery took the following form: the material was subjected to basic quantitative analysis (methodology and results described below); pottery 'groups' were selected, generally from 'closed contexts', such as pits; material from these groups was considered for publication; and, as far as possible, the catalogue was based on this. However, absolute concentration upon 'closed contexts' would have inevitably excluded some vessels of intrinsic interest which have, therefore, been included. The catalogue is intended to illustrate the variety of material, not its relative abundance.

Any large urban excavation will encounter problems of residuality and intrusion and a waterfront site is likely to be particularly so affected (here, note should be taken of the problems of phasing Period I, above p. 5, and that one very thick layer, *1005*, clearly continued to accumulate in Period II). The sherd and weight counts of pottery by phase, indicated on Figures 64 and 65, illustrate this point. It is a matter of some concern that over 400 sherds of medieval unglazed coarse wares are phased within Period I since the period generally covers the eleventh and early twelfth centuries. However, only three of these occur in Phases I1 and I2 and, of the remainder, 362 or 78% were located within layer *1005*. The other ninety-seven sherds were associated with mixed and often contaminated layers.

To fulfill the intention that the catalogue should illustrate vessels from 'closed contexts', augmented where necessary by other material, each phase group is presented with 'closed contexts' first.

At a preliminary stage, the material was divided into English and Imported wares. The former were studied by the writer (with the assistance of Jayne Bown), the latter by David Wilkinson. Within the catalogue the material is presented all together. Each group, however, is discussed separately below.

The quantitative analysis of the English and Continental wares is set out separately as the analysis was done separately. The imported wares were studied by David Wilkinson in Sheffield and his results are subsumed within his report and illustrated separately.

English Wares

with Jayne Bown

Quantitative analysis of the English Wares

The methodology adopted for the quantification of the English Wares was as follows. The pottery was examined by context and sherds were divided by fabric groups. These 'groups-by-contexts' were then subjected to three measures of quantity:

i) Sherds were counted;
ii) Sherds were weighed;
iii) Minimum number of vessels by form was estimated.

This information was then ordered by phase and the results are shown on Tables 2, 3 and 4.

Period	*I1*	*I2*	*I3*	*I*	*II1*	*II2*	*III1*	*III2*	*III3*	*III*	*IV*	*Total*	*% of Total*
Fabric													
Roman	2	3	—	—	2	7	—	—	—	—	—	14	0.1
Ipswich	—	—	1	1	—	3	1	1	—	—	—	7	0.05
Thetford	438	1146	1963	282	1313	463	8	44	10	20	—	5687	34.8
E. Med.	26	222	942	83	1591	859	50	43	13	20	—	3849	23.6
EMSW	—	—	1	—	3	3	—	1	—	—	—	8	0.05
Shelly	9	36	173	15	220	88	4	4	6	3	—	558	3.4
Stamford	1	6	11	—	21	27	4	1	—	1	—	72	0.4
Med. unglazed	1	2	391	72	1141	2234	391	207	69	34	4	4546	27.8
Non-local Med.	—	—	1	—	6	22	2	1	—	1	—	33	0.2
Other Med.	8	41	166	16	172	125	15	39	9	10	2	603	3.7
Grimston	—	—	2	2	13	185	67	33	10	11	—	323	2.0
Non-Grimston	—	—	10	2	17	97	13	1	4	2	—	146	0.9
LGE	1	1	—	1	23	200	28	72	16	26	4	372	2.3
LMT	—	—	—	—	1	8	3	36	7	2	1	58	0.4
LPM	—	—	—	—	—	1	4	1	43	—	8	57	0.3
Total	*46*	*1457*	*3661*	*474*	*4523*	*4322*	*590*	*484*	*187*	*130*	*19*	*16333*	*100%*

Table 2 English Wares: Number of sherds

Period	*I1*	*I2*	*I3*	*I*	*II1*	*II2*	*III1*	*III2*	*III3*	*III*	*IV*	*Total*	*% of Total*
Fabric													
Roman	30	80	—	—	35	75	—	—	—	—	—	220	0.1
Ipswich	—	—	40	15	—	90	20	40	—	—	—	205	0.1
Thetford	4885	13195	28655	2255	12985	6865	100	335	80	690	—	70045	42.1
E. Med.	250	1910	7605	525	10590	6220	350	310	80	100	—	27940	16.8
EMSW	—	—	20	—	55	40	—	5	—	10	—	130	0.1
Shelly	95	340	2040	115	1960	830	10	30	60	—	—	5480	3.3
Stamford	5	50	200	—	335	355	10	—	—	—	—	955	0.6
Med. unglazed	5	55	3695	260	6465	17645	3370	2390	815	260	170	35130	21.1
Non-local Med.	—	—	5	—	35	380	10	10	—	35	—	475	0.3
Other Med.	30	285	1385	105	1410	1200	75	120	70	65	30	4775	2.8
Grimston	—	—	10	30	115	7955	930	1035	75	120	—	10270	6.2
Non-Grimston	—	—	135	15	155	530	115	5	30	10	—	995	0.6
LGE	5	10	—	5	490	2285	230	940	140	305	70	4480	2.7
LMT	—	—	—	—	5	175	15	505	980	15	775	2470	1.5
LPM	—	—	—	—	—	25	45	—	2170	—	540	2780	1.7
Total	*5305*	*15925*	*43790*	*3325*	*34635*	*44670*	*5280*	*5725*	*4500*	*1610*	*1585*	*166350*	*100%*

Table 3 English Wares: Weight of sherds (in grams)

The overwhelming amount of Thetford-type Ware, and to a lesser extent Early Medieval and medieval wares, compared with the other types of pottery from the site caused problems with the presentation of the data. Accordingly pie charts were drawn up using information from methods i) and ii). These facilitated the comparison of fabric with fabric and the changing amount of each in different periods (Figs 64 and 65).

The quantitative analysis enabled a broad dating sequence to be established for the site in concert with other finds (*e.g.* Table 1). Although Thetford-type Ware forms a notoriously homogenous tradition it seems a fair rule of thumb to state that contexts and phases with little but Thetford-type Ware will tend towards a tenth-to-eleventh century date bracket whereas phases where the Thetford-type Ware is augmented by the other early local fabric, Early Medieval Ware, appear to tend towards an eleventh-to-twelfth century bracket. Table 2 clearly illustrates the latter situation, with the early part of Period I eleventh-century in date but the later part probably into the twelfth century.

Thetford-type Wares peak in the early-to-mid twelfth century and thereafter die away although their near-ubiquity early on ensures a fair degree of residuality. Early Medieval Wares peak slightly later in the twelfth century and are augmented by medieval unglazed wares which form the predominant vessel type by the latter part of Period II. They mix with such fabrics as Grimston-type and closely datable vessels such as the Stamford Wares, enabling a date for the long phase of II2 to be ascribed to the later twelfth and most of the thirteenth centuries.

Thereafter site dating by pottery becomes more difficult. However, the growing number of lead-glazed earthenwares together with certain imported fabrics (such as the Dutch Red Wares) enables Period III to be divided into three phases (although here other evidence, particularly coinage, was very useful). It seems likely that Phase III1 occupied the first two-thirds of the fourteenth century, Phase III2 the end of the century and the fifteenth century up to *c.* 1450, and Phase III3 the years from *c.*1450 to the mid-sixteenth century. The few ceramic finds from Period IV were not used for dating purposes other than to confirm that the contexts were of post-medieval date.

The Wares

English Wares accounted for the vast bulk of material recovered (some 96.6% of the sherds) from the site. This proportion remained fairly constant across all phases of occupation, dipping slightly in Phase 13 to about 95%. The majority of wares were locally produced with non-local production centres tending to be the East Midlands. In no instance were any fabrics recorded which were previously unknown from Norwich.

The principal fabrics encountered were as follows (other fabrics are described within the catalogue). The classification follows Jennings (1981).

Thetford-type Ware: hard, well-fired sandy fabric. Grey core; grey-black surfaces. Occasionally oxidised to a dull red. Wheel-made.

Early Medieval Ware: similar to Thetford-type Ware, usually slightly thinner-walled and lighter in colour with a smoother surface texture. Hand-made bodies, wheel-thrown rims.

Early Medieval Sparse Shelly Ware (EMSS): grey sandy ware with large sparse shelly inclusions.

Early Medieval Sandwich Ware (EMSW): dark grey sandy fabric with dull red to brown margins and dark grey to black surfaces, often with minute white inclusions.

Medieval unglazed wares: local grey coarse wares. Slightly sandy with few inclusions.

Grimston-type Ware: generally reduced, sandy grey fabric. Green lead glaze.

Key to Figs 64 and 65

A : Romano-British and Ipswich-type Wares (always residual)
B : Thetford-type Ware
C : Early Medieval Ware
D : Early Medieval Sandwich Ware
E : Shelly Ware
F : Stamford Ware
G : Medieval unglazed coarse wares
H : Non-local Medieval wares (unglazed)
J : Other Medieval wares
K : Grimston-type Wares
L : Non-Grimston-type wares
M : Lead Glazed Earthenwares
N : Late Medieval and Transitional wares
P : Post-medieval wares

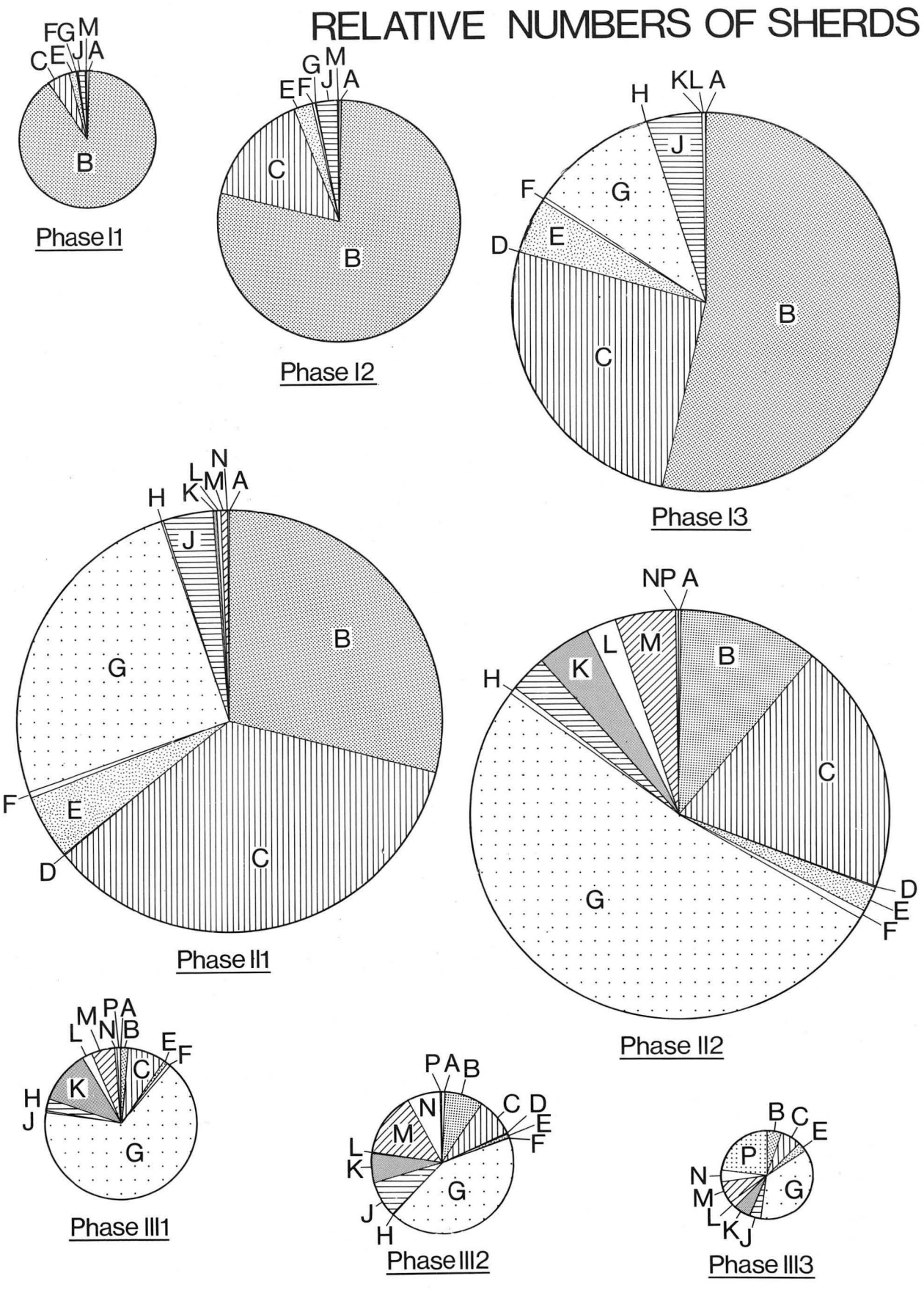


Figure 64. Pie chart of English wares; quantitative analysis by number. The circles are represented in proportion to each other and indicate the global quantity of pottery by phase.

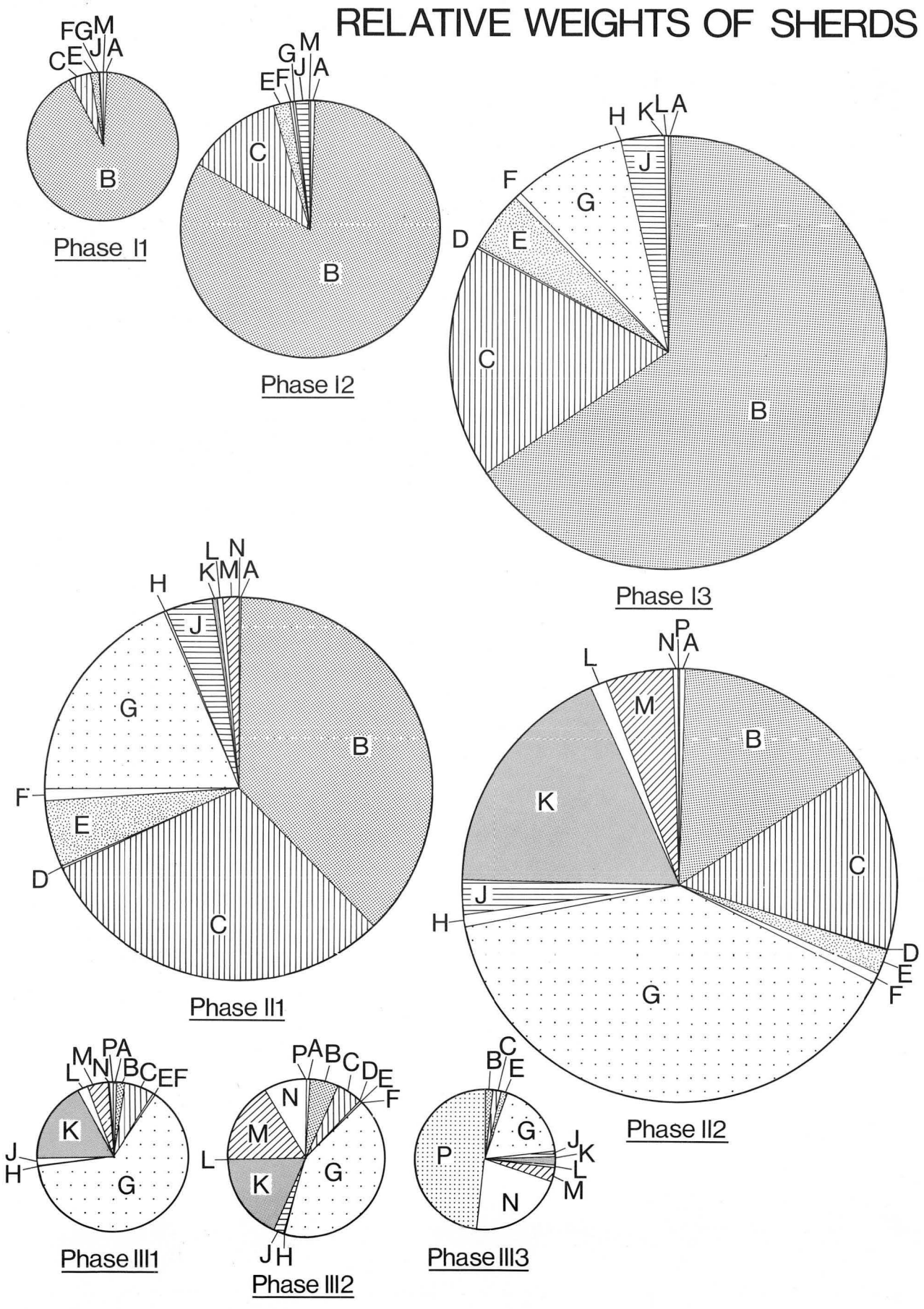


Figure 65. Pie chart of English wares; quantitative analysis by weight. The circles are represented in proportion to each other and indicate the global weight of pottery by phase.

Phase and Fabric	*Bowl*	*Cauldron*	*Chamber Pot*	*Dish*	*Ginger Jar*	*Jar*	*Jug*	*Lamp*	*Pipkin*	*Pitcher*	*Skillet*	*Spouted Pitcher*	*Storage Jar*	*Other*
I1														
Thetford	1					29					1	1	1	
E. Med.						4								
Shelly						2								
I2														
Thetford	2					99		2				1	3	
E. Med.	1					18								
Shelly	3					6								
Med. unglazed							1							
Other med.							1							
I3														
Thetford	7					176		3					22	1
E. Med.					4	79								
Shelly	5				2	29								
Stamford										1		1		
Med. unglazed	8					28	1							
Other med.						9		1					1	
Yarmouth						1	1							
I														
Thetford						19						1	1	
E. Med.						9								1
Shelly						2								
Med. unglazed						3								
Other med.						1								
II1														
Thetford	4					9		3				1	10	
E. Med.	4				3	96								
EMSW						1								
Shelly	4					23								
Stamford												1		
Med. unglazed	3					65	1							
Other med.	1					5								
Grimston							2							
Non-Grimston						3								
LGE							4							
II2														
Thetford	3					62		2			1	1	3	
E. Med.	5				5	40					1			
Shelly						9								
Stamford									2	5				
Med. unglazed	13					176	4							1
Non-local med.						2						1		
Other med.						3	1							
Grimston						2	32							1
LGE						1	10							
III1														
Thetford						3								
E. Med.						2								
Med. unglazed	1					27	2						1	
Grimston							7							1
LGE							3							
III2														
Thetford						2								1
E. Med.						2								2
Shelly						1								
Med. unglazed	2					10	2							1
Non-local med.							1							
Grimston							10							1
LGE							3			1				1
LMT							3							
III3														
Thetford	1					3								
E. Med.						2								
Shelly						2								
Med. unglazed						2								3
Grimston							2							
LGE														1
LMT						1								
LPM			1	2										6
III														
Thetford						4								
Med. unglazed	2					3								
Grimston							2							
LGE							1							
IV														
Med. unglazed		1												
LGE	1													
LMT	1													
LMP														3

Table 4 Minimum number of vessels (English Wares) by form and fabric

Thetford-type Ware forms one of three large groups of unglazed earthenwares recovered from the site (the others are Early Medieval Ware and the medieval unglazed coarse wares). Of the various types of vessel recovered in the fabric, the most common was the jar (Table 4), often called (and probably as often used as) a cooking pot, conforming to the pattern summarised by Jennings (1981, 14). The numbers of jars eclipsed all the other types of vessel, there being over six times as many jars as the others put together, perhaps because the jar is a ubiquitous vessel of everyday application to a variety of purposes whereas the remaining vessels were probably of more specialised use.

After jars, the next largest group was that comprising storage jars and pitchers (subsumed under the title 'storage jar' in the quantitative analysis as it was not always possible to distinguish the types) with forty examples noted between Periods I and III. The greatest numbers occurred in contexts of the late eleventh and early twelfth centuries; they were markedly less common in earlier and later contexts. Spouted vessels formed a small group (five examples only) and were scattered between Phases I1 and II2. Jennings (1981, 14) feels that these were later in the tradition and the examples from Phases I1 and I2 therefore appear anomalous at best and intrusive at worst. The latter may well be the case as both spouted vessels (Cat. Nos 11 and 29) were found in waterfront contexts where stratigraphy was confused and excavation hasty (p. 15). These contexts also overlay the Phase II timber *1203* for which an apparently anomalous date was obtained by dendrochronological analysis (pp. 130 and 162). The illustrated sherds should therefore be treated with caution as their apparent early occurrence in the sequence may be misleading.

Bowls (eighteen examples) formed the next largest group after storage jars/pitchers. As with the jar there was a concentration of these vessels in late eleventh and early twelfth century contexts. Except for Number 89 the vessels were undecorated. Lamps (ten) were found from Phase I2 to Phase I3 although only as fragmentary examples; the assemblage is slight compared to the graveyard material from the Anglia Television site (Ayers 1985b, fig. 32). The two apparent skillets noted in the minimum vessel estimate may, as easily, have been shallow bowls (Table 4).

There is a slight overlap between Thetford-type and Early Medieval Wares, occasionally resulting in confusion between the two and the possibility of hybrid forms (*e.g.* Fig. 70, No. 50, a handled bowl, where the surfaces of the vessel have the appearance and feel of a Thetford-type fabric but the core is clearly different). Early Medieval Ware occurred as early as Phase I1 but only in small quantities. By Phase I3, however, it was much more common and remained so until about the end of the twelfth century. As with Thetford-type Ware the emphasis of form was on jars (251 examples), which easily outranked the next highest total, that for 'ginger' jars (twelve). These vessels, discussed thoroughly by Jennings (1981, 22), apparently also overlap between Thetford-type and Early Medieval Ware but were only found in the latter fabric at the Courts site. Bowls (ten) and a skillet comprised the remaining vessels that could be counted, once again giving a very narrow range of form.

The range widens slightly with a consideration of the medieval unglazed coarse wares. Jars again predominate (315 examples) but are followed by bowls (twenty-nine), jugs (eleven) and a storage jar. The fabrics are interesting for their similarity to the preceding fabrics. They are not as standardised as Thetford-type Ware but in appearance and general fabric the vessels seem to have been within the same overall tradition.

Other unglazed earthenwares from the site were the 'shelly' fabrics. The most common of these was a local pottery which is now called *Early Medieval Sparse Shelly Ware* (EMSS). However, this was supplemented by imports from elsewhere in Eastern England although 'classic' shelly wares (known as *St. Neot's-type*) are very rare from this site. This is in contrast to Thetford where such vessels made up 2% of the total number of sherds recovered from excavations between 1948 and 1980 (Rogerson and Dallas 1984, 123). Thetford is, however, much closer to the East Midlands than Norwich and may, in consequence, have had a completely different emphasis to its trading pattern.

A further product of the East Midlands from this site is Stamford Ware. This high quality glazed pottery, amounting to some seventy-two sherds altogether, is frequently useful as the different fabrics can be relatively closely dated. Thus, the occurrence of the Fabric B Developed Stamford Ware bottle with Glaze 3 (dated after *c.* 1140; Kilmurry 1980) helps to confirm the dating of Phase III in the first two-thirds of the twelfth century. The range of vessels represented is difficult to assess as so few diagnostic sherds survive. However, the discovery of such vessels as the bottle and the costrel (Nos 115 and 116) would indicate that more specialised Stamford Ware utensils were being traded rather than everyday vessels such as cooking pots.

Of the glazed wares, the most common recovered was that of Grimston-type Ware, particularly jugs (fifty-five). The greatest concentration of such vessels on this site was located in the thirteenth-century deposits, including a remarkable find of five almost complete jugs in one pit (Fig. 74, Nos 138 to 140, two unillustrated). The ubiquity of Grimston- type jugs was the more remarkable as by the thirteenth and fourteenth centuries the industry was producing a wide range of vessel forms such as cooking pots, bowls and jugs. These were distributed over much of East Anglia as well as being exported to Scandinavia and the Low Countries (Clarke and Carter 1977, 447).

Some glazed wares were probably produced in the vicinity of Norwich and can be regarded as East Norfolk wares. The quantities of these, although minor compared to Grimston-type Ware in terms of recognised vessels (Table 4), seem to indicate a similar but more local industry although Grimston-type Ware remained the more highly decorated (see, however, No. 177). While Grimston-type was clearly the dominant pottery industry of East Anglia at this period it was also a West Norfolk industry; it is therefore not surprising that similar, if more down-market, vessels were being produced at sites in East Norfolk (such as Woodbastwick; Andrew Rogerson, pers. comm.) and being marketed and used in the most prestigious centre in this part of the region, namely Norwich.

The locally-produced unglazed and glazed-ware vessels were supplemented by other English imports. These, however, seem generally to have been the products of potteries in the East Midlands, such as Nottinghamshire, rather than further afield (stray Yorkshire examples do, however, occur: Nos 145 and 161). The striking feature is the absence of fabrics from the south, particularly from London. At first sight such an

apparent lack of interchange between the capital and one of the largest commercial centres of England is remarkable. On closer examination, however, the matter becomes more explicable. Norwich was the market heart of East Anglia, be it for agricultural goods or any industrial product. It had an extensive hinterland and an economic grip over its neighbours which stifled serious competition (Atkin forthcoming and especially his figs 2c and 2d). Its sphere of influence extended into Suffolk to the south but not much further as it met other spheres such as that of Ipswich (and, ultimately, London). To the west, however, its supremacy was unopposed and the city thereby formed the major eastern outlet for the products of the East Midlands. The importance that was attached to Norwich by often remote ecclesiastical institutions is demonstrated by the number of such bodies which felt compelled to have a base in the city (Moorhouse 1983, Fig. 3) while the evidence of locative surnames, although difficult to interpret, clearly indicates that a good number of immigrants to Norwich originated from the East Midlands (Reaney 1967, 334)[32]. In consequence if the ceramic market of Norwich could support English imports in addition to locally produced vessels, it was intrinsically more likely that such vessels would be of Midland rather than southern manufacture.

The later medieval and post-medieval vessels recovered from the site were few and frequently unstratified. This resulted partly from the excavation policy (which had to sacrifice deposits to the rear of the street frontages, where the great depth of material hindered access to the Saxo-Norman deposits of the waterfront), and partly to the fact that by the fifteenth century few ceramic vessels were discarded at the street frontage itself. Buildings were now substantial and the occupants reasonably affluent (p. 171). Most rubbish, if not deposited at the rear, was probably carted away. Evidence has recently been cited for regular clearance of rubbish from houses in Colegate from the early sixteenth century (Atkin 1985, 255). Many vessels may have been removed from the site, therefore, at some considerable period anterior to the excavation; others were no doubt missed during the machine work when it was not possible to examine each bucketload. A few vessels are illustrated but no good groups were recovered with the exception of Numbers 201-203 which, unfortunately, were found in a pit exposed in a machine-cut section and which cannot be phased closely to the stratigraphic sequence.

Continental Wares

by David Wilkinson

The 618 sherds suspected of being imported were first laid out by site phase and then divided macroscopically into fabric groups. As far as possible these groups were then assigned to a specific production centre or area. Thirty-five sherds remain unidentified. Thin sections were not made, as most of the clays used are fine and have few inclusions.

The introductions below are intended to provide a summary of present knowledge for each imported pottery type found and to point out any major problems involved in their study. In the introductions the pottery has been divided into three groups: German; French; and Low Countries Wares. Dutch Limburg is included in the German group to which it logically belongs. The pottery types included within each group are listed in Table 5.

German Wares

The middle Rhineland

A major problem with the study of pottery from this area is the number of different centres producing virtually identical wares. The pottery has been divided into three types (Badorf-type Wares, Pingsdorf-type Wares and ?Rhenish wares) and for each type the known production centres are indicated but only rarely can specific vessels be attributed to them. It is known, for example, that the potteries of Dutch Limburg produced accurate imitations of both Badorf- and Pingsdorf-type Wares in a fabric that is practically indistinguishable, even by petrological methods (Janssen 1983, 129). A further difficulty is the lack of published typologies for Middle Rhenish wares. The Limburg types are a notable exception (Bruijn 1960-61), but even this is of limited used when Limburg examples cannot be positively identified.

In view of the above problems, the entire middle Rhenish group has been treated as a continuing tradition operating broadly within the area outlined on Figure 66. The production period for the groups described below lasted from the eighth century (Dunning 1956, 223) until the middle thirteenth century, when proto-stonewares began to be produced (Janssen 1983, 129). Later products, such as the German stonewares, have been described separately.

Badorf-type Wares: The original Badorf Wares were produced at the Vorgebirge potteries near Cologne from the eighth century onwards (Dunning 1956, 223). During the ninth century the basic Badorf-type forms were modified to the Pingsdorf-types, with the exception of the amphorae, whose production continued and was later accurately imitated by potters in Dutch Limburg until the later twelfth century (Hodges and Jennings 1981, 27). The amphorae are found throughout the Rhineland and North Sea areas and the larger, Relief-Band, amphorae were presumably used to carry Rhenish wine.

Fragments of both the small and large types were found at the Courts site between Phases I1-II2. The larger vessels have walls up to 1.0 cm thick and are made of a hard fabric which is either grey, light brown or off-white and has few inclusions except for rare, large grains of iron ore up to 0.7 cm across. The exterior is crudely smoothed and has thick, roller-stamped bands of applied clay (Fig. 70, No. 35). A complete vessel stood *c.* 70 cm high and had stubby, strap handles which were also sometimes roller-stamped (Fig. 75, No. 162). One sherd from Palace Plain (Fig. 70, No. 36) was associated with a disc brooch of tenth-century type (Fig. 55, No. 2), suggesting that it may be a Rhenish product as the earliest production phase in Limburg is dated to *c.* 1050 (Bruijn 1960-61, 356) (the brooch, however, was probably residual).

The smaller amphorae have thinner walls and either lines of notches applied with a roller-stamp or diamond rouletting (Fig. 72, Nos 78, 79; Fig. 74, No. 120; Fig. 75, No. 163). The exterior finish tends to be smoother than the Relief-Band Amphorae although the fabric is similar and one sherd (Fig. 70, No. 37), combines characteristics of both types, being from a well finished, but very small, Relief-Band vessel. Figure 70, Number 38 is very similar to Hunneschan's Ware, a ninth-century Badorf variant (Lobbedy 1969, 121).

Period		*I1*	*I2*	*I3*	*I*	*II1*	*II2*	*III1*	*III2*	*III3*	*III*	*IV*	*U/S*	*Total*	*% of Total*
German Wares															
	Badorf-type	1	2	13	1	4	4			1			3	29	7.96
	R.B.A.	1	9	12		6	6						2	36	9.89
Middle	*Pingsdorf-type*	1	1	31	2	11	12	1						59	16.20
Rhenish	*Blue-grey ware*			2		1								3	0.82
	?Rhenish-type		2	3		2	2							9	2.47
	Sub-total	*3*	*14*	*61*	*3*	*24*	*24*	*1*		*1*				*136*	*37.34*
	Siegburg						1	1						2	0.55
Stone	*Raeren*									2				2	0.55
and	*Frechen*								1			1		2	0.55
Slipwares	*Cologne/Frechen*											1		1	0.27
	Werra											1		1	0.27
	Sub-total						*1*	*1*	*1*	*2*		*3*		*8*	*2.19*
French Wares															
	N.G.W.		2	5	1	14	7	1						30	8.24
	Hamwih Cl.13					1								1	0.27
North	*Burnished N. French*		2											2	0.55
French	*Beauvaisis*		1	2	1	1							1	6	1.64
	Rouen						2	2						4	1.09
	?French						3							3	0.82
	Sub-total		*3*	*9*	*2*	*16*	*12*	*3*					*1*	*46*	*12.61*
South	*Saintonge*						3		3		1			7	1.92
French	*Sub-total*						*3*		*3*		*1*			*7*	*1.92*
Low Countries Wares															
	Andenne	3	11	39	1	38	37	3	5	1			6	144	39.6
	Dutch Red							1	4		1		1	7	1.92
Low	*Aardenburg*					2	2	2	1	1	1			11	3.02
Countries	*Group X*					2	2							4	1.09
	Dutch White Ware					1								1	0.27
	Sub-total	*3*	*11*	*39*	*1*	*42*	*44*	*6*	*10*	*2*	*2*		*7*	*167*	*45.90*
Total		**6**	**28**	**109**	**6**	**82**	**84**	**11**	**14**	**5**	**3**	**3**	**13**	**364**	
		*c.*1000 −1025	*c.*1025 −1050	*c.*1050 −1100		*c.*1100 −1150	*c.*1150 −1300	*c.*1300 −1400	*c.*1400 −1450	*c.*1450 −1550		*c.*1500			

Table 5 Incidence of Imported Wares by minimum vessel

Pingsdorf-type Wares: These red-painted wares were produced from the ninth to the thirteenth centuries, and the village of Pingsdorf in the Vorgebirge Hills is only one of the several known production areas. Kilns have also been found near Hanover, in Limburg and in the Langerwehe area. The earliest securely dated Pingsdorf-type was thought to be a costrel which contained a coin hoard from Zelzate, east Flanders, and is dated 840-875 (Dunning 1956, 226). Hurst, however, considers that this may be a French vessel and that Pingsdorf Wares were not produced until the early tenth century (Hurst 1976, 283). Examples of Pingsdorf Wares have been found all round the western Baltic and North Sea areas.

Two types are normally found, one oxidised and one reduced, and examples of both kinds were found at the Courts site between Phases I1-II2. Figure 72, Number 80 is a weakly-thumbed, oxidised foot ring from a pitcher which is made in a typical, very hard buff fabric, with a coarse texture and pimply surface. The latter two properties are both caused by the inclusion of large sand grains. A red-painted rim (Fig. 71, No. 39), also in the oxidised fabric, was associated with a knife of pre-Conquest type (Fig. 58, No. 11) and is therefore probably a Rhenish product. In the reduced fabric is another foot ring which has been deeply thumbed to give a frilled effect (Fig. 74, No. 121). The fabric is a dark-brown near stoneware, otherwise similar to the oxidised type. The rim and handle of a small jar or amphora (Fig. 74, No. 122) also belongs to this category.

Little work has yet been done on distinguishing the various production centres but Bruijn (1986, 45) has looked at the decorative painting on the Limburg types. On this evidence, the only large decorated fragment (Fig. 74, No. 122), was not made in Limburg. It is the partial rim and handle of a wide-mouthed jar or amphora and belongs to a distinctive group of oxidised sherds which occur between Phases I1 and II2. The fabric is light brown, with occasional large limestone inclusions up to 0.3mm across. The exterior, and sometimes the interior, has a dark red bloom over which the red-painted decoration has been applied. In the future it might be possible to tie these fragments down to a specific production centre or kiln.

?Rhenish group: A group of nine sherds from Phases I2 to II1 were probably, by their general appearance, made in the Rhineland but no exact parallel could be found. The fabric is fine, hard and off-white with no prominent inclusions and all the sherds, including the jar rim (Fig. 72, No. 81), are thin-walled and have a very smooth exterior finish.

German stonewares and slipwares

German stonewares from all the major sources are well known at Norwich, where they date from the early fourteenth century (Jennings 1981, 129). The Courts site produced a few sherds from Siegburg, Raeren, Frechen

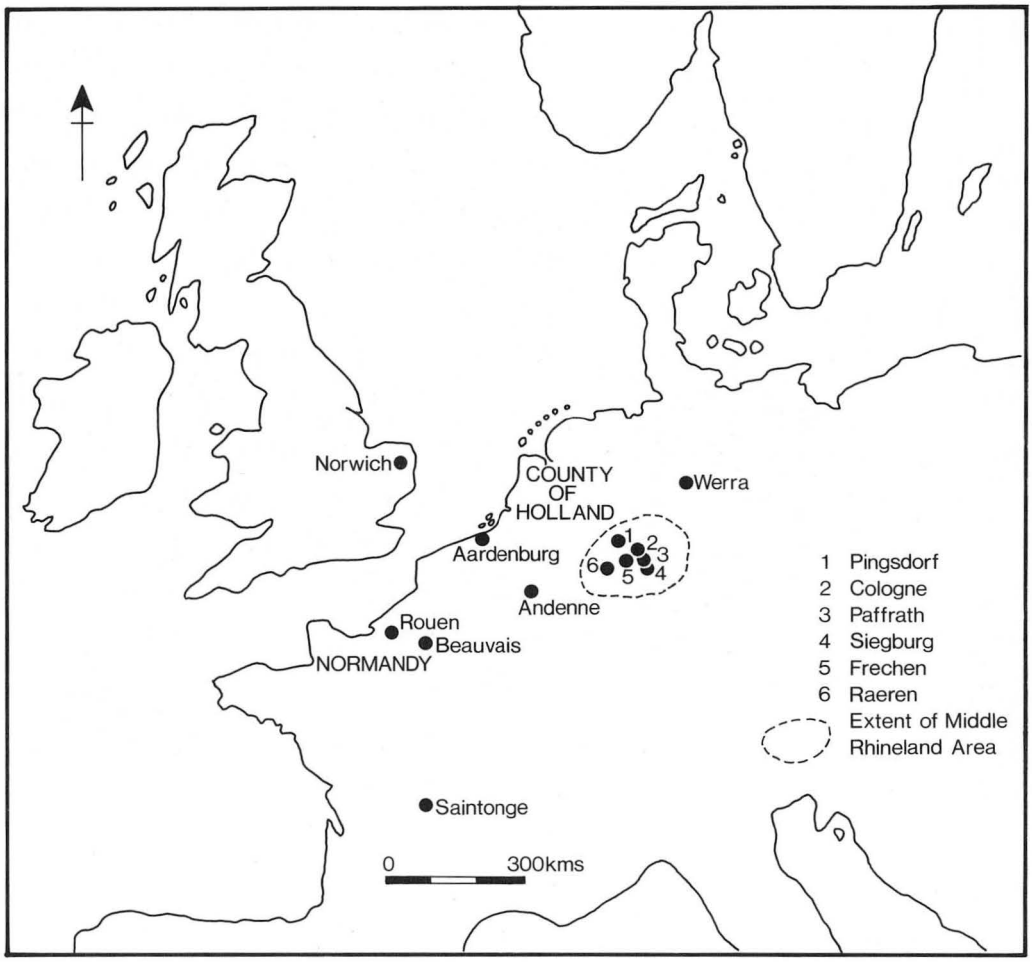


Figure 66. Map showing provenances of imported wares.

and possibly Cologne. Figure 77, Number 200 illustrates the neck and rim of a Raeren mug.

Stonewares were imported to England in very large quantities, particularly in the sixteenth and seventeenth centuries, and must have been a common item on many tables. Some stoneware was also made in England and the complete bottle found just inside the threshold of Building *2100* may be an example, although poor quality Frechen material can be very similar (Jennings 1981, 127). It is probable that it was deposited as a witch bottle (Pl. XXXV).

Werra Slipwares are also well known in Norwich and were imported from Germany in the late sixteenth and early seventeenth centuries. Figure 77, Number 208 shows part of a plate on which is depicted a crucifixion on white slip with sgraffito lines. The slip appears green under a clear lead glaze.

French Wares

Normandy Gritty Wares

Normandy Gritty Wares, mainly in the shape of jugs, are known to have been imported to England since at least the late eleventh century (Hodges and Jennings 1981, 33) but are best known from twelfth-century contexts. The production area lies somewhere between the Seine and eastern Brittany where a rural kiln near Trans (Ile de Villeme) is known from the tenth century. Overall production lasted until the thirteenth century.

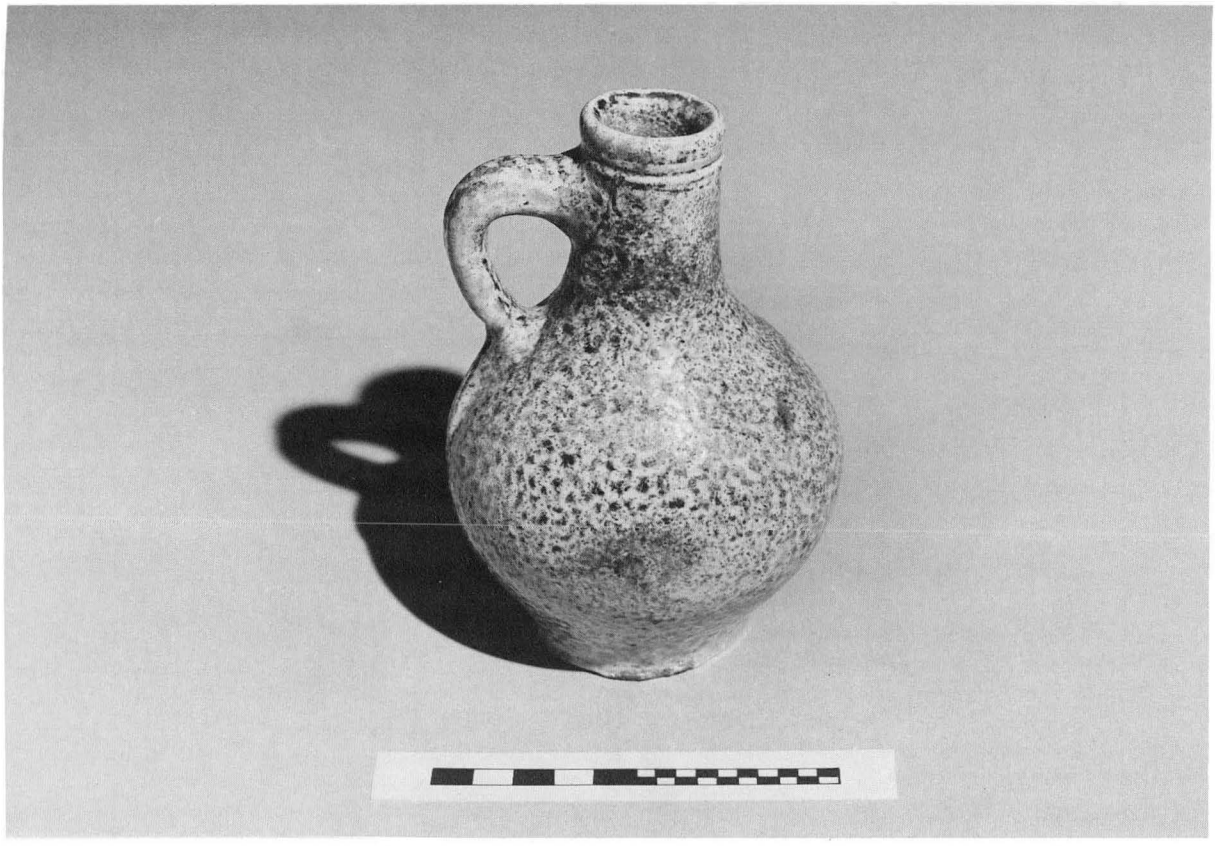
Sherds of this ware, both glazed and unglazed, were found at the Courts site between Phases I1-II2. The fabric is buff to off-white, hard and very coarse. There are large angular and sub-angular quartz grains which often erupt onto the surface, and a reddish bloom exists on both the exterior and interior of some examples. The lead glaze, when present, is usually thin and patchy, and varies from pale green to yellow. Figure 74, Number 123 is decorated with roller-stamped notches, while Figure 76, Number 164 has exceptionally high-quality yellow glaze and two bands of diamond rouletting. Small remnants of applied, thumbed strips appear on several sherds including Figure 74, Number 124, probably the rim of a jug. At Exeter a handle with this kind of decoration has been dated as pre-1100 (Hodges and Mainman 1984, 14). Finally, the strap-handle from a large jug found in the 1962 trial trench (Site 34) has already been published, and belongs to Phase III (Hodges and Jennings 1981, 33).

	Imports	*Non-Imports*	*Total*	*Imports as %*
I1	6	487	493	1.22
I2	35	1457	1492	2.34
I3	182	3647	3829	4.75
II1	190	4523	4713	4.03
II2	108	4322	4430	2.44
III1	12	590	602	1.99
III2	15	484	499	3.00
III3	9	187	196	4.59
	557	15697	16254	3.43

Table 6 Imported Wares: Numbers of sherds

Beauvaisis Wares

These wares take their name from the northern French village of Beauvais, around which pottery was produced



XXXV. 'Witch' bottle and radiograph. Catalogue No. 213. Scale in centimetres and half-centimetres.
Photo: Anglia Television

from the seventh to nineteenth centuries. Sherds of the medieval red-painted wares were found in Phases I1 to I3. The fabric is hard (though not as hard as Pingsdorf-type Wares) and grey or cream-coloured with large sand grain inclusions; the surfaces tend to be coarse.

The most common vessels are pitchers, bowls and cooking pots which are found in southern and eastern England. The upper part of a tenth- twelfth century red-painted pitcher from the 1962 trial trench (Site 34) has already been published (Hodges and Jennings 1981, 32-4) and belongs to Phase III of the Palace Plain site.

Rouen-type Ware

Rouen-type is the name given to a group of decorated jugs made in northern France, probably from the thirteenth century to the mid-fourteenth century, although their exact dating is uncertain (Barton 1966, 73-4). The jugs have been found in eastern and southern England and some North Sea ports (Hodges and Jennings 1981, 35).

The Courts site examples are in a typical fabric which is off-white to a light orange/buff and is slightly sandy. The jugs normally have solid rod handles embellished with two spurs as on Figure 76, Number 182 which displays another common trait, a monochrome dark green glaze. Figure 75, Number 165, however, is from a more highly decorated type. It has a red-brown slip over which a thin, roller-stamped strip has been applied and the whole then covered with a lead glaze which appears yellow on the strip. This was a common form of decoration, as was a thickened rim and rilled neck (Fig. 75, No. 166). Both can be seen on complete examples from Southampton (Platt and Coleman-Smith 1975, 132-3, no. 971) and from the River Waveney in Norfolk at Redenhall-with-Harleston (Green *et al.* 1969, 402; Hodges and Jennings 1981, 34-5, no. 229). The Southampton example is from a closely dated pit-group of 1250-1300 (Platt and Coleman-Smith 1975, 132-3).

Saintonge Wares

Pottery production in the province of Saintonge in western France probably began in the second half of the thirteenth century and continued until the eighteenth century (Chapelot 1983, 49). A very wide range of wares was produced at the kilns which lie a few kilometres east and north-east of Saintes (Chapelot 1983; Barton 1963). The most famous wares are the highly decorated polychrome jugs which have been found in large quantities at castles, important ecclesiastical sites and large ports in Great Britain and Ireland, where they are dated within the very narrow range of 1280-*c.*1310 (Dunning 1968, 45). Jugs of the same form, with all-over or mottled green glaze, are also common finds and both are represented at the Courts site, though only by a few sherds in Phase II2 (the first phase of use of the Building *2100*) including a simple mottled-green base (not illustrated) in a typical fine white fabric with no inclusions.

Dated examples range from the late thirteenth century to the first half of the fourteenth century, but the jugs may well have continued in circulation for some time (Allan 1983, 201).

A later rim sherd, Figure 77, Number 192, may also be a Saintonge import of the post-medieval type described by Hurst (1974). It does not match any forms described by Hurst but is similar in fabric and in its even, bright copper-green glaze, both interior and exterior. However, it is also visually similar to English Tudor Green Wares (Moorhouse 1979, 53) but, again, the form appears to have no parallel (Brears 1971, 24-5).

?French group

Five sherds from Phases III to II2 are probably of French origin although no exact parallel was found. A base sherd (Fig. 75, No. 167) has deep thumb impressions in which are patches of yellow to green glaze. The fabric is a sandy, hard light buff with rare inclusions of sub-angular quartz up to 0.2cm and red iron ore. All the sherds have a well-smoothed exterior which in some cases is a burnished orange/brown. Overall, a north French origin seems likely; the clays used at Rouen have been noted by Barton (1966, 74) as being sometimes slightly sandy.

Low Countries Wares

Andenne-type Wares

Between the eleventh and the mid-fifteenth centuries the pottery industry at Andenne in the Meuse valley produced a very large variety of wares, both glazed and unglazed (Borremans and Warginaire 1966). The high quality glazed wares which were exported account for 39.6% of the Courts site imports and occur in Phases I1 to III3.

The fabric is normally hard and fine and can be various shades of white, pink or grey with a few red iron-ore inclusions. Some later wares were made in a coarser, red fabric and these were found in Phases II2 to III2. On the fine fabrics the glazes are varied shades of yellow, green and brown, either being thin and patchy or all-over, thick and glossy. Roller-stamped decoration also occurs (Fig. 74, No. 125 and Fig. 77, No. 193), again varying in quality, and some vessels were decorated with impressed clay strips.

Figures 71, Numbers 40-2; 72, Number 82; 74, Numbers 126-9; and 76, Numbers 168-9 show just some of the wide range of wares, including the sagging base of a large pitcher (Fig. 74, No. 126) and a collar rim with one of its original three handles, also from a pitcher (Fig. 72, No. 82). The latter vessel was probably made before 1100 (Borremans and Warginaire 1966, 53; fig. 22, nos 19, 20).

Figure 74, Number 129 is a collared rim with diamond rouletting which may be an Andenne variant although the fabric contains more red iron-ore than is usual and unglazed rouletting is also rare in imported material.

Dutch Red Wares

Low countries medieval pottery can be divided into two main groups, reduced grey wares and oxidised red wares, the latter being produced from the thirteenth century onwards (Verhaege 1983a; Janssen 1983). No grey wares were recognised at the Courts site.

Red Wares were made everywhere in the Netherlands apart from south Limburg but Janssen (1983, 124) believes that most of the English imports would have been produced in the County of Holland where kilns are known at Utrecht, Haarlem, Alkmaar, Rotterdam and Leiden. Their production, regulated by medieval town government, is likely to have been smaller than that of the Limburg area (Janssen 1983, 27). Red Wares are most commonly found on the east coast of England and are much rarer in the south coast ports.

The examples from the Courts site are made in an orange to brick-red fabric (sometimes with a grey core)

which is hard, slightly sandy and has frequent inclusions of red iron-ore up to 0.4cm. Figure 77, Number 204 is a very hard-fired 'Grapen' handle which is unglazed although there may have been glaze on the vessel's shoulder. The handle is flattened and angular, suggesting an imitation of a bronze cauldron and Verhaege (1983a, 75, 79) dates this type to the fourteenth century. Figure 77, Numbers 194 and 195 are bowl rims, and Figure 76, Number 183 is a body sherd with applied decoration which also probably belongs to the Red Ware group. It can perhaps be seen as a 'half-way house' between Red Ware and Aardenburg- type Ware (see below).

Aardenburg-type and Group X Wares

At Aardenburg, in the south of Holland, kilns have been found dating from the later twelfth to the fourteenth century, although wasters of the highly decorated Red Wares which take their name from the town have, in fact, not been found there. On present evidence, much of it was made in Flanders, particularly at Brugge (Verhaege 1983a, 70) although a kiln is also known at Haarlem (Janssen 1983, 137).

The forms usually exported to the North Sea ports and eastern England are jugs decorated with thick dark-green glaze which were made from the thirteenth century onwards and can be seen as a vanguard for the Red Wares, especially as they are made in the same fabric (Janssen 1983, 70; Verhaege 1983a, 137-43). The Courts site has produced evidence of only one of the wide range of decorative techniques (Janssen 1983, 70-71), a body sherd with applied scales (Fig. 76, No. 170).

The second group of sherds, which have some features in common with Aardenburg-type Wares, matches the very full description recently published by Verhaege (1983b, 34-36) and provisionally called Group X. Verhaege is of the opinion that although Group X Wares seem to have competed with Aardenburg-type Wares, they are more likely to have been made in northern France or southern England than in the Low Countries (1983b, 35).

The fabric varies from red-brown with a grey core to an almost completely reduced grey with many fine quartz inclusions. The glaze is sometimes almost olive green, as is the case with Figure 76, Number 171, a rim with flattened top, again as described by Verhaege (1983b).

Other Wares

In addition to those wares listed in the above introductions, four other pottery types were recognised, although they were represented by only three or less body sherds. Blue-grey or Paffrath-type Ware from the middle Rhineland is a well-known twelfth-thirteenth century export to eastern England, the North Sea and Baltic areas (Dunning 1959, 56-60).

Sherds of Hamwih Class 13 and Hamwih Class 21 were identified by Richard Hodges. Both are red-burnished wares and belong to a tradition which spanned the seventh to the late ninth century in France and Belgium (Hodges 1980, 21, 30, 71-2). Their presence at the Courts site demonstrates some continental contact in the Middle to Late Saxon period.

One sherd of Dutch Whiteware, a sixteenth- to early seventeenth- century import, was identified. This adds to the small group of these wares already known from Norwich (Jennings 1981, 134).

Lastly, a pitcher (Fig. 76, No. 172) made in a soft pink fabric is probably English, perhaps from south Norfolk (S.Jennings pers. comm.). The general shape, roller-stamped decoration and raised cordons at the shoulder suggest possible influence from Aardenburg-type Wares.

Quantitative analysis

Method

Quantitative analysis of the imported wares was carried out by two methods, a sherd count and a minimum vessel count; both counts being done for each type/group of pottery and for every phase. The minimum vessel count was considered to be the more important statistic for two reasons. Firstly, the highly varied nature of the imported collection made it relatively easy to ascertain the number of vessels represented and secondly, such a count is appropriate for such luxury wares which are not likely to have been imported in large numbers, particularly in the medieval period. The count should not therefore, be too misleading and has been preferred to the sherd count in Figures 67 and 69.

The less varied local pottery is more difficult to estimate by minimum vessel and therefore the sherd count has been used in Figure 68 where imported wares are shown as a percentage of the total pottery.

On Figures 67-9 broken lines appear which represent the '*1005* adjusted plot'. This is because *1005* is the context number of a very large layer which accounted for much of the imported pottery and which was gradually deposited during Phases I3 and II1. Each graph therefore shows two plots, the solid line representing *1005* as being in Phase I3, and the broken line which represents an adjusted plot (between Phases I2 and II2) which is a truer reflection of the way in which the pottery was deposited. The broken line will be referred to in any discussion of the figures.

The analysed collection is by no means large: 566 sherds representing a minimum of 364 vessels. For this reason it would be unwise to place too much emphasis on quantitative analysis, particularly as the Courts site is the only large area of river frontage to have been excavated in Norwich. In the discussion which follows then, general trends rather than details have been picked out so as not to over-stretch the capabilities of the data.

Discussion of the imported pottery

Any discussion of commerce based on movement of pottery must take account of the reasons which lie behind the exchange. Davey and Hodges (1983, 10) have noted that pottery traded for its own sake is likely to be mass-produced and would not show the wide typological variation which is evident in much of the Courts site collection. Such varied pottery is more likely to have been brought as a sideline to bulk commodities (*e.g.* wool, cloth, wine), perhaps as gifts to trade partners or as souvenirs. Only the German stonewares and perhaps the Saintonge and Dutch Red Wares might be considered as mass-produced. Much of the pottery then, while it indicates overseas contacts (either direct or indirect), cannot be considered to quantify trade except in the broadest possible sense. Customs documents only begin after 1200 (Clarke 1983, 17), so other means of quantification must be sought. Waterfront archaeology is particularly useful here with wharves, warehousing and merchant dwellings all providing direct evidence of investment in trade. Evidence for production, whether archaeological or otherwise, is also useful, especially if the extent to which industry or agriculture was geared towards export can be assessed.

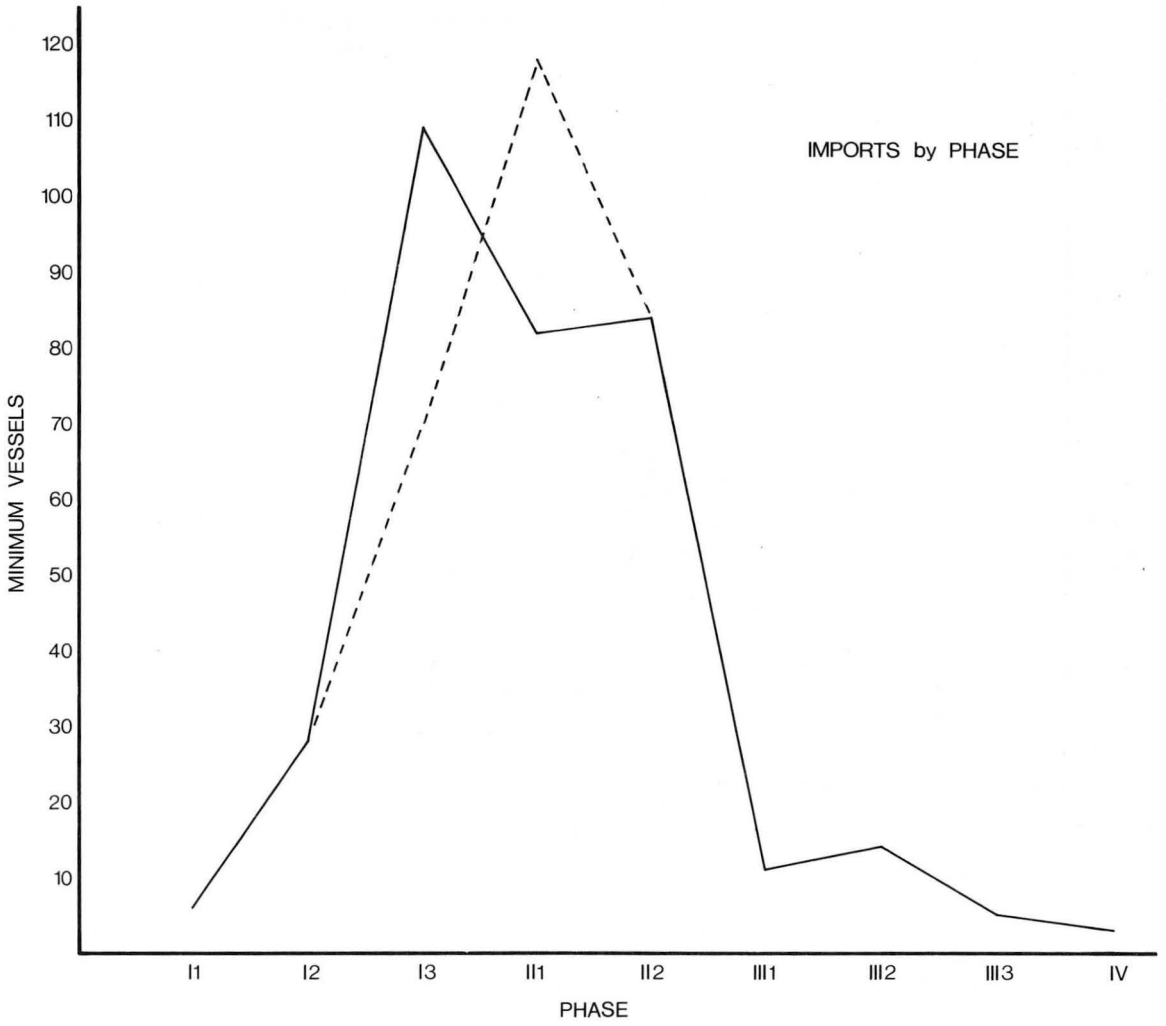


Figure 67. Graph: minimum vessels (imported wares) by phase.

Much discussion has taken place of Norwich's importance before 1066 (Campbell 1975, 5-6; Carter 1978a, 194-5) and Carter considers that the city's recovery from the sack of 1004 and battle of *c.*1016 indicates a strong economic base, possibly due to its role as a port: 'it is surely by the eleventh century at the latest that we should look for the intensification of the east coast trade with Scandinavian and North Sea port' (1978a, 203). This is a reasonable hypothesis although the archaeological evidence summarised below suggests that the eleventh

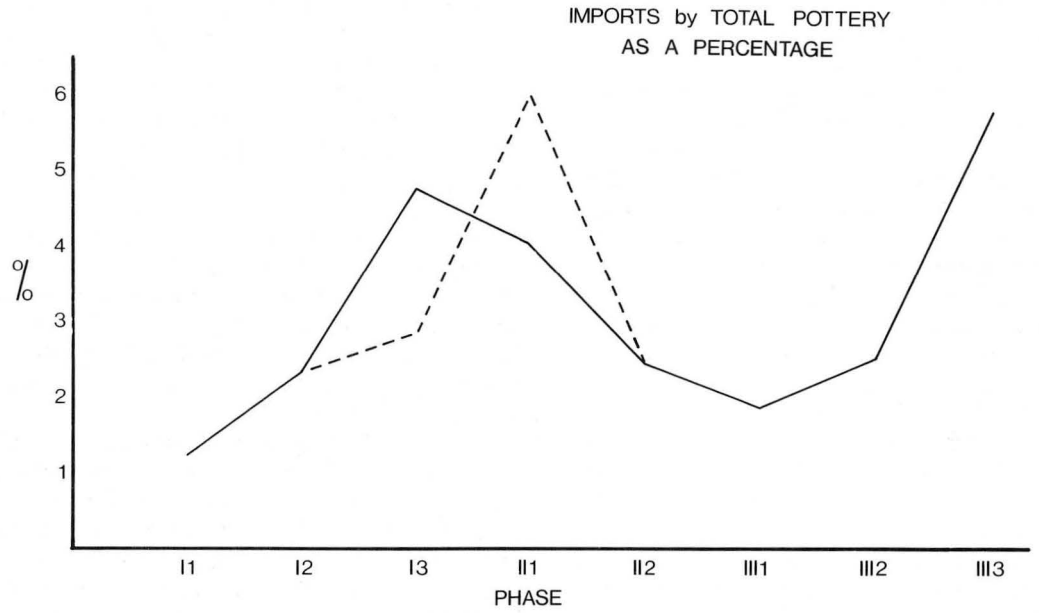


Figure 68. Graph: imported wares as a percentage of the total pottery.

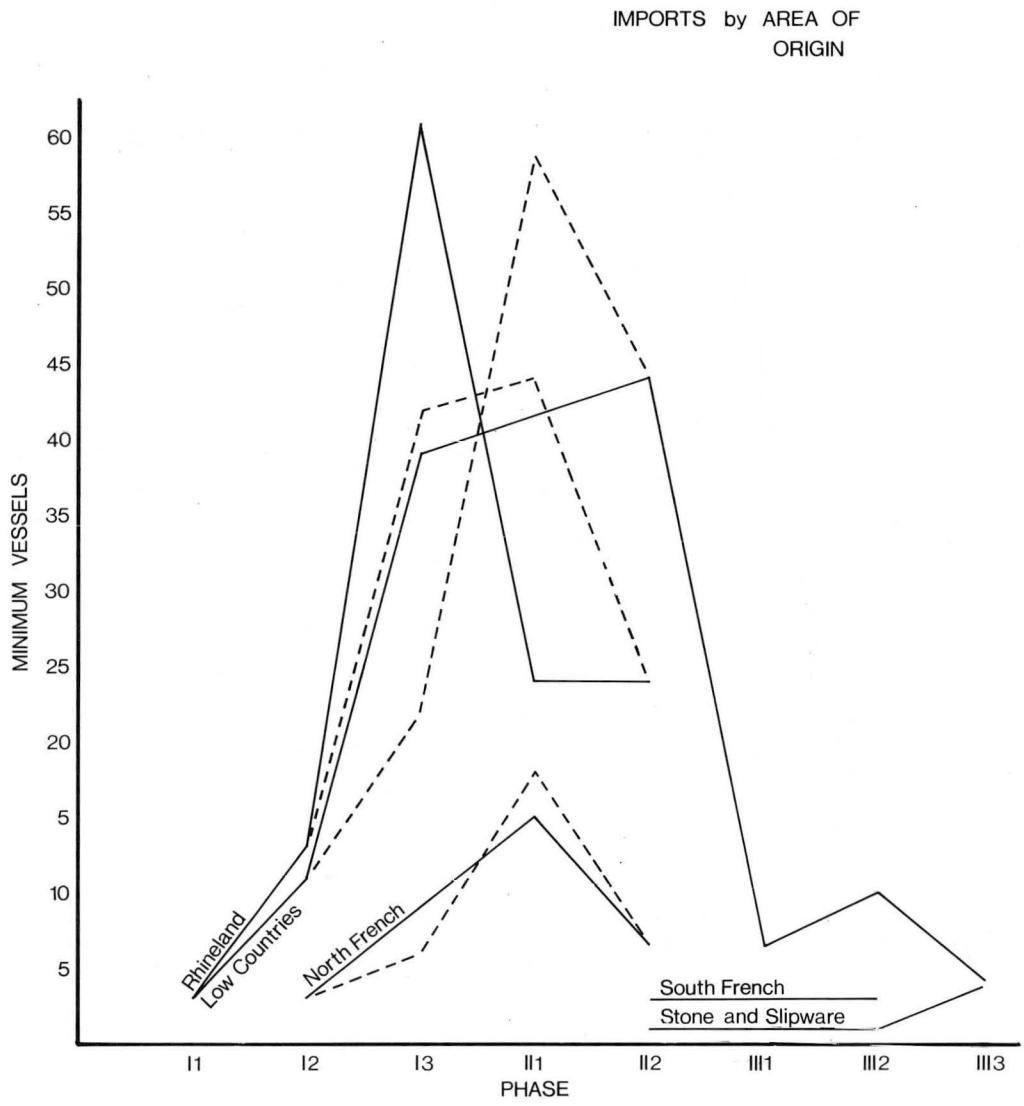


Figure 69. Graph: minimum vessels (imported wares) by phase and origin.

century is perhaps the earliest rather than the latest period when trade intensification should be looked for.

The lack of tenth-century imports is clear on Figure 67 and although this is only a small sample of the Norwich waterfront (one, moreover, apparently unoccupied in the tenth century), it fits with the evidence from other parts of the country. There is little sign of tenth-century waterfront development and/or imported pottery either at York (Holdsworth 1978, 9; Hall 1984, 87) or at Southampton (Hodges and Cherry 1978; Hodges 1980, 47) where the only late tenth-century imported pottery group is somewhat isolated (Platt and Coleman-Smith 1975, 123-4). Evidence from other ports, including those on the continent, has been summarised by Hodges (1982, 174-5, 180-2). The most recent dendrochronological dates from London indicate substantial riverside development in the later tenth century which may make it something of an exception (Schofield 1984, 29). The London pottery evidence shows wide continental contacts, but not until *c.* AD 1000 (Vince 1984, 438-439). Overall then the evidence from Norwich and elsewhere is against Sawyer's theory that a flourishing wool export trade from the late tenth century onwards was responsible for England's ability to pay large sums in Danegeld (Sawyer 1965).

Figures 67 and 68 show the imports rising, both in number and as a percentage of the local pottery, until *c.*1100-1150. This is followed by a decline until the fourteenth century after which there are relatively few imports. In following this pattern, the pottery reflects quite accurately the development and later abandonment of the waterfront which, in turn, probably reflects the moving of the market away from Tombland after the Conquest (Green and Young 1981, 12). The commercial quayside was also moved to a point further downstream (Ayers 1983a, 25). There is also the possibility that Norwich's trade in general was in decline at the end of the twelfth century for the city paid only £6.19.0 when the Fifteenth of 1204 was levied by King John, compared with £54.15.6 paid by Yarmouth and £651.11.11 by Kings Lynn (Lloyd 1977, 12).

England's trading history for the eleventh and twelfth centuries is very hazy, lacking as it does the customs records which exist for later periods. For the wine trade Carus-Wilson uses a few references to merchants to suggest that trade went on with northern France 'to no negligible extent' (1954, 266). The large wine cellar at Southampton, Castle Vault, dated *c.*1180 (Platt 1973, 75) strengthens this idea. The Norwich imports when broken down by origin

(Fig. 69) show that the Rhineland connection should not be forgotten. England's acquisition of Gascony in 1152 is reflected at Palace Plain by only a few Saintonge-type Wares though the area later became England's main wine source (James 1971).

The rise of the wool and cloth trades was vital to England's economy but their early growth is largely uncharted. Eileen Power (1941, 15) saw considerable pre-Conquest trade in wool (but see above) which increased rapidly in the eleventh and twelfth centuries, while Lloyd (1977, 6) suggests that it was thriving at least by the reign of Henry I. An alternative view is that taken by Harvey (1976) who proposes that the inflation of 1180-1220 (Harvey 1973) marks the true expansion of the wool trade with cloth exports being more important before this (1976, 374).

The cloth industry is particularly associated with Eastern England (Carus-Wilson 1954, 211), and Andenne-type Wares from Norwich show contact with Flanders from the eleventh century. The difficulty is in distinguishing cloth exports from those of wool, although the evidence from Southampton is worth noting in this context. Southampton's involvement in the wool trade is well known (Platt 1973, 69) but there are few Andenne-type Wares until the late twelfth century (Platt and Coleman-Smith 1975, 27) when there was also much investment in stone buildings by merchants (Platt 1973, 39). At present, then, Harvey's views are perhaps best served by the archaeology but the argument remains a tenuous one.

Comparatively little pottery accompanies the occupation of site after the building of the Norman house (*c.*1170). A rise in imported wares as a percentage after the fourteenth century probably reflects their greater availability as Dutch Red Wares and stoneware began to arrive in large numbers.

There remains the possibility that Norwich was engaged in the grain trade as Kings Lynn appears to have been, particularly with Norway (Carus-Wilson 1962-3, 185). At Kings Lynn this is perhaps reflected in the large numbers of Eidsborg hones which have been found (Clarke and Carter 1977, 317-20). Norway did not manufacture pottery in the medieval period so any further study of this trade must await publication of the large collections of imports in the Norwegian ports.

Overall the Courts site and its imported pottery have added to our knowledge of Norwich's history. They are also another facet of the growing body of archaeological data which can shed light on the early history of English trade.

Catalogue of illustrated material

(Fig. 70)

Phase I1. Nos 1-11 (excluding No. 4) are Thetford-type Ware.

1. **Jar.** *2236*, fill of post-hole *2235*, Building A.
2. **Jar.** *3011*, fill of post-hole *3010*, Building D.
3. **Jar.** *1039*, fill of feature *1040*.
4. **Jar.** Early Medieval Ware. *1039*, fill of feature *1040*.
5. **Jar.** *1114*, fill of pit *1113*.
6. **Jar.** *1133*, brushwood surface.
7. **Jar.** *1133*, brushwood surface.
8. **Jar.** *1145*, brushwood surface.
9. **Jar.** Very smooth surfaces. Context *1145*, brushwood surface.
10. **Bowl.** *1145*, brushwood surface.
11. **Spouted jar.** Slightly sandy, grey-black surfaces, possibly wiped. Scar showing where applied strip on spout is missing. *1197*, brushwood surface.
12. **Jar.** Early Medieval Ware. *1145*, brushwood surface.
13. **Jar.** Early Medieval Sparse Shelly (EMSS) Ware. *1145*, brushwood surface. Compare Jennings 1981, nos 251-5.

Phase I2. Nos 14-24 were all found in Pit *900*. All vessels are Thetford-type Ware unless stated otherwise.

14. **Jar.** *906*.
15. **Jar.** *907*.
16. **Jar.** *907*.
17. **Jar.** *907*.
18. **Lamp.** *907*.
19. **Jar.** Early Medieval Ware. *902*.
20. **Jar.** Early Medieval Ware. *918*.
21. **Jar.** Shelly Ware. *902*.
22. **Bowl.** Shelly Ware. *901*.
23. **Bowl.** Shelly Ware. *907*.
24. **Bowl.** Shelly Ware. *907*.
25. **Jar.** *902*, fill of pit *3092*.
26. **Lamp** (no sign of burning). *1154*, fill of pit *1164*.
27. **Pitcher.** *1178* fill of pit *1180*. Compare No. 60.
28. **Jar.** Context *1143*, fill of feature *1208*.
29. **Spout,** probably from a **pitcher.** Context *1143*, fill of feature *1208*. Compare Jennings 1981, no. 193.
30. **Jar.** Early Medieval Ware. *1143*, fill of feature *1208*.
31. **Jar.** *1096*, layer.
32. **Jar.** *1096*, layer.
33. **Bowl.** *1148*, layer.
34. **Bowl.** Slightly sandy, very sparse? flint inclusions, dark grey, grey-brown margins. *1148*, layer. Compare Jennings 1981, no. 76.
35. **Relief-band Amphora.** Badorf-type Ware. Off-white, crudely smoothed surfaces. *3070*, post-hole.
36. **Relief-band Amphora.** Badorf-type Ware. Occasional iron-ore inclusions, off-white; orange-pink exterior bloom. *846*, fill of pit *845*.
37. **Relief-band Amphora.** Badorf-type Ware. Numerous black and occasional red iron-ore inclusions, orange surfaces, grey-brown core; finely smoothed exterior. *2157*, fill of post-hole *2152*.
38. Body sherd. Hunneschans-type Ware. Occasional red iron-ore inclusions, orange to cream; red paint. *906*, fill of pit *900*.

(Fig. 71)

39. Rim. Pingsdorf-type Ware. Light grey, smooth exterior; red paint. *1134*, layer.
40. Body sherd. Andenne-type Ware. Fine, frequent red iron-ore inclusions; white; light yellow glaze, incised. *921*, fill of pit *900*.
41. Wire-cut base. Andenne-type Ware. Fine, off-white, pale yellow glaze. *1096*, layer.
42. Rim. Andenne-type Ware. Hard, red-brown; finely smoothed exterior. *1087*, fill of feature *1089*.

Phase I3. All vessels are Thetford-type Ware unless stated otherwise.

43. **Jar.** Unusual form. *761*, fill of pit *793*.
44. **Jar.** Unusual form. Unusually smooth fabric. Micaceous. Probably non-local Thetford-type Ware. *761*, fill of pit *793*.
45. **Jar.** Oxidised. *887*, fill of pit *793*.
46. **Pitcher.** *761*, fill of pit *793*.
47. Probable **storage jar** or **pitcher.** *837*, fill of pit *793*.
48. **Jar.** *815*, fill of pit *879*. Compare with No. 44.
49. Bodysherd. Early Medieval Ware. Smooth, sandy, extremely sparse, tiny inclusions, fawn-brown surfaces, slightly lighter core. *816*, fill of pit *793*.
50. **Handled bowl.** Probably Early Medieval Ware. *2177*, fill of slot *2176*. Compare Mellor 1976, fig. 54, no. 22.
51. **Jar.** Early Medieval Ware. Context *987*, fill of *983*.
52. **Jar.** Smooth,sandy, very sparse tiny micaceous inclusions, ginger- brown surfaces, grey-black core. *674*, layer.
53. **Jar.** Early Medieval Ware. *2185*, layer.
54. **Jar.** Early Medieval Ware. Reburnt. *15*, layer.
55. **Ginger jar.** Early Medieval Ware. *15*, layer.
56. **Jar** or **Pitcher.** Early Medieval Ware. Compare Jennings 1981, No. 196. *15*, layer.
57. **Pitcher.** Early Medieval Sandwich Ware (EMSW). Compare Jennings 1981, no. 196.
58. **Jar.** Medieval unglazed coarse ware. Probably intrusive. *15*, layer.

Nos 59-82 were all found in layer *1005*.

59. **Jar.**
60. **Jar** or **pitcher.** Compare No. 27.

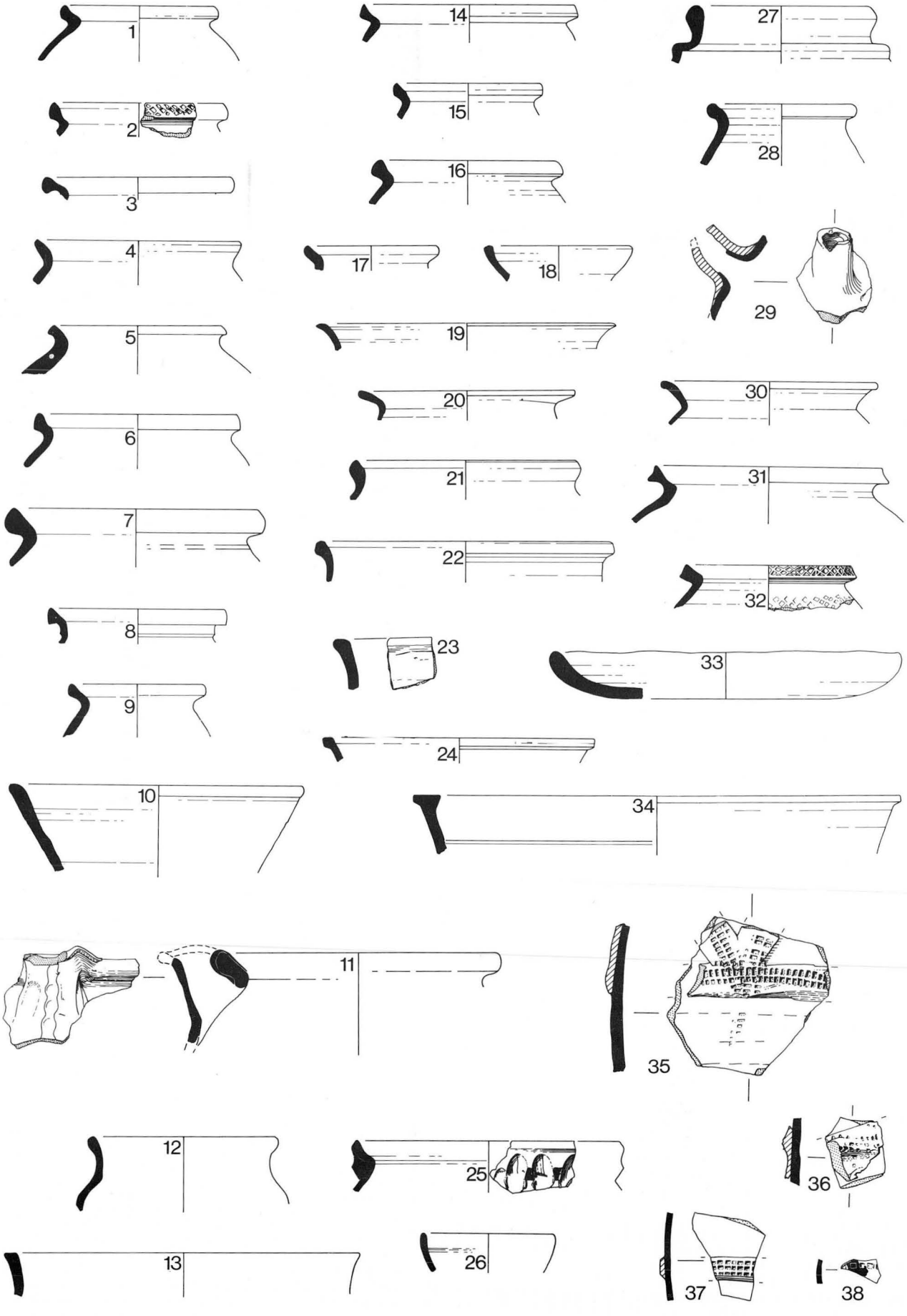


Figure 70. Pottery. Nos 1-38. Scale 1:4.

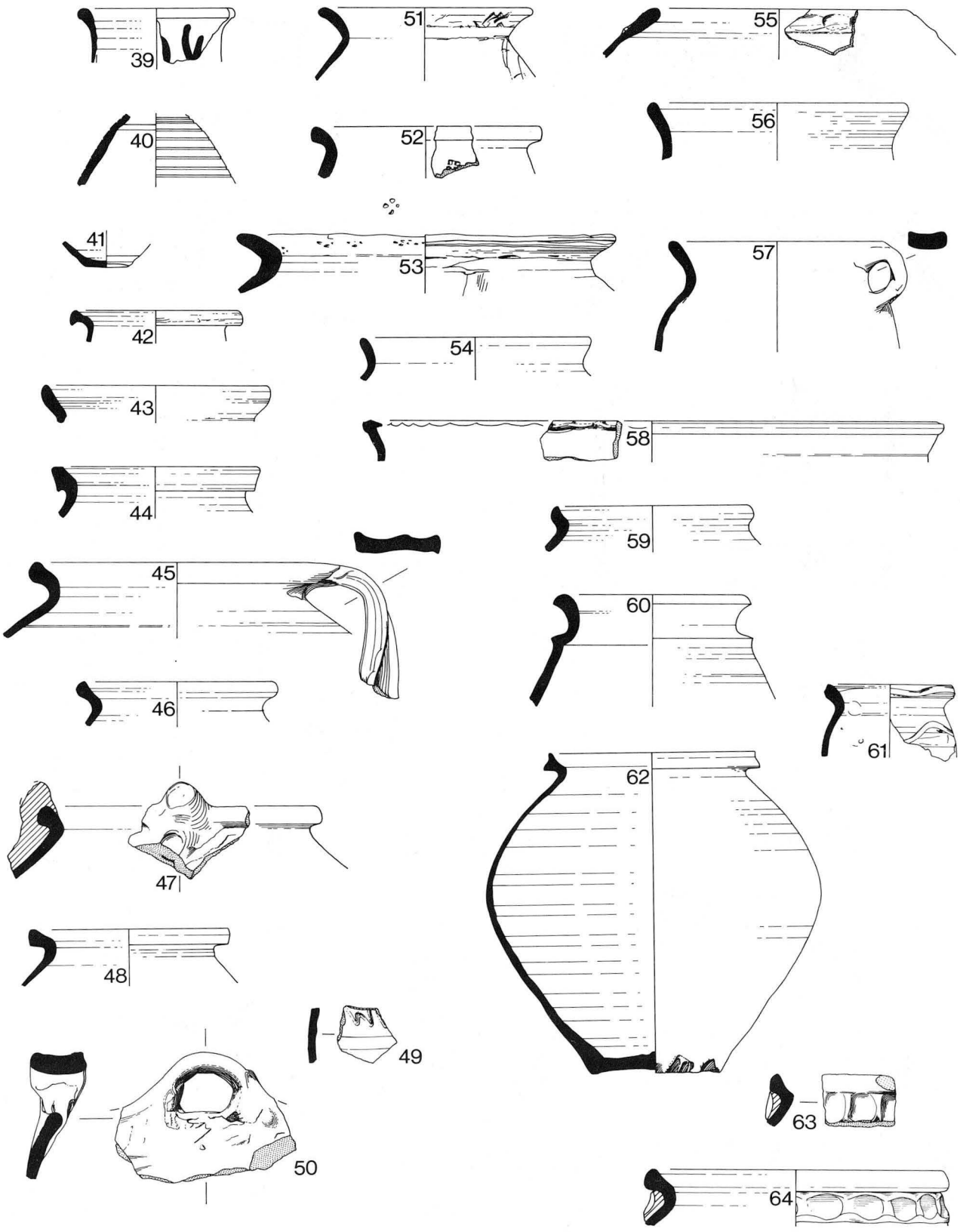


Figure 71. Pottery. Nos 39-64. Scale 1:4.

61. **Jar.**
62. **Jar.**
63. **Jar.**
64. **Jar.**

(Fig. 72)
65. **Storage jar.**
66. **Pitcher** or storage jar.
67. Body sherd.
68. **Lamp.**
69. **Jar.** Early Medieval Ware.
70. **Socketed bowl.** Early Medieval Ware. Smooth, occasional tiny micaceous inclusions, grey to grey-brown surfaces, grey-brown core.
71. **Bowl.** Early Medieval Ware.
72. Large **jar.** Early Medieval Sandwich Ware.

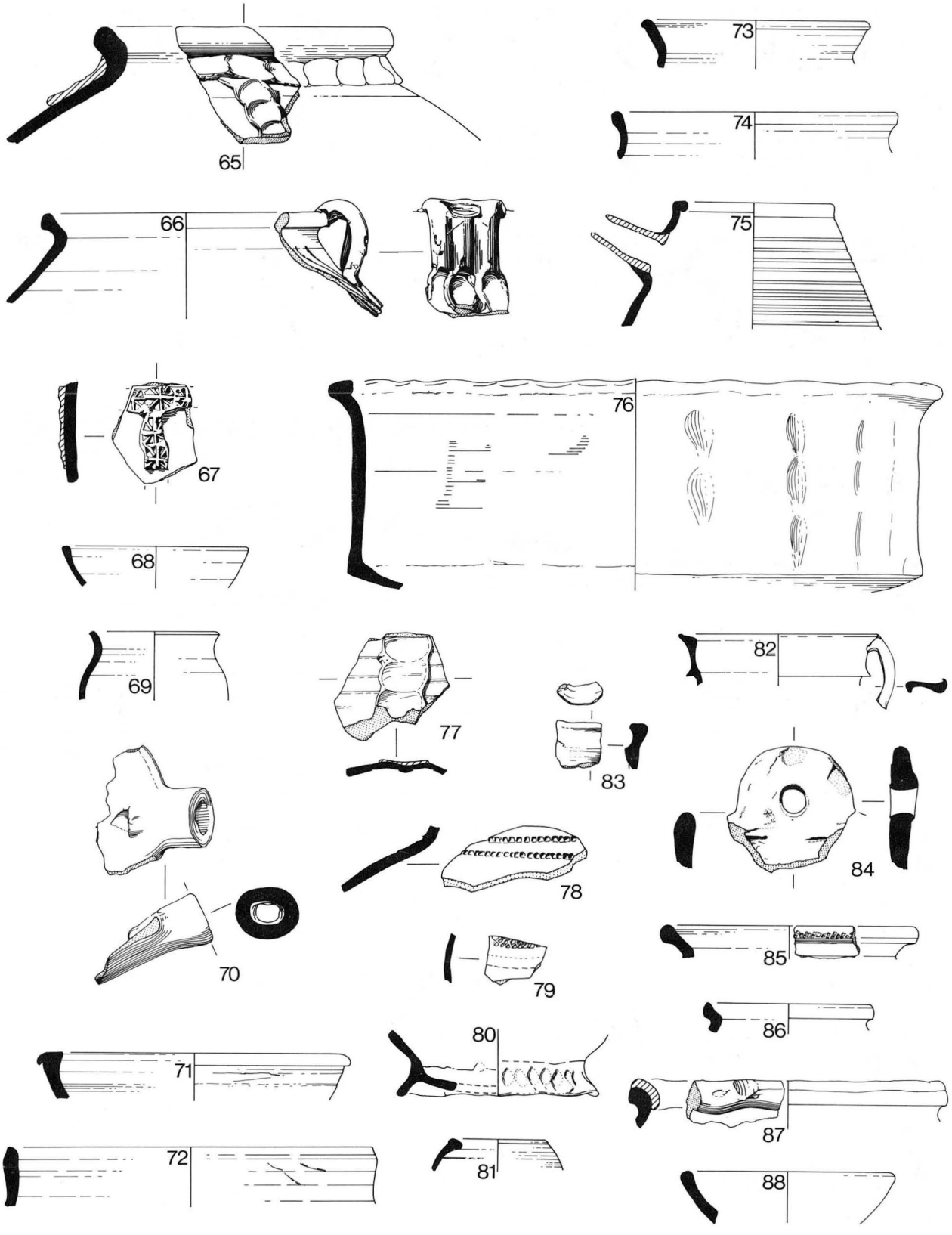


Figure 72. Pottery. Nos 65-88. Scale 1:4.

73. **Jar.** EMSS Ware.

74. **Jar.** EMSS Ware.

75. **Spouted pitcher.** Stamford Ware. Hard, fine cream, slightly pink on exterior of spout. Exterior yellowy green glaze, patchy on spout.

76. **Bowl.** Medieval unglazed coarse ware.

77. Body sherd. Non-local medieval ware. Smooth, common small brown or black inclusions, brown-grey surfaces, creamy-white core. Interior abraded or damaged.

78. **Amphora.** Badorf-type. Rare clay pellet and occasional iron-ore inclusions, orange-brown surfaces, grey core.

79. **?Amphora.** Badorf-type. Sparse sand-grain inclusions, brown-red surfaces, grey core.

80. **Pitcher.** Pingsdorf-type Ware. Hard, occasional limestone and abundant large sand-grain inclusions, light buff surfaces, grey core.

81. **Jar.** ?Rhenish-type Ware. Hard, slight sandy, grey white; finely smoothed surfaces.

82. **Pitcher.** Andenne-type Ware. Fine, pale pink; patchy yellow-brown glaze.

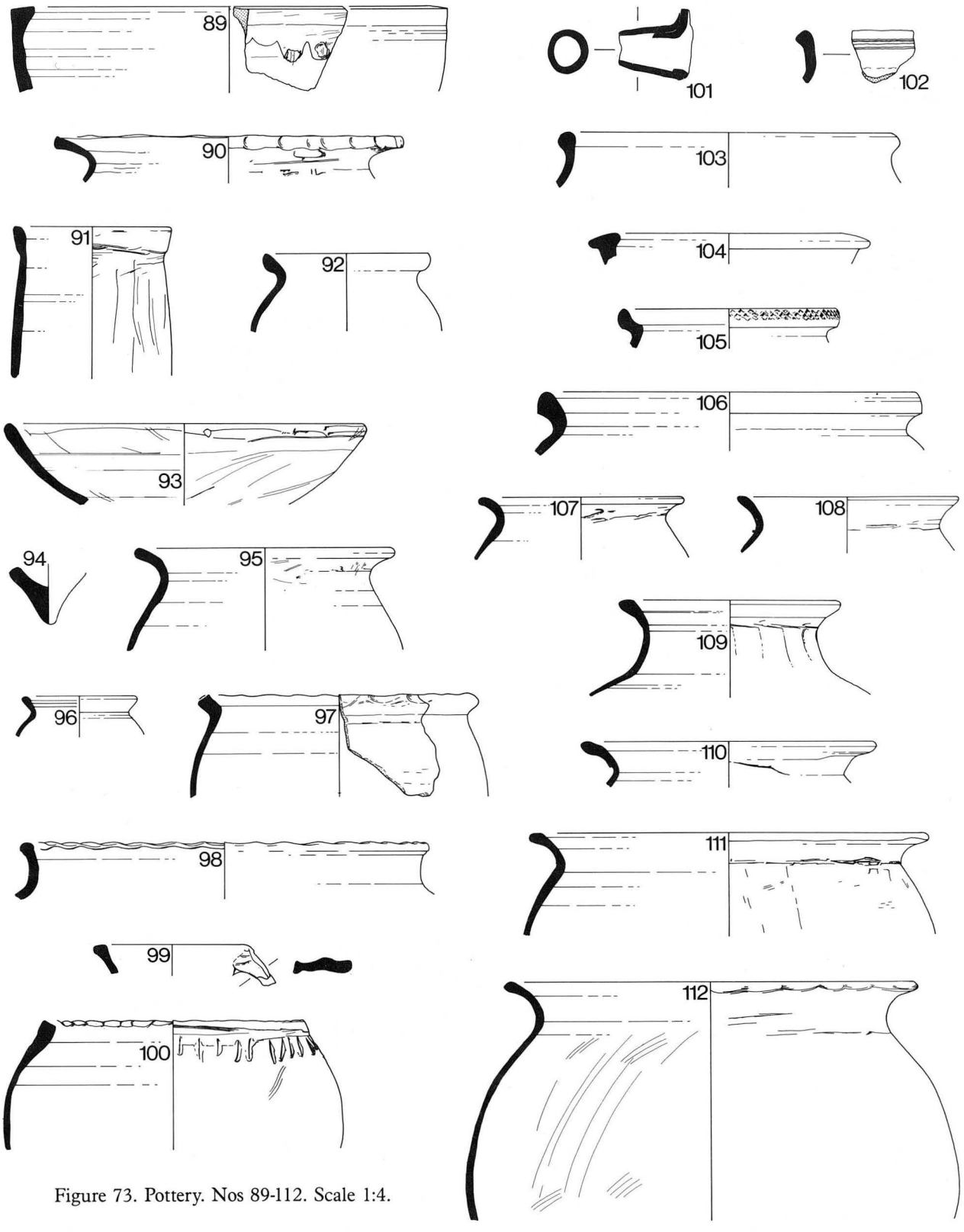


Figure 73. Pottery. Nos 89-112. Scale 1:4.

Period I (unphased)

83. **Storage jar.** Thetford-type Ware. *752*, layer.

84. **Lugged** or **handled bowl.** Early Medieval Ware. *WB2* (watching brief layer *2*, 5th September 1983). Compare Mellor 1976, fig. 54, no. 23 for a similar example in a Thetford-type fabric.

85. **Jar.** Shelly Ware St.Neot's type. *859*, fill of feature *858*.

Phase III. All vessels are Early Medieval Ware unless stated otherwise.

86. **Jar.** Thetford-type Ware. *505*, fill of pit *504*.

87. **Storage jar.** Thetford-type Ware. *514*, fill of pit *513*.

88. **Lamp.** Thetford-type Ware. *483*, fill of pit *482*.

(Fig. 73)

89. **Bowl.** Thetford-type Ware. *558*, fill of pit *370*. A band of ?applied strip has been removed from below the rim.

90. **Jar.** *821*, fill of pit *370*.

91. **Jar.** Unusual form. *871*, fill of pit *370*.

92. **Jar.** Thetford-type Ware. *2307*, fill of pit *2306*.

93. **Bowl.** Micaceous. *2307*, fill of pit *2306*.

94. **Spiked lamp** base. *786*, fill of pit *645*.

95. **Jar.** *2250*, fill of pit *2249*.

96. **Jar.** *2250*, fill of pit *2249*. Possibly a hybrid Thetford-type/Early Medieval vessel.

97. **Jar.** *2293*, fill of pit *2292*. This sherd seems to be transitional

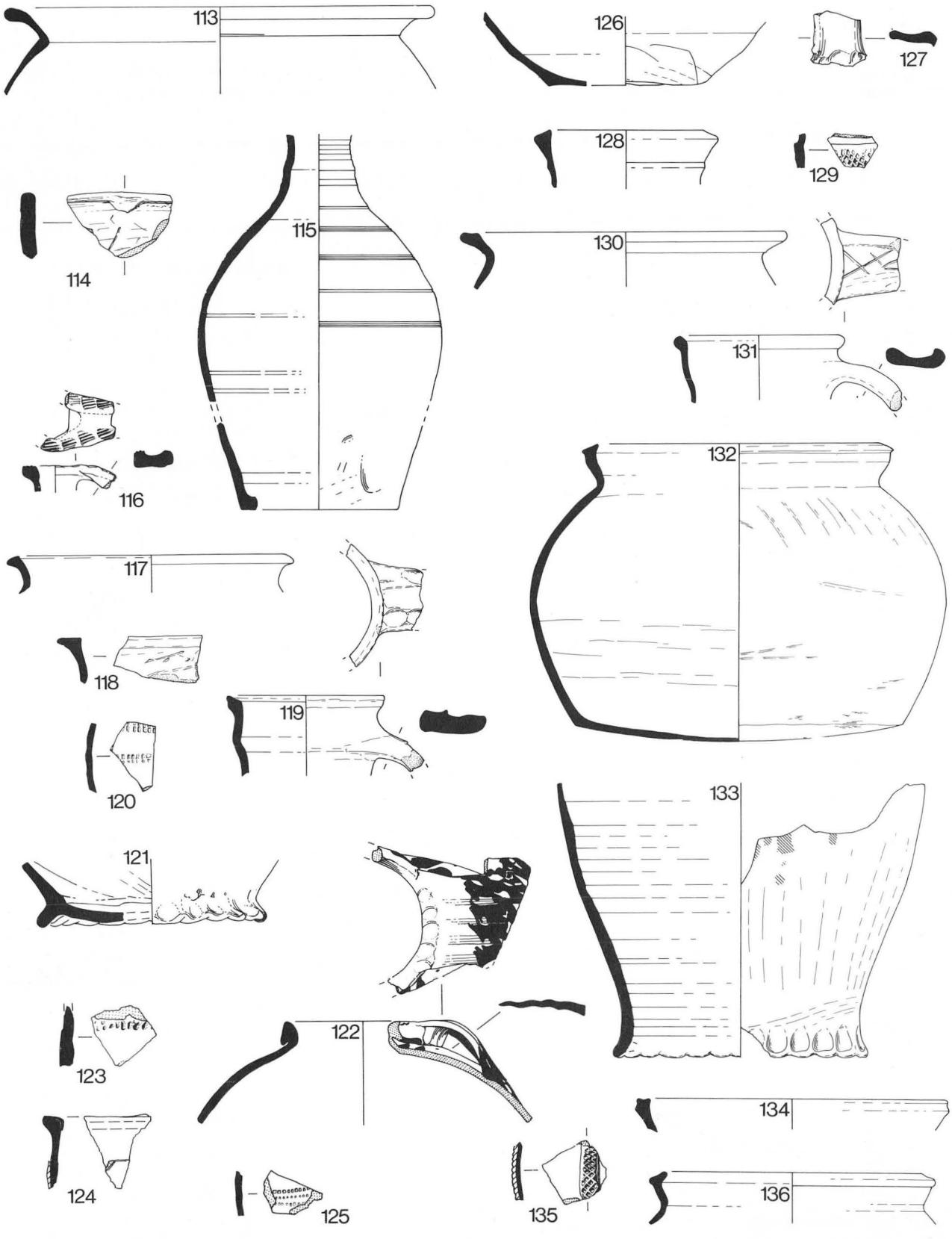


Figure 74. Pottery. Nos 113-136. Scale 1:4.

having an Early Medieval fabric and form but Thetford-type thumbing around the rim.

98. **Jar.** *590*, fill of pit *591*.
99. **Pitcher.** *926*, fill of pit *925*.
100. **Ginger jar.** *529*, fill of pit *528*.
101. **Spout.** Slightly sandy, common small brown inclusions, dark grey exterior, light grey interior surface and core. *2179* fill of pit *2178*.
102. **Jar.** Shelly Ware. Context *470* fill of pit *469*.
103. **Jar.** Shelly Ware. Context *670* fill of pit *671*.
104. **Bowl.** St.Neot's-type Ware. *483* fill of pit *482*. This vessel is residual in this context.

Nos 105-16 were all found in Gully *562*.
105. **Jar.** Thetford-type Ware. *1117*.
106. **Jar.** Thetford-type Ware. *2277*.
107. **Jar.** *1118*.
108. **Jar.** *1117*.
109. **Jar.** Thumbed smooth and knife trimmed exterior surface. *1118*.
110. **Jar.** *1117*.
111. **Jar.** *1117*.
112. **Jar.** *719*.

(Fig. 74)
113. **Jar.** *1118*.
114. **Bowl.** Shelly Ware. *783*.
115. Bottle. Developed Stamford Ware. Kilmurry (1980) type B3 *604/611*.
116. **Costrel handle.** Stamford Ware. Kilmurry (1980) Form 17 *604*.
117. **Jar.** *13*, layer.
118. **Jar.** Medieval unglazed coarse ware. Slightly sandy, fawn-brown surfaces, grey-brown core. *13*, layer.
119. **Jug.** Slightly sandy, orange-brown exterior, grey-black reduced interior, mid-brown core (except near interior where it is black); traces of yellow-green glaze. Possibly from the East Midlands. *13*, layer.
120. **?Amphora.** Badorf-type. Rare red iron-ore inclusions, orange surfaces, grey core. *541*, layer.
121. **Pitcher.** Pingsdorf-type Ware. Very hard, abundant large sand grain and rare quartzite inclusions, dark grey surfaces, green core; brown slightly lustrous exterior. *2293*, fill of pit *2150*.
122. **Pitcher.** Pingsdorf-type Ware. Hard, large sand grain, rare limestone and rare clay pellet inclusions, light brown-grey exterior; red bloom, red paint. *524*, layer.
123. Body sherd. Normandy Gritty Ware. Coarse, sparse iron-ore and opaque quartz, off white; pale green glaze *606*, fill of pit *370*.
124. **Jug.** Normandy Gritty Ware. Coarse, sparse opaque quartz inclusions, off white surfaces, pale grey core; red exterior bloom. *541*, layer.
125. Body sherd. Andenne-type. Fine, pink to white; copper brown glaze. *797* layer in gully *562*.
126. **Pitcher.** Andenne-type. Fine, off-white; patches of dirty green-yellow glaze. *2250*, fill of pit *2249*.
127. **Pitcher handle.** Andenne-type Ware. Fine, pink; high gloss amber glaze. *633*, layer.
128. Rim. Andenne-type Ware. Fine, off-white to pink; patchy green-yellow glaze. *926*, fill of pit *925*.
129. Collar rim. Andenne-type Ware. Fine, frequent red iron inclusions, white fabric. *665*, fill of pit *823*.

Phase II2. All vessels are medieval unglazed coarse wares unless otherwise stated.

130. **Jar.** Early Medieval Ware or medieval unglazed coarse ware. Slightly sandy, mid-to-dark grey exterior, light grey interior, grey brown core. Externally smoothed below neck. *373*, fill of pit *370*.
131. **Jug.** Probably from West Norfolk. Sandy, sparse flint inclusions, orange-brown surfaces, dark grey core, traces of yellow-green glaze. *371*, fill of pit *370*.
132. **Jar.** *564*, fill of pit *565*.
133. **Jug.** Grimston-type Ware. *564*, fill of pit *565*.
134. **Bowl.** *1115*, fill of feature *1116*.
135. Bodysherd. Probably Stamford Ware. Hard, well-fired, white/grey- pink exterior under glaze; mottled green glaze. *2054*, fill of pit *2018* within Building *2100*.
136. **Jar.** *2030*, fill of pit *2026* within Building *2100*. Compare Jennings 1981, no. 312.

(Fig. 75)
137. **Bowl.** *2030*, fill of pit *2026*. Within Building *2100*. Compare Jennings 1981 nos 258-61.

Nos 138-40 were all found in Pit *2150*.
138. **Jug.** Grimston-type Ware. *2146*.
139. **Jug.** Grimston-type Ware. *2146*.
140. **Jug.** Grimston-type Ware. *2146*.
141. **Bowl.** Medieval unglazed coarse ware. *2270*, fill of pit *2269*.
142. **Jug.** Non-local medieval unglazed coarse ware. *2270*, fill of pit *2269*.
143. **Jug.** Non-local medieval unglazed coarse ware. Rough, sandy, occasional small shell inclusions, grey-black surfaces (interior severely damaged), grey-brown core; speckled traces of yellow-green glaze; slightly smoothed surfaces. *1026*, upper fill of gully *562*.
144. **Jar.** *1060*, layer.
145. **Spout.** Possibly York White Ware. *2011*, layer within Building *2100*.
146. **Socketed bowl handle.** Possibly Early Medieval Ware. Bufnished. *2271*, layer.

Nos 147-52 were all found in layer *291*.
147. **Jar.**
148. **Jar.** Early Medieval/medieval unglazed coarse ware.
149. **Jug.** Unglazed.
150. **Jug.** Unglazed.
151. **Jug.** Non Grimston-type ware. Slightly sandy, orange-brown exterior, yellow orange interior, black core; speckles of yellow green glaze.
152. **Jug.** Non Grimston-type ware. Smooth, sandy, orange-brown surfaces, pale grey core; speckles of yellow-green glaze.
153. **Jug.** Grimston-type Ware. Unglazed. *1003*, layer.
154. Bodysherd. Grimston-type Ware. *425*, layer.
155. **Jug.** Grimston-type Ware. Olive green glaze below rim. *435*, layer.
156. **Jug.** Unglazed. *443*, layer. Compare Jennings 1981, no. 319.
157. **Jug.** Possibly from Nottinghamshire. *443*, layer.

Nos 158-60 were all found in layer *453*.
158. **Jug.** Unglazed. Compare with No. 156.
159. **Jug.** Grimston-type Ware. Compare Jennings 1981, no. 341.
160. **Jug.** East Norfolk ware. Buff exterior, orange interior, black core; speckles of yellow-green glaze.
161. Bodysherd. Scarborough ware. *455*, layer.
162. **Relief-band Amphora.** Buff; thumbed over roller stamping *629*, fill of pit *628*.
163. **Amphora.** Badorf-type. Rare black iron inclusions, brown pink; smoothed buff exterior. *2098*, layer within Building *2100*.
164. Bodysherd. Normandy Gritty Ware. Coarse, sparse opaque quartz inclusions, off white; thick glossy yellow glaze. *2271*, layer.
165. **Jug.** Rouen-type Ware. Sandy, cream-buff; brown slipped exterior, clear glaze appears yellow over applied strip *2146*, fill of pit *2150*.
166. **Jug.** Rouen-type Ware. Fine, rare red iron-ore inclusions, white; mottled copper to pale green glaze. *2011*, layer within Building *2100*.
167. Base. ?French ware. Sandy, large sand grain inclusions, cream buff, smooth buff exterior; yellow glaze, spots of copper green. *2072*, fill of post-hole *2071*.

(Fig. 76)
168. Rim. Andenne-type Ware. Slightly sandy, occasional red iron-ore inclusions, red-pink; pitted clear orange glaze. *2098*, layer within Building *2100*.
169. Rim. Andenne-type Ware. Fine, occasional sub-angular quartz, red- pink surfaces, grey core; patchy dirty orange glaze. *1026*, fill of gully *562*.
170. Body sherd. Aardenburg-type Ware. Sandy, red surfaces, grey core; dark copper green glaze over applied scales. *1003*, layer.
171. **Jug.** Group X Ware. Hard, occasional limestone inclusions, dark grey; patchy dark green glaze. *1026*, fill of *562*.
172. **Pitcher.** Unknown. ?South Norfolk. Soft, coarse, sandy, ill-sorted quartz inclusions up to 3 mm, frequent red-brown grog up to 2 mm. Patchy reduced green glaze *2030*, *2077*, *2011*, fill of pit *2026*, layers within Building *2100*.
173. Rim. Group X Ware. Hard, frequent limestone and quartz inclusions up to 1 mm, grey-brown; very glossy, thick copper-green glaze on exterior, extending to interior of rim. ?Post medieval *1026*, fill of gully *562*.

Phase III1. All vessels are medieval unglazed coarse wares unless otherwise stated.

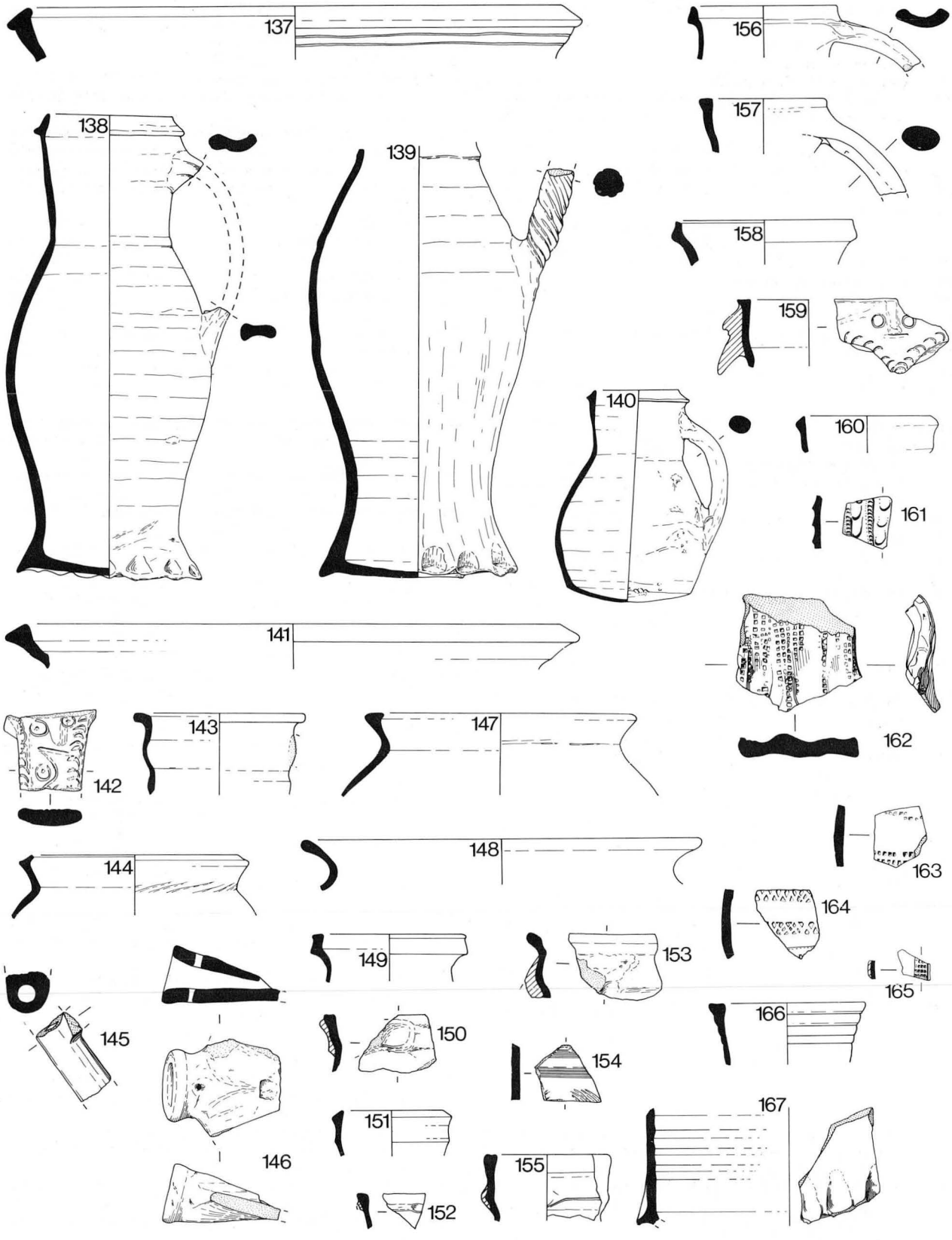


Figure 75. Pottery. Nos 137-167. Scale 1:4.

174. **Jar** or possibly **jug.** *375*, fill of pit *386*.
175. **?Jar.** *375* fill of pit *386*.
176. **Bowl.** *375* fill of pit *386*.
177. **Jug.** Non Grimston-type ware. Smooth, orange surfaces and margins, cream core (occasionally reduced to black); partial yellow-green glaze. *554* fill of pit *557*.
178. **Jar.** *5*, layer.
179. **Bowl.** *417*, layer.
180. **Bowl.** *206*, layer.
181. **Bunghole pitcher.** Unglazed. *207*, layer.
182. **Jug.** Rouen-type Ware. Sandy, occasional quartz and limestone inclusions, buff surfaces, orange-red core; thick, glossy copper-green glaze. *375*, fill of pit *386*.
183. Bodysherd. Dutch Red Ware. Sandy, numerous sand-grain inclusions, red-pink; orange-brown glaze over impressed strip. *230*, fill of pit *229*.

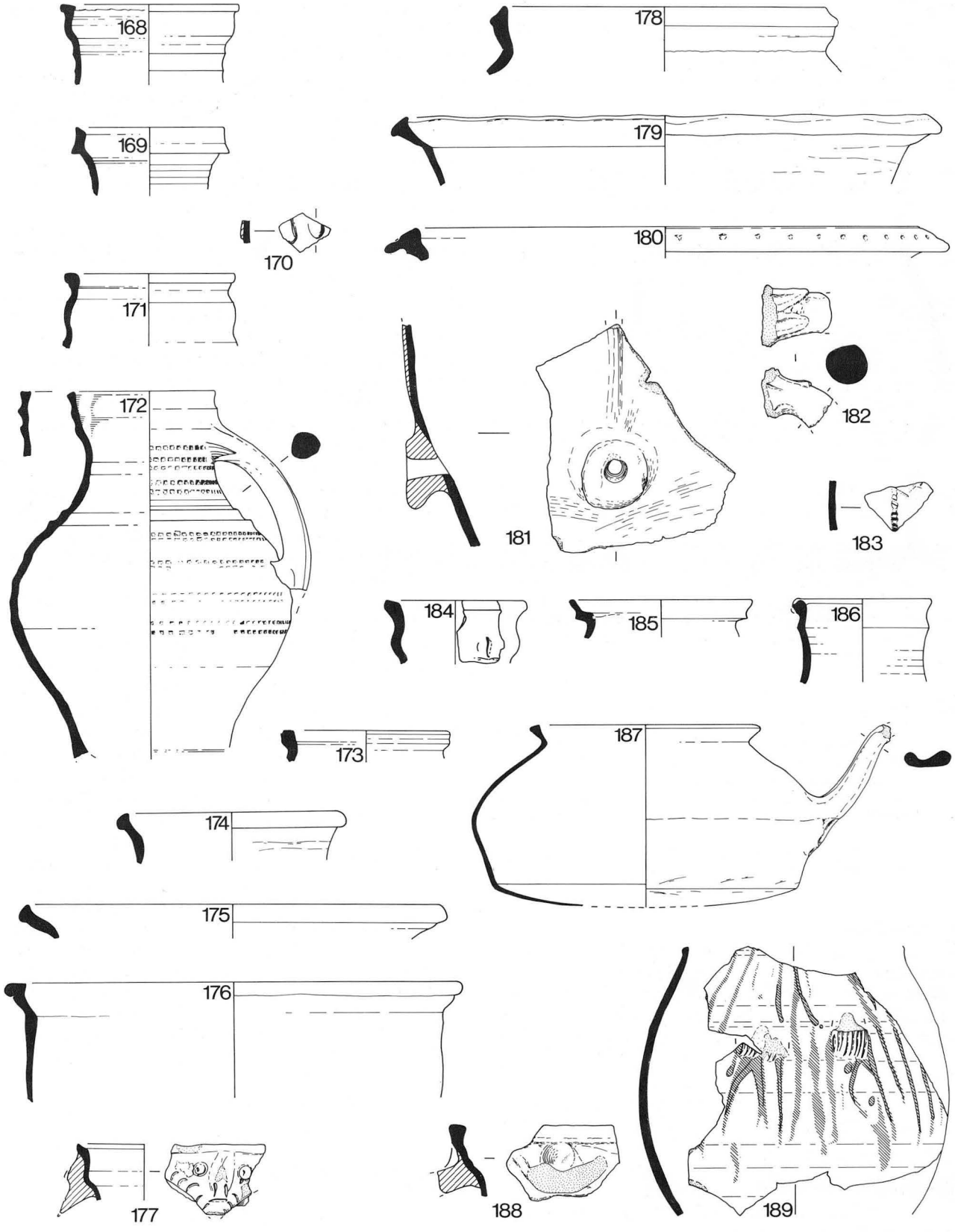


Figure 76. Pottery. Nos 168-189. Scale 1:4.

184. Rim. Group X Ware. Hard, abundant well-sorted quartz inclusions, grey-brown, pink interior; very worn dark green glaze. *11* layer.

Phase III2.

185. **Jar.** Medieval unglazed coarse ware. *241* fill of feature *245* in Building *3132*.

186. **Jar.** Medieval unglazed coarse ware. ?unglazed. *241* fill of feature *245* in Building *3132*.

187. **Handled jar.** Non Grimston-type ware. Orange surfaces, black core; thin green patchy glaze. *160* fill of pit *159* in Building *3132*.

188. **Jug.** Unidentified medieval unglazed coarse ware. Sandy, buff-coloured surfaces, light brown core; unglazed. *143* layer.

189. **Jug.** Grimston-type Ware. *143* layer. Compare Jennings 1981, no. 342.

(Fig. 77)

190. **Jug.** Grimston-type Ware. *143* layer. Compare Jennings 1981, no. 345.

191. **Jug.** Grimston-type Ware. *327*, layer.

192. Rim. Rouen-type Ware. Hard, fine, sparse black iron-ore inclusions, white; high gloss apple-green glaze on exterior and interior. *8*, layer.

193. Bodysherd. Andenne-type Ware. Hard, fine, occasional red iron-ore inclusions, white; pale yellow glaze. *163*, pit.

194. **Bowl.** Dutch Red Ware. Hard, coarse, sparse mica inclusions, orange fabric; rich glossy amber interior glaze. *16*, layer.

195. **Bowl.** Dutch Red Ware. Granular, occasional limestone and mica inclusions, brick-red surfaces, black core; patchy dark green glaze. *57*, fill of pit *61*.

196. **Jar.** Group X Ware. Occasional tiny quartz inclusions, light brown; worn olive green glaze. Post medieval. *420*, layer.

Phase III3.

197. **Jug.** Grimston-type Ware. Late medieval. *2001*. Backfill of latrine turret *2025*, Building *2100*.

198. **Jug.** Grimston-type Ware. Late medieval. *1001*, fill of well *1002*.

199. **Chamber pot.** Glazed red earthenware. In use from 1625 onward. *172*, well.

200. **Mug.** Raeren stoneware. Sparse, minute black inclusions, dark grey; grey glaze, iron-washed interior and exterior of rim. *41*, layer.

Period III (unphased)

201. **Jar.** Medieval unglazed coarse ware. Fifteenth century. *2125*, pit.

202. **Jar.** Grimston-type Ware. Fifteenth century or later. *2125*, pit.

203. **Cup.** Surrey ware (yellow glazed version of Tudor Green). *2125*, pit. Fine ware cups such as this are known from Norwich (Jennings 1981, 129).

204. **'Grapen' handle.** Dutch Red Ware. Very hard, rare quartz and red grog inclusions, orange-red; tiny spots of clear yellow glaze. *2120* layer.

Period IV.

205. **Bowl.** Glazed Red earthenware. *224* fill of vault *187*. Vessel sooted and used for cooking. Earliest use 1575-1580. This vessel probably *c.* 1600. The type is disused by 1625 and replaced by vessels such as No. 206.

206. **Handled bowl.** Glazed Red earthenware. Post 1625. *1081* fill of well *1079*. Compare Jennings 1981, nos 1184-1194.

207. **Cauldron.** Dutch. Seventeenth century. *2024* infilling of window in Building *2100*.

208. **Plate.** Werra slipware. Sandy, brick red; white slip and sgraffito decoration, slip appears green under clear glaze. *U/S*.

Conclusions

The pottery from the Magistrates Courts site has provided useful information for an overall dating of the various phases as well as highlighting the variety (and occasional paucity) of wares, both local and imported, that were present in the settlement. Several observations can be made regarding the assemblage which are relevant to the commercial and economic life of the city.

The earliest material recovered from the site is almost exclusively eleventh-century as the number of earlier sherds such as Ipswich Ware or Hamwih Class 13 and Class 21 Wares are so few as to be statistically insignificant. Wilkinson takes this relatively late *terminus post quem* as further confirmation of Hodges' thesis that international trade intensified from the eleventh century onward rather than earlier. This may well have been the case, but it must also be observed that the Court's site produced very little pottery that could be dated categorically to the pre-eleventh century period. Taken with the paucity of early finds, the inevitable conclusion must be that the area of St. Martin-at-Palace Plain was a development of eleventh-century and later date. However, as earlier settlement is known to have existed from both numismatic and documentary sources but remains unlocated, it follows that it is impossible to state with certainty that the trade of Norwich across the North Sea developed as late as the eleventh century (but see Ayers forthcoming a).

Trade is the most interesting aspect represented by the pottery assemblage. Broadly it seems to have taken two forms: long distance, essentially international, trade but with a market clearly existing for high-quality English imports such as Stamford Ware; and local trade, that is, probably within a thirty-mile radius of Norwich, where the supply of vessels probably reflects the regional 'pull' of Norwich as a centre and the generally local origins and connections of many of its inhabitants (see Endnote 32). The international trade has been discussed above by Wilkinson. The local material has not been studied as rigorously, partly because of the much greater bulk and variety of sherds and partly because of the lack of kiln-based reference material. Indeed, the detailed study of the medieval unglazed wares would be a daunting task; the apparent variety may not be very great, perhaps merely owing to poor quality control, with kilns producing pots of varying standard, but the lack of typological differentiation (even between fabrics such as Early Medieval and the medieval unglazed wares) would involve much time- consuming work which was not thought appropriate here. It is readily accepted that the value of the unglazed assemblage from the Courts' site is limited in the form in which it has been presented above; nevertheless any work on a greater scale for a report of this level would have been beyond available resources.

The variety of vessel types regrettably yielded little information on site usage (although the occasional crucible fragment implied small-scale metalworking. The assemblage, however, is probably a biased collection as much material was recovered from rubbish deposits at the waterfront which may not have always originated on site. Certainly there is little in Periods I and II to indicate a settled domesticity although clearly vessels of domestic use were present. The almost-ubiquitous jar, however, could have been used in many capacities, not simply as a cooking vessel. As already mentioned the most readily-identifiable activity was trade; otherwise the ceramic assemblage was of limited social application on its own.

In summary, the pottery from the Courts site formed an interesting assemblage which probably reflected the commercial and economic life of the city. The forms recovered were of the usual types and the range of fabrics was not out of the ordinary from that now known from sites elsewhere. The catholicity of the material, however, within a generally well-stratified sequence, has provided finds of great usefulness for work on other sites both in Norwich and its large hinterland.

IX. Tile and Burnt Clay

by Val Williams

With comments by Paul Drury and Brian Ayers

Tile was recovered from all phases of the excavation. The collection policy originally entailed the small-finding of all glazed fragments but this rapidly became unrealistic and was discontinued. The list of small finds on microfiche (M2) should, therefore, be treated with caution. In general the glazed tiles were almost always roofing tiles with relatively few floor tiles being discovered. Most fell into the category of Norwich type RT2 as classified by Paul Drury (Drury, undated). The amounts of tile have been

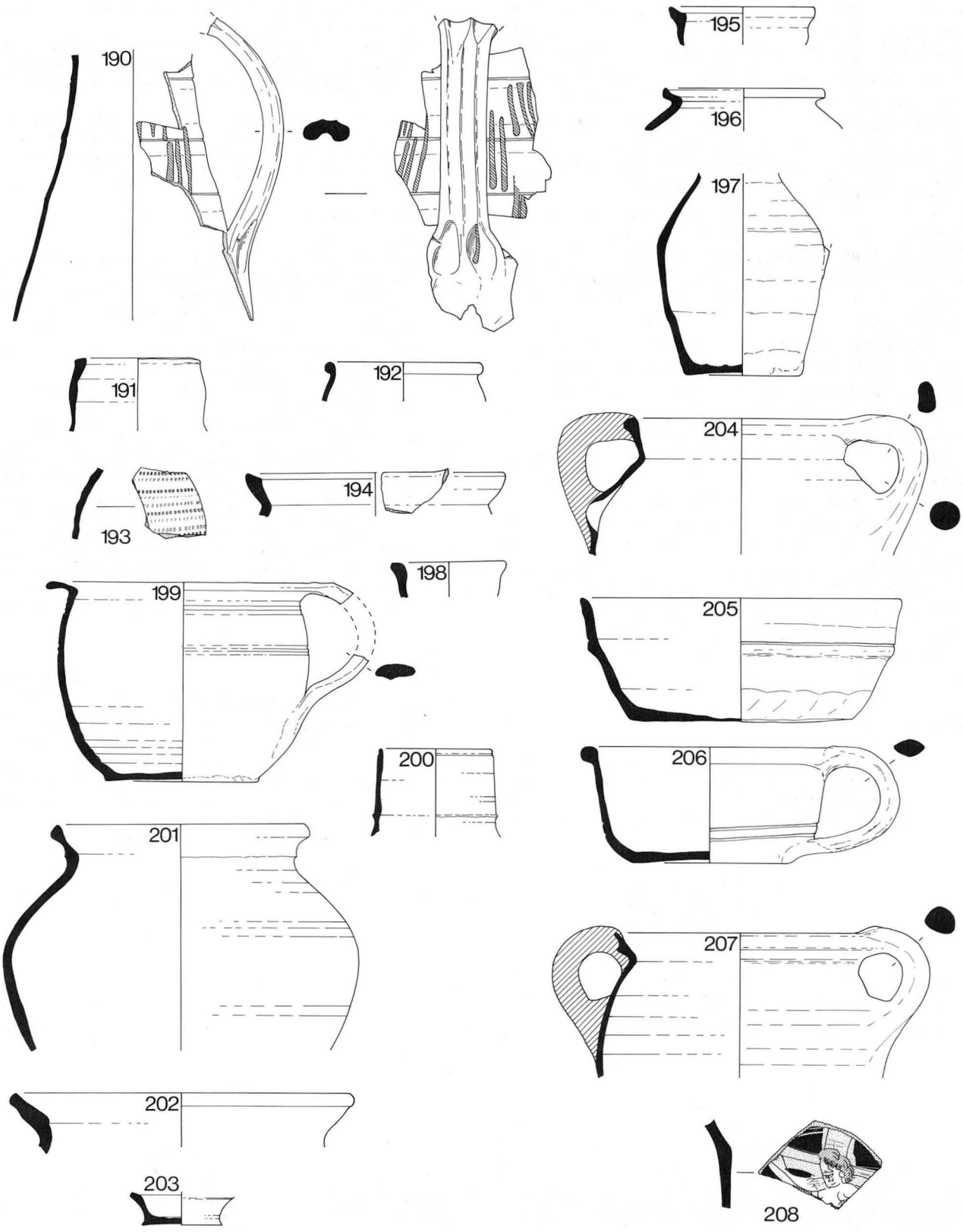


Figure 77. Pottery. Nos 190-208. Scale 1:4.

broadly quantified and the greatest concentrations of glazed and unglazed roofing tiles were located in deposits of Phase II2 and Phase III1 date, that is coinciding with the use and destruction of the Norman stone building *2100* but predating the construction of the later medieval building *3132*. Indeed 75% of the glazed tile and 70% of the unglazed tile were recovered from these two phases (most of the unglazed examples were probably fragments of glazed tiles, only the lower part of the tile being glazed). Floor tiles were very rare, the single largest concentration (fragments of six examples) being found in deposits of Phase III1. Some eighty-two examples of Roman brick and tile were identified forming some 3.75% of the entire assemblage; most of this Roman material was found in Period I deposits.

Bricks were only sampled, generally from the brick features rather than from stray examples. Most were typical of medieval bricks in Norwich being a soft sandy fabric with buff red surfaces and occasional flint inclusions. Size varied but the norm was 23-26cm in length, 11-12cm in width, and 4-5cm in depth. Squint bricks were recovered from the door jambs of doorway *9* in Building *3132*. A fragment of a possible 'great brick' was located in context *2002*, part of the fill of the latrine turret in Building *2100* (Phase III3; surviving dimensions 16×13×7 cm).

Burnt daub was not a common find from the excavation although significant quantities were recovered from a Phase I2 post-hole (p. 9). Other burnt clays, possibly resulting from industrial processes, are listed in the catalogue.

Tile

(Fig. 78)

1. Fragment of **dichromatic floor tile** bearing a *gyronny* pattern. *Phase II2; S.F. 361.564.* Discarded before use and therefore probably paviour's waste. A complete tile from the same stamp was recovered from Feltwell, Norwich (now in Norwich Castle Museum: NM376.963). Paul Drury suggests a provisional late-thirteenth-century date.

2. Fragment of a **ridge tile**, probably a waster. Paul Drury feels that the two collared holes at the apex may be either the seating for spinning top finials or ventilation holes. *Phase III3; S.F. 882A.1068.*

2a. Fragment of a **ridge tile.** As No. 2, *Phase III3; S.F. 882B.1068.* Although this type of tile originates in the twelfth century, Numbers 2 and 2a were used as bonding tiles in repairs to the stair turret of building *2100* in the fifteenth century.

Industrial and structural fragments

With comments by Justine Bayley

2b. Fragment of heavily burnt structural clay with a thick covering of fuel ash slag. *Phase I1; S.F. 576.1133.*

2c. Fragment of a crudely made **tile** with a natural ash glaze. Justine Bayley feels that the nature of the fabric (low iron content; high quantity of pebbles) as well as evidence of exposure to high temperatures in a hearth or furnace, may indicate a refractory function. *Phase I1; S.F. 972.1197.*

2d. Fragment of **re-used Roman tegula** with a natural ash glaze. *Phase I2; S.F. 872.1096.*

A total of eight such structural fragments were recovered and Paul Drury suggests that these all formed part of an industrial hearth, furnace or oven, probably for distillation or cupelation although there is no evidence of contact with metal in the form of slag or other metallurgical deposits.

The main structure was probably built of clay and Roman tile fragments (Nos 2b and 2d) with refractory tiles (No. 2c) used in the areas of highest temperature. The glazes which occur are the result of fusion with wood ash. Although all but two pieces come from eleventh and twelfth century waterfront contexts, they are probably not indicative of particular industrial activity on the site as they occur as random finds.

Burnt clay

2e. Large fragment of burnt clay which appears to have been smoothed down the side and over part of the base of a large vessel, probably ceramic. Paul Drury feels that this may be the result of luting two vessels together, possibly for an industrial or domestic process, for example distilling or fermentation (see Moorhouse 1981, fig. 90B and D). There are no metallic residues. Recovered from an ashy layer associated with hearth *609. Phase III; S.F. 543.743.*

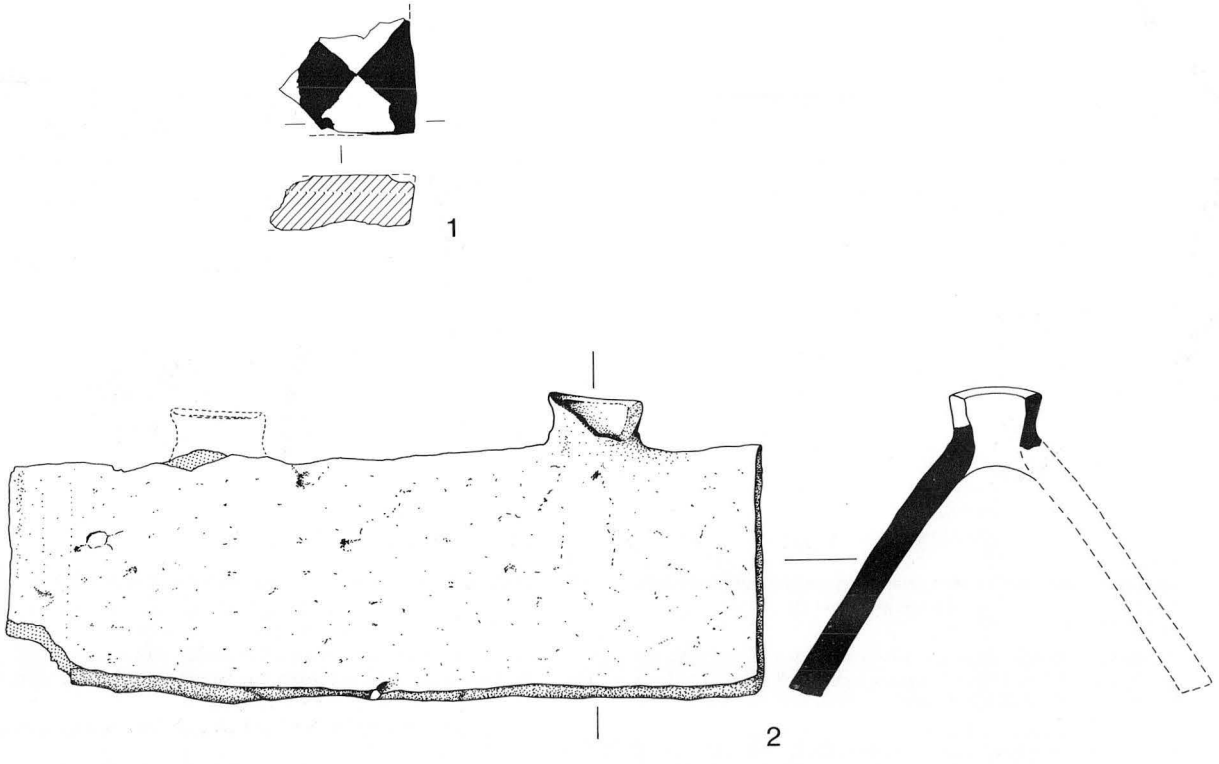


Figure 78. Tile and burnt clay. Nos 1-2. Scale 1:4.

X. Painted Plaster

by Val Williams

1a. Five fragments. Linear design using blue/black, purple and white slip on purple. *Phase III1; S.F. 292.373.*

1b. One fragment. As above. *Phase III1; S.F. 310.373.*

A total of thirty four pieces of painted plaster were recovered, largely from contexts contemporary with Building *3132* although the most elaborate pieces recovered (Nos 1a and 1b) are from pre-*3132* deposits of the late thirteenth-to fourteenth-centuries and probably therefore represent material brought in along with other rubble to level the site in Phase III1.

Backing material is present on all examples, ranging in thickness from 5-31 mm and consisting of coarse to very coarse mortar, pinky- cream, grey, buff-cream or cream in colour. Colours of paint present are red, pink, blue/black, white and purple. Some pieces have a thin white slip painted over a base colour, and a similar technique was observed at Bedford (Baker *et al.* 1979, 258; fig. 163). Use of more than one colour appears on only six pieces (Nos 1a and 1b) and here only create a linear design. On at least two pieces, including No. 1b there are signs that 'redecoration' took place in the form of one painted field being covered with a thin layer of backing material. In both cases the latter has been painted white.

XI. Bone, Antler and Ivory Objects

by Val Williams

with bone identification by Peter Lawrance and Mary Harman

Combs and comb fragments

(Fig. 79)

Terminology follows Galloway (1976). All pieces are of antler unless otherwise stated and rivets are of iron. All combs, with the exception of Number 3 are of the composite single sided type.

1a. Undecorated **connecting plate** fragment. Two rivet holes. The base was notched during the cutting of the teeth and indicates four teeth per cm. Low convex profile. Sheep or pig rib. *Length* 59 mm. *Phase I1; S.F. 444.1109.*

1b. Complete **end tooth segment** of a **'hog-back' comb.** The back is rising and the teeth are graduated. Six teeth per cm. Two rivet holes one with rivet. Grooves on both surfaces were probably caused by the cutting or trimming of the connecting plates. The teeth, end and back all show considerable wear. Eleventh century. *Length* 34 mm. *Phase I1; S.F. 622.1140.*

A similar, almost complete comb was recovered from Whitefriars Street Car Park, Norwich (Ayers and Murphy 1983, fig. 19, no. 4).

2. Almost complete **comb.** Seven tooth segments originally secured by six rivets, five still *in situ*. The teeth are graduated on one end tooth segment which projects beyond the connecting plates, to accommodate the suspension hole for a comb case, as with an example from York (MacGregor 1978 fig. 29, no. 11). Incised linear decoration. Probably eleventh century. *Phase I2; S.F. 409.1096.*

2a. Uncut **tooth** segment. *Length* 38 mm. *Phase I2; S.F. 551.1143.* Several similar blanks were recovered from the Anglia T.V. site Norwich (Margeson and Williams 1985).

2b. Decorated **connecting plate** fragment. One rivet hole. The base has been notched and suggests five teeth per cm. Convex profile. Incised linear decoration of four/five vertical parallel lines. *Length* 32 mm. *Phase I3; S.F. 1060.1005.*

3. Almost complete **simple double-sided comb.** The teeth are of different gauges and are well finished. The incised linear and dot in circle decoration is highly abraded, many of the circles being wholly or partly worn away especially on the solid zone where faint traces can only be seen around one of the seventeen dots. Possibly horn. From an eleventh- to twelfth-century context. *Phase I3; S.F. 378.1005.*

3a. Rectangular **tooth** segment. Two rivet holes. The teeth are evenly cut but have been left square except at the tips. The back is extremely fine giving the object a bi-convex profile. Length 47 mm. *Phase I3; S.F. 405.1005.*

4. Part of an undecorated **comb.** Two rivet holes one with part of a rivet. Only one connecting plate notched. The teeth show considerable wear. *Phase I3; S.F. 463.1005.*

5. Decorated **connecting plate** fragment. Two rivet holes. The base is only lightly notched and indicates four to five teeth per cm. Complex incised linear design with one dot in circle. *Phase III; S.F. 351.528.*

5a. Undecorated **connecting plate** fragment. Two rivet holes. Convex profile. *Length* 37 mm. *Phase III; S.F. 380.515.*

6. Decorated **connecting plate** fragment. Three rivet holes one with rivet. The base is notched and indicates four to five teeth per cm. Incised linear decoration. *Phase III; S.F. 421.641.*

6a. Undecorated **connecting plate** fragment. Probably from towards the end of the comb as the back is curving down to meet the base. One rivet hole. Flat profile. Sheep or pig rib. *Length* 43 mm. *Phase III; S.F. 693.774.*

Nos 2a, 2b and 4-6a are all probably eleventh or twelfth century.

Pins

(Fig. 80)

6b. **Pin,** tip missing. Pierced head with hole worn towards the head. *Length* 87 mm. *Phase I2; S.F. 413.1096.*

7. Complete **pin.** Hole worn towards the head. *Phase I2; S.F. 500.1096.*

7a. Incomplete **pin.** Head notched from the top at the centre. *Length* 43 mm. *Phase I3; S.F. 456.1005.*

8. Incomplete **pin.** Minimum of working of the shaft, but the head is flattened from both sides and possibly shaped at the top. *Phase I3; S.F. 870.1005.*

8a. Incomplete **pin.** Multi-faceted head. Little sign of wear. *Length* 53 mm. *Phase III; S.F. 475.1118.*

8b. **Pin,** tip missing. Pierced head with hole slightly worn. *Length* 85 mm. *Phase III; S.F. 599.1118.*

8c. Complete crude **pin,** possibly unfinished. The head is the natural head of the bone, but the shaft has been formed by several longitudinal cuts. *Length* 57 mm. *Phase III; S.F. 962.2305.*

9. Complete, crudely worked **ivory pin** possibly unfinished. *Phase II2; S.F. 814.2103.*

9a. Complete small **pin.** Working is confined to an oblique cut forming the point. The head is the natural head of the bone. Fowl radius. *Length* 60 mm. *Phase III1; S.F. 290.373.*

9b. Complete large **pin.** Working as No. 9a. Goose radius. *Length* 129 mm. *Phase III1; S.F. 294.373.*

10. Complete **pin.** Possibly little used as the surface irregularities created during manufacture are still present. *Phase III1; S.F. 799.390.*

11. Complete large **pin.** Working as No. 9a. Goose radius. *Phase III3; S.F. 227.223.*

12. **Pin** with extreme tip missing. Minimum of working on the shaft and point formed by an oblique cut. *Unstratified; S.F. 383U/S.*

Numbers 6b, 8b, 10 and 12 are manufactured from pig fibulae and only show a minimum of working on the shaft, utilising the natural shape of the bone. The use of these pins is uncertain despite the fact that they are commonly found in contexts from the fifth to the thirteenth century, both on the continent and in Britain. Possible uses include hair pins (as with examples from Gotland, Roes 1963, 65), dress fasteners, probably on heavy duty fabrics or tools for netting, threading or basketry. As with the needles (see below Nos 19 and 23), Elisabeth Crowfoot feels they may also function as tiglar pins (Hoffman 1964, 145-6; fig. 62), used to prevent necking of the cloth during weaving.

The bird bone pins (Nos 9a, 9b and 11) all have the natural head of the bone forming the head of the pin. These were possibly awls or clothing/hair pins. Parallels for Numbers 9b and 11 at Bedford (Baker *et al* 1979, fig. 180, no. 1541) are described as pens. Number 8c is possibly made from a sheep ulna.

Other tools and utensils

(Figs 80-82)

13. Possible large **toggle.** The hole is punched through towards the distal end probably from the anterior side and the surrounding bone is worn and damaged possibly by subjection to force or stress. Pig left radius. *Phase I1; S.F. 280.1039.*

14. **Stylus.** The head is broken but would have originally been flattened to act as an eraser. Long bone of large animal. (Iron staining is from a nail adhering to the point when found). *Phase I2; S.F. 346.531.*

15. **Spoon,** handle missing. The tip of the bowl is especially worn. Probably cut from a cattle radius or tibia. *Phase I2; S.F. 352.531.*

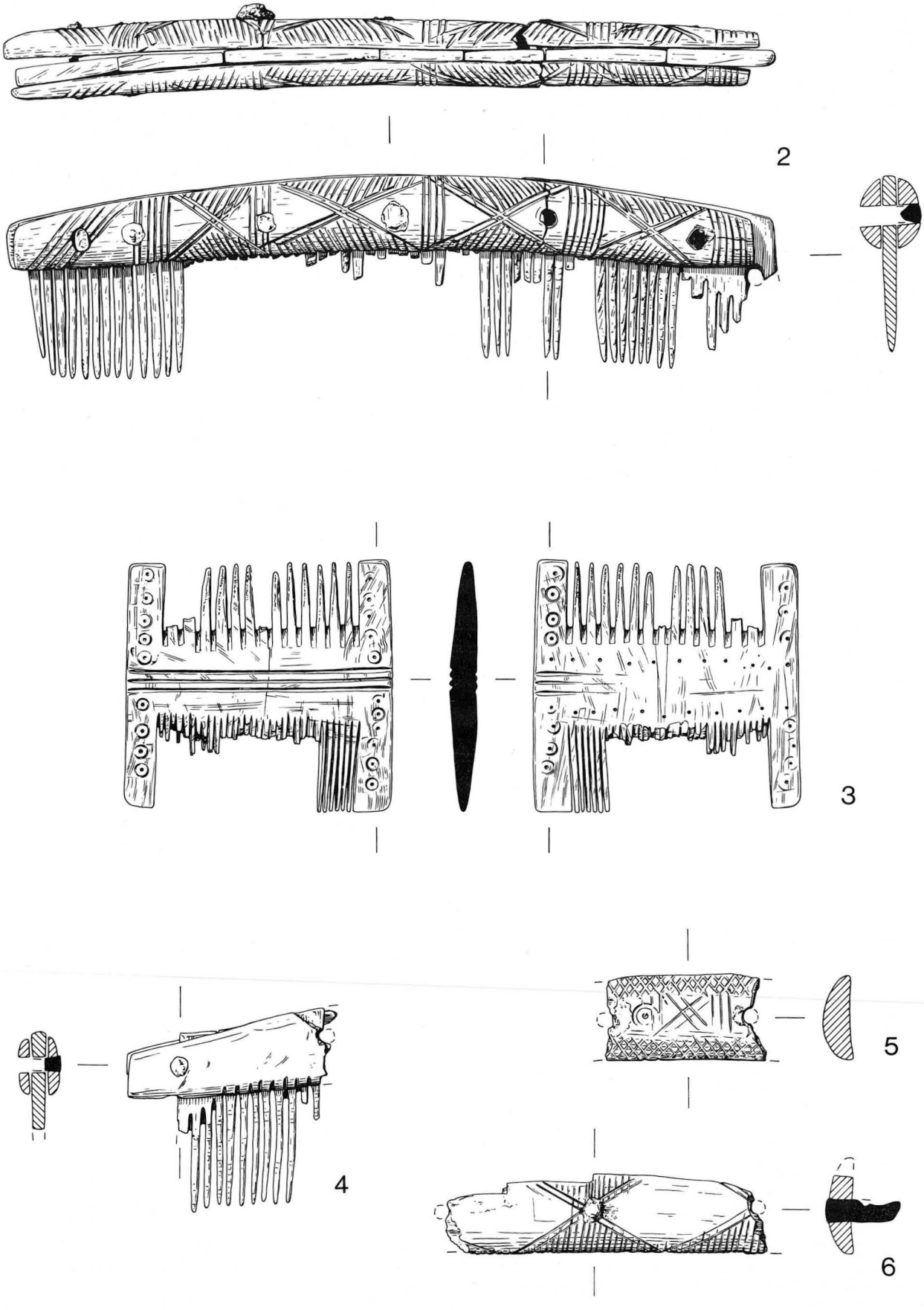


Figure 79. Bone, antler and ivory objects. Nos 2-6. Scale 1:1.

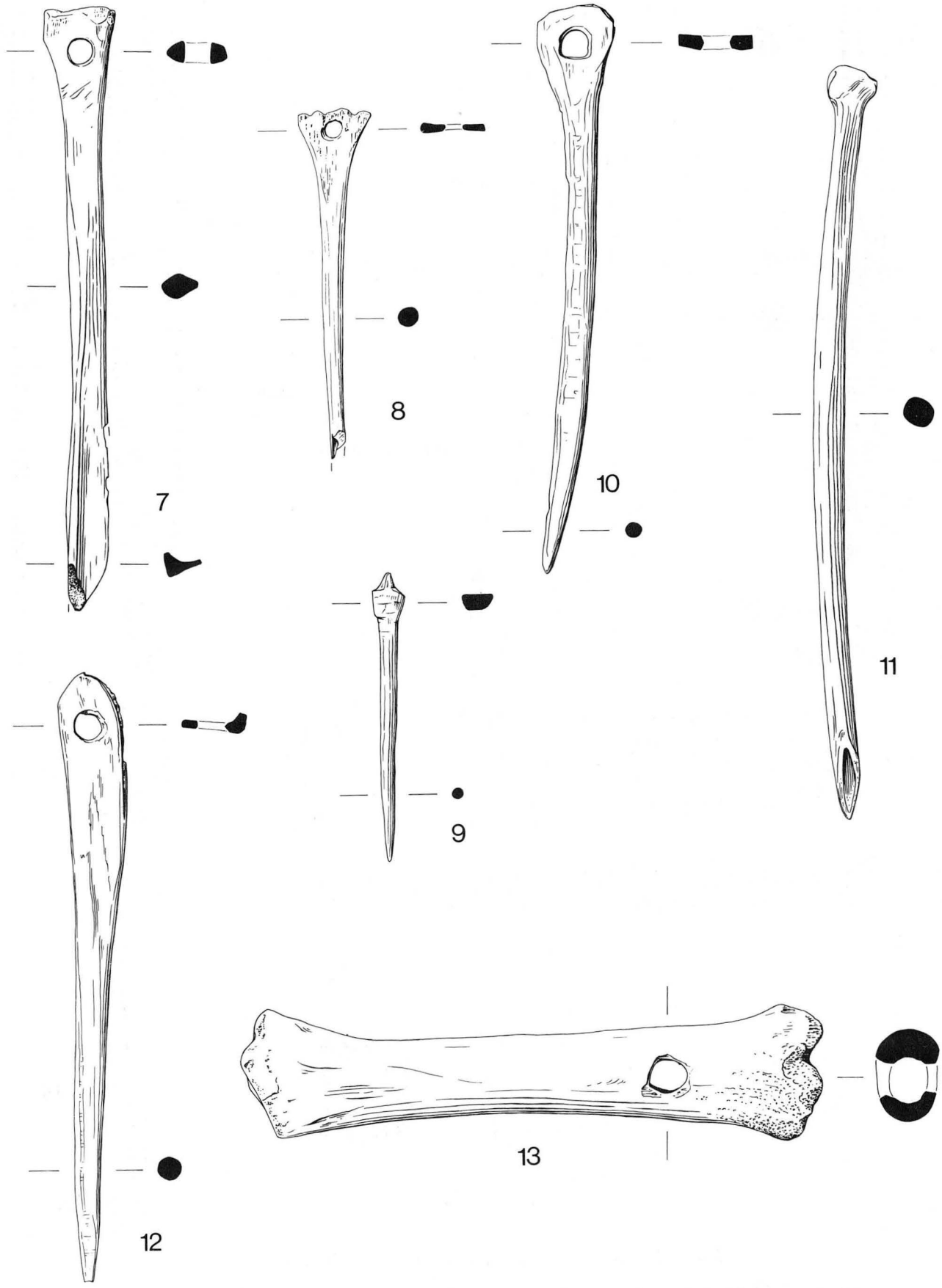


Figure 80. Bone, antler and ivory objects. Nos 7-13. Scale 1:1.

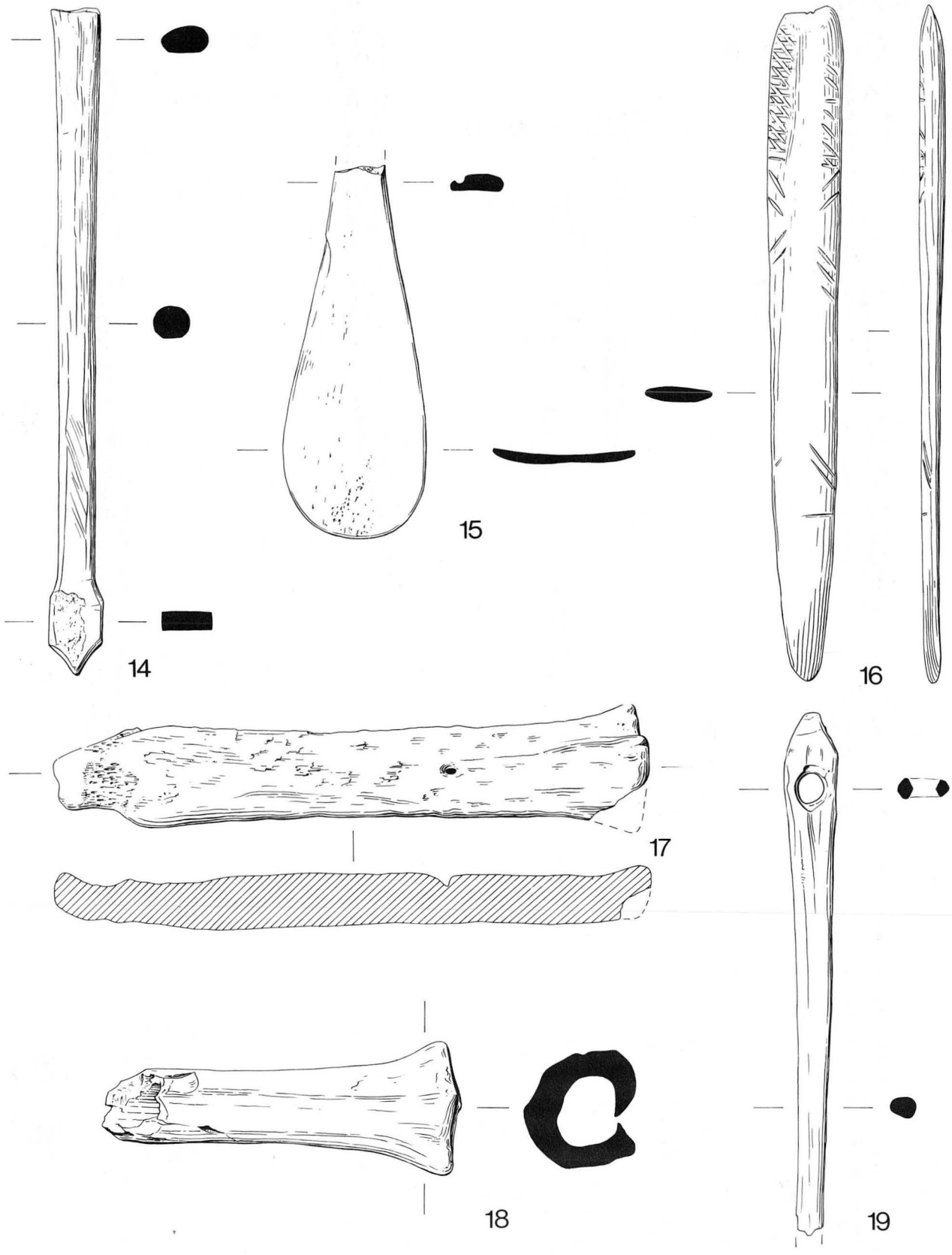


Figure 81. Bone, antler and ivory objects. Nos 14-19. Scale 1:1.

The Norwich example was probably a domestic utensil although an ecclesiastical use has been suggested for similar spoons (Collis and Kjølbye-Biddle 1979, 375-91).

16. Decorated **double-ended pinbeater.** Highly polished overall. The point has a distinct twist caused by prolonged use, probably as a weaving tool, accentuating the natural shape of the bone. Elisabeth Crowfoot (pers. comm.) feels that slight notching on the edge of the broad end may have been caused by threads. Incised linear decoration on one face, now largely worn away. Oakley (1979, 313) suggests that such decoration may also be functional enabling a better grip during use. For discussion on use see Rogerson and Dallas (1984, 170). Horse metapodial. *Phase I2; S.F. 773.1096.*

16a. Crudely shaped, slightly tapering **handle.** Shaping by means of rough knife slashes. Both ends have been sawn, and the smaller end, which has been pierced through the central cavity for the

insertion of an iron tang (revealed as still *in situ* by X-ray), has been cut obliquely and roughly finished by knife. There is a crude thumb grip with an opposing roughened area for finger grip. Antler. *Length* 96 mm. *Phase I3; S.F. 5.1005.*

17. **Skate.** Toe pointed and upswept. The upper surface is flattened and the lower surface is worn through to the medullary cavity. Heel damaged. No attachment holes. Horse metacarpel. For discussion on the use of bone skates see MacGregor (1976). *Phase I3; S.F. 286.1005.*

18. **Socketed point.** The proximal end has an oval hole cut through the articular surface forming a socket, the first 20 mm of which is worn. No attempt has been made to level the joint surface but random tool marks do occur around the hole. Slight wear on the shaft towards the point. Cattle metatarsal. *Phase I3; S.F. 353.1005.*

Two socketed points were recovered from the excavation (microfiche, 1:D.7-10). Roes (1963, 84) suggests that such objects may be tallow holders for waxing threads when sewing leather, but unless the Norwich examples are newly made and little used, the wear patterns are not consistent with those on the Frisian examples. Waterman (1959, 93) and Rogerson and Dallas (1984, 182) suggest that these may be gouge-like objects, socketed possibly for the insertion of a handle and MacGregor (1978, 49) also refers to them as *socketed points.* Such a use may explain the damage to the points of those recovered and may also explain the wear on the interior of the sockets.

19. Crudely made **needle,** tip missing. The hole shows considerable signs of wear towards the head and one side. Pig fibula. For a discussion on the use of needles see Rogerson and Dallas (1984, 167). *Phase I3; S.F. 407.1005.*

20. **Toggle.** The hole is drilled from front to back. There are faint signs of wear at both proximal and distal ends, on the shaft and around the hole. The crossed grooves at the distal end have been artificially deepened while the proximal end has been lightly trimmed to remove protrusions. Pig metapodial. *Phase I3; S.F. 930.1005.*

Toggles are frequently recovered from contexts of the tenth/twelfth centuries to the late medieval period and were probably used as clothes fasteners, as Elisabeth Crowfoot (pers. comm.) feels they could not effectively function as bobbins.

21. **Double-ended pinbeater,** head missing. Highly polished overall. Possible faint transverse incised linear decoration, although this may be the result of use. The rounded section of this example may suggest that it belongs to a group more commonly recovered from Early and Middle Saxon contexts, for example Northampton (Oakley 1979, fig. 138, no. 58). Possibly manufactured from cetacean mammal bone. For a discussion on use see Rogerson and Dallas (1984, 170). *Phase II1; S.F. 333.494.*

22. Hemispherical **spindle whorl,** formed from the head of a juvenile horse/cow femur. Burnt. *Phase III; S.F. 703.650.*

22a. Hemisphercial spindle whorl, as No. 22. *Phase II1; S.F. 761.926.*

Whorls of this type are frequently found on sites of all periods because of the availability of the raw material. Bone deterioration has occurred on both Numbers 22 and 22a and therefore weights are not given.

23. **Needle,** extreme tip and top of head missing. The shaft is slightly waisted 55 mm from the point. Possibly pig fibula. For a discussion on the use of needles see Rogerson and Dallas (1984, 167). *Unstratified; S.F. 166.U/S.*

24. **Parchment pricker.** Turned shaft with a group of six transverse lines below a ridged collar. Head damaged, possibly by the removal of a spherical terminal. The point is broken, but there are traces of iron staining, possibly all that remains of a small iron point. Cattle or horse long bone. For a discussion on use see Margeson and Williams (1985, 45). *Unstratified; S.F. 849.U/S.*

A similar example with bronze staining on the broken point was recovered from Bedford (Baker *et al.* 1979, fig. 179, no. 1526), while a continental parallel comes from Lübeck, W. Germany (Appühn *et al.* 1982, pl. 8, no. 2).

Decorative and miscellaneous objects

(Figs 82-84)

24a. Fragment of cut red deer **antler tine.** The tip has been sawn off leaving a faceted end. The proximal end has been roughly cut and has one serrated edge. *Length* 50 mm. *Phase I1; S.F. 282.1039.*

24b. Top two **tines** of red deer antler forming a 'V'. Sawn at the base and the tips also removed. Probably subsequently used as there is unnatural wear and polish along the tines and especially around the sawn tips. *Length* 145 mm. *Phase I2; S.F. 895.1096.*

25. Undecorated **pierced rectangular plate.** Two rivet holes, one at either end. A faint incised line at one end suggests that the bone was marked out before cutting. Rib. For discussion on use see Rogerson and Dallas (1984, 167). *Phase I2; S.F. 975.907.*

26. **Gaming piece.** Both upper and lower surfaces are highly polished but the hole shows no sign of wear. Decorated with parallel turned grooves. Slightly damaged. Antler. *Phase III; S.F. 435.633.*

27. **Strip** fragment with incised linear decoration. Sheep or pig rib. *Phase III; S.F. 587.774.*

Two similar examples from Bedford (Baker *et al.* 1979, fig. 179, nos 1524-25) are dated to the eleventh to the thirteenth centuries.

28. **Strip** fragment with incised dot in treble circle decoration. One rivet hole with iron rivet. Considerable wear and damage and both ends broken. Rectangular profile. Cattle rib or scapula. *Phase II2; S.F. 349.533.*

Such bone strips, along with No. 36, have been recovered from contexts of the Roman period through to the medieval and later medieval periods, and were probably used as casket mounts.

29. Decorated **discoidal gaming piece.** Both upper and lower surfaces worn, especially towards the perimeter. The hole is also worn and irregular. Incised dot in circle decoration on one face, divided into zones by three incised concentric circles. Cow or horse scapula. *Phase II2; S.F. 354.552.*

Similar gaming pieces frequently appear in contexts of the twelfth to the thirteenth centuries, for example Kings Lynn (Geddes and Carter 1977, fig. 143, no. 16) and Southampton (Platt and Coleman-Smith 1975, fig. 247, no. 1930) although they are generally unpierced. Where piercing does occur, it has often been done subsequently, interrupting any decoration, as at Trondheim, Norway (Long 1975, pl. IIIc). Piercing probably indicates conversion to a spindle whorl (Elisabeth Crowfoot comments that the weight of the Norwich example is suitable for flax) although it is possible that the object would retain its use as a gaming piece, and a hole would change the value of the piece or indicate adaption to a different kind of game.

30. Crudely made **zöomorphic terminal,** broken at one end. Incised dot in circle motifs used along upper and lower sides and as eyes. The hole at the neck is inaccurately drilled from both sides. The broken groove is obliquely cut and shows little wear except along the two finer edges. Antler or long bone of large animal. *Phase II2; S.F. 355.558.*

The function of this object is unknown. Graeme Lawson does not think it forms part of a musical instrument, while Elisabeth Crowfoot does not recognise it as being associated with the manufacture of textiles. The apparent Scandinavian influence may suggest a tenth- to eleventh-century date.

30a. **Antler tip.** Opposing faces have been flattened and smoothed although one is damaged by two parallel gashes. All angles worn. Extreme tip missing. Possibly a peg or small wedge. *Length* 36 mm. *Phase II2; S.F. 748.2005.*

31. Small fragment of burnt **decorated bone.** One end, probably the top, is complete and curving inwards. Incised linear and dot in circle decoration. *Phase II2; S.F. 770.2011.*

32. Small fragment of burnt **decorated bone,** as No. 50. *Phase II2; S.F. 776.2011.*

33. Small fragment of burnt **decorated bone.** One end, possibly the base is complete. Incised linear and dot decoration with also part of one circle. *Phase II2; S.F. 807.2098.*

34. Small fragment of burnt **decorated bone.** Both ends complete, the top curving inwards, the base flat. Incised linear and dot in circle decoration. *Phase II2; S.F. 812.2098.*

Nos 30-34 form a group of four objects unparalleled elsewhere on the site. All four are parts of small cylinders with holes drilled through the natural centre of the bone. Such objects are probably too small to function as handles, as with similar objects from Flaxengate, Lincoln (Mann 1982, fig. 34, no. 301) but, as at least one piece is capable of standing, these may represent upright gaming pieces. The reason for burning and breakage is unclear. Possibly manufactured from cattle or horse cannon bone.

34a. Antler working waste, cut or sawn at both ends. Split longitudinally. *Length* 46 mm. *Phase II2; S.F. 829.2057.*

35. Small **die.** Units represented by punched dot in circle motifs. *Phase III1; S.F. 795.390.*

36. **Strip** fragment with incised dot in double circle decoration. One end broken while the other end is bevelled slightly. One long side has a cut recess at one end, probably the seating of a further

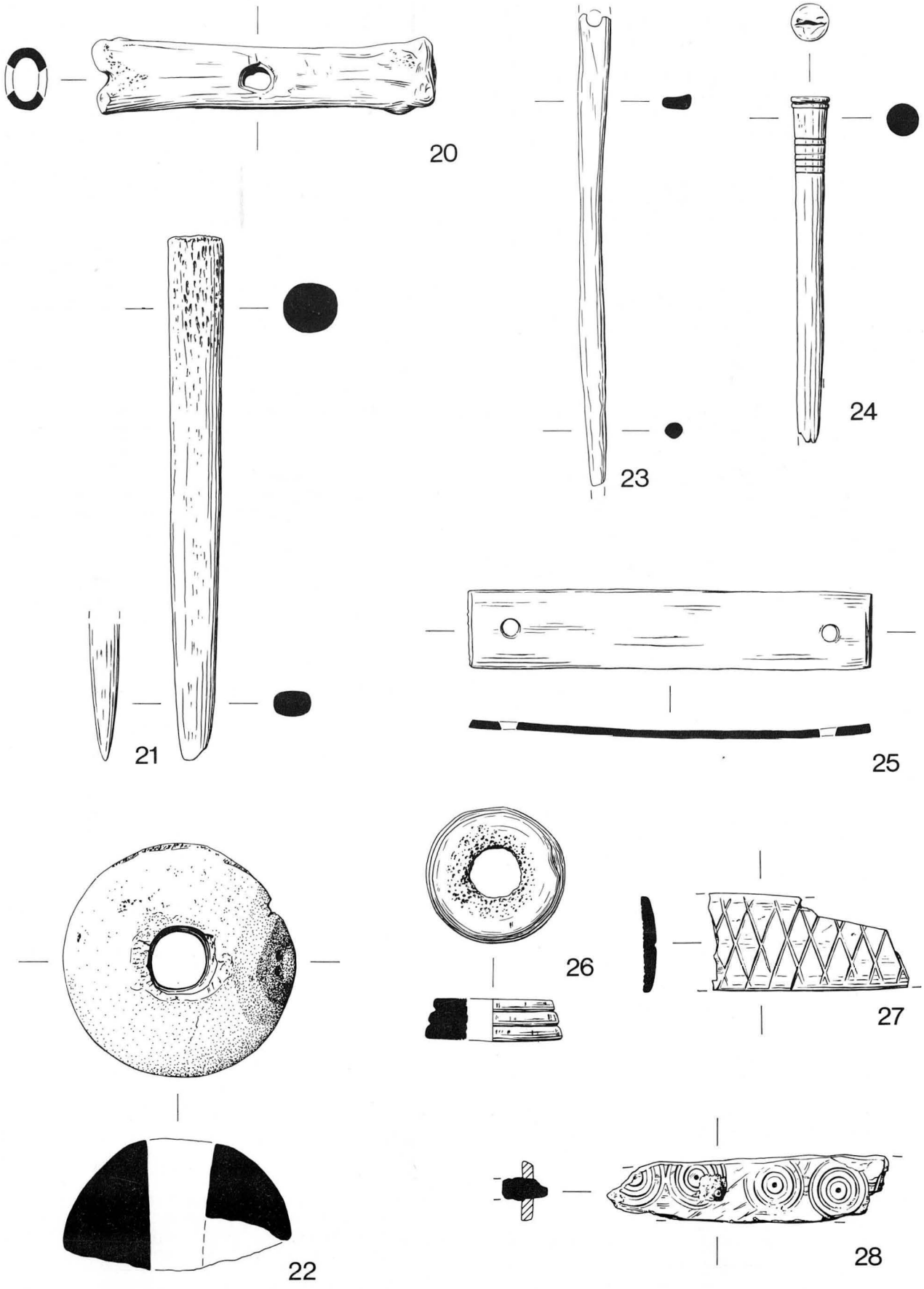


Figure 82. Bone, antler and ivory objects. Nos 20-28. Scale 1:1.

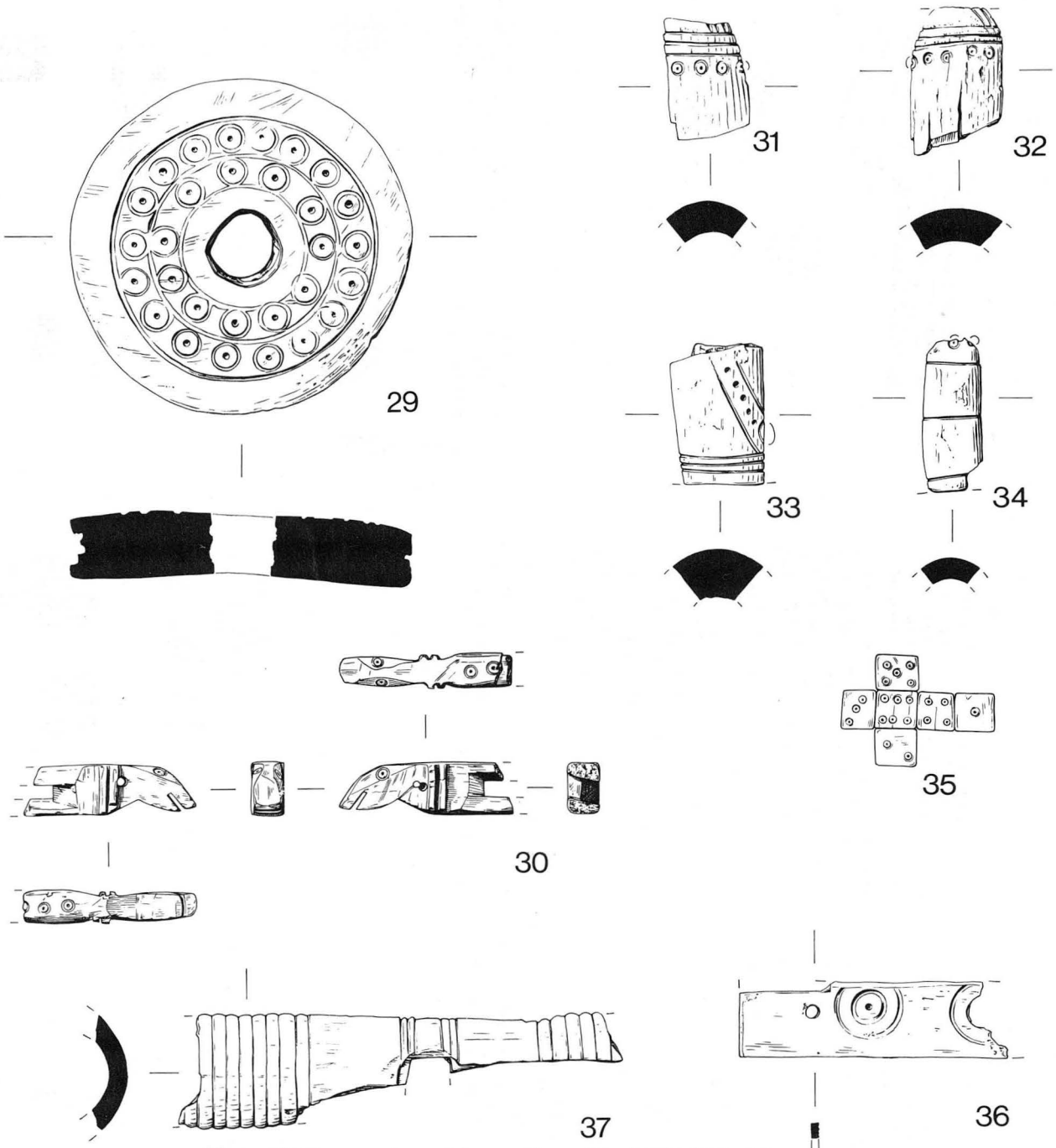


Figure 83. Bone, antler and ivory objects. Nos 29-37. Scale 1:1.

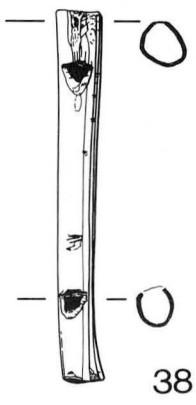


Figure 84. Bone object. No. 38. Scale 1:2.

perpendicular mount. One rivet hole. Rib. See above Nos 27 and 28. *Phase III2; S.F. 162.8.*

36a. Fragment of heavily burnt, slightly curved bone with two notches cut from one side. Possibly working waste. *Length* 40 mm. *Phase III3; S.F. 256.227.*

37. **Decorated object,** cut from a long bone. Probably part of a cylinder, internally tapering towards both ends, with a square cut hole at the centre. Iron staining and a circular depression around the hole probably suggest that this was the seating for a round headed object. Decorated with groups of transverse parallel turned grooves. Function uncertain. Manufactured from long bone of large animal. *Unstratified; S.F. 979. Borehole 1.*

38. Fragment of end-blown **flute.** Probably goose humerus. *Site 34 (1963 excavation) below 'floor' 6 (probably context 13;* see Fig. 47).

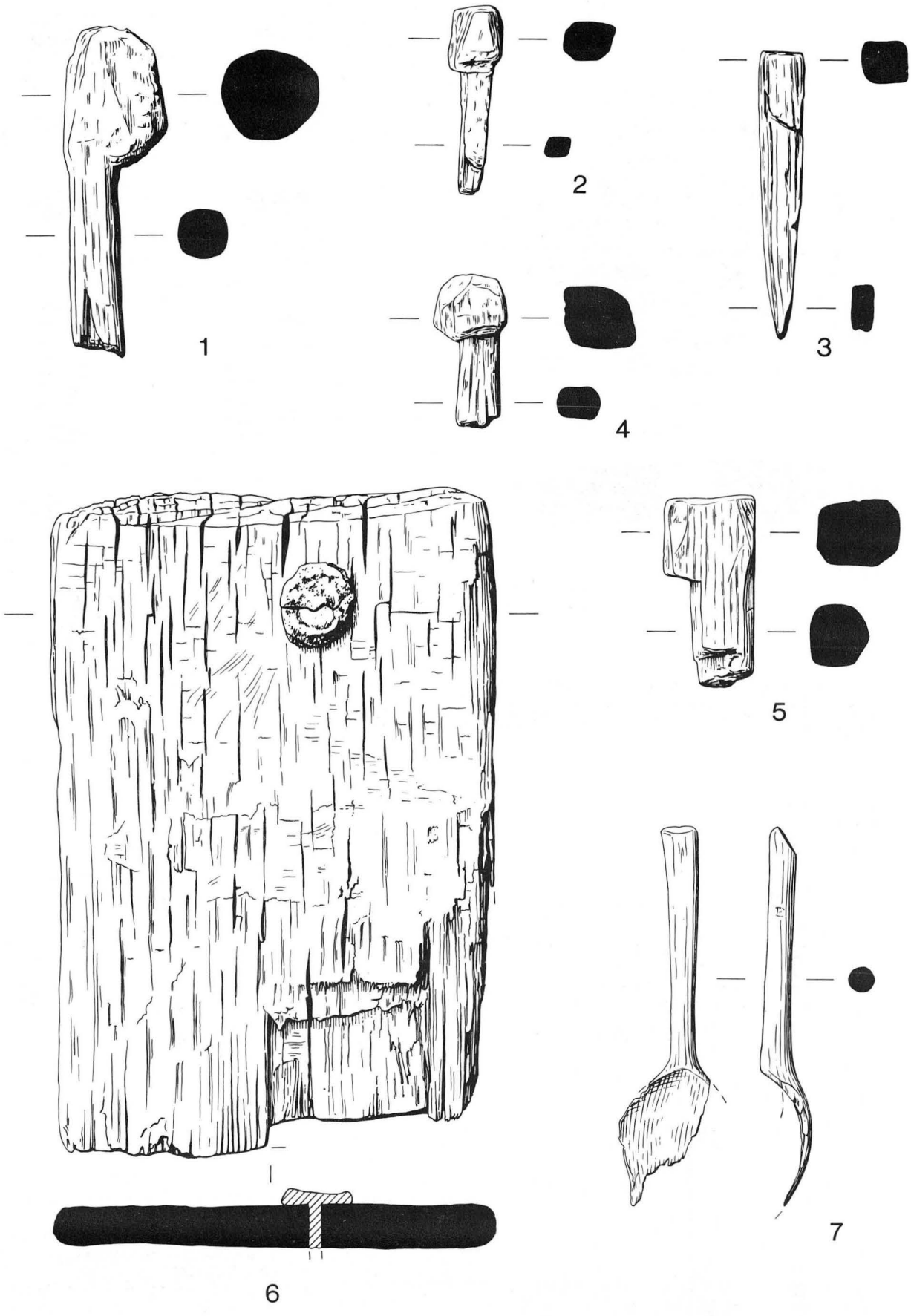


Figure 85. Wooden objects. Nos 1-7. Scale 1:2.

XII. Wooden Objects

by Val Williams

Pegs and bungs

(Fig. 85)

1. *Phase I3; S.F. 288.1005.*
2. *Phase III; S.F. 454.1117.*
3. *Phase III; S.F. 527.1120.*
4. *Phase III; S.F. 555.1117.*
5. *Phase III; S.F. 607.1118.*

Nos 1-5 are all of oak.

The function of such objects probably included bungs for domestic or industrial vessels (Nos 1, 2 and 4), or securing pegs for furniture and structural elements (Nos 3 and 5).

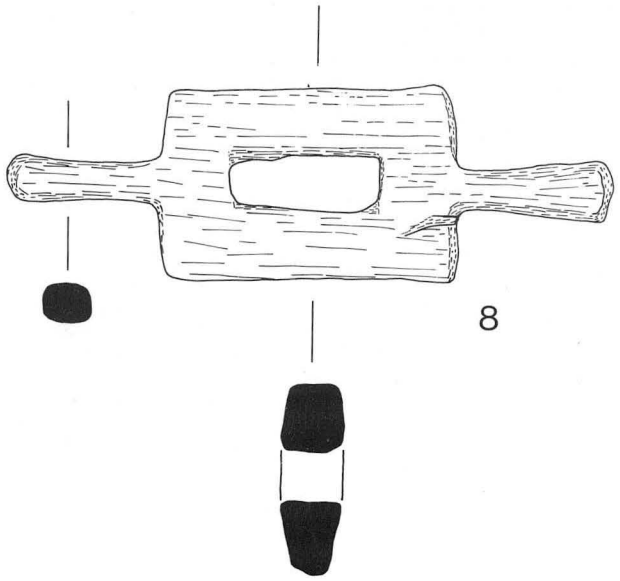


Figure 86. Wooden object. No. 8. Scale 1:2.

Other wood objects

(Figs 85-6)

6. Oak **shingle.** Iron nail for attachment. *Phase III; S.F. 913.2305.* Similar examples have been recovered from Southampton (Platt and Coleman-Smith 1975, fig. 232, nos 1670-1) and Winchester (Biddle and Quirk 1962, fig. 11).
7. Oak **spoon** with deep bowl, now broken. Handle chamfered at the end. *Period IV; S.F. 388.1080.*
8. Rectangular object of oak with a bevelled slot at the centre and slightly expanding projections at either end. Object lost during conservation. Carole Morris is not certain about its function, but has suggested that it may be either a knife/dagger hilt or a small cleat or similar object with nautical associations. Object drawn on site. *Phase II; S.F. 893.1192.*

XIII. Leather Objects

Introduction

Leatherwork was recovered from all phases of Periods I and II. The material located in Period I contexts was generally found within brushwood and organic deposits at the waterfront. The Period II leatherwork was exclusively located within gully *562.*

Most of the material was associated with shoes and shoemaking. Considerable numbers of upper and sole fragments were recovered as well as thongs and triangular offcuts, characteristic of shoe manufacture. Cobbling was also a major activity as many fragments had been cannibalised for leather. Occasional other items were located such as a belt (Fig. 87, No. 1) and a possible bag fragment (No. 1f). The assemblage is directly comparable to the material recovered west of Whitefriars' Bridge in 1979 (Ayers and Murphy 1983, 23-28) save that it is not as varied (no thonged shoes or shoes of 'Danish-type' for instance) and, quantitatively, not as substantial a collection.

A complete list of the leather finds is given on microfiche (1:D.13-E.2). None of the shoes is illustrated as they add little to the current state of knowledge concerning shoe types. The more diagnostically interesting fragments are, however, described and attention is drawn to the similar (although not identical) shoe finds from Whitefriars Street. A knotted thong and the possible 'bag' fragment are similarly described but not illustrated. The latter may, in fact, be associated with shoemaking. The belt fragments have been illustrated, finds not paralleled at Whitefriars Street.

The belt

(Fig. 87)

1. Four fragments of a **belt** *(two illustrated).* Sides turned inwards so that the flesh face is concealed. Folds held by two parallel channels of neat diagonal stitching (stitch length 4 mm). Holes pierced for buckle (eight such holes in all with remains of two others). *Phase II2; S.F. 501.1032.* A further felt fragment *(S.F. 577.1118)* is probably part of this object. Context *1118* is in Phase III, but both contexts lie within gully *562.*

The shoes

1a. Fragments of an upper of an **high ankle boot** of turnshoe construction. Most of the vamp and part of the rear quarter are cut and worn away. Top band not reinforced. Only one quarter margin survives; here there is an edge/flesh seam (stitch length 4-5 mm). Instep of vamp cut without waste to form opening but this cut was closed by an edge/flesh seam (stitch length 4-5 mm)

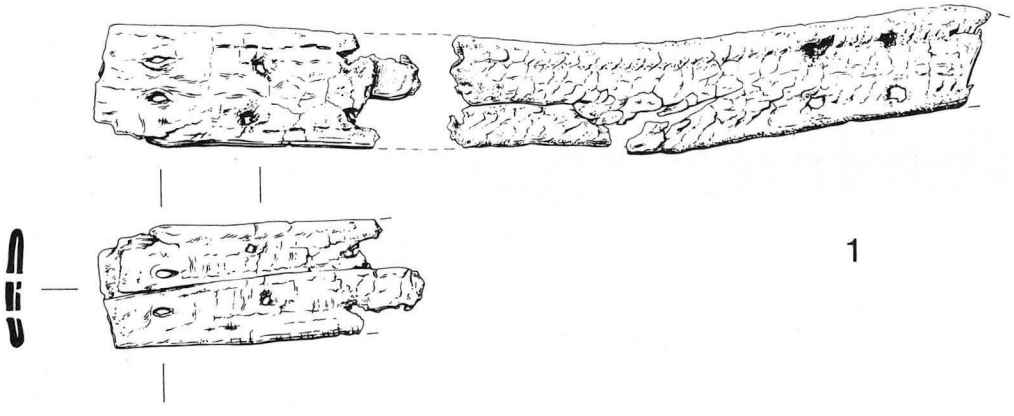


Figure 87. Leather object. No. 1.

on both sides. Fragments of a coarse turned seam (stitch length 9-10 mm) survive at the lasting margin. Top band cut, also without waste, possibly to form a tab for fastening. Found with No. 1f. *Phase III; S.F. 467.1118.*

1b. Four fragments of a **sole.** All have turned seams (stitch length 4-5 mm). One has a second row of tunnel stitches (irregular stitch length varies between 5 and 11 mm), probably for a clump repair. *Phase II2; S.F. 473.1026.*

1c. Three fragments of an **upper.** The largest forms the rear of an ankle boot of turnshoe construction. Top band whip-stitched for reinforcement. Edge/flesh turned seam to the lasting margin (stitch length 4 mm). Vamp cut away. Flat (with lacehole) passes across instep for attachment on vamp wing by means of an edge/flesh seam (stitch length 3 mm). Remains of a thonged lace attachment through a loop at the rear. Incised groove in leather of vamp wing may indicate tight lacing. Such grooves also visible on other fragments, one of which also has whipped stitching. Also, two fragments of sole with turned seams. *Phase III; S.F. 486.1120.*

1d. **Thong.** Consists of two pieces of thong knotted together. Probably formed part of the lacing attachment of a shoe or boot. *Phase II2; S.F. 497.1032.*

1e. **Upper** and **sole** of **left-foot turnshoe.** Sole partly determined. Continuous coarse turned seam at lasting margin of both upper and sole (stitch length 6 mm). Sole badly worn with toe and heel eroded. Upper cut at rear, presumably cannibalised for leather. Slashed vamp at the instep not reinforced. Remains of a flap across the instep. Two lace holes survive on the outer vamp wing. Slight traces of abutted seam to the vamp wing. Also, a quarter fragment with an edge/flesh seam and remains of a loop for lace attachment. Also, a further fragment, possibly a quarter with turned seam. Also, four offcuts of lasting margin with a coarse stitch length (5 mm). The quarter fragments and offcuts are not necessarily parts of the turnshoe. *Phase III; S.F. 531.1118.*

?Bag

1f. Leather fragment. Approximately square (126 mm by 127 mm) with edge/flesh stitching on three (and possibly all four) sides (stitch length 3-4 mm). The fourth side may be the remains of a turned seam. Possibly part of a bag or similar. Found with No. 1a. *Phase III; S.F. 467.1118.*

XIV. Textile

by Elisabeth Crowfoot and Penelope Walton

Description

by Elisabeth Crowfoot

Fragment of textile, 28.0×24.0 cm overall, possibly from a bag, or a piece of re-used cloth wrapped round mussel-shells (Pl. XXXVI). Sheep's wool (see below) undyed, *i.e.* naturally white, stained dark brown probably by damp conditions of preservation; spinning, Z one system, fairly close and fine, S the other, medium; weave, even 2/2 (four-shed) diagonal twill, originally a close solid fabric, count 10- 11(Z)/7-8(S) threads per cm. Where mixed spinning is used in Saxon weaving the warp thread is normally the Z spun system.

Along one edge is a hem, turned over singly, length preserved 15.0 cm, and a small detached scrap, hemmed with a single Z-spun wool thread. *Phase III; S.F. 590.1138.*

Fibre report

by Penelope Walton

Fleece types were identified by measuring the diameters of 100 fibres. Figures are in microns.

Z-spun: Medium fleece type: range 15-50, 56; modes 24, 26, 32; mean 30.5 ± 8.3; Pearson coeff. skewness + 0.37, symmetrical; no medullas, no pigment.

S-spun: Generalised medium fleece type: range 14-50; modes 21, 24; mean 26.2 ± 8.3; Pearson coeff. skewness + 1.06, positively skewed; no medullas, no pigment.

No dye detected.

The generalised medium fleece type is common in textiles from the Roman period to the medieval period, but the medium type, the forerunner of the modern longwool, only appears in any numbers in the later Anglo-Saxon period and Viking Age.

XXXVI. Textile fragment. Scale in centimetres and half-centimetres. *Photo:* Anglia Television

4. The Human Bone

by Ann Stirland

I. Introduction

A small quantity of human skeletal material was recovered from the excavation. This assemblage consisted of the remains of three articulated individuals dated to Phase I2 (p. 11); a vertebra located in a Phase II context which seems likely to be a stray intrusive find from Phase I2; and disarticulated material found within a makeup deposit (*2098*) in Building *2100* and dated to Phase II2 (p. 40). The articulated burials were thus the only individuals found *in situ*.

The material is discussed in Section II of this report and an inventory of the analysed bone is provided on microfiche. The archaeological implications of the discoveries are discussed in Chapter 7.

II. Discussion

This small group of fairly fragmented burials consists of the remains of six individuals, some of whom are far more complete than others. There would appear to be two probable adult females, *663* and *769*; an adult male, *2098*; a probable male adolescent aged 13-16 years *750*; an infant aged about 6 months, also *2098*; and a child aged 3-7 years, *672*, represented by one vertebra. The adult male is aged 30-35 years, one of the females is adult, (no specific age is possible), and the other is aged 19-23 years. The adolescent is extremely round-headed, having a cranial index of 89.8, although it must be stated that some of this may be due to post-burial deformation by expansion. He also has a marked 'bunning' or extension of the occipital region at the rear of the skull. Both he and the younger of the two females may have been related, since they share some non-metrical or discontinuous morphological traits of the skull. These are traits which are not measured but which are scored as present or absent in a group of skeletons. They are thought to indicate possible genetic similarity in a group. In the case of these two individuals, they both share a complete metopic suture in the frontal bone of the skull. This is a suture which in most individuals disappears by the age of two, but in some is retained into adult life. They also share extra bones known as wormian bones in some of the sutures of the skull. Both the adult male and the younger female have a perforation in the distal end of the humerus known as a septal aperture.

The adult male lost many of his teeth *ante-mortem*, and the younger female has caries involving three of the four of her molar groups. The adolescent has a brown staining of most of his teeth known as *ameliogenesis imperfecta*. This is a form of hypoplasia or underdevelopment of the enamel which is caused by bouts of illness or malnutrition during childhood.

The only examples of pathology in this group are in the older of the two females, who shows evidence of stresses in her mid to lower back. There are depressions known as *Schmorl's nodes* on the inferior body surfaces of thoracic vertebrae 9 to 12 inclusive. These are formed when the intervertebral disc ruptures and prolapses into the body of the adjoining vertebra. The strength of the anterior ligaments running down the spine is such that the ruptured disc cannot extrude out from between the vertebrae, and it therefore presses into the bodies of the bones, forming the depressions. The causative event may have been a single trauma, such as fall, or the sort of long term stresses involved in hard manual work, using the back. This woman also had small osteophytes or bony spurs on the bodies of thoracic vertebrae 10 to 12 inclusive, and on lumbar vertebrae 1 and 2, again a possible reflection of long term stresses. Interestingly, her hands showed signs of having been very actively used, since many of the tendon insertions were very strongly developed on the fingers.

III. Skeletal Inventory

Microfiche: M3a; 1:F.1-3.

5. The Environmental Evidence

I. Introduction
by Peter Murphy

Studies of the deposits exposed during the 1979 excavation at Whitefriars Street Car Park (Fig. 1; Site 421) showed that preservation of organic materials is good along the waterfront in this area of the city. Rich assemblages of plant and animal remains were retrieved and these provided a range of information on the environment and economy of Late Saxon and medieval Norwich (Ayers and Murphy 1983, 28-51). However, full interpretation of the assemblages was precluded by their heterogeneous character; they consisted of dumped organic refuse brought from an unknown, but possibly extensive, area of the city, mixed with macrofossils fluvially transported from further upstream and with other allochthonous material. At the Magistrates' Courts site preservation was as good as at the earlier excavation, but because of the better-defined types of context available for sampling it has proved possible to interpret the results in terms of activities at the site with much greater confidence.

The presentation of the results and their interpretation follows Ayers and Murphy (1983). Full species lists, measurements and analytical data are provided on microfiche (M3). Methods used are also described on microfiche, though where appropriate the methods of Kenward *et al.* (1980) were followed. In the text the reports on particular categories of biological remains and aspects of soils and sediments include a summary and discussion of the results. In a final section a short synthesis of the main results is given (p. 131ff).

II. Mammal Bones
by Judith Cartledge

Preservation
The preservation of the bones from the riverside contexts was excellent, particularly those from layer *1005*. The surface of these latter was hard, shiny and very dark.

Quantification
Total number of fragments (Tables 7 and 8)
31,822 bone fragments were examined (Table 7). 12,702 fragments derived from the main stock animals. Of these 3930 were sheep/goat, 3555 were pig, 5217 were cattle.

	No	*%*
Sheep/Goat	3930	12.35
Pig	3555	11.17
Cattle	5217	16.39
Bird	2193	6.89
Hare	42	0.13
Rabbit	32	0.10
Cat	96	0.27
Dog	42	0.13
Red/Fallow Deer	8	0.03
Red Deer	7	0.02
Fallow Deer	20	0.06
Roe Deer	15	0.05
Horse	44	0.14
Rodent	2	0.01
Unidentifiable fragments	16619	52.23
Total	31822	

Table 7 Mammal bones: Total number of fragments

The distribution of hare and rabbit bones was nearly mutually exclusive (Table 8). The hare bones occurred in Periods I and II except for two fragments. Apart from four bones, all the rabbit occurred in Period III. One of the former occurred in Period I (eleventh century). This had probably worked its way down from a higher layer since it is unlikely that rabbits had been introduced into England at that time.

The chronological distribution of the cat bones was distinctive in that there were more cat bones in Period IV than there were of any one of the main stock animals. Three types of deer were present, roe, fallow and red, of which, interestingly, fallow was the most frequent. The deer bones included both meat-carrying and waste bones. There were also eight pieces of red/fallow antler which could not be ascribed definitely to one or the other species. Bird bones (2193 or 6.9% of the total) were not identified. Including ribs and vertebrae, these were also a further 16,619 (52.2%) unidentifiable fragments.

Animal	*Period I*	*Period I/II*	*Period II*	*Period III*	*Period IV*	*Total*
Sheep/Goat	1102	702	1801	310	15	3930
Pig	1140	660	1433	312	10	3555
Cattle	1524	953	2040	686	14	5217
Hare	5	5	30	2	0	42
Rabbit	1	0	2	28	1	32
Cat	10	18	44	7	17	96
Dog	17	5	16	4	0	42
Roe Deer	2	5	7	1	0	15
Fallow Deer	2	7	9	2	0	20
Red Deer	0	3	4	0	0	7
Red/Fallow Deer	3	1	1	0	0	8
Horse	15	7	18	4	0	44
Rodent	0	0	1	1	0	2
Total	3821	2369	5406	1357	57	13010

Table 8 Mammal bones: Total numbers of identifiable fragments by Period

Main stock animals (Table 9 on microfiche)
Sheep/goat formed 30.9% of the main stock animals, pig 28% and cattle 41.1%. These percentages are very similar to those from the Whitefriars Street site, Norwich (Cartledge 1983). The bones from the main stock animals were examined for both chronological and broad contextual variation.

The bones were considered both in terms of three main groups of contexts, (*i.e.* the area of the Norman building, the riverside area and the remaining street frontage) and by period. There was no evidence to suggest variation ascribable to the contextual location either of main mammalian species (MMS) percentages or of the sorts of bone found in any one area. There was, however, chronological variation.

The percentages of cattle, sheep/goat and pig were examined both by period and by phase. The material from *1005* (a layer containing 2,294 MMS fragments) was kept separate. Since this context originated in Period I and extended into Period II, it was useful to compare the results from it with those from securely dated contexts.

During Period I (eleventh century) the fragment percentages of sheep/goat and pig were similar (at around 30%) whereas cattle were at 40.5%. In Period II (twelfth and thirteenth centuries) sheep/goat percentages increased

at the expense of both cattle and pig. In Period III (fourteenth and fifteenth centuries) both sheep/goat and pig declined to about 24% and cattle rose to about 52%.

If period divisions are examined, this reduction in the percentage of pig fragments seems to have begun quite dramatically at the end of Phase I1 (early eleventh century). In Phase I1, 40.0% of the bones from identifiable stock animals were pig, whereas in Phase I2 (mid eleventh century), pig were only 27.3% and never rose so high again. The increase of sheep/goat would appear to have lasted through both Phase III1 (first half of the twelfth century) and Phase II2 (second half of the twelfth century and thirteenth century). Their percentage declined dramatically in Phase III2 (*c.*1370 to *c.*1450) and Phase III3 (*c.* 1450 to *c.* 1550).

Measurements

(Tables 10-13, microfiche 1:F.5-2:A.7)

The measurements (Table 10 on microfiche) ranges of all the main mammalian species are similar to those from the Whitefriars Street Car Park site excavated in 1979 (Cartledge 1983).

Sheep/goat distinction (Table 11, microfiche 1:F.7-G.7)

Boessneck's (1969, 354-5) method of distinguishing sheep from goat (based on the percentage of the smaller lateral condyle on the distal epiphysis to the larger lateral condyle) was applied. On sheep this percentage is usually over 60 and on goats it is usually under 60. According to this method all but one of the sheep/goat (out of thirty-two cases) were sheep and the single goat metacarpal came from *1005*.

The sheep/goat horn evidence indicated that there were some goats. In Period I the ratio of sheep to goat (27:3) favoured sheep but in Period II the numbers were the same (six from each animal). In Period III there was only one horn, that of a sheep.

The sheep horns varied considerably in size. The goat horns were usually massive although the nature of the butchery meant that it was not possible to take many measurements as they were usually cut off above the base of the horncore. The size of the goat horns was perhaps the reason for their disproportionate survival. Maltby (1979, 42) records a similar phenomenon at Exeter.

Sheep/goat sexing (Table 11, microfiche)

In application of this sexing method the assumption was made that the majority of animals were sheep, based on the metacarpal evidence noted above.

Measurement 1 from the sheep pelvises, according to Armitage (1977, 75-82), produces a variation in size dependent on the sex, *i.e.* male, female or castrate. Some difficulty was experienced, however, in taking this measurement. Nevertheless, the measurements, plotted against Armitage's graph, suggest that there were equal numbers of females and castrates and very few intact males.

Cattle type (Table 13, microfiche 1:G.14-2:A.7)

Armitage and Clutton-Brock (1976, 331) distinguish four types of cattle based on the maximum length of the outer curvature of the horn core, namely *Small Horned, Short Horned, Medium Horned* and *Long Horned.* The horncore lengths from the Courts Site were all less than 150mm which meant that they fell into the Small or Short Horned category. Those less than 96mm came from immature animals so that all the cattle were probably of the Short Horned type.

Cattle sexing (Table 13, microfiche)

Cattle sexing was based on the same measurements on the pelvis as was used for sheep/goat. This method was recommended by Lemppenau (1964). Three peaks were produced, the middle peak being largest and the other two being equally small. According to Lemppenau's method this would indicate that most of the animals being killed were castrates.

Fock (1966, 37) has shown that when measurement 5 is taken on modern cattle metacarpals it produces two groupings, one including the females and the other including the steers and bulls. This measurement, when taken from the Courts site cattle bone, also produced two groups both for the metatarsals and the metacarpals, the peaks for the latter being rather more distinctive. If the smaller group were the females and the larger the steers and bulls, these data, when used in conjunction with the pelvic evidence discussed above, would indicate that the large percentage of those individuals thought to be bulls and steers were, in fact, steers.

Ageing data

(Tables 14 and 15, microfiche 2:A.8-11)

The age estimates for both epiphyseal fusion and the developmental stages of teeth were based on figures given for modern animals by Silver (1969). Grant's (1975) method of recording wear patterns was employed, but Payne's (1973) method and age estimates were also consulted for the sheep/goat mandibles. For sheep and pig only complete rows of teeth were used but for cattle there were too few examples so that estimates for the wear stages of the missing teeth were made where the rows were incomplete.

Sheep/goat (Tables 14 and 15, microfiche)

According to the tooth data 48.5% were killed at two-to-four years and 31% were killed at two-to-three years, only 31% surviving beyond three years. However, according to the fusion evidence, 52.4% survived over three-and-a-half years old.

One explanation for this discrepancy is that the younger mandibles survived better than the younger long bones. Perhaps a better explanation is that the real ages of fusion can vary so much that in fact there may be no contradiction in the evidence at all. However it is usual to accept the teeth evidence over that of the fusion evidence which would indicate that nearly half of the sheep were killed from two-to-four years old. There were also a number of sheep that were killed at less than six months old.

Pig (Tables 14 and 15, microfiche)

There was no contradiction between the fusion and tooth wear data of the pig. Very few were surviving beyond the age of three years. Just under half were killed between one and two years and the remaining deaths were divided between the under one year olds and the two-to-three year olds.

Cattle (Tables 14 and 15 on microfiche)

The evidence from cattle is that the majority of animals were killed at ages rather older than either those for pig or sheep. Over half of the three-and-a-half to four year fusing

bones were fused and 72% of the mandibles came from animals over three years old. There was also some indication that the cattle were killed younger in Period III than in the earlier Periods. There was a small group of very young mandibles (less than five-to-six months) in Period III which did not occur in the earlier Periods. There was also a higher proportion of unfused to fused bones in Period III.

Deer

All the roe deer long bones were fused. Both the roe deer jaw bones were from adults, the P4 being worn in both cases, and the jaw from *885* (Phase III) being slightly more worn than the jaw from *1005*. The *1005* jaw contains a M3 with the third cusp worn.

The few red deer epiphyses were also fused suggesting they too were derived from fairly mature animals.

The fallow deer long bones were all fused except for one unfused distal metatarsal from *1005*.

There were two mandibles from *1005* both from animals at least in their fourth year according to data supplied by D. and N. Chapman (1975, 231-232). A mandible from *592* (Phase III) contained only M3 and M2, again both worn, and probably from an animal in its fourth year.

One roe deer metacarpal had been chopped at the proximal end and also half way down the shaft. There were additional marks on the shaft, possibly indicating some rudimentary attempt to make it into a tool.

Lagomorphs

The hare long bones were mostly fused though there was one humerus pnf and one young distally unfused metatarsal (from Period III). There were rather more unfused bones amongst the rabbit (all from Period III).

Conclusions

The Courts site animal bones seem typical of urban assemblages in that they were mainly the remains of animals consumed by the townsfolk. These animals were mostly sheep, pig and cattle. However, relatively small amounts of lagomorphs, deer and possibly horse were also consumed. It is possible to see that the introduction of rabbit quickly made a significant contribution to the diet.

It is difficult to explain conclusively the reason for the reduction of the pig percentage during Period I. It could perhaps be a reflection of the relocation at this time of the market place, but is just as likely to have been related to some broader economic activity such as a decline in the numbers of pig being marketed.

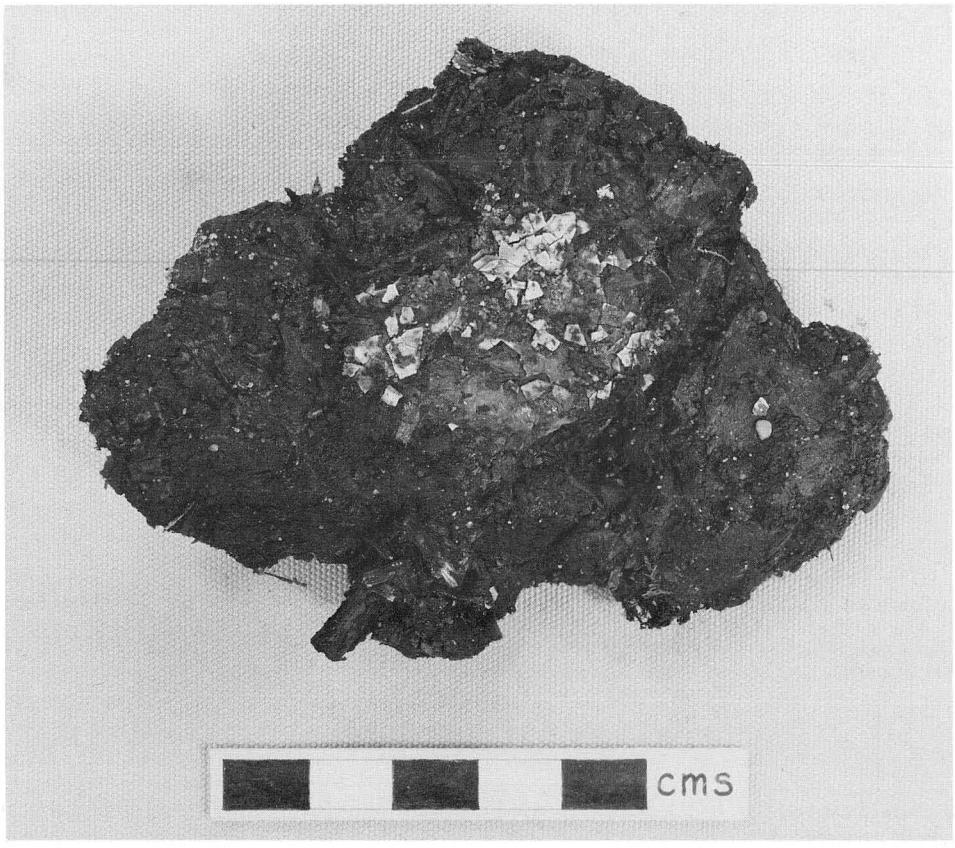
The relatively large numbers of cats recovered from deposits of Period IV may be an indication that the site was becoming more domestic in character. Most other bone was probably taken from the site by organised removal of rubbish and waste (p. 80).

III. Avian Eggshell

(Fig. 88; Table 16)
by Peter Murphy

Eggshell fragments recovered by bulk sieving from seventeen contexts were examined. *1118* produced, in addition, a crushed egg (Pl. XXXVII).

Thicknesses of a maximum of thirty fragments per sample were determined using a flat-jawed micrometer screw gauge. The results are summarised in histogram form (Fig. 88) and listed in Table 16 (microfiche 2:B.1-2). Two groups are distinguishable: a large group of fragments generally between 0.25 and 0.35mm thick, and a smaller group of fragments with a modal thickness between 0.55



XXXVII. Crushed avian egg from context *1118* (BWN4)

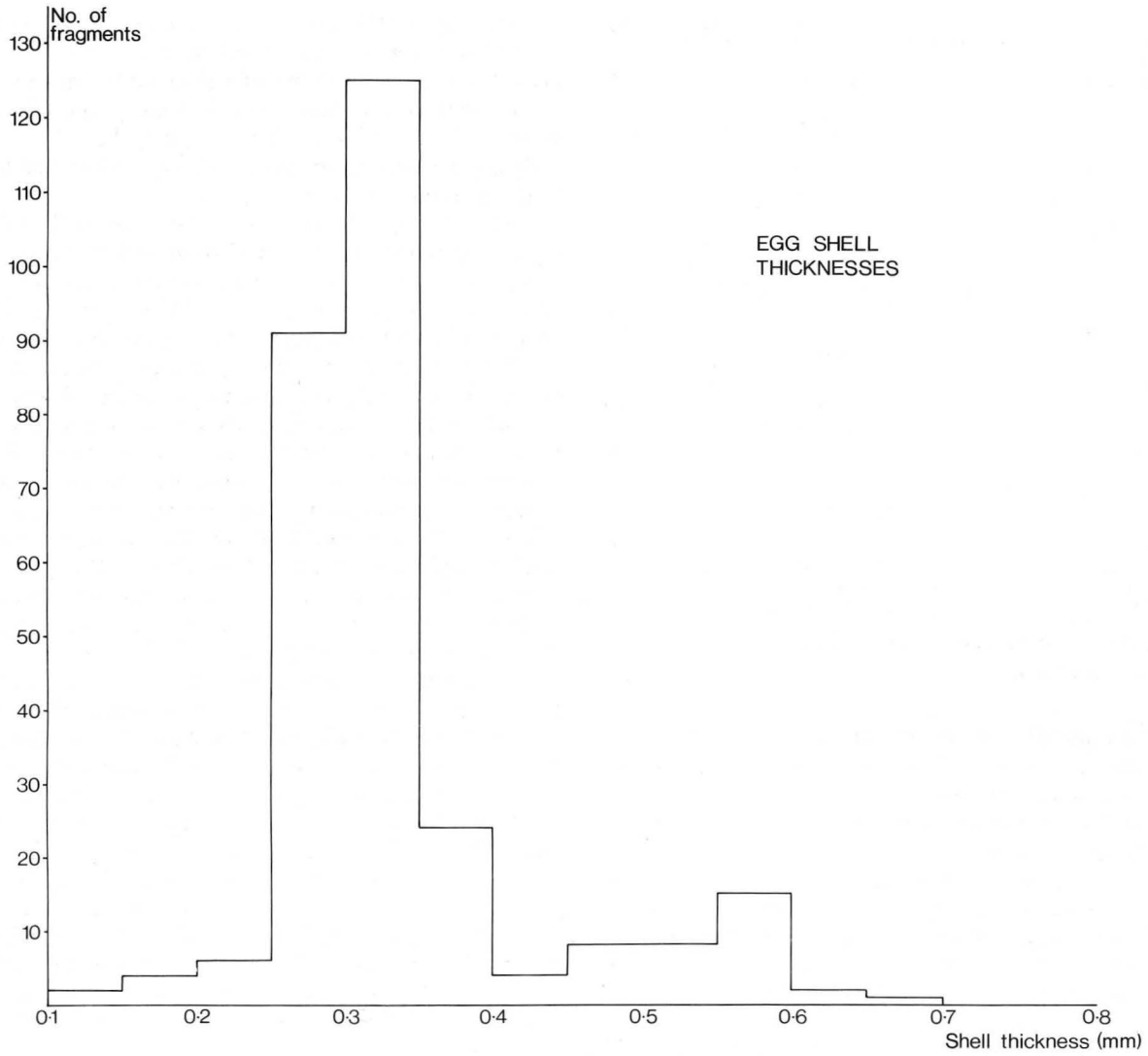


Figure 88. Histogram of avian eggshell thicknesses from seventeen contexts.

and 0.6mm. Keepax (1981, 323) reports two comparable thickness groups in material from a number of archaeological sites and notes that the thicker group is comparable with goose, swan or guinea fowl, whilst the distribution of the thinner group corresponds to modern domestic fowl, though some other species cannot be excluded on thickness criteria alone. Most of the thick fragments from the Courts' site came from a single context: *1032*, an organic fill of a twelfth century gully. A similar double grouping of thick- and thin-shelled fragments was noted in samples from medieval contexts at Pottergate, Norwich, Site 149 (Murphy 1985a).

The crushed egg from *1118*, the organic lining of the same twelfth century gully, retained its internal membranes (Pl. XXXVII). Shell fragments from this egg were 0.29-0.34mm thick, matching the abundant thin-shelled fragments from the site.

IV. The Fish Remains

by Alison Locker

Introduction

Altogether 6646 fish bones were found in medieval deposits. These were retrieved by sieving which ensured that even the smallest bones were recovered. The species are identified in Table 17.

Some bones were not specifically identifiable and had to be assigned to groups, *i.e.* Cyprinidae, Gadoid (cod family), Triglidae (gurnards), Percoid (perch like) and flatfish. Certain bones have no specifically identifiable features, such as fin rays, branchiostegals *etc*, and others were heavily fragmented; these could only be listed as unidentifiable fish. Invariably a substantial proportion have to be categorised in this manner, 33% from this site.

Analysis by period and phase (Tables 18-20, microfiche 2:B.3-5) suggests a great degree of homogeneity in the relative proportions of the dominant species. Because of this apparent homogeneity observations about the fish apply to all phases unless otherwise stated. Herring (*Clupea harengus*) is the most important, followed by cod (*Gadus morhua*), whiting (*Merlangius merlangus*) and eel (*Anguilla anguilla*). A few burnt vertebral centra of herring and eel were found in most contexts.

Geographically the most likely source for the marine fish is Great Yarmouth which lies approximately 17 miles to the east. Wheeler and Jones (1976) examined a large sample of medieval fish from Fuller's Hill, Great Yarmouth to which comparison will later be made. The fish bone from two other sites in Norwich (Jones 1983; Jones and Scott 1985), and Baker Lane, Kings Lynn (Wheeler 1977) is also compared with that from the Magistrates' Courts.

Period	*I*	*II*	*III*
Roker	5	6	1
Elasmobranchs	6	6	2
Eel	170	16	55
Herring	1928	495	379
Salmon	—	—	1
Trout	2	1	—
Smelt	21	—	4
Cyprinids	7	—	—
Chub	1	—	—
Roach	1	—	—
Cod	93	35	7
Haddock	7	1	3
Whiting	46	22	25
Gadoid	110	54	8
Gurnard	2	—	—
Percoid	—	1	—
Scad	9	—	—
Mackerel	7	4	15
Plaice	35	7	20
Flounder	1	—	2
Scole	1	—	—
Flatfish	22	1	8
Unidentified	1623	505	680

Table 17 Summary of fish-bone indentifications by period (Bones from *2003* (Periods II2-III2) are not included in this table)

Habitats and fishing methods

The roker (*Raja clavata*) and other elasmobranchs are probably under represented since their skeletons are composed of cartilage: therefore little trace of them remains in archaeological deposits except for dermal denticles, teeth, and occasionally undetermined vertebral centra. The roker is a common ray in shallow water, on muddy, sandy and gravelly bottoms, especially between 10 and 60 m. They can be caught on lines.

Other inshore bottom dwellers are the flatfish, including the flounder (*Platichthys flesus)* which is unique in its ability to enter freshwater by way of river mouths (Wheeler 1983, 121). Certain flatfish are especially active on the shoreline and in intertidal pools during immaturity. Both plaice (*Pleuronectes platessa*) and flounder are common in depths up to 50 m, while the sole (*Solea solea*) is commonly found up to 100 m. These three species can be caught on lines, and their habit of moving up on to the shoreline to feed means they were often caught in shoreline traps called *kiddles.* These V-shaped constructions had a holding box which trapped the fish on their return to deeper water (Wheeler 1979, 80). Another type of trap using stake nets, called a *sea hedge*, was also employed (Wilson 1973, 27). These methods became an important adjunct to coastal fishing.

Although the gurnard remains could not be specifically identified, since they were fragmented, these may well belong to the most common gurnard, the tub gurnard (*Trigla lucerna*). Another bottom dweller in inshore waters, the tub gurnard can be caught by hook and line. This fish is good to eat, although as it is represented by only two fragments in Period I its presence may be incidental.

The only other bottom dweller found was haddock (*Melanogrammus aeglefinus*). Caught on lines, it is found close to the sea bed in depths of 40-300 m. Haddock are migratory and off the East Anglian coast would be found in inshore shallow waters during the winter, moving to deeper water in the summer. Only eleven haddock bones were identified from all periods, so there is little evidence for a seasonal inshore winter fishery based on haddock.

Moving from those fish which are found close to the sea bed to those generally found in mid water, cod live from the shoreline to depths of 600 m, and locally would move into shallow inshore waters in winter, especially the younger fish. Caught on lines, cod may have been the main object of an inshore winter fishery, in which haddock were also sometimes taken.

The whiting inhabits shallow water (usually 30-100 m) all year round, living in mid water and sometimes on sandy and muddy bottoms. This species also formed an important fishery, based on lines. Whiting can also be caught in beach seines (Wheeler and Jones 1976, 218).

The sizes of cod and whiting were estimated by using the cod dentary and premaxilla measurements of Wheeler and Jones (1976, 240), making comparative measurements with modern specimens (Colley pers. comm.) and by comparison with fish of known size at the British Museum, Natural History. From eleven measurements on cod a size range of 40-100 cm total length suggests fairly small fish, (the average size today is about 120 cm), which is consistent with the suggestion of an inshore fishery. A range of 29-36 cm (based on eight measurements) suggests the whiting were of average size.

With regard to fish that are primarily pelagic in habit and form large shoals, herring were easily the most numerous species in all periods, forming 47% in Period I, 43% in Period II, and 31% in Period III. These fish would have been caught with very fine meshed floating nets. The large number of obligatory fish days in the medieval period helped the herring industry to prosper. During their yearly migration the herrings reached the seas off East Anglia while they were large, fat and oily, so in this area the fishery was very intensive (Wilson 1973, 33). This autumn fishery using traditional drift-nets was still carried out from Great Yarmouth and Lowestoft in the nineteenth and early part of the twentieth century (Wheeler and Jones 1976, 222).

The mackerel (*Scomber scombrus*) is also a pelagic migratory fish, found in large schools moving northwards, and inshore in the summer, the reverse taking place in winter (Wheeler 1978, 326). Mackerel can be caught both in nets and by hook. Similarly the scad (*Trachurus trachurus*) is found swimming near the surface in large schools, typically offshore, and can be caught in floating nets. Scad were only found in Period 1 (nine fragments), and mackerel were found in small quantities (twenty-six fragments in total) in all three phases.

Some smelt (*Osmerus operlanus*) form purely freshwater populations, but most frequently they are coastal/estuarine fish, found in large schools, and only enter freshwater to spawn (Wheeler 1978, 90). The size of the vertebral centra suggested some individuals (*e.g.* in context *531*B) were over 20 cm in total length, which indicates a coastal/estuarine source for these fish, since freshwater populations do not usually achieve this size. These fish were caught in fine nets, and an important tidal fishery for smelt was prosecuted in the Thames (Wheeler 1979, 48). There may have been a similar fishery in the estuary of the Yare.

The contribution of freshwater fish is low. From Periods 1, 2 and 3 they form 4% of the total, of which 3.5% are eel, most probably caught in their freshwater stage. The relative proportion of eel is exaggerated by the large number of vertebral centra for each individual compared with other fish. However, eels were an important resource in the medieval period: they could be stored live in ponds;

trapped in *eel-bucks* (wicker baskets set across a river which caught the migrating fish on their way to the sea; Wheeler 1979, 61); speared; or taken on a hook.

Salmon (*Salmo salar*) was only identified from a vertebral fragment, and small trout (*Salmo trutta*) from three vertebral centra. Neither species seems to have been of much importance and were probably caught by rod and line.

Some small cyprinid bones were found in pit fill *3111* in Period I, and also in *2003*. One roach (*Rutilus rutilus*) and two chub (*Leuciscus cephalus*) pharyngeals were identified. These were small immature individuals. The roach compared well with a modern specimen of total length 86 mm, and the chub pharyngeal from *3111* was from an individual of under 100 mm in total length. Other cyprinid bones were also from small individuals, and although not specifically identifiable could also belong to roach and chub. Cutting (1962) states that 'throughout the Middle Ages, and for long after, fresh fish was mostly of freshwater origin and very expensive. Practically every species inhabiting river, ditch and millstream, even the tiny minnow, was eaten'. However, these young fish, especially the chub which tends to be rather bony for eating, seem more likely to be an incidental catch.

Methods of preservation

The lack of swift, cheap transport during the medieval period meant that preserved fish was an essential part of the diet. Until the thirteenth century herrings were salted ungutted and did not keep for very long. However in the thirteenth century the method of smoking was developed. The fish were soaked for a long time in brine, smoked and then barrelled. In the fourteenth century a Dutch method was also used. The herrings were gutted, soaked in brine for fifteen hours, then barrelled in rows between layers of salt. Both methods ensured a long storage life (Wilson 1973, 33).

White fish such as whiting and cod were often salted or dried, and were a useful staple with the herring through Lent and the winter months. As a diet it was no doubt rather tedious, and many herbs and spices were used to add some variety. A 'green sauce' was recommended by Neckham which included sage, parsley, costmary, dittany, thyme, garlic and pepper, and other green herbs (Wilson 1973, 40).

Evidence from the presence of many skull bones suggests that some larger fish (*e.g.* cod and whiting), which often had their heads removed at the dockside during processing prior to salting and drying, may have been purchased whole. Knifecuts associated with beheading and splitting the carcase were absent, except for a knifecut on a gadoid vertebral centrum from *1117*. Articulating herring vertebral centra, indicating single individuals (at least six), and nine articulating vertebral centra from a single cod were found in *1118*. These articulating vertebral centra were very well preserved, and where they were still seated on soil, in their original position, it was evident that this matrix was very organic (Pls XXXVIII and XXXIX).

Comparison with other sites

Two other sites with medieval deposits in Norwich also yielded a number of fish bones. Although the quantities of fish bones recovered were much lower than that from the Magistrates' Courts the results were very similar in the consistent preference for certain species. At Alms Lane, Jones and Scott (1985), in a sample of 3000 fishbones, were able to examine domestic food refuse from separate

XXXVIII. Articulated fish bones, mainly of herring (*Clupea harengus*) from context *1118* (BWN13)

XXXIX. Fish bones including articulated vertebral centra of cod (*Gadus morhua*) from context *1118* (BWN11)

tenements where some changes in the method of refuse disposal were detected. At the waterfront off Whitefriars Street (Jones 1983a) deposits containing refuse from a number of households were sampled. Herring was the dominant species at both these sites while whiting and cod were also important. Eel was the only immediately available local fish, caught in freshwater in large numbers. The other marine species found less frequently were similar at Alms Lane and the Magistrates' Courts, with the exception of ling (*Molva molva*) and stickleback (*Gasterosteus aculeatus*) found at Alms Lane and smelt at the Magistrates' Courts. Another similarity in the fish bone from these three Norwich sites is that exclusively freshwater fish seem to be unimportant; the species identified included some cyprinids and pike (*Esox lucius*).

Further comparison can be made with the fish bone from Fuller's Hill, Great Yarmouth (Wheeler and Jones 1976), since the fish are likely to have come from the same fishing grounds. A similar range of species was found, with a greater variety of flatfish, and a few ling bones. Mackerel and haddock occurred more frequently at Fuller's Hill, but herring and cod were also very important, the cod being within the same size range as those from the Magistrates' Courts.

The fish bones identified from thirteenth to fourteenth century deposits at Baker Lane, Kings Lynn (Wheeler 1977) were all hand picked, which created a bias in favour of the larger specimens, no herring or other small species being recovered at all. Measurements of cod (the predominant species), suggested two size groupings, approximately 60-80 cm and 88-137 cm. This led Wheeler to suggest that the smaller group might represent a local winter inshore fishery, while the larger specimens could be imported or the catch of a distant water fishery. The estimated size of the cod from the Magistrates' Courts is in keeping with the interpretation for the smaller inshore group.

Conclusion

The fish from the site of the Magistrates' Courts are dominated by marine fish, especially herring, for which a comprehensive fishery was based at the nearby port of Great Yarmouth. Also of importance was a 'white fish' fishery based on cod and whiting. It is suggested from the size of the cod that this may have been a winter inshore fishery. Shoreline activities based on trapping and netting contributed many small flatfish and smelt. Although eel was identified from many contexts fresh-water fishing for other species does not appear to have been of much importance. Perhaps the distance to Great Yarmouth did not exclude the transport of some fresh whole marine fish as has also been suggested by Jones and Scott (1985).

V. Molluscs

by Peter Murphy

Freshwater and land molluscs

(Table 21, microfiche)

Mollusc shells were recovered by bulk-sieving on site and also by wet-sieving in the laboratory. Most samples from pits and ditches contained only very small numbers of shells and many were devoid of molluscan remains. Whorl

fragments and apices of the synanthropic species *Helix aspersa* Müller were relatively common, and shells of *Trichia* cf. *striolata* (Pfeiffer) and Limacidae also occurred. Other terrestrial taxa included *Carychium* sp., *Cochlicopa* sp. *Pupilla muscorum* (Linné), *Discus rotundatus* (Müller), Zonitidae and *Trichia* cf. *hispida* (Linné). Shells of *Succinea* sp. occurred sporadically. Paired valves of juvenile Sphaeriacea occurred in *1118* (Sample 18G), and *1117* (Bulk Sample 16) produced shells of *Anisus vortex* (Linné). These very sparse mixed assemblages are of little palaeoecological value, other than indicating wet conditions in gully *562* (which contained *1117* and *1118*).

The only sample producing a substantial shell assemblage was *414*, (sample 7), the fill of an oven (*322*, Fig. 43) of late-fourteenth-century or later date. This deposit was a yellowish-red clay loam including part- fired clay apparently weathered from the oven wall. It contained shells of freshwater molluscs, many of which are crushed, deformed by heat and grey in colour, as well as ostracods, fishbone, charophyte oogonia and derived chalk foraminiferans. Molluscs identified are listed in Table 21 (microfiche). A sample from the oven wall was also examined, but disaggregation of the fired clay was difficult and shells appeared to be rare and still more poorly preserved than in *414*. Despite the poor preservation of molluscs in *414* the sample clearly contains a freshwater assemblage, including *Valvata cristata* Müller, *Valvata piscinalis* (Müller), *Bithynia tentaculata* (Linné), *Planorbis planorbis* (Linné), *Gyraulus albus* (Müller), Unionidae and Sphaeriacea. These shells are thought to indicate use of river mud in the construction of the oven.

Marine molluscs

(Table 22, microfiche)

Bulk-sieved soil samples produced shells and fragments of *Ostrea edulis* (oyster), *Mytilus edulis* (mussel), *Cerastoderma edule* (cockle), *Buccinum undatum* (whelk), *Neptunea antiqua* (whelk), *Littorina littorea* (winkle) and occasional other fragmentary marine molluscs. Specimens identified are listed in Table 22 (microfiche).

The shell assemblages from this site differed from those at Whitefriars Street Car Park (Ayers and Murphy 1983, 34) where dense and extensive layers of crushed shell, mainly of mussel, were observed. Here (Magistrates' Court Site) no mussel shell concentrations were seen: shells were dispersed throughout general refuse layers. Moreover the predominant species was the oyster which comprised 62% of the total minimum number of individual molluscs counted compared to only 25% at Whitefriars Street Car Park. This is thought to indicate two distinct patterns of shell refuse disposal: the assemblages from the Courts site seemingly represented refuse from domestic consumption, whereas those from the Car Park site may have reflected larger scale, possibly commercial, activities. It is known that during the later middle ages shellfish boats landed their catches in the area between Whitefriars and Fye Bridges (Hudson and Tingey 1910, xxxvi) and the shell deposits at the Car Park site may well indicate similar activities on the waterfront at an earlier period. The deposits of waste shell could have been produced either by sale of shellfish for immediate consumption at the quayside or preparation of the catch for later sale as shelled meat.

VI. Parasitic Nematode Ova

by Peter Murphy

Difficulties and limitations in the study of parasite remains from archaeological deposits have been reviewed by Jones (1982, 68-9). In view of the problem of determining parasite species and, hence, host species, extensive sampling for ova was not undertaken at the present site. However, soil samples from four deposits which on archaeological and palaeobotanical grounds appear to have been composed largely of human excreta (*1043*, *1159*, *2003*, *3111*) were examined. Aqueous suspensions of soil from these waterlogged deposits were prepared. Microscopic examination of these suspensions revealed numerous ova of a whipworm, *Trichuris* sp., with some ova of *Ascaris* sp. in all four deposits. Although specific determination of these ova has not been attempted, the contexts of the samples make it probable that human infestation is represented.

VII. Plant Macrofossils

(excluding wood and mosses)

by Peter Murphy

Methods used for the extraction and identification of fruits, seeds, leaves, stem fragments, *etc.* are fully described on microfiche (2:A.12-14). Macrofossils extracted from samples in the laboratory are listed in Tables 24, 26 and 27 (microfiche) and Tables 25 and 28 (text); specimens recovered by bulk sieving appear in Table 23 (microfiche).

In the report on plant macrofossils from the Whitefriars Street Car Park Site (Ayers and Murphy 1983, 44) it was concluded that continued examination of waterfront deposits consisting of a complex mixture of natural fluviatile sediments with tipped layers of refuse would not be profitable, since interpretation of macrofossil assemblages from such heterogeneous deposits poses great difficulties. At the Magistrates' Courts site, therefore, attention and sampling was concentrated on well-sealed, clearly-defined contexts which might be expected to contain assemblages related to a more restricted range of activities.

Despite this, all assemblages examined are, to a greater or lesser extent, mixed, in the sense that they include material from more than one source. Three samples (*1137*, a depression in a foreshore brushwood platform; *1117* (Samples 15 and 32) from the fill of the main gully bisecting the site) contained an apparently random mixture of macrofossils of crops and wild plants with no one group of plant remains predominant. Interpretation of such assemblages is at best tentative and these samples will therefore not be discussed further. The remaining samples, however, are more distinctive in composition, and have been divided into seven types of assemblage, named after their most abundant or characteristic components:

a) Carbonised cereal/segetal assemblages.
b) Cereal/segetal assemblages from waterlogged contexts.
c) Ruderal assemblages.
d) Cess assemblages.
e) Grassland/wetland assemblage.
f) *Reseda luteola* assemblage.
g) Aquatic assemblage.

Three other groups of plant macrofossils, whilst never forming the predominant component of any assemblage, are nonetheless of interest.
These are:
h) Heath plants.
j) Fibre crops.
k) Halophytes.
These assemblages and plant macrofossil groups are discussed in turn below.

Carbonised cereal/segetal assemblages
Rare charred cereal remains, predominantly grains, occurred in small numbers in most samples. From their contexts these are likely to represent small-scale accidental charring during domestic food preparation. Two much more extensive deposits containing abundant charred cereals and weed seeds came from the large Period II gully (*562*) bisecting the site: *1119* from the lowest fill of this gully and *1122*, an ashy deposit occurring at intervals along its length in the upper fill. In samples from these contexts the charred cereals were associated with uncharred macrofossils preserved by waterlogging, but these will not be considered here.

Both assemblages include charred cereal grains, rachis nodes, awn and lemma fragments as well as some 'silica skeletons' of awns and inflorescence bracts. In *1122* charred cereal culm nodes and fragments are common, but straw remains are rarer in *1119*. *1119*, however, contains a higher proportion of charred weed seeds with abundant charred leaves, shoots, capsules and charcoal of *Calluna vulgaris* and charred pinnules and 'petiole' fragments of *Pteridium aquilinum*. This sample also contains a fused mass of *Spergula arvensis* seeds and *Vicia* seeds with siliqua fragments adhering.

The main cereal in *1119* is rye (*Secale cereale*) with hulled barley, probably two-row (*Hordeum* cf. *distichum*), oats, and rare charred remains of wheat, flax and horsebean (Table 24 (microfiche); Fig. 89). Hulled barley, again probably two-row, is the main cereal in *1122*. Both samples consist of largely unprocessed batches of cereals.

The circumstances in which charring occurred cannot be reconstructed with certainty. However, the samples are likely to represent either sheaf-burning (Hillman 1981, fig. 6), replacing the more normal stages of threshing and winnowing, or accidental rick or barn fires. The occurrence of largely unprocessed crops at the site is a useful indication that primary crop processing activities were taking place nearby and that at this date not all cereals were reaching Norwich as cleaned prime grain.

The sample from *1119* shows two features indicating that the crop was poor. Firstly, the rye grains from the deposit are exceptionally small (Table 25).

Site	*Site 450*	*West Stow, Suffolk (WSW 030)*	*Odoorn Netherlands*	*Dorestad Netherlands*
Context	*1119*	*026*		
min	2.6	3.5	4.0	4.5
mean	4.07	5.07	5.34	5.64
max	5.5	6.5	6.8	7.0

Table 25 Lengths (mm) of charred rye (*Secale cereale*) grains
Sources: West Stow (Murphy 1985b), Netherlands (Van Zeist 1968)

Allowance must be made for the fact that *1119* is a largely unprocessed crop, whereas the other three samples in Table 25 are of processed prime grain. However, it appears that even after removal of 'tail grain' from *1119* the mean grain size would have been small. Secondly, 52% of the weed seeds in the sample are of vetches, including *Vicia* cf. *hirsuta*. Jones (1978) argues that high frequencies of leguminous weed seeds indicate depletion of soil nitrogen. It is therefore possible that this particular batch of rye had been grown on impoverished soil which was not receiving sufficient manure to maintain soil nitrogen levels. *1122*, and a similar late thirteenth-century sample from Alms Lane, Norwich (Site 302, 925; Murphy 1985c), both of which consist predominantly of barley have different, though small, weed seed assemblages in which

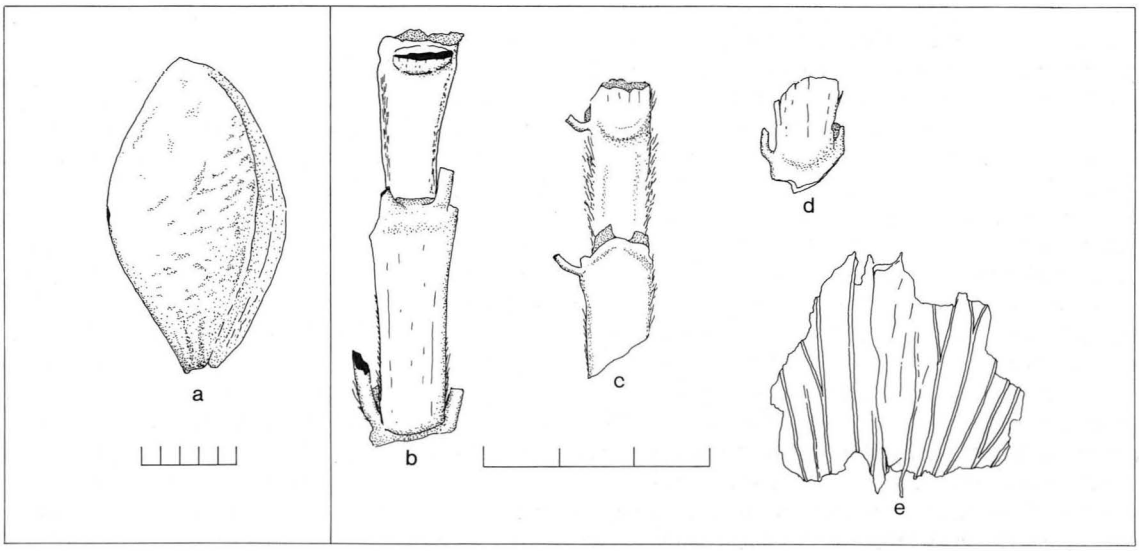


Figure 89. Selected crop plant remains. *a. Prunus domestica s.l.* Fruitstone of large cultivated form (*1159*). *b. Hordeum* cf. *distichum*. Carbonised rachis section (*1119*). *c. Secale cereale*. Carbonised rachis section (*1119*). *d. Secale cereale*. Uncarbonised rachis node, partly degraded (*1118*). *e. Humulus lupulus*. Bract fragment (the central part is folded double). *3111*. Scales graduated in mm.

leguminous weeds are not common. This gives some grounds for suggesting that these barley crops may have been cultivated on land which was well manured, whereas rye may have been grown on land which received less manure. This suggestion cannot be proved on the present evidence, but it could be tested by future examination of further cereal/segetal assemblages.

Waterlogged cereal/segetal assemblages

These assemblages are characterised by high frequencies of seeds and fruits of segetals, in association with grass or cereal culm fragments and, in most cases, cereal caryopses and cereal rachis nodes (predominantly *Secale* with rare *Hordeum*). The most abundant segetal species identified are *Agrostemma githago*, *Anthemis cotula* and *Centaurea cyanus*, but a wide range of other segetals is present, including *Papaver argemone*, *P.rhoeas*, *Raphanus raphanistrum*, *Silene alba*, *Spergula arvensis*, *Scleranthus annuus*, *Valerianella dentata*, *Polygonum* spp., *Lapsana communis*, *Chrysanthemum segetum* and *Sonchus* spp. amongst others. Many of these plants could also have grown as ruderals on waste ground in the settlement area, but in these particular assemblages seed input from local weed vegetation is not thought to have been significant. This contrasts with ruderal assemblages, as defined below, in which seeds from weed plants growing at the site are thought to form the predominant component. Differences between frequencies of the most abundant species from cereal/segetal assemblages and ruderal assemblages are shown in Figure 90 and are discussed below.

The waterlogged cereal/segetal assemblages are thought to represent crop processing waste with some admixture of macrofossils from other sources. In the case of assemblages with many very large weed seeds (*e.g. 814* with 27.8% *Agrostemma githago*) this could be waste from hand-sorting of grain before consumption (Hillman 1981, fig. 7, stage 14). In other cases waste from sieving may be represented.

Ruderal assemblages

These assemblages are marked by relatively high frequencies of fruits and seeds of *Urtica dioica*, *Conium maculatum* and *Sambucus nigra* with a variety of other ruderal and scrub species. *920*, *1090*, *3113* and *3114* produced assemblages of this type. In terms of interpreting human activity at the site they are not informative, other than suggesting that the features which produced them were left open for some time, whilst seeds from the local ruderal flora accumulated. Not surprisingly these contexts also produced macrofossils from crop plants, segetals, wetland species and remains of bracken and heather, indicating dispersal of domestic and other refuse of plant origin, but large-scale refuse disposal does not seem to have contributed significantly to the formation of these assemblages.

Cess assemblages

It was clear during the excavation that certain deposits were likely to include a component of human faeces. *2003*, for example, was the organic fill at the base of the latrine turret attached to the Norman building. Three other deposits (*1043*, *1159*, *3111*) were subsequently identified as cess deposits from their internal characteristics and from the plant macrofossil assemblages which they produced. These deposits were all very dark brown and highly organic with large concretions. No chemical analyses have been made of these concretions, but in view of analyses of mineralised plant material from cess pits at other sites

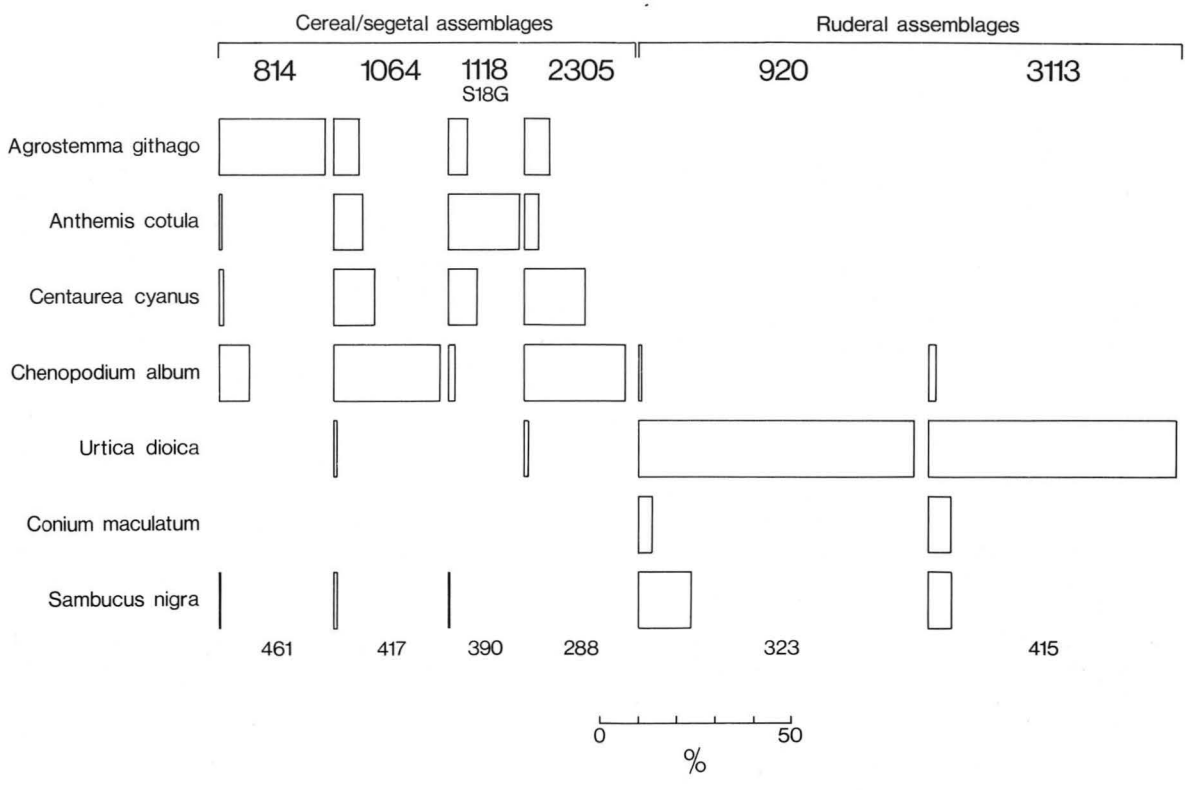


Figure 90. Frequencies of the more common ruderals and segetals from six contexts, expressed as percentages of the total 'seed' count per context.

		Context	3111 (11th C.)	1043 (11th C.)	1159 (11th C.)	2003 (15th C.)
	Taxon and plant part	**Common name**				
Cereals	Cereal pericarp fragments	Cereal bran	—	—	+++	+++
	Cereal (indeterminate mineralised grains and fragments)	Cereal grains	+	+	—	+
	Hordeum sp. (carbonised grain)	Barley	—	+	+	—
	Triticum aestivum s.l. (carbonised + mineralised grain)	Wheat	—	+	—	+
	Secale cereale (carbonised + mineralised grain)	Rye	—	+	—	—
	Secale cereale (uncarbonised rachis nodes)	Rye	—	+	+	—
	Avena sativa (mineralised floret)	Oats	—	+	—	+
Pulses	*Vicia faba* (mineralised testa and hilum)	Horsebean	+++	+	—	—
	cf. *Pisum sativum* (mineralised testa and hilum)	Pea	+	—	—	—
Fibre/Oil plants	*Linum usitatissimum*	Linseed/Flax	+	—	+	—
	Cannabis sativa	Hemp	—	+	—	—
Flavourings	*Papaver somniferum*	Opium Poppy	—	—	+	—
	Apium graveolens	Celery	+	++	—	—
	Foeniculum vulgare	Fennel	—	—	—	+
	Coriandrum sativum (fruit fragments)	Coriander	—	—	—	+
	Humulus lupulus (fruit and bracts)	Hop	+	+	—	—
Fruits	*Rubus fruticosus*	Bramble	++	+++	+	—
	Rubus idaeus	Raspberry	+	—	—	—
	Prunus spinosa	Sloe	—	+	++	+
	Prunus domestica s.l. (small forms)	Bullace	+	+	+	+
	Prunus domestica s.l. (large forms)	Plum/bullace	—	—	+	+
	Prunus cf. *avium*	Cherry	+	—	++	+
	Malus sylvestris/domestica	Apple	—	+	+	++
	Fragaria vesca	Strawberry	+	+	+	++
	Mespilus germanica	Medlar	—	—	+	—
	Morus nigra	Mulberry	—	—	—	+
	Ficus carica	Fig	—	—	—	+++
	Vitis vinifera	Grape	+	—	+	+++
	Sambucus nigra	Elderberry	+	++	+	—
Nuts	*Corylus avellana*	Hazelnut	+	+	+	+
	Juglans regia	Walnut	—	—	—	+

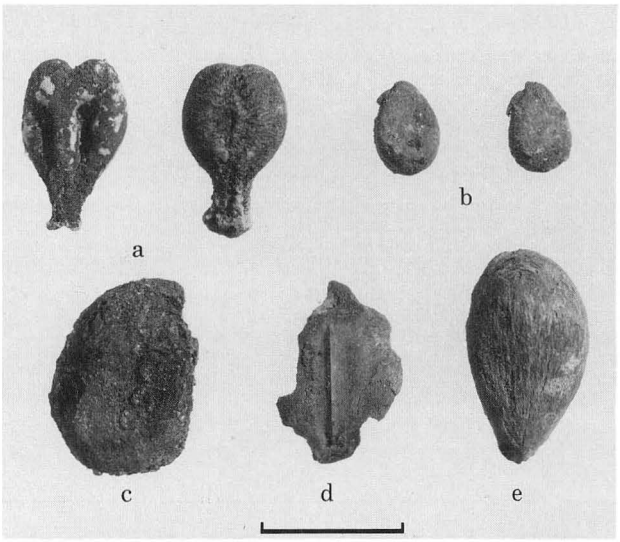
Table 28 Synopsis of the distribution of wild and cultivated food plants in cess deposits. Unless otherwise indicated taxa are represented by fruits or seeds

(Green 1979) they are thought to include calcium phosphate produced by reaction of phosphates from faeces with dissolved calcium in ground water, or possibly with lime thrown into pits to suppress odours. The concretions commonly contain numerous mineralised fly puparia, plant stem fragments and testa fragments from large weed seeds such as *Agrostemma githago*. Mineralised arthropods and plant macrofossils were also common in the general matrix of the deposits.

The plant remains present include a high proportion of material which appears to have passed through the human gut. In *1159* (pit *1164*; Fig. 15) and *2003* (latrine turret *2025*) small fragments of cereal periderm (bran) were very common and these two contexts, as well as *1043* (pit *1042*; archive plan 22) and *3111* (pit *845*; Fig. 8) also contained many fragmentary fruits and seeds of segetals, notably *Brassica* sp., *Raphanus raphanistrum*, *Agrostemma githago*, *Spergula arvensis*, *Rumex* sp., *Polygonum convolvulus*, *Polygonum persicaria/lapathifolium*, *Lapsana communis* and *Centaurea cyanus*. These macrofossils are thought to represent residues from weed-contaminated wholemeal flour (*cf.* Dickson and Dickson 1979; Greig 1981) consumed as bread or porridge. Mineralised whole and fragmentary grains of cereals were also present and these could be derived from foods in which whole cereal grains were used (*e.g.* frumenty, stews and soups). Testa and hilum fragments of horsebean (*Vicia faba*) and perhaps pea (*Pisum sativum*) were common in *3111*, reflecting consumption of pulses (Pl. XL). 'Pips' from succulent fruits with small seeds and fruitstones, such as *Rubus fruticosus*, *Rubus idaeus*, *Fragaria vesca*, *Morus nigra*, *Ficus carica*, *Vitis vinifera* and *Sambucus nigra* are also common and sometimes very abundant (*e.g.* 986 fig 'seeds' in a 1 kg sample from *2003*). These also are presumably derived from faeces. Fruits and seeds of culinary herbs and flavourings (*Papaver somniferum*, *Apium graveolens*, *Foeniculum vulgare*, *Coriandrum sativum*) are likely to have come from the same source. The remaining fruits and nuts (*Prunus spinosa*, *Prunus domestica*, *Prunus* cf. *avium*, *Malus sylvestris/domestica*, *Mespilus germanica*, *Corylus avellana*, *Juglans regia*) are represented by large fruitstones and nutshells, presumably table or kitchen refuse thrown into the cess pits (Pl. XL). Most other plant macrofossils from the samples, such as bracken frond fragments, cereal or grass culm fragments, rye rachis nodes and 'seeds' from wetland and ruderal plants are thought to represent floor sweepings.

The remaining crop plants or potential crop plants, from these deposits call for some further comment. Fruits and bracts of hop (*Humulus lupulus*) were present in *1043* and *3111* (Fig. 89). Hop fruits were identified at Site 421 but only in river foreshore deposits where natural dispersal could not be excluded. The identifications from these cess pits establish with reasonable certainty that hops were being used, though for what purpose remains uncertain. Evidence for pre-conquest utilisation of hops is given by Wilson (1975). Linseeds (*Linum usitatissimum*) were identified in *1159* and *3111*, and in these particular contexts it seems probable that the seeds represent human food waste. What use was being made of the hemp fruits (*Cannabis sativa*) from *1043* is less clear.

The overall distribution of macrofossils from wild and cultivated food plants in bulk samples and laboratory samples of cess deposits is summarised in Table 28. As



XL. Macrofossils of food plants from cess-pits. Grape (*Vitis vinifera*: *2003*), mulberry (*Morus nigra*: *2003*), medlar *Mespilus germanica*: *1159*), horsebean hilum (*Vicia faba*: *3111*), apple (*Malus sylvestris/domestica*: *2003*)

might be expected there are differences between the macrofossil assemblages, some of which are no doubt attributable to purely chance factors. However it is possible to rank these assemblages in terms of the relative abundance of macrofossils from wild plant foods and from 'luxury' crops, some of which are likely to have been imported. Assuming that the assemblages are representative of the diets of the cess-pit users some tentative assessment of dietary diversity is possible. This, in turn, might be related to social class, though the assemblages are not all of the same date and therefore are not all directly comparable: *1043*, *1159* and *3111* are of eleventh-century date (Phases I.1-I.2) but *2003* is much later (Phase III3; fifteenth century).

2003 contained abundant fig 'seeds' (*Ficus carica*), fruits of fennel and coriander (*Foeniculum vulgare*, *Coriandrum sativum*), mulberry fruitstones (*Morus nigra*) and walnut shell fragments (*Juglans regia*), crops which were not identified in the other three assemblages. *1159* is comparable to *2003* for, although it produced no remains of fig, mulberry or walnut, it did contain a fruitstone of medlar (*Mespilus germanica*) and large cultivated *Prunus* fruitstones. Dimensions of *Prunus* fruitstones from *1159* and *2003* are shown in Figure 91. *1043* is quite different in composition. Bramble fruitstones (*Rubus fruticosus*) predominate, and remains of large cultivated fruits are absent: most *Prunus* fruitstones are of sloe (*P.spinosa*). *3111* may also be of this type. The dominant plant food waste in this context comprised testa fragments of bean (*Vicia faba*) and remains of cultivated fruits were very rare. Thus in summary users of pit *1164* (1159) seem to have enjoyed a richer diet than those of pits *1042* (1043) and *845* (3111). The more varied range of foods represented by macrofossils in *2003* is in part a consequence of its later date.

Cess assemblages of the type described in this section appear to be very characteristic of medieval urban sites. Greig (1981) reports an assemblage from a barrel latrine at Worcester which, though differing in detailed species composition, is overall remarkably similar to the assemblage from *2003*.

Wetland/grassland assemblages

Macrofossils from wetland and grassland plants were identified at low frequencies in most samples from waterlogged contexts. Monocotyledonous taxa are well-represented: *Juncus* seeds, *Eleocharis* and *Carex* nutlets are particularly common, and nutlets of *Isolepis setacea* and *Cladium mariscus* occur sporadically. Wetland and grassland herbs include *Achillea millefolium*, *Ajuga reptans*, *Eupatorium cannabinum*, *Filipendula ulmaria*, *Hydrocotyle vulgaris*, *Lychnis flos-cuculi*, *Lycopus europaeus*, *Prunella vulgaris*, and *Ranunculus* spp. These fruits and seeds are thought to be derived by natural dispersal from local vegetation and from thatch, litter and hay imported to the site. In only one sample (*1118*, Sample 18A) do macrofossils from grassland and wetland plants form a substantial part of the assemblage. Fruits of *Ranunculus acris/repens/bulbosus* alone make up 32.7% of the 'seed' total ($\Sigma=436$) from this sample and other grassland/wetland taxa from the deposit include *Ranunculus flammula*, *Prunella vulgaris*, *Filipendula ulmaria*, *Achillea millefolium*, *Eupatorium cannabinum*, *Carex* sp. and Gramineae. These high frequencies of grassland taxa suggest that Sample 18A includes a high proportion of hay, derived perhaps from flooring material in houses, stables, or byres. The floristic diversity of hay cut in meadows managed by traditional methods has been noted by Greig (1981; 1982, 62-3) who concludes that fruits and seeds from grassland herbs are potentially a useful indicator of the presence of hay in archaeological deposits.

Reseda assemblage

Reseda luteola, (dyers rocket) is considered to have been intentionally introduced as a dye-plant to the British Isles (Godwin 1975, 136) but it is now naturalised and grows as a weed. The plant gives a brilliant fast yellow dye (Grigson 1958, 68). Rare seeds of this species were identified in several samples, where they need represent no more than seeds dispersed from the local weed flora. In *1118* (S18C), however, seeds of *R.luteola* are extremely common, accounting for 84% of the total assemblage ($\Sigma=350$). Given this extremely high frequency it seems reasonable to suggest that the deposit includes remains of plants which had been utilised for dye production or were intended for this purpose. This clearly fits with the suggested evidence for dyeing at the site (p. 170).

Aquatic assemblage

A thin dark reddish-brown organic silty clay (*2081*) sealed between two crushed chalk floor surfaces within the Norman building was sampled. It was initially thought that this represented the remains of flooring materials, and the sample was analysed in order to determine which plants were used to cover the floor. However, by far the most abundant macrofossils in this deposit were charophyte oogonia, and these were associated with cladoceran ephippia. It therefore appears that this deposit represented not flooring material but sediment deposited during an episode of flooding. Similar events were indicated by sediments and biological remains in a medieval stone building in Queen Street, Kings Lynn: there, successive floors of mortar and crushed chalk were separated by deposits including laminated flood silts and fine sand with foraminifera (Murphy 1982). Flooding at Kings Lynn was by salt water, and at the Magistrates' Courts site by fresh water, but in both cases the location of

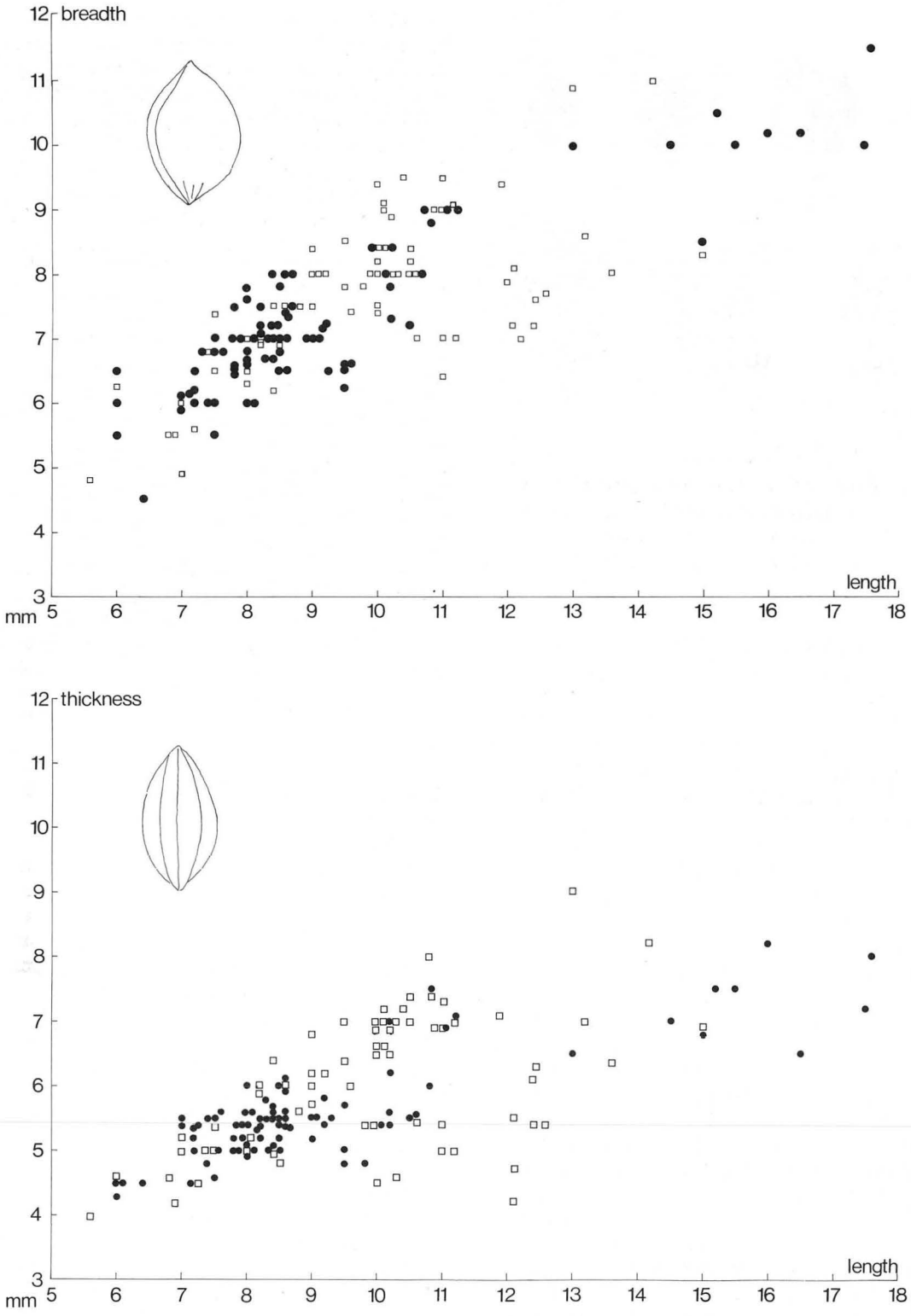


Figure 91. Dimensions of *Prunus spinosa* and *Prunus domestica s.l.* fruitstones from *1159* (circles) and *2003* (squares). *1159* is of eleventh-century date (Phase I.2), *2003* of fifteenth-century date (Phase III3). In *1159* there is a distinct double grouping of dimensions, corresponding to sloe (*P.spinosa*) and large cultivated plums/bullaces (*P.domestica s.l.*). The spread in *2003* is more even but with a concentration of fruitstones intermediate in size representing mainly smaller bullaces (*Prunus domestica* subsp. *insititia*).

major buildings on low-lying ground close to rivers clearly caused problems with periodic flooding and presumably this prompted re-flooring of buildings to higher levels.

Heath plants

Calluna vulgaris (heather) is represented in most samples by varying quantities of charred and uncharred twigs, leaves, shoots and capsules, and bracken (*Pteridium aquilinum*) by frond fragments comprising charred and uncharred pinnules and fragmentary petioles. Heather and bracken were evidently imported to the site, presumably for use as flooring, bedding etc.

Fibre crops

Fruits of hemp (*Cannabis sativa*) were identified in six of the twenty-one samples, bulk-sieved in a 2mm mesh. Flax seeds were not observed in the coarse sievings from these bulk samples, but of the samples examined in the laboratory, seven produced flax seeds (of which two also contained capsule fragments) and only one contained fragmentary hemp fruits. In addition very small quantities of plant fibres were present as fibre bundles in several samples.

At the Whitefriars' Street Car Park site it was suggested that remains of fibre crops from Period I contexts might indicate some local processing; perhaps retting in the river (Ayers and Murphy 1983, 40). The sparse remains of fibre crops from the present site could also be tentatively interpreted in this way, but no assemblages consisting principally of fibre crop remains were encountered at these two sites and the evidence for fibre production in the immediate vicinity is thus not strong.

Halophyte

The presence of fruits of *Triglochin maritima* in *1118* and *1064* is worth noting. A wider range of halophytes was present in samples from Site 421 (Ayers and Murphy 1983, 43) and it was suggested that the fruits and seeds of these plants may have reached the site on the hooves or in the guts of animals which had been pastured on salt marsh or sea meadow before shipment to Norwich.

A note on context *1118* (Period II Phase 1)

1118 was a highly organic, extremely compacted deposit forming a lining to the main gully bisecting the site. It appears that *1118* did not form *in situ* in this gully but seems to have been emplaced artificially, presumably to reduce erosion of the gully sides by flowing water (Fig. 22). It may have originated as a midden, the lowest layers of which would have been sufficiently compacted and cohesive to be cut into blocks, in much the same manner as in peat-cutting, for use as a rather unconventional structural material.

The deposit was sampled as intact blocks and by splitting these along natural planes of cleavage it proved possible to isolate some exceptionally well-preserved organic material, including articulated fish skeletons, crushed avian eggshells, masses of fly puparia and plant macrofossils. Plate XLI shows a mass of compacted plant material including a fruiting head of *Centaurea cyanus* and a concentration of nutlets of *Lithospermum arvense*. Having split these block samples so far as was practical, macrofossils were extracted from the partly disaggregated material remaining in the usual manner. The numerical composition of 'seed' assemblages from three samples from *1118* (Samples 18A, C and G) is summarised in Figure 92: to simplify the diagram only the frequencies of

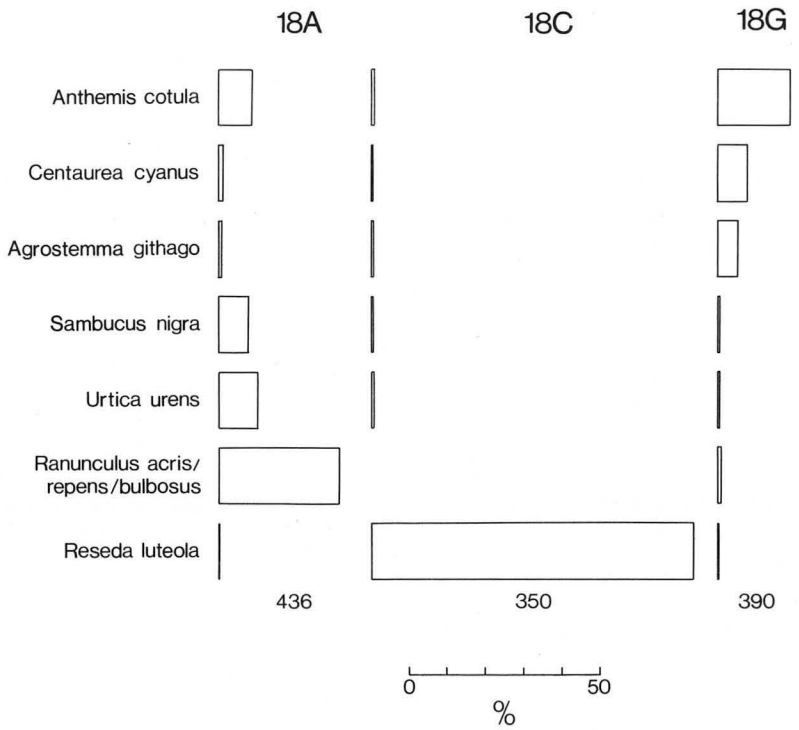
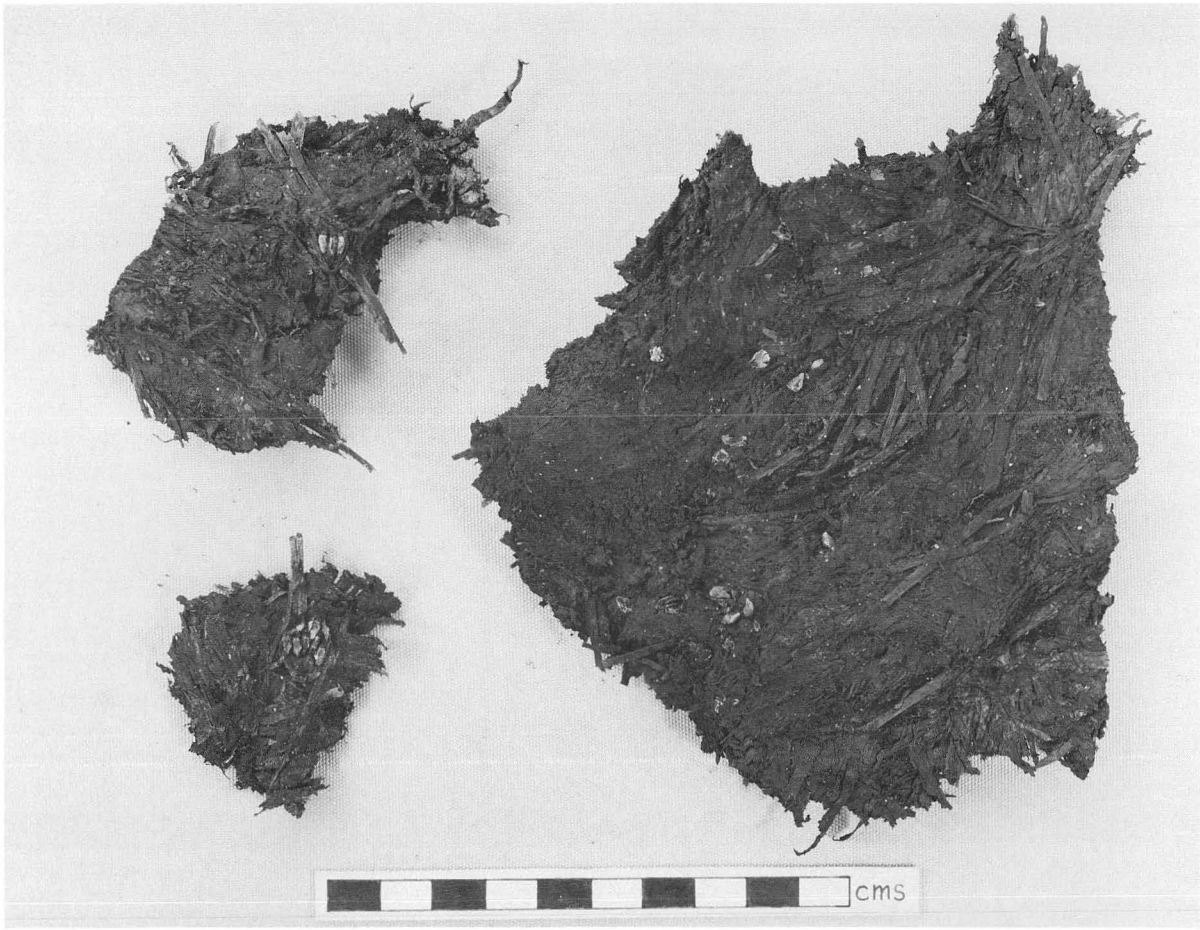


Figure 92. Frequencies of the more common taxa in samples 18A, 18C and 18G from *1118*, expressed as percentages of the total 'seed' count per sample.



XLI. Mass of plant material including fruiting head of cornflower (*Centaurea cyanus*) and nutlets of corn gromwell (*Lithospermum arvense*) from context *1118* (BWN1)

some of the more abundant taxa are shown. Figure 92 emphasises the heterogeneity of *1118*: although there is clearly some overlap in species composition, samples 18A, C and G are quite different in overall composition. 18A has been described above as a grassland/wetland assemblage, which is thought to include a significant component of hay. It does, however, also contain quite high frequencies of macrofossils from segetals and ruderals. 18C is less diverse in composition, with 84% *Reseda* seeds. 18G was included above in the cereal/segetal group of assemblages.

It is evident that the midden deposit from which *1118* was derived included inputs from several sources: cereal cleaning waste, domestic food refuse, bracken and heather from floor sweepings, hay, and seeds from dye plants, besides a seed input from local weed vegetation. These results emphasise the need for multiple sampling of extensive deposits, even though they may appear at first sight to be of uniform composition.

Conclusions

The range of plant taxa identified at the Magistrates' Courts site is extremely similar to that from the Whitefriars Street Car Park site. With the exception of certain cultivated plants of minor importance, such as fennel (*Foeniculum vulgare*), coriander (*Coriandrum sativum*), medlar (*Mespilus germanica*), mulberry (*Morus nigra*) and fig (*Ficus carica*) (from the Courts site) and of pot marigold (*Calendula officinalis*) (from the Car Park site) the two sites produced an identical range of crops. Moreover a similar range of wild plant communities is represented at these sites including aquatic, wetland, grassland, weed, scrub and coastal vegetation.

The significant difference between these two sites has been in the types of context available for sampling. By concentrating attention on 'closed contexts' containing plant macrofossil assemblages produced by specific activities it has been possible to propose a functional interpretation of plant remains from the Courts site. The results are summarised in Figure 93. In this diagram plant remains identified are contained in a central 'box' and activities and natural processes which resulted in their accumulation are shown at the periphery. Judicious sampling of similar 'closed contexts' at future excavations may be expected to permit definition of different types of activities involving plant materials.

VIII. Bryophytes

by Robin Stevenson

Remains of mosses were present in most waterlogged contexts at the site, but never in large quantities. Specimens from *1118* and from the cess pits *1043*, *1159*, *2003* and *3111* were identified. Full lists of identifications are given in Table 29 (on microfiche). Nomenclature follows Smith (1978).

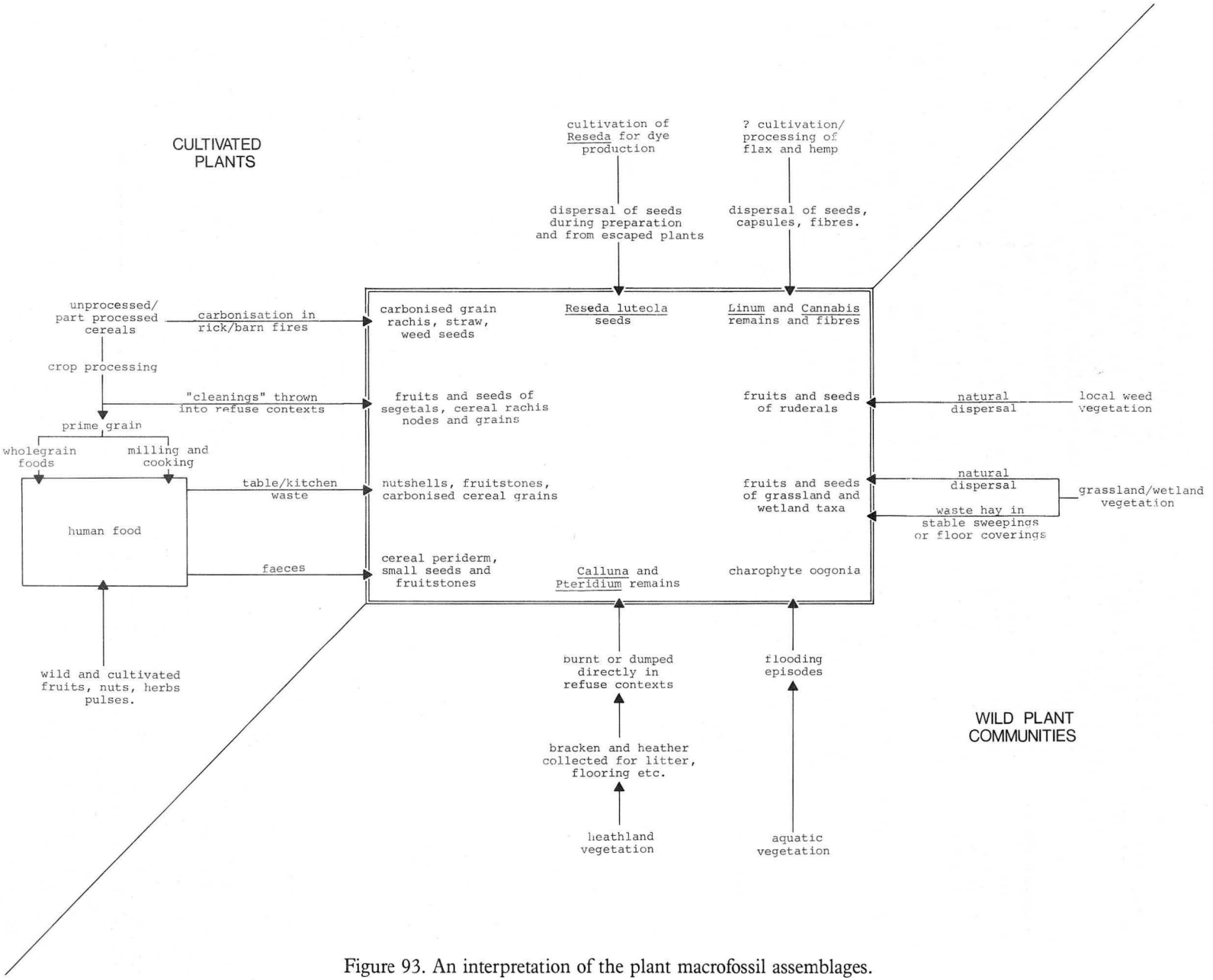


Figure 93. An interpretation of the plant macrofossil assemblages.

Ecological notes on species identified

1. *Amblystegium riparium*: This moss grows on rock, wood or soil by river and pond margins. It is a Calciphile. (See *Drepanocladus aduncus*).
2. *Brachythecium rutabulum*: A species with a very wide range of ecological tolerance: it only avoids very acid conditions. Perhaps most characteristic of moist woodland, but virtually ubiquitous.
3. *Bryum pallens*: Another plant of moist habitats.
4. *Calliergon cuspidatum*: A more or less calcicolous plant which has a wide range of tolerance. It is equally at home in damp or wet fens and pastures, and in dry chalk grassland.
5. *Campylium stellatum*: Another very tolerant species: as long as it is fairly moist. It avoids shade, so it is a plant of open habitats.
6. *Campylium elodes*: A species of calcareous fens.
7. *Dicranum scoparium*: This moss ranges from neutral to strongly acid conditions. It will grow in woods, heaths, marshes and on chalk.
8. *Drepanocladus aduncus*: A species found in a wide range of aquatic/semi aquatic habitats. Immensely variable species. Neutral-basic waters only. Submerged forms of this species are very difficult to distinguish from *Amblystegium riparium*, so there may be some overlap between these two.
9. *Eurhynchium praelongum*: Like *Brachythecium rutabulum* an almost ubiquitous species. Again, very variable. It is highly shade tolerant and therefore very common in dense woodland.
10. *Eurhynchium swartzii*: Much more of a calcicole than *E.praelongum*. More characteristic of open habitats.
11. *Hylocomium splendens*: Another very tolerant species, from acid woodland to chalk grassland.
12. *Hypnum cupressiforme*: An extremely variable species with a wide range of ecological tolerance. This material probably belonged to the var.*resupinatum* which is especially characteristic of trees.
13. *Rhynchostegiella tenella*: A calcicolous species which is most commonly attached to stone or rock.
14. *Thuidium tamariscinum*: Most typically a shade tolerant woodland species. It will grow in more open habitats such as grassland, providing they are reasonably wet and/or shaded. Prefers slightly acidic conditions?

General conclusions from the Bryoflora

This assemblage indicates, in the main, rather damp marshy conditions such as might exist in watermeadows or by a riverside. There may have been some woodland. Soil conditions were probably neutral or slightly alkaline. All the species concerned are still present, and common, in suitable habitats in Norfolk, so it is probably a very local assemblage. The only exception to this is *Rhynchostegiella tenella* which is, apparently, rare in the county. There is, however, no lack of suitable habitats *i.e.* rock/stone, and it may be that it has been overlooked and under-recorded. Its presence is of no great ecological significance.

IX. Wood

by Peter Murphy

Introduction

Pieces of oak wood suitable for dendrochronology were extracted from the wood samples collected during excavation. These pieces, including radial boards and large posts and stakes, were submitted to the Sheffield Dendrochronology Laboratory for tree-ring studies. This report is concerned with the remaining wood, including items of oak which, because of their size or growth rate, have few rings and also wood samples of other species. Identifications and descriptions of the wood examined are given in Table 30 (microfiche) and scale drawings of cross-sections in Figure 94 (microfiche).

The waterlogged deposits in the northern part of the site provided ideal conditions for wood preservation, and in general the larger pieces of wood are very well-preserved. Difficulties were, however, experienced in identifying some of the smaller wood (twigs and small branches) as a result of compression and mineralisation. In several contexts (notably *1189*) the weight of overlying deposits had strongly compressed the wood samples. In such material the lumina of the vessels were almost closed, and features necessary for identification (*e.g.* perforation plates or secondary thickening) were difficult or impossible to discern. Mineralised wood also presented problems. In the wattle lining of cess pit *1164* in particular the smaller rods were wholly or partly mineralised by impregnation with calcium phosphate. Clear sections could not be obtained from them; consequently only the larger vertical stakes, which were only superficially mineralised, were identified from this context.

Contexts and structures

Isolated posts, ill-defined structures and scatters of worked wood fragments will not be discussed here, though these items are listed in Table 30 (microfiche). Some of the better preserved structures, however, require more detailed description.

It should be mentioned here that the staves from a late sixteenth century barrel well (*1079*) were erroneously included, during initial sorting, with the oak wood submitted for dendrochronology. They are, in fact, of sweet chestnut (*Castanea sativa*) and are described below by Jennifer Hillam.

1. *1164; a wicker-lined cess pit (eleventh-twelfth century)*

As noted above, the rods from this pit-lining were not identified due to problems of mineralisation. Vertical stakes and/or posts from this lining had only an outer crust of mineralised woody tissue, and the wood beneath this was soft and could be sectioned for identification. Sixteen posts and/or stakes were examined: nine were of *Alnus* sp. (alder), three of *Quercus* sp. (oak), one each of *Populus* sp. (poplar), *Corylus* sp. (hazel) and *Fraxinus* sp. (ash) and one was not identified.

Alder may have been deliberately selected for use in this pit, but the range of woods present in the structure may merely reflect what was available in the vicinity: alder, ash and poplar (presumably here *P. nigra*) are common and characteristic valley-floor trees. Insect exit-holes in *1164*A (T43) and *1164*H (T52) suggest that some re-used or stockpiled wood was employed, since clearly insect attack would not have occurred after submergence in the cess pit. The posts and stakes from the structure are made from whole, halved and quartered stems, *c.* 60 to 160 mm in original diameter. Some are definite stakes with sharpened tips, all four-faceted; other examples (listed as posts/stakes in Table 30) are incomplete, because of difficulties of extraction on site, and may or may not have been sharpened at their tips.

2. *1136: eleventh-century wicker-work fence*

The round-wood from this structure was well-preserved and proved to consist entirely of hazel (*Corylus* sp.). The vertical elements consist of untrimmed hazel stems with bark. Due to compression only estimates of original stem diameters are possible, but these appear to have been *c.* 20-27 mm. The horizontal rods had a slightly larger mean size (*c.* 20-40 mm). Both the verticals and the rods consist predominantly of straight stem sections, though two of the verticals were forked. The uniform species composition and relatively narrow size range of the wood used suggests that it may have come from a single stand of hazel.

3. *1139, 1189, 1187 (eleventh-twelfth century fences)*
1139 differed markedly from *1136* in the range of woods used, despite its generally similar construction. It included untrimmed, generally straight stems of holly (*Ilex* sp.), hazel (*Corylus* sp.), oak (*Quercus* sp.) and probably the *Crataegus* group (hawthorn etc.). Stem diameters show a wider range than in *1136* (13-42 mm). These features may indicate that the wood in *1139* came from a variety of sources, in contrast to *1136*. The wood from *1189* was badly compressed and deformed, and has not been identified.

1187 was a more substantial fence, consisting of oak (*Quercus* sp.). Most of the wood has been submitted for tree ring analysis, but one oak post has been included in the present study. It consists of an untrimmed stem with sapwood and bark, *c.* 90 mm in diameter.

Wood utilisation: summary

The principal timber used at the site during the medieval period for boards and the more massive posts and stakes was oak. Some smaller oak stems were used as stakes and posts in the fences and cess-pit linings, but, in general, diffuse porous woods were preferred, predominantly hazel and alder. Hazel stems of 10-40 mm diameter were used in the wicker fences, and more substantial alder stems (90-160 mm) were used whole or split as stakes and posts (see Fig. 95). Young stems of holly and the hawthorn group, under 40 mm diameter were also used in the fences, and there were two more substantial stakes of poplar and *Prunus* sp. Detailed studies of growth patterns have not been undertaken at this site (*cf.* Morgan 1982, 34-5) since the sample is too small for firm conclusions about woodland management to be drawn, but it seems likely that groups of stems of fairly uniform size and of a single species (*e.g.* the hazel stems from *1136*) came from managed stands.

X. Tree-ring Analysis

by Jennifer Hillam

The excavation produced fifty-one timbers which were sampled for tree-ring analysis. They were examined at the Sheffield Dendrochronology Laboratory in 1984/85 with the aim of dating the different phases of waterfront activity, as well as extracting information about the timbers themselves.

The timbers

Most of the timbers were from waterfront deposits (Table 31 on microfiche). The exceptions are three timbers from context *1069*, and one from *2250*. The five timbers from *1164*, a wicker-lined cess-pit, were also not strictly from the working waterfront area. The barrel well, *1079*, with its twenty-four boards, may have been associated with post-medieval housing on the waterfront itself. The remaining timbers were either individual posts, or timbers from fences, along the waterfront.

The timbers were mostly early medieval in date, the archaeological evidence indicating that they belong to several phases within the eleventh-twelfth centuries. The only post-medieval timbers were those from *1079* (Table 31).

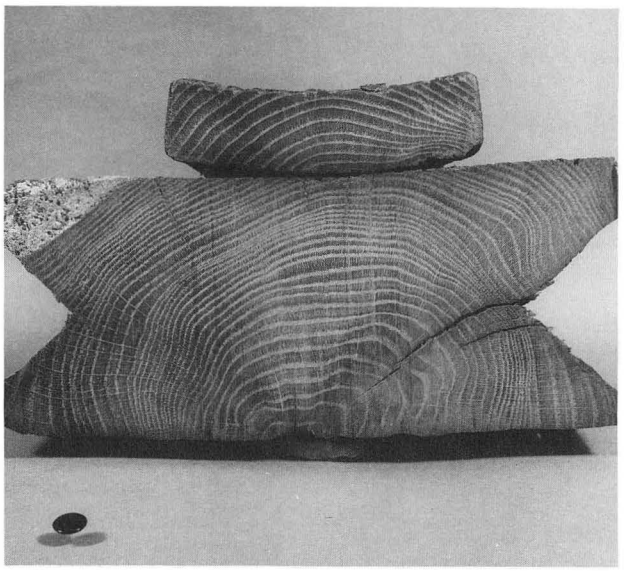
Examination of the samples showed that most were oak (*Quercus* spp), although the post-medieval boards were of sweet chestnut (*Castanea sativa* Mill) and sample *1164*B was alder (*Alnus glutinosa* (L.) gaertn). Oak was the chief timber species in the past, and is by far the most common on archaeological sites. Sweet chestnut is rarely found. It was supposed to have been used frequently as a building timber in the medieval period, but this has proved to be false (Rackham 1980, 33; Salzman 1967, 252). The sweet chestnut building tradition theory may have arisen because chestnut and oak are very similar in structure (Pl. XLII). Reports of sweet chestnut building timbers have usually turned out to be oak (although there is no reason why chestnut would not make a suitable building timber).

It would have been interesting to use the chestnut for tree-ring dating. Like oak, it has very distinct rings which are suitable for measurement, but I know of no instance where this species has been used for dating. Unfortunately the Norwich samples are tangentially split boards with only six to twenty-one growth rings (Fig. 94 on microfiche). This is insufficient for reliable crossmatching.

The chestnut boards were split from young trees, probably less than thirty to forty years old, and under 200-300 mm in diameter. The timber was worked whilst still green, because the boards have warped as they dried (see, for example, *1079*E or *1079*G).

The alder sample (*1164*B) had twenty-eight rings and was worked from a halved trunk. This sample was unsuitable for dating purposes.

The oak timbers varied a great deal (Fig. 94, microfiche 2:D.14-E.3). Some were radially split planks (*e.g. 1069*A), others were whole stems (*e.g. 1195*) which were sometimes roughly squared (*e.g. 1164*). Often the trunk was split into halves or quarters, and the timber shaped from these (*e.g. 1069*D and *1166*). The size of the timbers varied in cross-section. Many had less than fifty rings, and were rejected for dating purposes. Ring sequences with less than fifty rings tend not to be unique, and usually cannot be dated reliably, unless there are many samples from a single context (Hillam 1985a). Other samples contained knots which obscured the ring pattern (*e.g. 1181, 1194*), and these too had to be rejected. Out of the original fifty-one samples, the only ones that proved suitable for tree-ring dating were *1069*A, *1069*C, *1069*D, *1121, 1136, 1140, 1147, 1166, 1189* and *1203*. The number of rings varied from 65-143 (Fig. 94, microfiche).



XLII. Sweet chestnut (top) and oak (bottom). The two timbers are very similar in structure. The most obvious difference is that oak has broad medullary rays running from pith to bark whereas chestnut has not

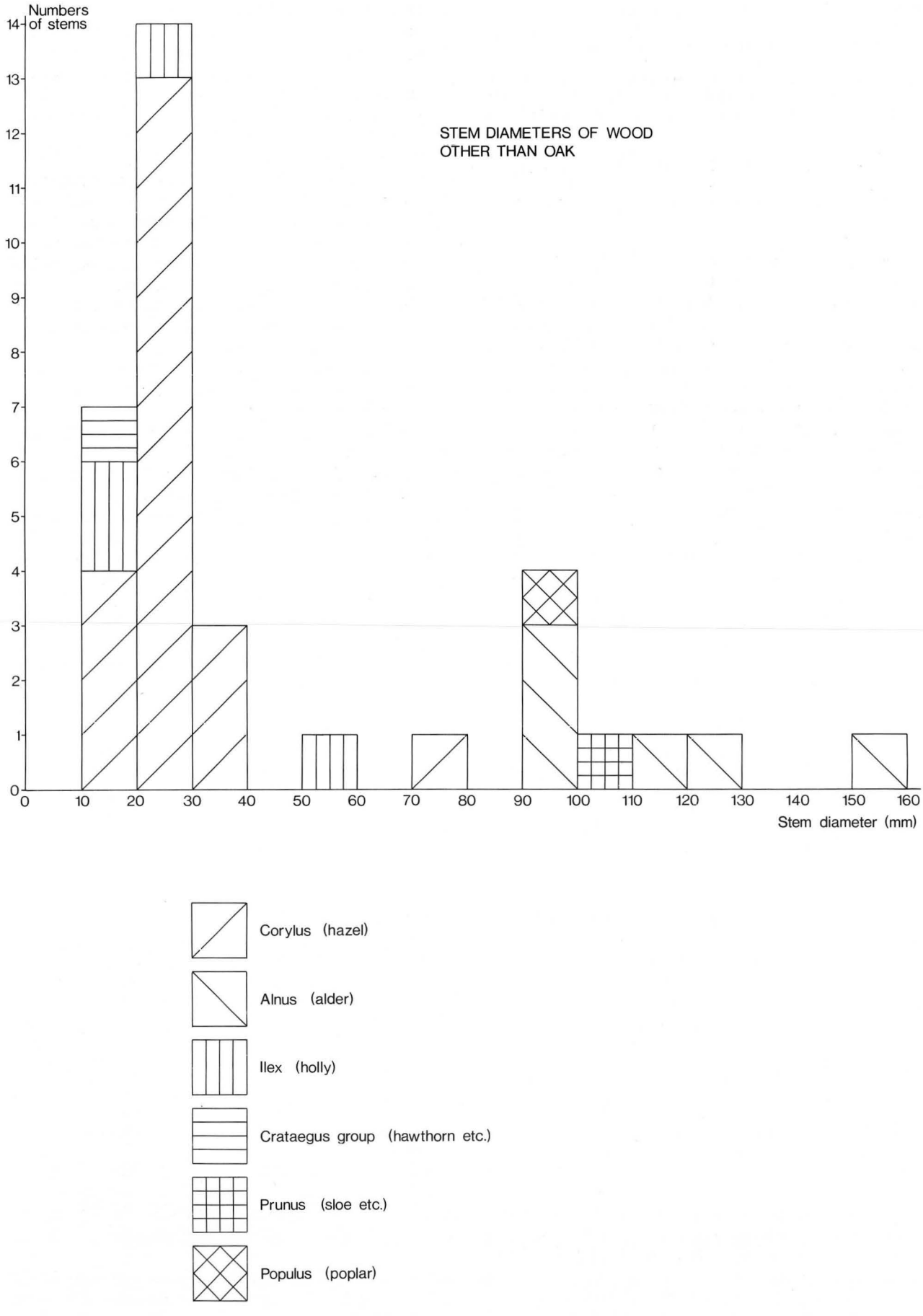


Figure 95. Stem diameters of measurable wood fragments other than oak. From Late Saxon and medieval contexts.

Tree-ring dating

The samples were deep-frozen for forty-eight hours before being cleaned, still frozen, with a Stanley Surform. This left a smooth cross-section on which the individual rings could be measured with some precision. The ring widths were measured on a travelling stage which was connected to an Apple microcomputer (Hillam 1985a, fig. 4). Each ring width was stored in the Apple's memory. When the complete ring sequence had been measured, it could be printed out or stored more permanently on floppy disc. The microcomputer was also used in the crossmatching process (see below). The software was produced by J.R.Pilcher at the Belfast Tree-Ring Laboratory.

The ring widths were plotted as graphs, known as tree-ring curves, and were compared with each other to test for contemporaneity. None of the ten sequences seemed to crossmatch, that is, there were no similarities between the various ring patterns. The Belfast crossdating program (Baillie and Pilcher 1973) confirmed this result. The computer program compared two sets of data, and measured the correlation between them for each position of overlap. A *t*-value greater than 3.5 indicates a tree- ring match if it is accompanied by an acceptable visual match (for further details, see Baillie 1982, 82-85).

The sequences were next tested against the dated oak reference chronologies from Britain and Europe which cover the eleventh to thirteenth centuries (Table 32 on microfiche). They were also compared with a 244-year undated Norwich sequence from the 1979 Whitefriars Street Car Park excavation (Hillam 1983). The ring sequences from the two Norwich sites, however, did not appear to match.

The only ring sequence which showed consistent agreement, both visually and statistically, with the reference chronologies, was *1203*, a horizontal timber from Phase I1. It produced *t*-values greater than 3.0 with nine chronologies from the British Isles when its ring sequence covered the period AD 1115-1193 (Table 33a on microfiche). Timber *1203* therefore cannot have been felled before AD 1193, although this is a more recent date than that indicated by the archaeological evidence. It was not possible to determine whether or not the timber had sapwood. Sapwood is usually easily distinguishable from the heartwood, but occasionally the distinction between sapwood, included sapwood and lightly-coloured heartwood is difficult to make (Hillam 1986). This was the case with *1203*, and so it is not known how much wood was removed from the timber when it was converted into a plank: it could have been just a few sapwood rings, or it may have been some heartwood as well.

The remaining nine ring sequences gave hundreds of *t*-values over 3.5 with the reference chronologies but only *1069*C, *1069*D, *1121* and *1140* gave *t*-values at the same date with more than one chronology. These are listed in Table 33b (on microfiche), but they are not as consistent as those for *1203*: the *t*-values are not particularly high, nor are the visual matches very good. They are listed therefore, *not as definite tree-ring dates*, but as reference for future work; to be confirmed or rejected as appropriate (all the tree-ring data are stored at the Sheffield Dendrochronology Laboratory).

Discussion

Since only one of fifty-one samples could be dated, it is necessary to consider the reasons for the lack of dating. Some of the material comes from brushwood and wattle layers; layers that might be expected to produce small timbers with few rings (Table 31 and Fig. 94, microfiche). The larger timbers are often of poor quality with knots, or they come from fast-grown oaks with wide rings, so that they do not have long ring sequences. In addition, about half of the samples were not oak.

Of the ten usable ring sequences, five have over 100 rings, and five have sixty-five to eighty-two rings, all of which are sufficient for reliable dating. However, there is no internal crossmatching, which means that a site master cannot be constructed. Site masters are usually much easier to date than individual sequences since the common climatic signal is enhanced at the expense of the 'background noise' from the individual trees.

Timbers from East Anglia have often been difficult to date (Hillam 1985b). The 244-year sequence from Whitefriars in Norwich seems highly suitable for tree-ring dating, but numerous attempts to date it have failed (Hillam 1983). None of the timbers from Cecelia Street, Ipswich (Hillam 1980b), were dated, whilst the Bridge Street timbers from Ipswich are proving equally difficult (Hillam unpubl.). At the latter site, at least three of the timbers were imported, probably from the Baltic (Baillie *et al.* 1985; Hillam 1985b), and this may also apply to other East Anglian timbers, for example the well timbers from Lower Brook Street, Ipswich (Hillam 1984b). With this in mind, the Courts sequences were tested against several Continental chronologies (Table 32, microfiche 2:E.14), but there is no evidence of similarity between them. The dated timber, *1203*, in fact matched only with British chronologies. However, even if the Courts timbers were not imported, they may have come from different areas of England. Alternatively, the trees from East Anglia may be responding to different climatic factors or growing under different conditions of growth to those in other parts of Britain.

Conclusion

The Courts site produced fifty tree-ring samples from various wood-bearing contexts. The post-medieval boards from *1079* were sweet chestnut, a species not yet used for tree-ring dating. Insufficient rings made experimentation impossible in this case, but in theory the species should be suitable for dating.

Apart from one alder sample, the remaining twenty-six timbers were oak samples of various shapes and sizes. Ten were suitable for ring measurements, but only one timber, *1203*, could be reliably dated. The prime cause of this lack of success is seen as the inability to produce a site master curve because, without a site master, East Anglian timbers are very difficult to date.

The reasons why none of the Courts sequences crossmatched are numerous. Many timbers were rejected because they were not oak, had insufficient rings, or were of poor quality. Of the ten suitable samples, it is suggested that environmental factors and/or different sources of timber may be responsible for the lack of dating (although there is no evidence that any of the timbers were imported from the continent). The study highlights the need for sampling as many timbers as possible from a site (Hillam 1985a). This is important for all sites but particularly those in East Anglia where so many timbers are likely to be undatable. Previous work has shown that some timbers from this region can be dated, so it is recommended that more tree-ring work is carried out in East Anglia in order to solve the problems raised by its archaeological timbers.

XI. Soil

by R.I. MacPhail

The grey coloured soil (*652*) which overlay orange sands containing graves appears to be a narrow Ap horizon or 'dug soil'. It results from anthropogenic activity mixing in organic matter, charcoal and perhaps a small amount of cultural material into the sandy parent material, most probably as a consequence of cultivation. There is no way of knowing how long this type of horizon took to form because it could gain a similar character over a number of seasons. Only datable inclusive material may suggest the length of time the soil was actively in use. However, reworking by earthworms has taken some of this dark soil down into the sandy gravel layer and so caution must be exerted in case artefacts from the overlying levels have been similarly intruded. The activity of earthworms and oxidation in this soil layer most probably account for some humus loss in this Ap horizon. However, the degree of disturbance by earthworms into the sandy soil beneath may suggest that use and development of the Ap horizon was not a completely short-lived event. The Ap horizon seems to have been truncated by later activity and buried by further layers. The context is shown on archive section Number 179.

XII. Iron Content of Soil Samples

by S.F.Cannon and R.D.Cannon

Introduction

Samples 29 (context *736*) and 30 (*722*), layers within gully *562* (Phase III), were analysed for iron to establish whether the reddish colour of *736* was related to an high iron content or whether organic dyes might be present. The average Fe contents, after drying, were 6.0 and 2.5% respectively.

Sample 29, however, besides being overall reddish brown in colour, contained visibly distinct components of different Fe content, ranging up to 14%. These are briefly described.

Preliminary observations

Soil Sample 30, regarded as typical for most of the site, was dark brown in colour, but Sample 29 was comparatively reddish brown on close examination. However, soil Sample 29 was found to be very heterogeneous: reddish, greenish and blackish lumps could be distinguished, as well as small grains of relatively bright red material. Some of the larger lumps of soil, when broken open, showed a streak of red running through a dark brown mass. Small thin pieces could also be picked out, very brittle and flaky in texture. Representative different components of the soil were analysed as shown below.

In an effort to separate the components physically, samples of the two soils were shaken for long periods with water and allowed to settle in vertical columns, *c.* 5cm diameter, 1m length. The liquid phases after centrifuging and filtration were slightly yellow brown, but not significantly different in colour, and neither contained detectable concentrations of iron (NaSCN test). The sediments stratified as expected with stones and sandy material at the bottom, humus and clay at the top. In S29, a relatively bright red layer formed at the top, but in very small amounts.

In reactions with acid an appreciable smell of hydrogen sulphide was noted; considerably more with Sample 29 than Sample 30.

Iron analysis: method

Samples were dried *in vacuo* at 120°C to constant weight, and the weight losses were recorded as shown below. Weighed samples (0.01-0.1 g) of the dried materials were refluxed with 20% (*i.e.* constant boiling) hydrochloric acid for three hours. The yellow colour of ferric chloride was immediately apparent, and in separate experiments it was shown that negligible further extraction of Fe occurred at longer times. The reaction mixtures were centrifuged, and the liquid phases, with washings, were made up to fixed volumes (100 ml) with 20% hydrochloric acid. Small measured aliquots (1 ml) were diluted with water (5 ml) then made up to 50 ml with 1.0 M ammonium thiocyanate. The absorbance at 478 nm was recorded at a fixed time (4 min) from the addition of thiocyanate. An absorbance-concentration calibration curve was prepared using AnalaR ammonium ferric sulphate as primary standard.

Results

(Table 34)

Sample	*Description*	*%H_2O*	*%Fe(±0.05)**
B	Solid S30	14	2.5
A	Solid S29 (random sample)	5.3	6.0
G	Brown layer from one lump (see H)	2.6	2.3
E	Blackish hard lump, some lustre	12	2.3
F	Greenish lump	4.3	5.1
I	Brittle piece, flaky, reddish	4.9	5.8
C	Bright red grains	—	12.4
H	Red layer from one lump (see G)	6.5	14.0
D	Reddish lump, clay-like texture	6.8	14.1

*based on dry weight

Table 34 Results of iron analysis of soil samples

Remarks

The reddest coloured components of the soil Sample 29 have the highest iron content, and it is clear that the iron content of the soil as a whole is sufficient to account for the red colour of the soil as a whole. The possibility that organic dyestuffs are also present cannot be ruled out, but the visual appearance is not in itself evidence of this. There is no colouration due to any water-soluble material.

It was noted that the red grains C and the dark brittle sample I dissolved almost completely in hydrochloric acid, leaving only a small amount of sandy residue. The red material may contain a high proportion of iron oxide, Fe_2O_3, though for pure Fe_2O_3 the iron content would be 70%.

XIII. Discussion

by Peter Murphy

The results obtained from the study of each category of material have been discussed above by the individual authors. In this final section a short summary and synthesis of the main results is presented. As in the report on Whitefriars Street Car Park (Ayers and Murphy 1983) it is convenient to consider the results under three main headings: agricultural produce, marine foodstuffs, and the local site environment and its exploitation. In addition,

however, at the Magistrates' Courts site, there is evidence for some industrial activity, notably dyeing, involving raw materials of biological origin.

Agricultural produce

Remains of a wide range of food plants, preserved by waterlogging and carbonisation, were identified, including barley (*Hordeum* spp), wheat (*Triticum aestivum* s.l.), rye (*Secale cereale*), oats (*Avena* spp), horsebeans (*Vicia faba*), peas (*Pisum sativum*), linseeds (*Linum usitatissimum*), opium poppy (*Papaver somniferum*), celery (*Apium graveolens*), fennel (*Foeniculum vulgare*), coriander (*Coriandrum sativum*), hop (*Humulus lupulus*), cultivated bullaces and plums (*Prunus domestica* s.l.), cherries (*P.avium*), apple (*Malus* sp), strawberry (*Fragaria vesca*), mulberry (*Morus nigra*), medlar (*Mespilus germanica*), fig (*Ficus carica*), grape (*Vitis vinifera*), hazel nut (*Corylus avellana*) and walnut (*Juglans regia*). Several different types of 'seed' assemblages produced by distinct activities were distinguished and these are summarised in Figure 93. Carbonised deposits of unprocessed cereals came from two contexts, indicating that, in the earlier site phases, not all cereals reached the site as cleaned prime grain, but that some batches of crops were brought here for cleaning. From the size of grains and the associated weed seeds it seems that some rye cultivation took place on impoverished soil, with deficient soil nitrogen levels. Waste material from crop cleaning, mainly weed seeds and rachis fragments, was recovered from several refuse pits. In cess-pits faecal residues from weed-contaminated wholemeal flour were associated with seeds, fruitstones, nutshells and other food wastes as well as ova of intestinal parasites (*Trichuris* sp. and *Ascaris* sp). Variations in the relative proportions of 'luxury' crops and wild plant foods are tentatively attributed to the differing social status of the users of these cess-pits. A further crop for which there is some evidence is hay: high frequencies of seeds from grassland plants in one sample suggest disposal of waste fodder or litter from houses or byres.

There was much less variation between contexts in the composition of the mammal bone assemblages from the site: the bone seems to consist almost entirely of domestic food refuse. However, some variations through time are distinguishable. In particular, pig bone frequencies decline markedly after Phase I1 (early eleventh century), while sheep and goat bones reached their maximum frequency in Period II (twelfth/thirteenth century). Cattle, however, are overall the most abundant of the main stock animals (41%). Some information on 'breeds' and stock management was obtained. The cattle, of a short-horned type, seem mostly to have been steers. Seventy-two per cent of the mandibles were from animals more than three years old. The sheep/goat bones were mostly of sheep, predominantly ewes and wethers; according to tooth data some 69% had been slaughtered before the age of three years. Of the pigs about half were killed between one and two years and very few survived beyond the age of three years. Other domestic animals from the site are cat, dog, horse and rabbit. The bird bones have not been identified. Fragments of avian eggshell show distributions of thicknesses comparable in the main to domestic fowl with a small proportion of eggshell from larger birds, such as goose, swan or guinea fowl. Rabbit bones, perhaps from animals reared in managed warrens, were most frequent in deposits of Period III. From Period IV deposits very little bone was recovered and cat is the single most abundant species: this suggests that by this time food refuse, including bone, was being carted from the site although much material was also lost in initial site machine clearance.

Marine foodstuffs

These are represented by mollusc shells and fish bones. The mollusca are mainly oysters (*Ostrea edulis*) (62% of the total) with mussels (*Mytilus edulis*), cockles (*Cerastoderma edule*), whelks (*Buccinum undatum* and *Neptunea antiqua*) and winkles (*Littorina littorea*). Shells were dispersed at low concentrations throughout the deposits at this site and seem to represent domestic food refuse, in contrast to the dense and extensive shelly layers seen at Whitefriars Street Car Park, which are thought to have been related to commercial activities. The large collection of fish-bones from the site consists mainly of marine species, herring (*Clupea harengus*) being the most important fish (47-31% in Periods I-III) followed by cod (*Gadus morhua*), whiting (*Merlangius merlangus*) and eel (*Anguilla anguilla*). Other estuarine and marine fish occurring at lower frequencies were roker (*Raja clavata*) and other cartilaginous fish, smelt (*Osmerus eperlanus*), haddock (*Melanogrammus aeglefinus*), gurnard (Triglidae), scad (*Trachurus trachurus*), mackerel (*Scomber scombrus*), plaice (*Pleuronectes platessa*), flounder (*Platichthys flesus*) and sole (*Solea solea*). The results from the Magistrates' Courts site are very similar to those from other sites in Norwich (Jones 1983a; Jones and Scott 1985), indicating that the North Sea herring fishery was of major importance in supplying fish to Norwich from at least the eleventh century and that cod and whiting were also imported to the city in some quantity. Herring (caught with fine-meshed floating nets), and cod and whiting (caught on lines), were probably shipped to Norwich from Great Yarmouth. The size of the cod bones suggests a winter inshore fishery, and the presence of many skull bones in the deposits implies that some fresh whole marine fish were brought directly up-river, without salting or drying. On a smaller scale, trapping and netting in shallow waters provided flatfish and smelt.

Local environment and raw materials

Vegetation on dry ground in the immediate vicinity of the site consisted predominantly of weeds, particularly nettles (*Urtica dioica*), with some elder bushes (*Sambucus nigra*) where the ground was comparatively undisturbed. Sections at the eastern edge of the site showed a truncated grey buried soil overlying the fills of graves cut into coarse sands. This appeared to be a thin Ap horizon or 'dug' soil produced most probably as a result of cultivation. The scale and duration of this activity is unknown, but some form of horticultural production was perhaps represented.

The river and valley floor provided a range of foodstuffs and raw materials. Compared to marine fish, bones of freshwater fish were rare, comprising only 4% of total fishbones in Periods I-III. The eel was the most common species, though some bones of salmon (*Salmo salar*), trout (*Salmo trutta*), cyprinids, chub (*Leuciscus cephalus*), roach (*Rutilus rutilus*) and probably perch were identified. Comparable results have been obtained at other sites in the city, and from this it appears that river fisheries were not of any great importance in the medieval period. The use of river mud as a constructional material was indicated by the presence of fresh-water molluscs,

ostracods, fishbone and stonewort oogonia (Characeae) in the fired clay (*414*) recovered from medieval oven *322*. Somewhat similar muddy sediment containing remains of Characeae and cladocerans (small aquatic crustaceans), was noted between two crushed chalk floors in the Norman building, reflecting problems with river flooding. Plant remains derived from valley-floor vegetation included fruits and seeds of rushes (*Juncus* spp), sedges (*Carex* spp. and *Cladium mariscus*), spike-rush (*Eleocharis* sp) and bristle scirpus (*Isolepis setacea*), which could have been collected for use as thatch or litter, as well as remains of wet grassland herbs. As has been noted, the high frequencies of seeds from grassland plants in fill *1118* of gully *562* are thought to be related to disposal of waste hay. Most of the moss species identified could have grown in local damp valley-floor habitats; there was no evidence that they were collected for domestic purposes.

Some of the wood from the site was from trees common in valley floors (alder (*Alnus* sp), poplar (*Populus* sp) and ash (*Fraxinus* sp)) but the two commonest species in the medieval deposits were hazel (*Corylus*) and oak (*Quercus*). Hazel occurred mainly as small roundwood and was used in wicker fences and other slight constructions whereas most of the oak consists of stakes, boards and posts cut from mature timber. Only one of the oak timbers, *1203*, had a ring sequence which could be matched confidently with reference chronologies. This covered the period 1115- 1193. Other woods identified in the medieval layers were holly (*Ilex*), hawthorn-type (*Crataegus*-group) and *Prunus* sp. (?sloe), whilst the post- medieval barrel well *1079* was constructed of sweet chestnut (*Castanea*). Besides wood and timber, local woodland and scrub also supplied wild fruits and nuts, such as sloe (*Prunus spinosa*), strawberry (*Fragaria vesca*), bramble (*Rubus fruticosus*), raspberry (*Rubus idaeus*), apple (*Malus* sp), elderberry (*Sambucus nigra*) and hazelnut (*Corylus avellana*). Bones of hare and deer, mostly fallow with some red and roe deer, provided evidence for hunting in both woodland and open country.

Remains of bracken (*Pteridium aquilinum*) and heather (*Calluna vulgaris*) were common at the site, and are thought to reflect the collection of plant materials from areas of heathland for use as flooring. Fruits of the salt-marsh plant *Triglochin maritima*, sea arrow grass, came from two contexts. Seeds of halophytes were also present in the deposits at Whitefriars Street Car Park, and it was suggested that these might have reached the site in association with livestock fattened on salt marsh.

Industry

The archaeological and documentary evidence for dyeing at the site is summarised below (p. 170). A sample from the gully fill, *1118*, contained numerous seeds of *Reseda luteola*, Dyer's rocket, a plant cultivated for its yield of fast yellow dye. The unusual abundance of these seeds is thought to provide firm evidence for the use of this plant. Other fills in the gully (*e.g. 736*) had a marked reddish colour and it was thought possible either that this colouring might indicate the presence of dye pigments or could be related to iron working, for which it is suggested there is also archaeological evidence (p. 170). It was concluded, however, that the iron content of the soil was sufficient to account for the red colouring, and therefore no further work was undertaken. This analysis was completed before Hall *et al.* (1984) published information on techniques for the detection of dye stuffs in archaeological deposits, including the red pigments derived from madder, *Rubia tinctorum*. The deposit *736*, however, seems quite unlike those described by Hall *et al.* from Coppergate, York: it was a predominantly mineral sediment with no plant macrofossils comparable to madder root. Consequently although the chemical analysis does not exclude the possibility that organic dyestuffs might have been present, the nature of the deposit makes this unlikely.

Rare macroscopic remains of flax (*Linum usitatissimum*) and hemp (*Cannabis sativa*) were identified, and a few samples produced rare scraps of indeterminate plant fibres. However this evidence is insufficient to establish with certainty that fibre crops were being processed in the vicinity. Only where flax and hemp remains are abundant and include 'stem waste', as in the Middle Saxon waterfront deposits at Brandon, Suffolk (Murphy, in prep.) can fibre production be suggested confidently.

The prospects for future work on the Norwich waterfront deposits are good. Further information will be gained by two main approaches: applying new and more sophisticated techniques to the study of deposits similar to those already examined; and examining entirely new types of deposit. Even in the short time since the reports on this site were completed details of several new techniques have been published, including preparation methods for examining vegetative plant remains (Tomlinson 1984), methods for the identification of chemical and botanical residues from dye-plants (Hall *et al.* 1984) and specific identification of parasite ova from statistical studies (Jones 1983b). It seems probable that the application of these and other new techniques at future excavations will yield useful data. In the shorter term, excavations in 1985 at Fishergate, Norwich (Site 732) have revealed deposits quite unlike those already seen in the area: natural *Phragmites* peat containing Middle Saxon artefacts overlying coarse fluviatile sediments. It is anticipated that studies of macrofossils and pollen from this peat will help to clarify aspects of the early development of the urban environment and economy of Anglo-Saxon Norwich.

6. The Documentary Evidence
by Margot Tillyard

I. Introduction

The parish of St. Martin-at-Palace lies mainly south of Whitefriars Bridge although it also encompasses small areas each side of the road on the north bank of the River Wensum. From the mid-fourteenth century the parish included that of St. Mathew which had originally comprised land to the east and the south, much of which was absorbed by the Hospital of St. Giles. However, as the excavation site lies on the waterfront in the main part of the parish, a documentary study of it could afford to ignore information about any property which did not abut on the river to the north. All remaining material which might possibly be relevant to the site could then be studied and that which referred to the area under consideration gradually isolated.

One of the earliest sources of topographical information for Norwich is furnished by the very full particulars given in the twelve surviving rolls of property transactions registered in the Tollhouse (the predecessor to the Guildhall) in Norwich between 1285 and 1340. A supplementary source is to be found in such of the original deeds of those enrolments which survive, together with a few which were not so enrolled and a number of earlier ones. These are the so-called Private Deeds, which were retained in the archives of either the City or the Dean and Chapter (successors of the medieval Prior and Convent). It was from these two classes of document that a team of workers, set up by the late Helen Sutermeister, drew up the Norwich Survey series of property reconstructions for the medieval city (recently summarised in Priestley 1983). The documentary historian of a particular area would hope to be able to base the proposed work on one of these reconstructions. However, whereas for the rest of the parish of St. Martin the material from this source was good (over a score of deeds dating from 1285-1340 concerning the block west of the bridge surviving for example), the area excavated in 1981, lying north of the parish church within a group of properties whose overall medieval frontage totalled some 260 feet, was represented by only five enrolled deeds, the earliest being 1325, and no 'private deeds' at all. No reconstructed 'map' could be drawn with such sparse data but several indications of tenure and land-use could still be gleaned: a shoemaker (or tanner) who owned several properties was selling in 1325 to dyers; John de Berney already held a messuage in the area; and the street, or perhaps the area itself, was called *Holmestrete*. In addition, there was an isolated private deed for St. Mathew's parish concerning a property along the same street which mentioned the Prior of Ely on an abuttal.

The Norwich Survey project ended at 1340 because no enrolled deeds survive for the period between then and 1378. In the fifteenth century there are gaps in the series between 1421 and 1424, 1435 and 1457, and between 1458 and 1461. Occasionally part of the lost information can be supplied from the notes left by the early eighteenth-century antiquarian John Kirkpatrick, but his bundle for St. Martin-at-Palace is missing. Prior to 1500, property registrations for the excavated area remain scanty but for the sixteenth and seventeenth centuries there is more information from this source.

Another body of topographical and demographic information can be derived from the lists of the City's 'landgable rent' (a tax on land) dated 1397, 1474, 1549, 1570 and 1626. These contain the names of property owners, parish by parish, in the order in which they were visited by the collector. Almost all the entries refer to former owners and the later lists also contain some minimal pointers to location such as 'the tenement on the corner'. However, among them no property of the excavated site east of the bridge appears.

A further source of topographical information for the City in the medieval period is provided by the early court records. The first of these are summaries of the proceedings of the Iters, the courts held by the King's travelling justices which were transcribed into the much later Book of Pleas. They date from 1249/50, 1256/7, and 1285/6[33]. Together with more serious matters, the justices dealt with boundary disputes and purpestures or encroachments on the highway or river bank throughout the City, from the records of which some details may be gleaned about individuals or particular properties. Leet courts, set up after the granting of the Charter of 1223, dealt with some of the same matters as the Iters. The Leets were administrative areas of the City and twelve court rolls survive each covering single years between 1288 and 1391 [34]. Unfortunately the area of the excavated site is not referred to in any of these.

Thus at first sight the documentary record for the excavated area is distinctly unpromising for the earlier period. However, the main reason for the lack of early material is that the properties east of St. Martin's (or Whitefriars) Bridge came under a different jurisdiction from that of the City, that of the Prior and Convent of Holy Trinity Cathedral. Accordingly, it is necessary to establish the nature and extent of the Prior's holding (or Fee).

II. The Priors Fee

(Fig. 96, 1-4)

The holding of the Cathedral and Convent of Holy Trinity was very large, and was built up piecemeal following the Conquest. Norman policy seems to have been one of transferring rural sees to urban centres (an ordinance of the Council of London in 1075 authorised the removal of Lichfield, Selsey and Sherborne to Chester, Chichester and Salisbury; Stenton 1947, 658) and William I granted a block of property in the eastern part of the old Saxon *burh* of Norwich (Fig. 96, 1) to Erfast, bishop of Thetford. This is described in Domesday Book (1086) thus: '14 dwellings which King William gave to E(rfast) for the principal seat of the Bishopric' (Brown 1984, 117a).

This probably occurred about 1075, but Herfast wanted to move to Bury St. Edmunds to gain control of the rich abbey there. The Abbot however opposed this and, after a prolonged struggle during which the bishop turned

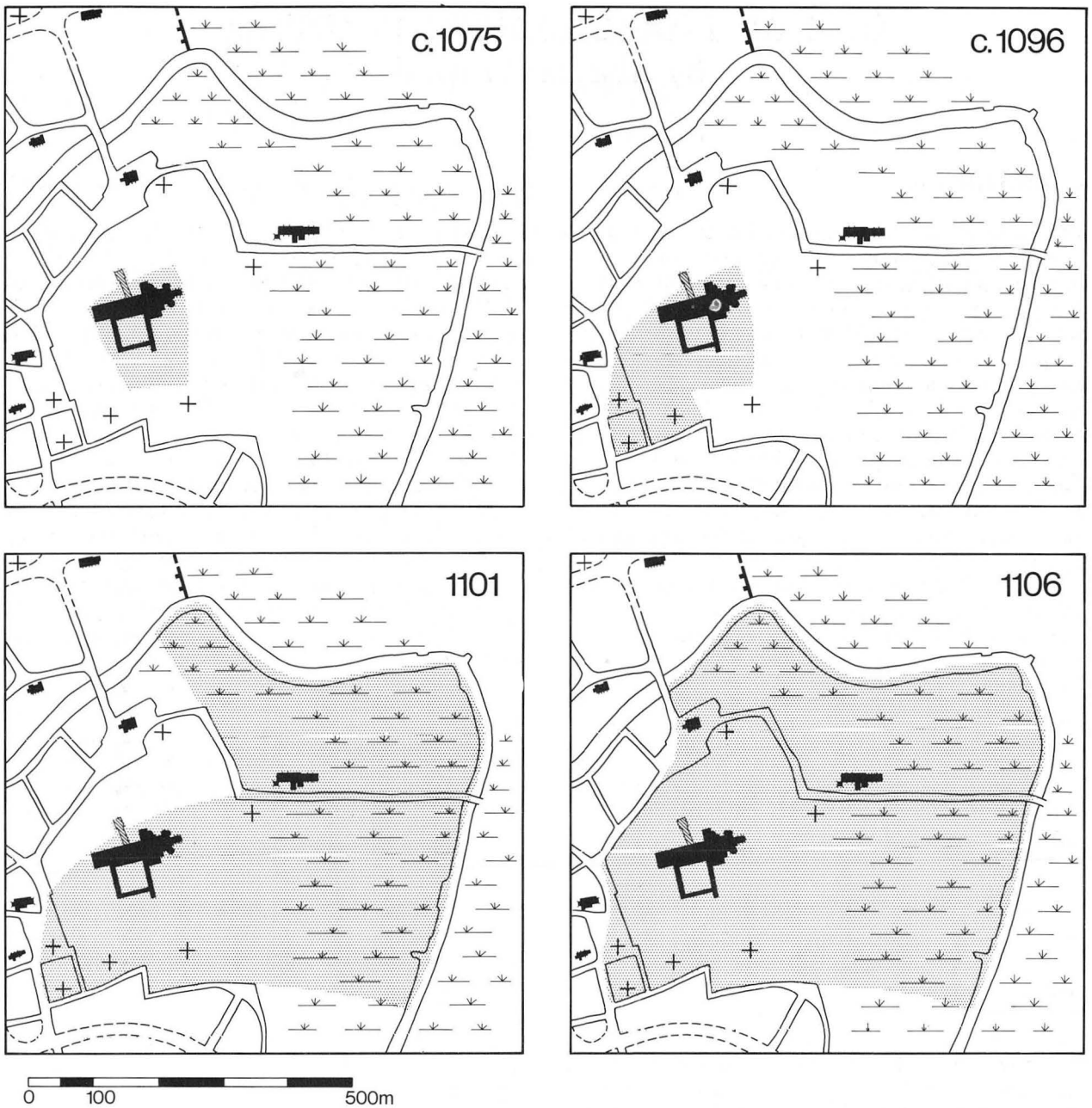


Figure 96. Map illustrating the suggested growth of the Prior's Fee. Absolute areas of grant are unknown and there is some confusion over land north of the Bishop's Palace (see text). The buildings are indicated in their late medieval form and are only included as geographical pointers. Scale 1:10,000.

for support to both the pope and the king, Herfast abandoned his claim in 1081. He remained in Thetford (whence he had removed from Elmham *c.* 1072) and it was Herbert de Losinga, bishop from 1090, who made the move to Norwich in 1094 (Dodwell 1957).

Sometime between 1096 and 1100, Herbert was confirmed in 'the land of St. Michael', roughly the present Upper Close and part of Tombland, with the area south of these, occupying a location to the west of the original 24 properties (Fig. 96, 2). This was obtained by exchange with Bigod, the Constable of the Castle, and included the Palace of the Earls of East Anglia and their principal church of St. Michael, as well as numbers of houses (Davis 1913, Charter 482).

Herbert also seems to have acquired for the see Stigand's former holding. Stigand had been head of Edward the Confessor's secretariat and Bishop of East Anglia in 1042 (Saunders 1938, xiii). Dating from this time, he held the manor of Thorpe near Norwich, and at the time of the Conquest, according to Domesday, he also held fifty Norwich burgages and the church of St. Martin. He became Archbishop of Canterbury, but fell from favour in 1070; the Conqueror deprived him of his office and confiscated the manor of Thorpe and his Norwich holdings.

On Christmas Day 1100 Henry I informed the notables of Norfolk and Suffolk that he had given to Bishop Herbert 'in the church which is building 25/- rent received by William II' and he decreed 'also that Herbert may place monks there who shall be irremoveable' (Johnson and Cronne 1956, Charter 509). To facilitate this, the following year Henry granted Herbert the manor of Thorpe. Apart from a large area of meadow, woodland, heath and chalk pits to the east and north of the River

Wensum, the manor included the water meadow called Cowholme west of the river, and adjacent to the land Herbert already held (Fig. 96, 3). Finally, in 1106, Henry granted to Losinga 'the land from the bishop's land to the water, and from the bridge of St. Martin to the land of St. Michael' (Johnson and Cronne 1956, Charter 762). This probably described the triangle of land which included the excavated area with St. Martin's church and the northern and extreme north-western part of the present precinct (Fig. 96, 4). The situation is confused, however, as part of the Cathedral holding may have been acquired as late as 1318 (Campbell 1975, 8, fn98 and map 7)

The Cathedral was in the middle of the higher part of the site with the Bishop's Palace to the north, and the Priory to the south. The large meadow ran down to the river on the east and there was good access to the old Saxon market place of Tombland on the west. The outlying northern area, that is, the part of St. Martin's parish east of St. Martin's bridge (which includes the excavation site) and the parish of St Mathew, was not included in the Precinct, but nevertheless remained under the Prior's jurisdiction. The Norwich burgesses resented this but there was no lasting peace until the Concord negotiated by Cardinal Wolsey in 1524. After only a few more years, the Prior's jurisdiction ended with the Dissolution.

The main class of documents resulting from the separate jurisdiction of the Prior are the records of his Leet courts. The other documents (now in the Dean and Chapter muniments) were wills and inventories concerning people living on the excavation site, the Priory Cartularies and certain Cellarer's Rolls. All these documents, together with taxation records, were consulted. It is necessary briefly to itemise the types of documents so that their limitations, especially in regard to a reconstructed topography, can be appreciated.

III. Types of Documents Consulted

Property records

Very few property transactions for the excavation area were enrolled on the City's records in the medieval period because it lay within the jurisdiction of the Prior. A number however remain from the period before the Dissolution and from then until *c.* 1700 all the properties are quite well documented. Registrations continued, though in decreasing numbers, until the middle of the nineteenth century. Among other classes of documents consulted were the Lease Books of City Properties (including those formerly belonging to the Great Hospital which were administered by the City after the Dissolution) and miscellaneous title deeds (a number of which survive for the area taken over by the Gas-works, though none for the excavation site).

Early court records

The thirteenth-century Iters are much concerned with encroachments either on the King's River, or on his land, both of which deprived him of landgable. From these sources come the knowledge of the obstruction of the Quay to the west of St. Martin's Bridge by 1250 (Kelly and Tillyard 1983, 51-55), and the absorption of the parish of St. Mary in the Marsh into the Precinct between 1250 and 1265 with its enclosure behind a wall [35].

The fourteenth-century leet rolls provide a record of minor jurisdiction in the main part of St. Martin's parish which was included in the Leet of Wymer, but it is not until the surviving series of records of the Prior's Leets that possible references to properties on the excavated site may be sought. There are twelve of these latter rolls dating from 1421-1500 and they occasionally mention inhabitants of the excavated site.

Wills and inventories

Wills for the parish survive from 1333 and inventories from 1591[36]. However, the messuages mentioned in wills are not usually described in such a way that they can be located. Inventories are also enigmatic: except in the very simplest cases it is difficult to recreate the plan of the house; empty rooms are not mentioned; and if the deceased inhabited part of a house this is not stated (Dyer 1981, 207). Moreover, the names of those making wills and those for whom probate inventories were drawn up rarely correspond.

A few of the messuages mentioned in the wills can be located precisely. One of these belonged to Richard de Berton (died 1333) and his will makes clear how John de Berney was able to buy the property twenty years later[37]. Three wills mention industrial activity: one of 1417 left by a lister; and two of the sixteenth century, one of a cooper and the other of a worstead weaver. None of these has a corresponding inventory.

Cartularies

There are thirteen cartularies of Norwich Priory, the so called 'Registers'[38]. The various departments of the priory owned city properties, or received rents from them, in their own right, so it was thought worthwhile to examine these registers in the hope that some or all of the various properties and buildings identified on the excavation site might prove to be among them. Though drawn up after the riot of 1272 they record many earlier deeds.

Registers calendered

Reg. II: The Almoner's Cartulary, dating from the last quarter of the sixteenth century, describes properties in twenty-three parishes[39]. There is one reference concerning a rent in St. Martin-at-Palace, not relevant to the excavated site but interesting in the context of the excavated stone building as it mentions two stone houses once belonging to Simon le Cunte: these, from the Norwich Survey reconstruction (p. 134) appear to have been situated on the Quay west of St. Martin's Plain[40].

Reg. IV: of the same date transcribes deeds of a mere 2 parishes[41].

Reg. V: The Cellarer's Cartulary, compiled in the first quarter of the fourteenth century, mentions properties in sixteen parishes, including one in St. Martin-at-Palace[42].

Reg. VI: The Chamberlain's Cartulary, dating from the last quarter of the fourteenth century, describes properties in three parishes which do not include St. Martin-at-Palace[43].

Reg. XI: The Sacrist's Cartulary, of the same date, contains, among transcripts deeds of property in five parishes, one concerning shops in St. Martin-at-Palace[44]. They were on Kugate (Cowgate, on the north bank of the

river) and Bichehil (or Bichil). Bichehil[45] was an earlier name for the slight rise upon which the parish church stands and by which it was often identified in very early deeds (Hudson 1889, 68). In the absence of precise information, it is impossible to locate these shops accurately and their later history is unknown.

Study of the Cartularies would have proved almost completely fruitless were it not for the discovery of a previously unnoticed item which had been inserted at a slightly later date into the Cellarer's Cartulary[46]. It was headed *Langablm. recept. p. Celerar.* and, apart from being the only known surviving document concerning the Prior's landgable, it provided a skeleton on which to reconstruct the ownership of the whole river frontage from St. Martin's Bridge to the grammar school (below p. 141).

Obedientiaries' rolls

It was thought possible that the records of the administrative departments of the Priory might reveal some link between them and the Norman building on the excavated site. Accordingly those of the Cellarer were sampled. These form the longest series[47] dating from the last quarter of the thirteenth century (that is, when the building was probably still standing). Nothing was found specifically relating to the site, though there was confirmation of the Cellarer's role as collector for landgable, and a date was established for the payment by John de Berney for a part of the land on which he was to erect his mansion to the east of the site.

Landgable

As the lists of landgable rents provide valuable evidence of property ownership in Norwich, and, for the excavated area, form the skeleton on which all the subsequent information is hung, further discussion of this tax seems appropriate. Landgable is assumed to be a Late Saxon rent of one penny per burgage tenement payable to the King. By the fourteenth century it was generally collected in 1/2ds and 1/4ds according to the subsequent division of the tenements. Under the Norwich Charter of 1223 the bailiffs were permitted to collect landgable and put it towards the fee-farm rent due to the King. The amount realised in 1293/4 was £3.3.0. out of the City's total receipts of £26.9.5. (Hudson 1910, 31).

Although the first list of City landgable rents dates only from 1397, the early leet Rolls provide evidence for the existence of the tax during the previous century. For example, at the Conesford Leet of 1289, Master Alan de Freston was presented for withholding 5d. landgable and Thomas de Depham was amerced 2/- at the Leet Ultra Aquam in the same year for non-payment of 1d.[48]. Earlier still, at the Iter of 1265/6, the Prior and Convent, being presented for encroaching on the King's Way near Lovelstathe (at the south-east corner of the Precinct), were accused of enclosing behind their wall four messuages which formerly paid 4d. to the King[49]. It also is clear from the enrolled deeds that properties were transferred subject to the payment of landgable by the new owner.

At this period the landgable was collected annually. Following the collection a dinner was held, for in 1249/50 the Prior was accused of attempting to collect, after the dinner, the rent from owners of properties who had paid it to the City collectors the same morning (Hudson 1910, 320). The dinner eroded the amount realised: under 'Rents received from religious bodies', in the list of the City's income drawn up for 1397, is found the entry 'of the Prior of St. Faith for all his tenements, for landgable 3/- of which the said Prior requests an allowance of 12d. for the landgable dinner' (*pro prandio langabul*)! (Hudson 1910, 251).

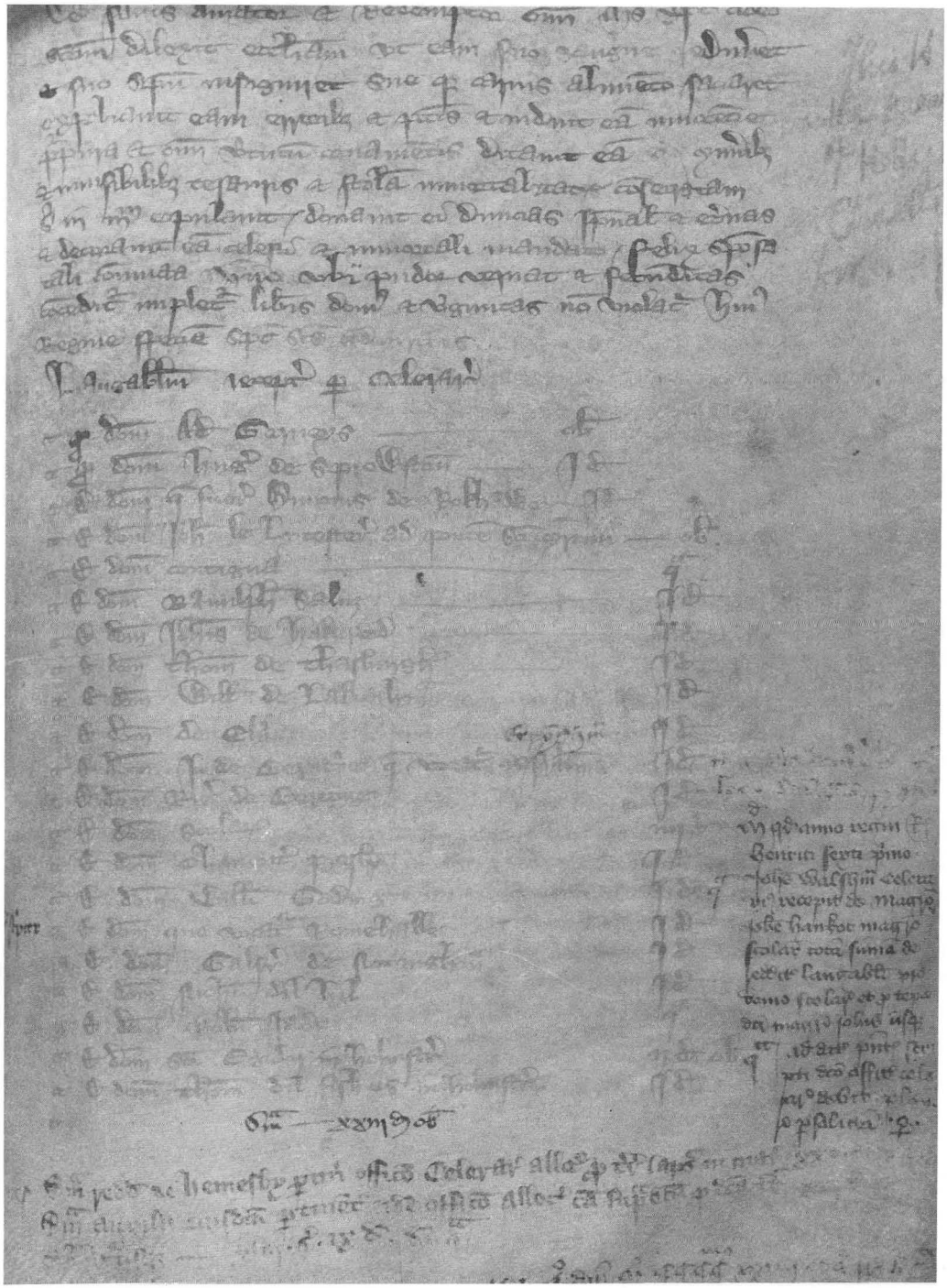
As the value of the tax declined it was collected less frequently so that by the sixteenth century a levy was only made about every ten years and that of 1626 covered the previous twenty years. The collectors' job became more difficult: one of them in 1541 notes at the end of his book: 'There ben diverse other tenements which paien langoll which ben unknowen wherefor thei ben left oute here', and the 1626 list shows that articles such as metal cooking pots were distrained until landgable was forthcoming[50].

Although the amounts raised by landgable rent were small (the main part of St. Martin-at-Palace for instance only paid 11d. in 1397)[51] the King for his part took steps to ensure that it should not lapse. In 1293 Bishop Ralph de Walpole, wishing to transfer three messuages to the Prior and Convent, applied for a licence in mortmain. The king granted this on the understanding that the 1 1/2d of landgable due on them was paid in the future by Richard de Fornesete (Cal. Patent Rolls 1292-1301, 52). Similarly, in 1299, Alice de Felmingham wished to give the Prior and Convent of Walsingham a messuage in Norwich worth 1/2d per annum. A licence was granted subject to this charge being transferred to another messuage of hers (Cal. Patent Rolls 1292-1301, 413).

The foregoing remarks apply to landgable in Norwich in general. The site of the excavation was in the Prior's Fee and he was responsible for the collection of landgable within the area of his jurisdiction. A small group of property deeds for St. Matthew, probably all dating from the third quarter of the thirteenth century, exemplifies this. One deed concerns a total of 5/3 rents which Alice de Hyslam sold to Hubert de Acle in Holmstrete, with landgable of 2d payable to the Cellarer duly noted; another small messuage paid him 1/4d[52].

It was the Cellarer who was responsible for collecting all the Prior's landgable and the amount realised was entered on his annual account rolls among larger receipts. In 1329/30 for example, the Manor of Cressingham brought in £15.1.0, Swanton £10, Foulholm including the sale of skins, wool and ewes £19.1.2, the mill of Trowx 56/-, Tombland Fair 49/3, the sale of surplus produce from the great garden 6/7d. and landgable a mere 2/4 1/2d.[53]. The amount varied slightly from year to year: in 1316 it was 22 1/2d., in 1331 2/3d., in 1359 only 15d., and 'longolf cum arrerag' in 1384 3/4d.[54]. From the figures it seems likely that the church's collection of the ex-Prior's landgable continued even after the Dissolution: at the end of the City's list for 1549 is the note: The Dean and Chapter of Criste Churche paie for all the tenements in the City beside Ratonrow,...the voide ground next St.Cutberds chapell...and the tenement new bilded in the market upon the corner...as thei doe wussesse 23d.[55].

As previously mentioned, there is a list of landgable rents inserted into the Cellarer's Cartulary Pl. XLIII). It predates all the City lists and contains twenty-one names, of which ten, beginning with '*per dom. John le Litester ad pontem St. Martin*' and ending with '*per dom. scolar*' may be confidently ascribed to the area immediately around the excavation site. The succeeding six entries belong to the smaller block east of the church. The amount collected was 23 1/2d.[56]. This corresponds with



XLIII. Prior's landgable list discovered in Cellarer's accounts (CTK23)

the amount shown on the Cellarer's Rolls in both 1326/7 and 1327/8[57].

The list must have been used for almost 100 years, if not longer. There are a few insertions, for example Erpingham has been added in two places, and at the foot, with the date 1423/4, is a note that John Walsham, the celerar, has received from Master John Hancok, master of the schools, the whole sum of the landgable rent for the house of the schools for the time of the said Master John. The amounts of landgable show no sign of division during that time which accords with other evidence indicating that, in the area of the excavation site, the properties remained the same size.

The Cellarer's list differs from those of the City in that the majority of the rents are for a whole penny. This includes all those along the waterfront except the rent for the dyer's by the bridge and that for the School. It is possible that the Prior, owning a stretch of land which was run-down, deserted or undeveloped, re-allocated the rent due to newly defined plots. For the reconstruction of the excavated area and its vicinity the length of the road frontage was divided equally among the number of rent-

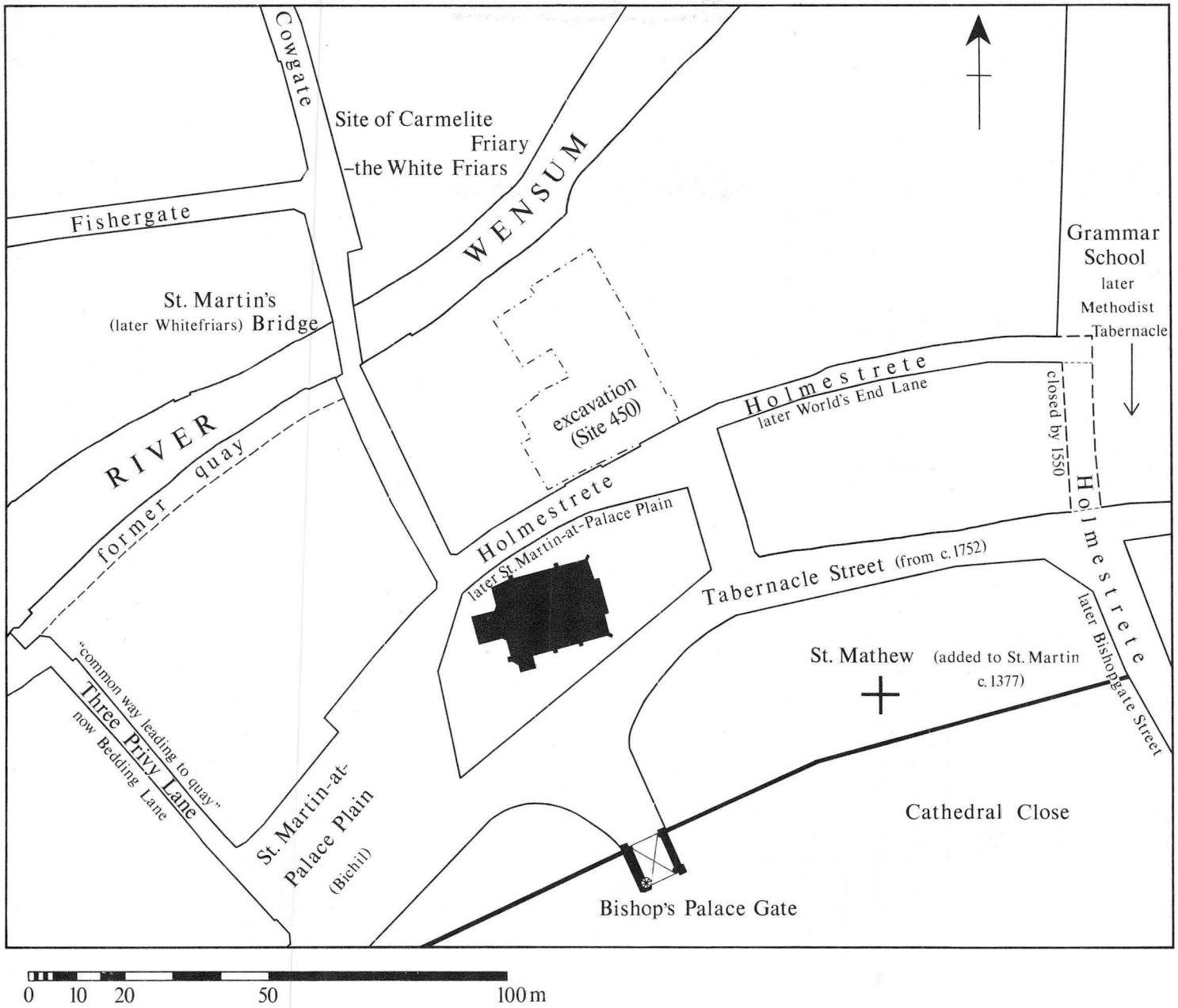


Figure 97. Map to show the excavated site in relation to the surrounding (reconstructed) street pattern. Scale 1:1250.

payers, resulting in plots of approximately sixty feet in width, each of which appears to correspond with boundaries which survived and were recorded by the 1883 Ordnance Survey.

Other taxation records

The Prior's subjects also had to pay other royal taxes in addition to landgable, along with other City inhabitants, so some indications of the prosperity of those living on the excavation site can be found in this class of records.

The Assessment for the Subsidy of 1332 is the first of these[58]. Its date makes it almost contemporary with the list of Prior's landgable found in the Cellarer's Cartulary. John le Lytestere heads the assessment being valued at 8/0 1/2d (he is also mentioned on the landgable list). An Assessment of 1472 of the Ward of Wymer (of which the parish of St. Martin-at-Palace forms part) lists the payees by parish[59]. One man living or owning property on the excavation site appears on the Subsidy Roll of 1524[60] (John Samuell in No. 3). The Taxation for a Subsidy of

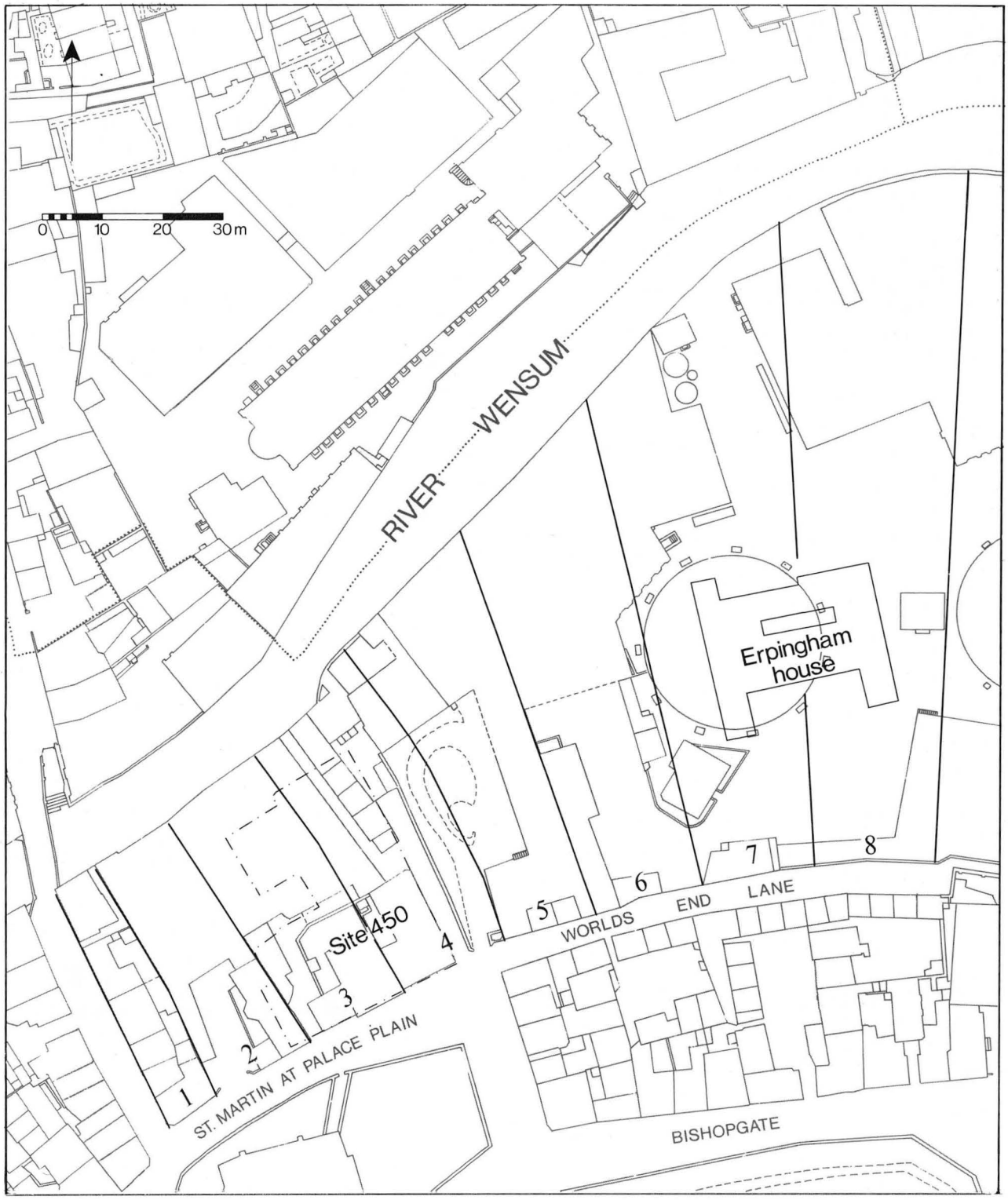


Figure 98. Reconstruction of suggested property boundaries using the 1883 Ordnance Survey and the Prior's Landgable List, and indicating the location of Erpingham House on the site of the later gasworks. Scale 1:1250

1576[61] only identified Thomas Harrison, the worsted weaver of No. 2 (Fig. 98). He was assessed at £5. All aliens had to pay a poll tax of 4d if they owned too few goods to attract tax in the ordinary way. Therefore they are all listed. Sixty-four were living in the parish at that time, and it is difficult to believe that there were not some living on the area of the excavation site, pursuing their weaving trade, but because of the problem of known owners and unknown occupiers, it is impossible to prove this.

Hearth Tax was imposed by Charles II in 1662 and lasted until repealed after the 'Revolution' of 1688. Two lists survived for St. Martin-at-Palace, one of 1666 when tax was collected on fifty hearths,[62] and another (partially defective) of 1674 when the total was 167 hearths[63]. The readable part of the list of hearth tax payers in 1674 includes the owners of Properties No. 1, No. 3 and 4/5.

The Inland Revenue Volumes 'Duties on Land Values' drawn up in 1910 (the so-called Domesday Books) list the owners and values of all the properties on the excavated site[64]. The houses on the street-front were owned by Frazers Joinery Company, while the Mayor and Corporation owned the Saw Mills on the waterfront and the building then standing on the East part of Property No. 3 (where the Norman building had been). Next along was the Beehive P.H. and stables owned by Steward & Patteson Limited (Property No. 4). Property No. 5 had by this time been absorbed by the gas works.

Topographical indicators within the documentation

Detailed topographical indicators which affect the area of the site are outlined below (p. 146). Here it is only necessary to mention that analysis of the material is frequently complicated by changing street names or the subsequent disappearance of streets. Bishopgate, for instance, was called Holmestrete throughout much of the medieval period and there is no doubt from the documentation that it ran northward towards the river from the northern limit of the Close wall until about 1550 (Fig. 97) by when this section was closed. St. Martin-at-Palace Plain is called *Bichil* in the earliest documents and Whitefriars Bridge was referred to as St. Martin's Bridge as early as 1106. These various topographical elements are all indicated on Figure 97.

IV. The Excavation Site and Its Immediate Context

(Fig. 98, Properties 3 and 4)

Introduction

This section is a thematic appraisal of the excavated area drawn from the documentary evidence. It centres on two properties, numbered 3 and 4, which have been reconstructed using documentary, archaeological and cartographic inferences (Fig. 100). This isolation of the excavated properties, however, could only be established by a consideration of other properties upstream between the excavated area and the bridge and, because of amalgamation, with the adjacent property downstream to the east. A reconstructed plan of these, unexcavated, properties showing their relationship with Properties Nos 3 and 4, is presented as Figure 98.

The reconstructions were established in the following way. With the exception of one property deed, the landgable list of *c.* 1327 found in the Cellarer's Cartulary forms the earliest reference to the block of property east of St. Martin's Bridge which includes the excavation site. If it is assumed that the house next to John le Lister's, paying 1/4d. and also owned by him, is part of his messuage then there were five properties between the bridge and what became Berney's Inn. If it is further assumed that the amounts of landgable payable bear a relation to the road frontages, and taking into account the fact that the property next to the bridge paid less than the remainder, (which were themselves roughly equal) the medieval plots may be picked out from the 1884/5 O.S. map, the result of the 1883 survey. A reconstruction of property ownership for each messuage may then be worked out employing all later topographical material. The archaeological evidence for the excavated properties indicates a change in tenement boundaries *c.*1170. This is too early for any of the available documentation although, as has been explained above, it is possible to use documentary evidence of *c.*1327 and later in a way which appears to confirm the observations made in the archaeological record. Of the two excavated properties (Fig. 100), Property No. 3 remained undivided throughout the subsequent medieval period but appears to have been split in 1575 when John Moore sold property to his son (also John). This division, if such it was, could not be checked in the archaeological evidence, possibly because it lay north of the stone building, in an area unexcavated. Prior's landgable was paid on Property No. 4 in *c.*1327 by Thomas de Tasburgh when it appears to have been distinct from Property No. 5 but in later years both properties were often owned by one person. This seems to be confirmed by the archaeological evidence, Building *3132* (Fig. 43) apparently extending eastward in Phase III2 (the late fourteenth century) but being truncated (Fig. 51) by Phase III3 (the late fifteenth century). The situation was confused, however, abuttals in 1483 and 1534 indicating that the actual division beween the properties had altered and later documents clearly suggesting a feature that could be conveyed with either property (p. 144). The relevant area lay just outside the area of the excavation.

Tenement histories of the available documentation for Properties Nos 3 and 4/5 are tabulated as Tables 37 and 38 and references are thus excluded from this section. The information gleaned from these, together with similar histories for Properties Nos 1 and 2 (Tables 35 and 36 on microfiche) has been subsumed in the following sections which attempt to place the excavated properties in the context of their immediate waterfront locality. The implications of the property reconstructions are explored on p. 147.

Table 37 Tenement history: Property No. 3

	O.S. measurement 1885 60' along road frontage. It was on the SE corner of this property that the remains of the Norman building were found, gable end to the road.	
1327	Prior's landgable of 1d. paid by John de Hakeford, shoemaker.	DCN. R236 A Reg. V p.122
1391	John Lymmes (Lynes) presented at Leet of St. George for a nuisance consisting of 'much	NRO Case 5 b)

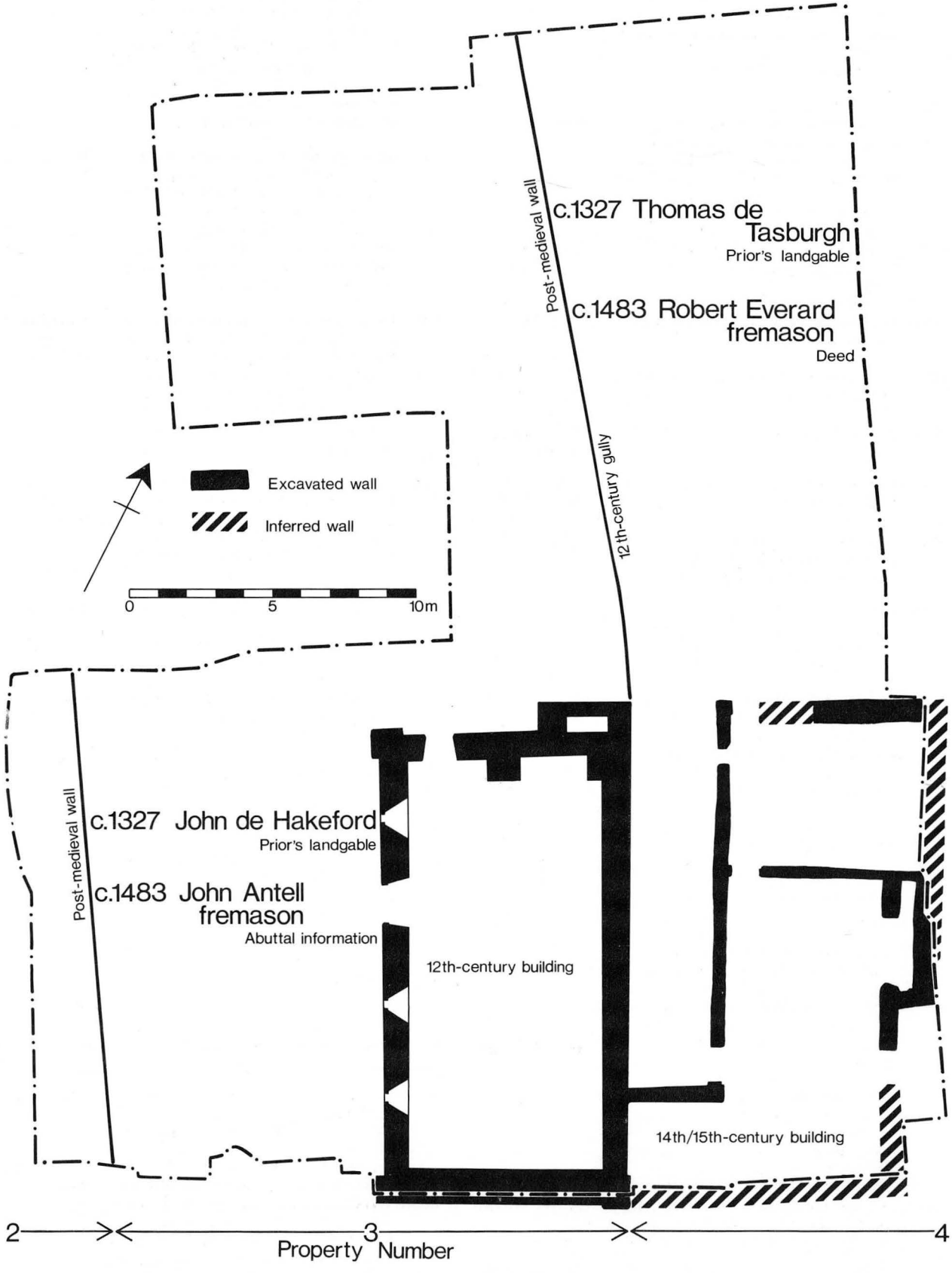


Figure 100. Reconstructed tenement plan based upon archaeological, documentary and cartographic evidence *c.*1450. Scale 1:200.

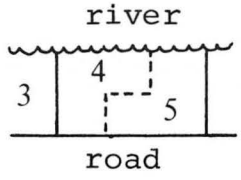
	rubbish and paste which lies in the road beneath the wall of the cemetery of St. Martin'. This property came under the jurisdiction of the Prior so perhaps this is a case of the City over-stepping its rights, as it was often accused of doing.	
1397	Sold by Nicholas, son of William de Brook, to John Lynes 'Irlondewebster' and his son John, a lyster (or dyer). Described as: 'Messuage with buildings, gardens etc.' William de Brook's widow to enjoy for life the house and part garden to the west side of the gates.	NRO Case 1 Roll 15 m 23
1417	John Lynes' will. He left 8d. to the church of St. Martin-at-Palace for the repair of 'les torches' (the candlesticks).	DCN R231C Roll 1 m 3d
1483	In occupation of John Antell fremason (abuttal information).	NRO Case 1 Roll 20 m 12
1505	In occupation of Robert Antell, son of John. (Abuttal information)	NRO Case 1 Roll 20 m 76
1524	John Samwell assessed on £20 of goods.	PRO E179/ 150/218
1541/2	John Samwell, tailor, sold property to John Moore, worstead-weaver.	NRO Case 1 Roll 27 m 78
1575	John Moore sen. sold property to his son John plus piece of land towards the river *c.* 15'6" x 13'6", once part of Property No. 2.	NRO Case 1 Roll 27 m 78
1598	John Moore of Alborough, clerk, quitclaimed property to John Gosse of Boroughe next Wheataker, yoman. The piece of land was by then built on.	Roll 32 m 14
1618-36	Passed rapidly through several hands. 1619-20 Sam Camby, dyer, probably a naturalised alien. Possible to infer that dyers lived and worked here. Finally another dyer Roger Whisler. Still included mention of piece of land now edified.	Roll 35 m 21d Roll 35 m 31 Roll 35 m 40d Roll 37 m 24 Roll 38 m 40d
1660	Assessment for Disbanding King's Forces. Henry Asting (Austin) 10/6.	NRO Case 13 b)
1666	Henry Austin, dyer, sold part of property to Henry Watts senior. Houses under one roof and all the cellars under the said houses and a little garden, house of office and yard behind, now in occupation of Anthony Brotherhood junior, Robert Curl and Richard Fisher, with access to Henry Austin's staithe there'. (It is possible that this building was constructed on the greater part of the foundations of the Norman building.) There follows a detailed definition of occupants' rights to use of staithe and river which were only to be exercised in daylight hours, not on Sunday, 'for carrying and receiving of any Clothes, linnen, coales, firing, mucke, dirt or water and for the washing and rinsing at the said Stathe of the said Clothes and linnen'.	Roll 41 m 57
1674	Anthony Brotherhood junior paid tax on one hearth and Henry Austin on four. The latter was also a parish overseer as was Richard Fisher.	PRO E179/ 154/701 PRO E179/336
1708/9	Window Tax. Henry Austin. 10 windows.	NRO Case 23
1731	Samuel Austin dyer had inherited property from his grandfather Henry, and had sold it to Joseph Hardingham, dyer. In 1729 Hardingham went bankrupt and sold it in 1731 to John Booth, worstedweaver. It consisted of (1) dye-works in the lower part of the yard, with all the vats and utensils of the dyeing trade and (2) messuage extending north from the road alongside messuage late Edward Cordell (this is the one to the East, later the Beehive PH) with a little garden and house of office at the north end. (It again seems likely that this is built on the foundations of the Norman building.) There were seven separate occupants.	NRO Case 4 g). Private deed St. Martins-at-Palace and NRO Case 2 Roll 81
1742	John Booth (described as a glozier) died intestate and by this deed his daughter Frances and her husband sold her half share of property to her sister Anne and her husband Lynn Perkins, chirurgien, for £180. Two parts of property described and seven past and seven present tenants of property running back from road given.	NRO Case 2 Roll 93 m 6d.
1747	Lunn Perkins sold the messuage on the road (with cellars under the houses) to Aquila Hart, widow, reserving right of way to the street for the occupiers of lower part of premises, who were to share the expenses of repairing the 'Well and Pump and .. the Boxes Leathers Irons and Things thereunto belonging'.	NRO Case 2 Roll 97 m 6
1750	Lunne Perkins, surgeon of Gt. Yarmouth, sold lower part of premises on the river for £130 to Clement Ives of Norwich, merchant, John Ives of Coltishall, beerbrewer, and Peter Greeves. It was occupied at the time by William Dye and John Clever.	NRO Case 2 Roll 101 m 7d.
1807	The South-west part of property opposite the church and next to the street had been sold by John Green, who owned the whole, to Thomas Grant senior in 1802. In 1807 his son, a gentleman, together with his widowed mother, sold it to Amos Walker, baker, and Edward Waterson, yeoman, for £115. Included was a passage from the street to NE corner of messuage and a wash house, together with the coppers, stoves, grates and ranges, and permission for the laying of pipes across John Green's yard for the purpose of drawing water from his well.	NRO Case 2 Roll 158 m 7
1910	Property part of Frazer's Joinery Company's buildings and offices. Gross annual value £160.	NRO DLV 1/53

Table 38 Tenement histories: Properties Nos 4 and 5

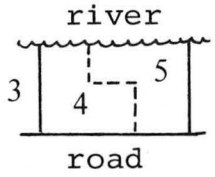
1885 O.S. Measurement No. 4 60'
No. 5 52' along road frontage

c. 1327	On the Prior's Landgable list, Thomas de Tasburgh paid 1d. for Property No. 4 and Will de Lakenham 1d. for Property No. 5 but in later years they were often owned by the same person. However, by the late nineteenth century No. 4 had become the Beehive Inn, and No. 5 a paper-mill. They were situated between the road and the river and had a joint road frontage of 112 ft.	DCN R236A Reg. V p. 122
No. 5 1388/9 & 1391	W. abuttal Alexander Barker. ? Sold by Ralph Lynes to Ralph Litester once Robert Spencer chap.: (subsequent deeds always describe it as 'messuage once Ralph Attebrook, Lyster' - or dyer).	NRO Case 1 Roll 14 m 32 & Roll 15 m 2

No. 4 **1397**	E. abuttal of No. 3. Occupier Alexander Goos (elsewhere described as a tanner).	NRO Case 1 Roll 15 m 23
No. 4 **1483**	John Julles clerk sold property once Will Ferrour, alderman, to John Hekker, chaplain. Occupier Robt. Everard. Former occupier John Wake. There had been a Conesford dyer (freeman 1395) called John Wake who may be the same. Robert Everard was master mason of the Cathedral and a substantial citizen, being one of the five richest people in the parish according to the Assessment of 1472. Owned three other houses nearby. Name on Muster Roll 1457. At Holmstrete Leet in 1440 he was ordered to pay 4d. p.a. for a 'Sawyng pit juxta via ex opposito messuag. John Lynes' *(i.e.* opposite the front of the house next door).	NRO Case 1 Roll 20 m 12 H & T I p. 383 NRO Case 7 Shelf i) H & T I p. 411 NRO DCN R233 D
No. 5 **1483**	Owned by John Julles. Previous owner Reginald Harnes, dead by 1474, but in 1472 second richest taxpayer in the parish. He was a worsted weaver. Name on Muster Roll 1457. Property described as 'part-messuage'. It is wider towards the road than towards the river.	NRO Case 1 Roll 20 m 12 H & T I p. 411



No. 5 **1534**	Sold by Nicholas Sotherton, grocer, and others to Thomas Rysing, worsted weaver. 'Messuage once Rad. Attebrook lytster with vacant lands'. Occupier William Morley, dyer. Abuttals lead to conclusion that division of property has altered:	NRO Case 1 Roll 21 m 78d



	Thomas Rysing died 1552. Eastern Abuttal: Erpingham then Calthorp.	NRO NCC Will Coraunt 293
No. 5 **1543**	Possible evidence of purchase price of £61.13.4 in 1529	NRO Case 1 Will Richard Corpusty. NRO NCC Will. Attmere 334
No. 5 **1543/** **54**	Sold by Robert Palmer, merchant, to Will Harydaunce, clerk.	NRO Case 1 Roll 21 m 112d
No. 4 **1543/4**	Leonard Spencer owned western part of messuage following death of his father John (abuttal information). The Spencers were a wealthy family who owned much property. After the Dissolution they obtained the whole of the Carmelites' site across St. Martin's Bridge.	Kirkpatrick Hist. Religious Orders p. 151
No. 4 **1549**	A skirmish during Kett's rebellion took place on St. Martin's Plain leaving many dead, some of whom were buried in Mr. Spencer's garden.	NRO St. Martin-at- Palace parish register 26.8.1549
No. 5 **1559**	Occupiers Robert, then Christopher Watson were buying property from Harydaunce for 100 marks. Remaining interest in the balance purchased by Nicholas Newgate alderman (or Norgate, Sheriff 1553, Mayor 1564).	NRO Case 1 Roll 25 m 9
No. 4 **1562**	Quitclaimed by Leonard Spencer to Edward Cordell of London, gent. Described as 'the big house and mansion called Everard's w. adjacent garden wall, houses, tenements, buildings, gardens, curtilages, cellars, solars, wells, vault'.	NRO Case 1 Roll 26 m 4
No. 5 **1568**	Edward Cordell purchased the eastern part of the messuage from Nicholas Norgate (or Newgate) and from now on they are conveyed together.	NRO Case 1 Roll 26 m 66
Nos. 4 and 5 **1570**	Mr. 'Cordales' house one of those providing dwellings for poor families in the Census of the poor.	J. Pound Norf. Rec. Soc. Vol. XL p.65
Nos. 4 and 5 **1649**	John Witchingham of Yoxford gent. to Hugh Jaques of Norwich dyer 'mansion place called Everards or Spencers' etc. as before together with messuage once Ralf Attebrook, lister, and a plot of empty land.	NRO Case 1 Roll 39 m 74
Nos. 4 and 5 **1660**	Assessment for Disbanding King's Forces. Hugh Jaques. £1.0.6.	NRO Case 13 b)
No. 4 **1674**	Hugh Jaques paid tax on two hearths.	PRO. E179/ 154/701
Nos. 4 and 5 **1699**	Hugh Greenwood, worsted weaver, grandson of Hugh Jaques, mortgaged property to gain time to pay creditors.	NRO Case 1 Roll 50 m 10d
Nos. 4 and 5 **1708/9**	Window Tax. Hugh Greenwood, 20 windows.	NRO Case 23
Nos. 4 and 5 **1717**	Two generations of Hugh Greenwoods (a second worsted weaver and his son) sold property to Peter Greeves, grazier, for £600.	NRO Case 1 Roll 68 m 3
No. 4 **1717**	Hugh Greenwood, worsted weaver, obtained lease of part in which he lived with easements to pump and to staithe to carry river water.	NRO MS 27300 25
No. 4 **1729**	Released to William Maria Blane (a woman).	DCN. R228C Box 9 and NRO Roll 80
No. 4 **1746**	Property acquired by Samuel Fremoult, berebruer, with quitclaim from William Maria Blane, spinster, price £100. This is the property which became the Beehive P.H. The description in the deeds of 1717, 1719 and 1729 reads: kitchen (and adj. washhouse), chamber over and cellar under, parlour adj. to kitchen and chamber over, old hall next to kitchen and chamber over, one room next to hall and chamber over covered with lead and one little yd. next to stairs going up to chamber covered with lead.	NRO MS 23700

No. 4 1747	Samuel Freemoult, beer Brewer, sold the property to Clement Ives, merchant, for £70. At the time it was occupied by the widow Guyton.	
No. 4 1760 & 1763	Ale House Recognisances: Benjamin Wells dwelling in the Buck P.H. (second guarantor Thomas Lindsey, worsted weaver).	
Nos. 4 and 5 1802	Rev. John Clement Ives of Bungay, son and heir of Clement Ives, sold to John Green, builder, for £360, a property of which the description reads in part 'and all that Public House called the Buck with the small yard and edifices thereto belonging lying at the Back thereof in the occupation of John Morse with Stable and Muck Bin adjacent to and lying at the Back thereof in the occupation of Mr. Cooke together with a certain corner of a paved yard'.	NRO TC/D/133
No. 4 1803	John Green sold the property to John Wilch, baker, for £220. It included the use of the staithe.	NRO TC/D/133
Nos. 4 and 5 1804	Sir Roger Kerrison of Brooke sold to Samuel Mitchell, land agent, for £650 (1) 'all that capital messuage or tenement late of John Clement Ives, once Hugh Jacques, then Hugh Greenwood, then Peter Greeves, late in occupation of Thomas Day', with the coach house and garden, ... (2) several tenements forming a square lying on the left hand side of the entrance to World's End Lane ... (3) a stable at the corner of World's End Lane ... (4) two dwelling houses on the river and (5) a staithe to the west of the two houses.	NRO Case 2 Roll 154 m 14 d
No. 4 1806	Ale House Recognisances: Robert Dann dwelling in the Buck P.H. (second guarantor John Stanley, stonemason).	NRO Case 14
No. 4 1814	John Wilch's will. His executor Daniel Ames dying, the property passed to *his* executors, of whom Thomas Massey was one.	NRO TC/D/133
No. 4 1838	Thomas Massey sold the Buck P.H. to Timothy Steward esq.	NRO TC/D/133
No. 4 1869	Map showing the internal division of the property	NRO TC/D/133
No. 5 1869	(From above) occupied by Mr. Cullingford.	
No. 4 1890	Beehive P.H., Palace Plain. Robert Drage, Victualler	Directory
No. 5 1890	Beehive Yard., W.A. Cullingford, paper merchant	Directory
No. 4 1910	Now No. 18 Palace Plain. Beehive Inn and stables owned by Steward and Patteson Ltd.	NRO DLV 1/53
No. 5 1910	Included in 'Gas Works and Offices' gross annual value £2170.	NRO DLV 1/53
Addendum		
No. 4 1504	Date of death of Robert Everard possibly 1504. The will of a Robert Everard was proved at Hoxne in that year. Hoxne was the site of one of the Bishop's Palaces. One of the executors and the prover of the will was John Jullys, which was the name of the clerk who was the owner of Property No. 4 and No. 5.	NRO NCC Will Garnon 17

Thirteenth-fourteenth century occupants and occupations

One of the difficulties attendant on this type of investigation is that a property often changed hands between owners without there being any mention of who was living there or what use was being made of it. However, from the few particulars given and with the addition of information and inferences drawn from other sources, a picture will emerge. For example, in the case of the environs of the excavated site, the landgable list is headed by John le Lister (dyer), owning the house by St. Martin's Bridge (Property No. 1). From the enrolled deeds, one John de Wroxham, dyer, is known to own several properties in the immediate area which means he must have been well to do; a John le Lytestere heads the Holmestrete section of the Assessment of 1332 and is assessed at far more than anyone else; the next known buyer, the probable occupier, was also a lyster. Combining all these elements it is not an unfair deduction that there was a dyeworks immediately east of the bridge. The occupants of Properties Nos 2-5 on the landgable list are more shadowy as it is likely that the owners themselves did not live in the parish. Nothing else is known to connect Ranulf Saluz with this messuage: he held land in the suburb of St. Clement in 1325; he was presented at the Leet Over the Water in 1288 so must have been living there at that time; and he was probably dead by 1332 as his name is absent from the Assessment for a Subsidy of that year. John de Hakeford of No. 3 probably lived in either Conesford or Mancroft where someone of his name was assessed. Those responsible for the landgable rents of Nos 4 and 5, one a baker and the other a shoemaker, owned property in several parishes, but appeared on the 1311 tithing roll of the Mancroft Leet, so at that time must have lived there.

It is however, possible to establish that while there was a dyer next to the bridge, who probably purchased two more of the properties in the 1330's, another dyer bought No. 5 at roughly the same time, and at the end of the century No. 3 came into the hands of yet another, No. 4 passing to a tanner. It is thus a fair assumption that throughout the fourteenth century the whole of the river bank in the area of the excavation site was being used by the tradesmen who lived by it.

Fifteenth-century trades

This position changes during the next century. Information tends to be scanty, but what there is indicates that those dwelling by the river may no longer have been using it directly in the same way as dyers or tanners. A fremason, followed by a carpenter, probably lived at No. 1 at some time in the fifteenth century, but they are known only from abuttals. No. 5 seems to have been occupied by a very successful worstead weaver. Robert Everard, master mason of the Cathedral, builder of the nave vault and the spire, was living at No. 4 in 1483. At that time another fremason held No. 3, followed just after the turn of the century by another, his son. At about the same time No. 2 was made over to yet another mason, but up to 1501 this latter property had been inhabited by a cooper, Thomas Baldewyne, who died in that year. Baldewyne certainly made use of the river, for it is clear from his will that he owned at least three boats and may even have made them. It is possible that the masons had workshops in their yards and imported building materials via the river, but the documents do not specify as much. Robert Everard had a

sawing pit in the street, in front of the house of his next door neighbour at No. 3, because he was ordered to pay 4d. per annum for it at the Prior's Leet of 1440.

Later occupations

It is generally possible to establish a succession of owners of the properties from the beginning of the sixteenth century but the occupiers are often unknown. It can be said with certainty that No. 2 was owned and lived in by a weaver, Thomas Harrison, who died in 1579 leaving a will. The name of a dyer, John Allen, appears from abuttal information to have owned No. 2 at least from 1617, followed by a son of the same name, who, in addition, inherited the property to the west. Thus the dyeing trade may still have been persisting on the site next to the bridge. Thereafter a succession of 'callenders' or hot-pressers (who would have needed water for their trade) are mentioned, the fourth of whom bought the property in 1715.

Property No. 3 was already in the occupation of a worstead weaver in 1542 when he bought it from the owner, a tailor. From 1619, throughout most of the seventeenth century, it seems to have been occupied by dyers, notably by one Henry Austin who sold, or leased, the southern part of the messuage in 1666. He reserved the northern part on the river, together with the use of the staithe there for himself. A succeeding dyer went bankrupt in 1729 and was forced to sell the property to his major creditor. It still consisted of two parts, a tenement building on the street and a dyeworks by the river which was still in use.

Property No. 5 also appears to have been in the occupation of a dyer in 1534. From 1568 Nos 4 and 5 were habitually owned in common, the eastern part remaining a dyeworks. Usage and occupation of the western half is obscure, although it probably degenerated into tenements in the seventeenth century. One prominent tenant seems to have been named Caley, as the property is referred to by his name from 1567 for more than 150 years.

Topographical features: staithes

The messuage next to the bridge (No. 1) had a gutter running down its eastern boundary which is described in the first enrolled deed for this property, dated 1386. It was 2 1/2 feet (0.76 m) wide. When the riverside section of the messuage changed hands in 1461 the description of it includes a latrine at the water's edge ('*cayo latrina*') and the two neighbours to the south were provided with access to the river and the bank there alongside the messuage. Presumably their path ran beside the gutter. These features recur in later conveyances, described in similar terms ('with access to Quay and latrine next to the water') in 1513/14, 1535, 1547. In 1583 the description becomes: 'access to the river with a Quay and use of a latrine in a stone wall near the river, and a gutter for eavesdrips from the said houses'. One part of No. 1 which, after subdivision of the property, only had a street frontage on the west, was conveyed in 1705 'with right of way to the river and use of a Jakes being in the stone wall next to the river, and a gutter to carry away water from the houses there'. The Ordnance Survey map of 1885 shows clearly where the passage-way ran behind the houses facing the road to the bridge, though by then it was encumbered with sheds and outhouses.

A staithe and latrine at Property No. 2 was mentioned in 1505. A deed of 1666 shows precisely how domestic users expected and needed to use the river. Those living in the upper part of the messuage were granted 'full and free liberty of passage ... from the same premises ... into the Staithe of the said Henry Austine belonging to his messuage in his own occupation ... between the rising and the setting of the Sunne on every day (except the Lord's Day) ... for the carrying and receiving of any Clothes linnen coales firing mucke dirt water and for the washing and rinsing of the said Clothes and linnen'. There was also provision for waste water and rain water to flow via a drain through Henry Austin's yard to the river. These staithes would not have been jetties projecting into the river but were either a consolidation of the bank itself or some form of decking on piles where the land met the water.

Topographical features: gardens

All the properties on the excavation site had gardens at the rear, towards the river, some of which were divided by the beginning of the sixteenth century. A narrow plot of land lying behind Property No. 2 was first described in detail in 1505. It was *c.* 58 ft 6 in long and contained a pond. In width it measured *c.* 10 ft 6 in on the river, *c.* 14 ft 6 in on the south where it abutted onto a 'Wodehous' and *c.* 13 ft 6 in from a point part-way down the garden where stood a warden-tree (a keeping-pear). This feature was still being referred to in 1610: 'a garden ... in width where once grew a warden-tree 13 ft 6 in'. A similar plot, probably just to the east of this one, formed part of Property No. 3. It measured *c.* 15 ft 6 in×13 ft 6 in and in 1598 was said to have been recently built on.

Topographical features: industrial buildings

References to industrial buildings are few. The cooper who lived at Property No. 2 and who died in 1501 mentioned his warehouse in his will, and in 1715 when Property No. 3 changed hands the Callender's warehouse is referred to with the equipment in it. By 1731 this building had become a dyeworks, 'lying in the lower part of the yard, with all the vats and utensils of the dyeing trade'. Warehouses are also mentioned in the description of 'Everards' (Properties Nos 4 and 5) in 1649.

Topographical features: domestic

Property No. 1, as mentioned above, was divided into several parts along the street running towards the bridge, with access to the river for all of them, via a path along the boundary between Nos 1 and 2. The southern or corner part of the tenement was the capital part of the messuage and was no doubt the greater part, for in 1578 it comprised four dwellings: when John Taylor of London, a glover, conveyed it to Paul Gisborowe of Norwich, a baker, it was described as '4 messuages or tenements with barns, gardens, lands and easements'. In 1666 and 1674 Henry Shipdam, the then owner, paid tax on two hearths.

The next section to the north was owned by the holder of the property immediately west of the bridge from 1577 at least to 1705 when the only description of it occurs. It reads: 'land on the other side of the road ... with a shop and a stable and whereon part of a messuage formerly stood'. The part-messuage to the north (the old dyeworks) was held at this date by the occupier of No. 2.

When Thomas Baldewyn, the cooper, died in Property No. 2 in 1501 he left his wife, for life, 'all that part of the tenement in which he lived together with 6/8

for the repair of the kitchen' (his warehouse has been referred to above). There was also apparently a shop, for when the property changed hands in 1505, Margaret Baldewyn was still living there in 'a house with a solar next to the shop of the tenement, with a piece of land next to the door on the north.'

Later in the century a worstead weaver, Thomas Harrison, lived in Property No. 2. In his will, which was proved in 1579, he mentioned his parlour (which contained a bed), his 'shopp' (which held at least one of his four looms), his chamber (and the bed in it on which he usually slept) and the 'Kytchen'. This last was worth 13/4d. per annum for this was the amount the tenant for life was to be given each year if she were evicted by the next holder of the property. The only other pointer to the domestic buildings on Property No. 2 is that a Thomas Browne, the then occupier, paid tax on six hearths in 1674.

Another reversion provides a glimpse of Property No. 3 in 1397. This was the house and part-garden held for life by the widowed mother of the seller Nicholas, son of William de Brook. It was situated to the west side of the gates of the messuage. The remains of the Norman building thirty feet wide (p. 28ff) must have been to the right of the gate; thus, allowing for the gateway, Marion de Brook may have had a road frontage of twenty or so feet (assuming a property width of *c.* 60 feet, p. 138-40). Henry Austin paid tax on four hearths in this property in 1674. The remains of the Norman building itself may have been under a tenement building transferred in 1666 with the description 'houses under one roof, and all the cellars under the said houses and little garden and house of office behind'. No other buildings on the excavated site had a cellar except No. 4 next door (and this was located during the excavation). The tenement building, or its successor, now with seven instead of three occupants, is described again in a deed of 1731.

Property No. 4 was the site of the grandest late medieval building on the excavated area, but the early deeds are silent about it, while none survive from the period when the Norman building next door was standing. The bay window in No. 4, which was *in situ* until 1962, was inserted when the large building there, dating from the fourteenth century, was altered. This may have been any time after 1450 (according to archaeological and architectural evidence). This may mean that Robert Everard who became a freeman in 1440/1 and is last heard of in 1483 when he was occupying this property, could have been the architect of the window. There is, however, nothing in the documents to connect Property No. 4 with the Calthorpe family as was formerly believed. East of Robert Everard was Reginald Harneys, a worstead weaver, and east of him again was the Calthorpe property. All three men appear on the assessment of 1472 which reads as follows: 'St. Martin: William Calthorp Knight for lands and tenements there taxed at 60/-, Reginald Harneys 66/8, Robert Everard 60/- ...'. When the Everard property changed hands in 1562 it was described as 'the big house and mansion called Everard's with adjacent garden wall, houses, tenements, buildings, gardens, curtileges, cellars, solars, wells, vault...'.

The latter is the most thorough of the descriptions in the surviving documentation for Property No. 4. From 1389 onwards it had merely been described as a messuage with buildings and gardens. From 1568 Nos 4 and 5 always seem to have been owned by the same person. In 1649 they were bought by Hugh Jaques of Norwich, a dyer, and were then described in the words for No. 4 above, with the addition of 'stalls, courts, entries, backsides and warehouses' and a messuage with buildings and yards once Ralf Attebrook, lister, and a plot of empty land there. In 1718 when the great-grandson of Hugh Jaques sold them, twenty-two people were in occupation.

Sometimes Property 4 included the greater part of the combined road frontages of 4 and 5, and sometimes Property 5. It is suggested that this indicates the existence of a feature which could be conveyed with either part. This appears to be confirmed by the enrollment in 1729 of a conveyance to William Maria Blane, spinster, by a worstead weaver living at St.Faiths, of the messuage in which his father had dwelt. The abuttals and the description of the rooms indicate that this was the property which became the Beehive Public House (*i.e.* No. 4). The eastern abuttal is the great gatehouse and it is probably the changing ownership of this which is referred to in the documents.

General observations

From the time when the Cathedral was founded and the commercial centre of Norwich moved from Tombland to Mancroft, the parish of St. Martin-at-Palace must have gradually become a backwater. The public quays to the west of the bridge were built on while those to the east, in the area of the excavation site, if they ever had been public, were by the time documents begin put to private commercial uses. The site itself was even more isolated than the rest of the parish, hemmed in by the Carmelite Friary Over the Water, the Great Hospital and the Bishop's Palace. This was undoubtedly the reason for the small number of shops (those which are mentioned were probably, in truth, workshops). However, the parish did not become, in the modern sense, a depressed area: the river attracted its associated trades, particularly dyers, throughout the medieval period; for a time in the fifteenth century there was a concentration of successful stonemasons; the mansion further east along the road, the Berney/Erpingham/Calthorpe house (residence of many Norwich M.P.s between the mid-fourteenth and end of the fifteenth centuries), must have provided employment and stimulated trade (in 1549 Lady Jane Calthorp left a woman servant 'a new covering of redde now at the dyeing'-the dyeworks were most likely in the vicinity).

In the sixteenth century the properties on the excavation site were gradually subdivided and built over to house more and more families, but there is no indication that these people were impoverished; indeed in 1851 when they were at their most numerous, there seems to have been work for almost everyone, male and female. People only left after the building of the new gas works from 1858 onwards. Ten years later there was a paper mill to the east of the excavation site (which was absorbed by the gas works before the end of the century) and the northern parts of the properties were straddled by a large timber works, leaving a few houses along the street and a public house in the remnant of Everard's 'mansion place'.

The enigma remains of who built the Norman house in the centre of the excavation site and how it was used. There were a few initial theories: that it had belonged to the Prior of Ely, named as the owner of the western abuttal of an unlocated riverside property in St. Mathew's; or that it could have been owned by a Jew such as Jurnet who built a similar house in King Street (the Jews had lent the

monastery money, for in 1218 the Prior was given a receipt for its repayment and, in this location, such a building would have been under the church's protection). Finally it was thought that the building may have had direct connection with the Priory, such as a depot for the export of wool from the Monk's Grange in Pockthorpe.

All these ideas were disposed of. The Prior of Ely's house proved to have been further east than the excavated site. No other Jew rich enough to build such a house appears to have existed. Finally, no connection with Norwich Priory emerged from a study of the cartularies and some of the early Cellarer's Rolls.

There would not be any problem if there existed a charter like the one concerning a riverside building in King's Lynn. This was issued by the Bishop of Norwich in 1187 and records the dedication to the High Altar of Norwich of three silver marks deriving from a stone house he had built on the quay at Lynn '*de domo nostra lapidia de Linna quam edificavimus supra ripam maris juxta capellam sancti Nicholai versus occidentem*'. The charter goes on to name the tenant and reserves the bishop's right to free annual access to the store-rooms in front of the building on the east for the recovery of wine and other purchases placed there (Dodwell 1974, 76).

It remains obvious, however, that the Norwich building was conveniently placed for the Bishop's use. St. Martin-at-Palace Plain was near the centre of Cathedral building activity and, before the acquisition of Cowholme (Fig. 96, 3), possibly the only easy landing point for imported stone and other materials. It may be that the route taken by the carts was along the line of an old road of the Saxon burh between the present bishop's gate, and the east end of the cathedral, parallel with the north- to-south stretch of Holmstrete. The bishop owned the land behind the messuages there before 1300, and this strip may have formed part of his original holding (the angle of Losinga's original palace may be explained by the suggestion that it was following the line of another Saxon street, again roughly parallel, with the first). It can thus be suggested that the building was erected to afford better protection for the storage of imported materials after the Flemings had come up the river and burnt the City in 1174. Indeed it could have been the Bishop's wine-warehouse. The above-mentioned building in Lynn was one such and it is interesting to note that the Ely building further east also included a wine store or cellar (*pincernaria*). Boats carrying wine were therefore using this stretch of river in the thirteenth century. *Pincerna*, as an oblique observation, was the word used for the Norwich Priory butler, the official in charge of the wine-butts.

The reason for the abandonment of the building before 1300 must also be a matter for conjecture. It was constantly under threat from river flooding: in 1290, for instance, the water rose so high that it flowed over St. Martin's bridge, carrying away many houses. Silting may have made negotiation of the wide bend in the river more difficult for heavily laden vessels. If it was a Priory building, it is likely to have been a target for the attacks of the rioting citizens in 1272. Thereafter the ecclesiastical authorities may have thought it wiser to withdraw supply lines within the perimeter of the Precinct and to use instead the way or canal through the water meadows, protected by a fortified water gate. The property was certainly in secular hands in 1327 when John de Hakeford paid landgable to the Prior although, as he probably lived elsewhere (p. 145), the building could have still been ruinous. By 1391 the messuage is described as 'with buildings, gardens, *etc.*' which may indicate that the house had been rebuilt. However, as the vendor (Nicholas, son of William de Brook) had a widowed mother, she was allowed to enjoy for life the house and part garden to the west of the gates, possibly implying a further, unexcavated, structure as the situation of the Norman building seems to have been east of these gates. Abuttal information of 1483 indicates that the messuage was occupied and the archaeological evidence would agree with a rebuild by this date (p. 53ff).

V. Conclusions

The documentary search undertaken for the excavated site has demonstrated both the limitations and advantages of such archive work. It has proved impossible to equate accurately any one documented property with structures excavated in 1981. Such precise topographical location of documentary references, which were themselves almost always recorded with different criteria in mind (usually economic and fiscal ones), is rarely possible.

In more general terms, however, it has been possible to establish several broad trends which confirm and amplify the archaeological evidence as well as giving the site an administrative context which can be used to suggest reasons for the location of certain features, notably the Norman building, and ways in which they might have been used. The most dramatic instance of this is the confirmation that much thirteenth and fourteenth century waterfront activity was industrially-based, with particular emphasis being given to dyeworking. This complements the archaeological discoveries which, while not producing a dyeworks, seem to have unearthed evidence for iron-smelting (p. 170). Both industries would, of course, have required water for their respective operations.

The apparent stability of the individual properties, with little or no medieval subdivision, can be seen from both the archaeological and documentary evidence. This stability is almost certainly the result of the Prior's jurisdiction which probably established the property boundaries (the archaeological discoveries imply that the Norman and later boundaries were deliberately laid above an earlier, Late Saxon, system of tenements, p. 153) and used the area for the revenue and benefit of the Priory itself. This is perhaps most notable in the fifteenth century when the area seems almost an enclave of cathedral masons. Subdivision is only readily apparent from the seventeenth century onwards, reflecting the secularisation of the area after the Dissolution.

Probably the most important discovery in this documentary search, however, was the fragmentary list of the Prior's landgable. It has long been known that the Prior collected landgable within his fee but, until now, no detailed list of rents has come to light. The newly-located fragment, therefore, is an illuminating addition to the Norwich archives while, most fortuitously, including the area of the excavated site.

The above report has, of necessity, concentrated on the properties within the boundaries of, and immediately adjacent to, the excavation. In doing so it has not been possible to set the site within its broader context other than in a general way. However, this detailed work, when integrated with the results of the excavation (and with the archaeological and documentary work undertaken west of

Whitefriars Bridge in 1979; Ayers and Murphy 1983), provides a reasonably clear picture of urban development in this waterfront parish over a period of a thousand years. While the details of buildings, occupants, trades and individual wealth remain cloudy, certain trends are clearly visible. These will be summarised elsewhere (p. 151ff) but, suffice it to say here, that the documentary search has provided a framework for the medieval period into which it is possible to dovetail the archaeological evidence, while at the same time outlining the areas of possibility for those aspects of the excavated site which previously defied interpretation.

VI. Postscript: Berney's Inn

As a result of studying the waterfront as a whole it has been possible to establish the location of Berney's Inn, later the Erpingham or Calthorpe house. The building which eventually became the Beehive Inn (and which contained the bay window now rebuilt into No. 10, St. Martin-at-Palace Plain) survived on the site of Property No. 4 until 1962. It has hitherto been supposed that it was a relic of the large mansion which belonged successively to the Berney, Erpingham and Calthorpe families, the other remains of which disappeared under the new gas works after 1858 (Rye 1926, 317). This was not so. The mansion was further to the east, and occupied a large plot, between Property No. 5 and the school, with a road frontage of 180 ft (Fig. 98).

The Cellarer's landgable list of 1327[65] indicates that at that date there were three messuages (*domus* is the word used) on the site, all liable for 1d. *per annum*. From west to east they were held by 'Ely', John de Berney and Richard de Bertone. By 1350/1, possibly earlier, John de Berney held them all.

The records for Ely Priory[66] show that the Prior of that house acquired Property No. 6 piecemeal, leased it to John de Berney in 1341 and relinquished all remaining rights in it to him twenty years later. Property No. 7 had belonged to the Payn family, first Henry and then his son John who was a tawyer (or white-leather dresser) and shoemaker. John de Berney held it by 1333[67].

He bought No. 8 from the Cellarer of Norwich Cathedral Priory to whom the reversion had been left under the will of Richard de Bertone, a cook, who died in that year[68]. In the Cellarer's Account Roll of 1350/1 is the entry *'de John de Berneye per mes quond'*. Berton 66/8[69].

No details survive of the house John de Berney then built. It is known however that he encroached on the river bank to a depth of 23 feet along the whole length of his garden, and erected there a tower of some kind[70]. In 1409 Sir Thomas Erpingham bought it from John de Berney's son, Robert. A glimpse of the size of Sir Thomas' establishment is afforded by the will of one of his servants. John Middleton, who died in 1417, left legacies to a servant in the buttery, four stable-lads, a servant in his lord's chamber, the cook, the butler, the barber, the skinner, another stableman, a watchman and five poor people dwelling in the house[71].

When Sir Thomas Erpingham's niece, who had inherited the house, died in 1446 it was sold to Sir William Calthorpe. He (like his son Sir Philip afterwards) was both sheriff and M.P. (Rye 1890) and moved his staff and household goods from Burnham Thorpe to Berney's Inn[72]. The house was sold complete with 'ye Hallyng, being cuppeboards, formes, stoles, tables, tresselles, press boards, bed boards, two standardes in ye wardrope there, a belle of brasy, ledy's quernes, quernes, brewyn vessels, rakks, manjours, ye barge there, with the appareill, for ye somme of CCC & L marks.' (Druery 1864, 143). There is no doubt that additions were made to the house, and probably the same occurred after 1536, when the Grammar School site to the east was acquired[73].

The only reference that Sir Philip Calthorpe makes to the house in his will of 1535 is in the legacy of 'four pieces of tapestrye worke which were wonte to hange in my somer parlor at Norwyche of the story of Kynges'[74]. The will of his widow who died in 1550 is a little more revealing: she left to John Leche that part of her messuage to the west of her gateway, and mentions 'my two chambres at my house in St. Marten's,...the chambre over the kytchen in my place...the galerye there,...the grete chambre,...the wardrop' (see transcription of will on microfiche, 2:F.2-6)[75].

Her chief heir William Blenerhasset moved his residence to the Lathes, the former Monks' Grange in Pockthorpe, and the subsequent history of the building and its site is of subdivision and overbuilding. In the middle of the seventeenth century the then owner still lived in the main house, but his stepson owned a building beside the river there, in which lived seven families. Part of an orchard to the east had lately been used to make a passage down to the water[76]. Eighteen months later the main part of the property changed hands, together with 'the Malthouse, Killehouse, Linge-house and yard' and another dwelling-house recently built to the north[77]. In 1711 the thatched gatehouse, sheltering four households, was disposed of separately[78]. A newly-erected dwelling-house on the river 'in a certain place called World's End Lane' changed hands in 1760: this was next to the staithe there and had a little garden to the south, with a strip of land 7 feet wide between it and the river[79]. In 1823 two bricklayers bought a messuage consisting of a 'kitchen, three chambers and a long attic partly over a gateway, and land adjoining, in World's End Lane' for £130 (they promptly mortgaged it for the same amount)[80]. This was perhaps the smaller of the two entrances to the street mentioned in 1724, the other being wide enough for 'bringing in coals with horses'[81].

The position and plan of Erpingham House has been determined by reference to a large body of old deeds acquired by the directors of the British Gaslight Company in the third quarter of the nineteenth century (microfiche, 2:F.10) and now deposited in the Norfolk and Norwich Record Office among the Town Clerk's deeds. The house stood well back from the road (Fig. 98). The main block of building surrounded a small courtyard and was flanked by two wings running south. The site lay partly under and partly to the east of the more westerly of the two gasholders shown on the Ordnance Survey, 1885.

The process of infilling continued, including the development of a new road, Talleyrand Street (Fig. 99 on microfiche), until, by the time of the 1851 Census, nearly one hundred families (including a few on the opposite side of the road) lived in World's End Lane[82]. Even in 1858, however, it was claimed that 'the extent of the original mansion might be traced by the chimney-pieces, carved ceilings and mouldings', and the writer described a surviving 'banqueting room with carved panels 17' x 35'.' This room had a 10 ft window on the south side and was reached by an outside staircase. Below was a vaulted

kitchen. There were several other large rooms facing north (Druery 1864, 146).

All this was swept away by the British Gaslight Company in the years following 1858 for the erection of a second gasworks. Their proposed expansion was criticised by many citizens (though not on the grounds of amenity or humanity) at a public meeting held at the Guildhall on 12th February 1858[83]. Objections were chiefly founded on local resentment against a London company producing gas for Norwich. However, later that year the proposed Act passed through the House of Commons and the new works was built at World's End Lane. On the site of the west wing of Berney's Inn were erected offices (Druery 1864, 143) so sumptuous that the auditor of the Gas Company's accounts in 1866 remarked, 'I cannot conclude this report without drawing serious attention to the Large Outlay in fitting up the new offices, many of the items charged being of a peculiarly expensive Character'[84]. A lithograph, the drawing for which was made in 1851, probably illustrates this wing[85]. It shows a three-storey building, divided into five tenements, and although 'picturesque' (the artist depicts it without chimneys!) it still appears to be sound.

Exactly one hundred years after its inception the Palace Works of the Eastern Gas Board was producing seven million cubic feet of gas per day from coal and supplying not only Norwich and district but large areas of north and south Norfolk[86]. Production ceased however in 1967 (E.E.N. 24.8.68), demolition was completed in 1970 and the site became a car park. Development for the Crown and County Courts began in 1985.

7. General Discussion and Conclusion

I. The Topographical Development

The topographical background to the site has been outlined above (p. 1). However, an excavation of the size of that undertaken in 1981 inevitably provides data which not only allows discussion of detailed topographic development but also suggests more wide-ranging proposals which affect the understanding of the growth of the settlement as a whole.

The first observation is more geomorphological than archaeological. While it has long been suspected that St. Martin-at-Palace Plain is situated on a gravel spur projecting northwards into the River Wensum (Carter 1978a, 193), a proposition validated to a certain extent by trial excavation in 1979 (Ayers and Murphy 1983)[95], the excavation of 1981 allowed a much greater area of the gravel to be uncovered and a much more comprehensive view of the northern slope to be recorded. The results can be assessed from Figure 26, about which three observations can be made. Firstly, the church of St. Martin-at-Palace Plain is built on the edge of the relatively flat top of the spur. Secondly, the ground slopes quite markedly in the area of the street frontage buildings immediately north of St. Martin-at-Palace Plain (marked as 'street' to the north of the church on Fig. 26). Thirdly, the mean height of the present day River Wensum is above that of the lowest building levels uncovered by the excavation.

The third point is of marginal interest and probably reflects the general rise in sea level relative to the land since *c.* 1200 which has been noted more dramatically elsewhere (*e.g.* Green 1961; Coles 1977; Ayers and Murphy 1983 for a brief discussion of the local implications). Further evidence for such a rise is given below (p. 157).

The first and second points, however, have considerable topographical implications. The church is located at the northern edge of an area that could be occupied easily whereas the street and building line to the north seem almost afterthoughts in the development process. The street itself (Fig. 2) is curious, being very narrow at its western end before widening to the east. It certainly runs extremely close to the late medieval north aisle of the nave of the church, perhaps implying a narrowing of the street when the church was extended. The location of the church is also slightly odd. It is the only church in Norwich completely surrounded by roads and it is interesting to speculate how such a circumstance could have come about.

St. Martin's was an important church by the time of the Conquest; it was held by Stigand, Archbishop of Canterbury, and, if the long-and-short work in the east end is of pre- rather than post-Conquest date, the church was already a substantial building by 1066. At the present day the structure stands at one side of St. Martin-at-Palace Plain or *Bichil*, as can be seen from Figure 1 (Fig. 2 makes it clear that St. Martin-at-Palace Plain encircles the church). The situation may well have been analogous to that of St. Michael Tombland, destroyed in the 1090s, but apparently standing within Tombland at its southern end. St. Michael was the richest church in the settlement at Domesday (1086), occupying an important market site. *Bichil* could have formed just such a site, as a subsidiary market associated with the quay. St Martin-at-Palace Plain has a distinctive shape, albeit distorted by subsequent development such as the Cathedral Close wall, a shape the more distinctive by its relationship to the riparian street line on the south bank. This line is also now much distorted, with known and probable lost elements, but it seems likely that the Plain formed part of such a riparian road with extensions from the north-east corner as World's End Lane and, hypothetically, from the north- west corner as a now-lost street towards Elm Hill (Fig. 101). The geomorphological similarity to Tombland, with Upper King Street entering its south-western corner and Wensum Street leaving by the north-western, is marked.

The alignment of the church of St Martin-at-Palace within the area of *Bichil* is also distinctive. Most churches in Norwich follow the alignment of the street on which they stand. At first glance (Figs 2 and 96) this seems most unlikely for St Martin-at-Palace. Certainly the road south does not align but the alignment of this road may well post-date the 1318 extension of the Close. The road north, however, especially when World's End Lane is considered, is much more closely aligned with the church, the road's curve at its western end (Fig. 2) suggesting that the street may have been encroached upon by the south aisle[96].

Period I deposits of late eleventh- and early twelfth-century date on the excavated site (Fig. 8) contained the remains of three skeletons at the extreme eastern edge of the excavation. These do not appear to have been related to the church of St. Martin-at-Palace but rather, their isolated position, divorced from activity to the west, emphasises the possibility that they formed part of a graveyard east of the site, that is north of World's End Lane. Should this have been the case they may well have been associated with an unknown church which disappeared, like another recently discovered (Ayers 1985b), in the century or so after the Norman Conquest[97]. Such a probability stresses both the antiquity and the importance of the riparian road and renders more likely the probability that St. Martin-at-Palace was aligned to it.

There remains, however, the possibility that the church of St. Martin-at-Palace may predate the road as there is some evidence that the northern boundary of the churchyard may have abutted the foreshore. This evidence takes the form of chance finds of human bone discovered by contractors' groundworks in 1984. The skeletal remains while naturally unstratified, all came from deep sections below the surface of the street north of the church where there was a degree of previous disturbance during the construction of a Victorian sewer. Nevertheless, the possibility exists that these burials were the remains of individuals inhumed north of the present churchyard wall, perhaps in an area previously occupied by the churchyard. The implication thereby follows that the north-eastern part of the street of St. Martin-at-Palace Plain may have been cut through a pre-existing riverside churchyard, presumably to provide access to buildings on the sloping bank of the gravel spur itself.

Such a development is quite possible. Although three graves were located on the gravel slope during the excavation (p. 11) it is reasonable to assume that the

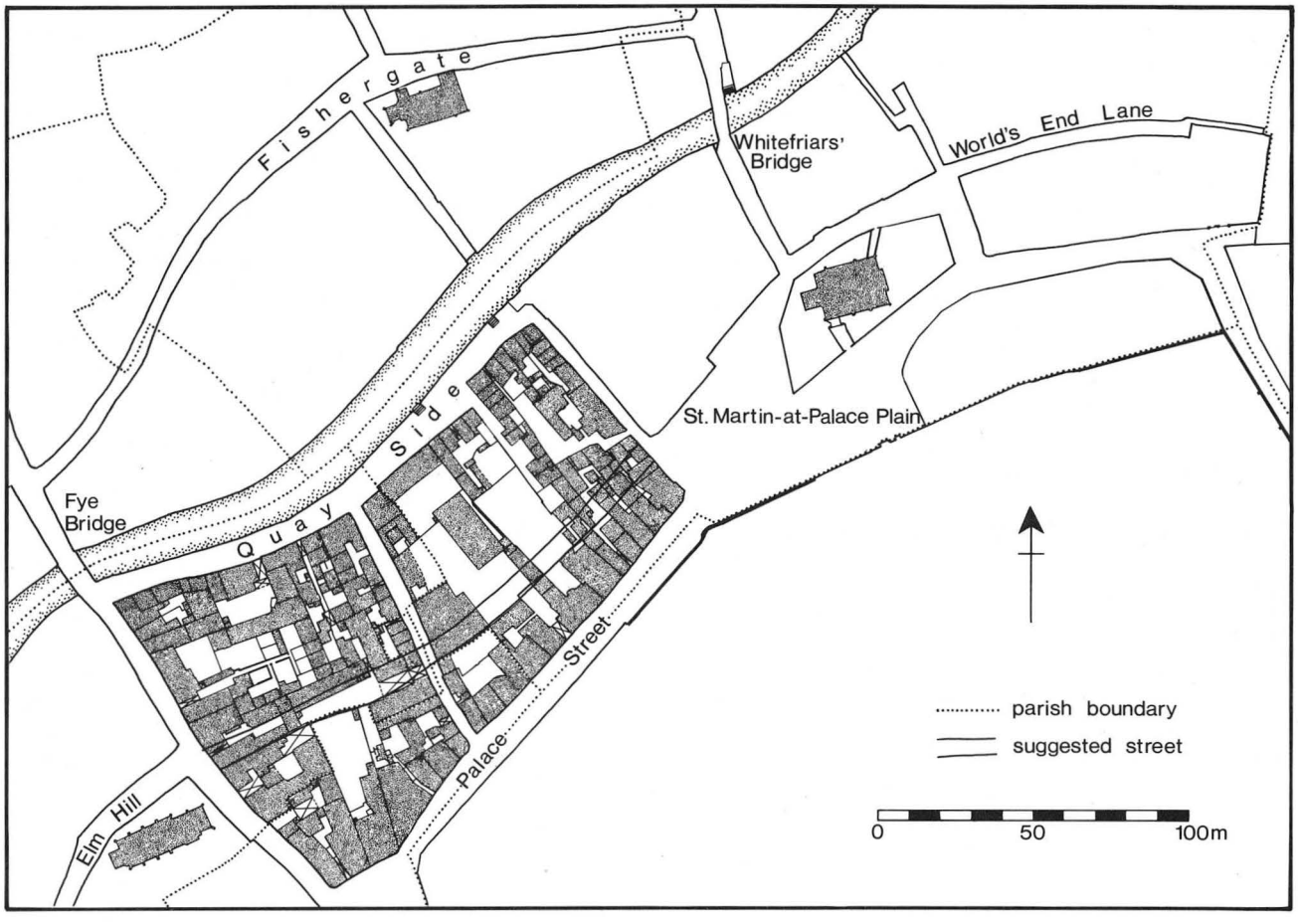


Figure 101. Map to show suggested alignment of riparian street between Elm Hill and St. Martin-at-Palace Plain. Scale 1:2500.

original graveyard of St. Martin stopped at the top of the slope (the three burials probably relate to a churchyard other than that of St. Martin, p. 151). An hypothesis is that eleventh century development along the waterfront took place north of this boundary on marginal land, colonisation initially taking place from the river, which was its *raison d'être*, without affecting the area of the churchyard. Eventually, however, either through use or as a matter of policy, a street was driven through, to link the buildings erected on the slope with the Plain proper. Any such street development must predate *c.*1170 as the Norman Building (Building *2100*) is aligned upon it, and it probably dates to the eleventh century itself as it is unlikely that the Saxo-Norman tenements, which also seem aligned upon the street, could have been serviced without such a facility.

This possible development is, of course, mere clutching at straws. It does not, however, contradict a larger overview of the river bank where the likelihood of a single riparian street extending from Elm Hill, via a lost section between present-day Palace Street and Quayside, to Palace Plain has already been commented upon (Ayers 1985a). Indeed, if the supposition that the south bank of the River Wensum developed as a port in the eleventh century is correct (p. 169), it is perhaps very likely that occasional river frontage obstructions would need circumventing or removing. A church would have been the most difficult obstruction to move providing as it did just about the most stable man-made element in any given landscape and, 'where a replanning...took place it did not usually involve the clearance of important, or probably even minor, churches' (Rodwell 1984, 1 and 21). Such a development could thus provide a context for the insertion of a road north of the church.

The exact alignment of the riparian street cannot be explored here other than to reiterate that it did run east of the churchyard and the excavated site as World's End Lane, a section removed in 1888 (Fig. 98). Archaeological deposits in this area were largely destroyed by the nineteenth century gasworks[98]; limited work by the Norwich Survey in 1971 and 1972 (Carter 1972, 414; Carter and Roberts 1973, 449-453; Evans forthcoming) indicated activity from the eleventh and possibly tenth centuries. (Sites 154, 155, 156, Fig. 1). A discussion of the later medieval documentary evidence for part of this area is given elsewhere in this volume as it is pertinent to the development of the excavation site (p. 149).

The above discussion of the topographical situation of the site is necessarily tentative. However, more positive weight can perhaps be added to observations of material within the site. Here, the earliest apparent structures and tenements may have been divided by boundaries, laid out at fairly equidistant intervals. These were ill-defined in the archaeological levels at the street frontage and may have only existed as approximate alignments between house plots, although at least one feature (*3035*, p. 11 and Fig. 8)

could have acted as a footing for a more formal barrier. To the north, however, the layout of the waterfront seems to represent both differences between tenements and a co-operative approach to the problems encountered in such an area. This part of the site is remarkable for the uniformity of purpose displayed by the construction of a series of wickerwork fences and brushwood surfaces to consolidate the river foreshore (Fig. 12). The actual function and use of these features is discussed below (p. 165-7) but here it suffices to note that, although there was a coherant overall plan to the work, the various elements were organised on an apparently tenemental basis.

This conclusion is suggested initially by an analysis of the timber used (p. 127-8). Fence *1136* Fig. 12), at the eastern edge of the excavation consisted almost entirely of hazel; fence *1139,* however, immediately adjacent and of similar construction, was built of holly, hazel, oak and probably hawthorn. The wood from fence *1189* to the west was too crushed to be identified. However, it was built with split vertical stakes, in a similar fashion to fence *1136,* but fence *1139* between them was built with unworked stakes. In short, it is possible to suggest the existence of three tenements, each with individual structures forming an essentially communal facility.

It is possible to go further. By late Period I (Fig. 15) an additional fence had been built. The alignment of this clearly suggests construction by the occupant of a tenement west of earlier fence *1136.* He seems to have been responsible for his western boundary, confirming the earlier implication (Fig. 12) that his eastern boundary was the responsibility of his neighbour. In other words, the Saxo-Norman tenemental layout may have been organised in such a way that each tenement holder was also responsible for his western boundary. Such rationalisation is probable in order to reduce the likelihood of disputes[99]. Although such conclusions have not been drawn at other waterfront sites, it is interesting to note that eleventh-century tenement plots at New Fresh Wharf in London were divided by fences (Schofield and Dyson 1980, 41) and it is likely that these divisions were controlled by custom if not regulation. The apparent organisation of tenements in the Palace Plain area might also suggest that the site lay close to the commercial heart of the town. Williams has noted relatively loose settlement patterns in Northampton and Thetford but concedes that these may reflect sites away from the centre of activity, in contrast to Coppergate, (York) and Flaxengate (Lincoln), both central sites (1984, 31-2).

Riparian colonisation at Palace Plain thus seems to have taken the form of individual tenements which were linked by the river and street and were the result of a common approach to practical problems. Supposition of such a system, however, begs the question as to whether these private tenements developed from a common quayside. Keene has already asked whether this might not have been the case at New Fresh Wharf in London where a public embankment may have been subsequently divided (1983, 82). If this were the sequence of events, the street would have to predate the tenements, which it almost certainly did in London, and may well have done at St. Martin-at-Palace Plain in Norwich. As has been indicated above, however, the ambiguity of the thoroughfare's origin implicit in the surviving topography as well as the circumstantial evidence of excavated material to the north, does not allow for such an assertion. The question must remain open although it can be argued that the open space of the Plain itself was a common clearance area of some sort (Ayers 1985a).

The apparent system of individual tenements, however, was altered in the late twelfth century by a large-scale development still characterised by the surviving remains of Building *2100.* This development obliterated at least one earlier boundary and seems to have been associated with the creation of new ones. The tenement, within which Building *2100* sat, was clearly defined to the east by the wall of the structure itself. Excavation to the west, however, failed to recover a definitive boundary (p. 40) although a putative one can be proposed below the line of a later wall (*2184,* Fig. 52). This would establish a probable tenement width for Building *2100* of approximately eighteen metres or fifty-nine feet (Fig. 100). It is possible, by using the Ordnance Survey map of 1883 (which probably includes fossilized boundaries and certainly includes the line of Wall *2184*) in concert with the newly-discovered list of the Prior's Landgable (1327) to suggest tenement boundaries of probable mid-fourteenth-century date (p. 138-40 and Fig. 98). These boundaries divide up slots each approximately sixty feet in width. They do not, however, overlie earlier boundaries. Rather, where excavated, there is evidence that they clearly ignored earlier features (with the exception of Gully *562*), the line of Wall *2184* cutting across Phase III pits. It thus appears that the tenements outlined on Figure 98 represent town planning *de novo.*

The context for such a development is that of ownership by the Prior of the Cathedral monastery. This entire area lay within the Prior's Fee (it was probably acquired in 1106, p. 136) and it is tempting to see such a coherent reorganisation of plot layout as an episcopal initiative. Support for such a view can be obtained by a study of Bishop's (King's) Lynn, a settlement closely associated with the Bishop of Norwich.

Here, detailed analysis of the Newelond or Newland Survey (dated between 1267 and 1283) has led to the conclusion that a possible correlation existed between the size of a messuage street frontage and the rent its tenant paid to the bishop (Rutledge and Rutledge 1978, 106-7): 12d being due from frontages with a width of sixty feet, other tenements paying on a *pro rata* basis. Thus the stone house held by John de St. Omer in King Street, Lynn, had a frontage of forty feet for which he paid a rent of 8d (Rutledge 1982, 127). The tenements or messuage on St. Martin- at-Palace Plain in Norwich paid landgable at a rate of 1d with the exception of that property immediately against the road to the bridge which, being only some thirty feet wide, paid 1/2d. In other words, although the forms of rent were different, the system seems to have been the same, emphasising a degree of planned layout.

The interest of the bishop, or at least his prior, in the Palace Plain tenements, is also reflected in some of the known tenants. By the late fifteenth and early sixteenth centuries the area was becoming almost a ghetto for masons. In 1505 Property No. 1 was held by John Wilde 'fremason' and Property No. 2 by William Hermer, also 'fremason'. Property No. 3 (that with Building *2100*) was occupied by John Antell 'fremason' in 1483 and had passed to his son Robert by 1505. Robert Everard 'fremason' lived at Property No. 4 in 1483 and indeed the property was known as 'Everards' as late as 1649. It is possible that Everard died as late as 1504 (microfiche ref. as are references for all the above) and so it is likely that all

the properties north of St. Martin's church were occupied by masons at the same time.

While it is not known whether the masons actually practised their craft on these tenements, it is possible that some did. Hermer was assessed 164/- on his goods in 1524 which probably reflects his stocks of stone. Everard's house, whether during his occupation or not, contained reused dressed architectural fragments in the foundation courses of an arched opening to a bay window. Everard's occupancy also reveals an interesting detail of late medieval life; in 1440 he was ordered to pay 4d per annum for the nuisance of a saw pit next to the street, opposite his neighbour.

The construction of the stone house in the twelfth century had two effects. Of limited consequence was the deposition of upcast gravel to either side of the foundation cut, most notably to the east where a large area was sealed (p. 40). More importantly, the excavated depth of the cut meant that the floor of the stone building was at, or only just above, the prevailing water table. This must have been the result of deliberate design policy and, within the context of the building's probable use as a warehouse-cum-dwelling (p. 158), an eminently reasonable undertaking. However, the Saxo-Norman marine regression appears to have been at its greatest extent during the twelfth century (Green 1961). From *c.*1200 onward, the level of water in relation to the land seems to have risen dramatically (above, p. 151) and this was manifest in the deposits excavated in the building itself. Not only were several levelling layers and floors observed in the cellar or undercroft (Fig. 35) but a freshwater flood deposit (*2081*) was also uncovered (p. 40 and Fig. 36 on microfiche). There was thus a clear necessity to raise levels in and around this structure, paralleling the widespread levelling-up with clay noted in the exposed port of Medieval Hull (Armstrong 1977; Armstrong and Ayers forthcoming). Such levelling required, in turn, that the thresholds of the doorways should be raised and this is exactly what happened (p. 40).

The economic fortunes of the St. Martin-at-Palace Plain area seem to have fluctuated during the medieval period (p. 167ff). There is strong archaeological evidence that the stone building was in ruins throughout the fourteenth century. This ruination may explain why, when a large structure was erected immediately to the east in the 1300s, it should use part of the stone building as a structural wall at its street frontage (Fig. 43) rather than respecting the wall and building a second one adjacent to it. Normally such an activity might be expected to cause a dispute; several cases are known from London where tenure if a part wall was contested (Chew and Kellaway 1973). In this instance, as both properties seem to have been owned by the Prior, and one was ruinous, the matter was probably academic. However, the stone house was eventually rebuilt and this must have been done without hinderance to the neighbouring building as the latter stood until 1962, after the demolition of the rebuilt stone house (which may have taken place as late as 1946-56, p. 160).

The eastern building (*3132*) is described below (p. 160ff). It seems, however, to have been sub-divided by the late fifteenth century at the latest, its yard became a semi-public thoroughfare, ultimately known as Bee Hive Yard and extending almost to the river (Fig. 90 on microfiche). This remained the only such access between the junction of Palace Plain and World's End Lane, and the corner with the road to the bridge. All the other river frontages had to be approached through the properties themselves. It is, nevertheless unlikely that Bee Hive Yard ever really functioned as a public staith as it narrowed to an alleyway between buildings on the waterfront itself (below).

The uses to which the waterfront was put during the thirteenth- to fifteenth centuries were barely visible in the archaeological record. Indeed were it not for the documentation (pp. 134-150), it could be concluded that activity was very slight. This, however, was almost certainly not the case and, far from being under-used, the waterfront was probably the principal reason for economic activity in the street. There is strong documentary evidence for dyeworking (p. 145), a tanner probably occupied one of the properties in the fourteenth century and hornworking is known from an unstratified pit[100] close to the north section. Both tanning and hornworking, like dyeworking, needed water. The location of such industries close to the river is therefore unsurprising (industries are discussed below, p. 169ff).

Industrial use may have ousted domestic occupation as there is a lack of evidence for this latter activity at the street frontage (p. 26ff) other than in the large stone building before *c.* 1300 or in Building *3132,* subsequently constructed to the east in the fourteenth century. Building *3132* was certainly symptomatic of an upgrading of the area (p. 171) which may have led to a temporary decline in such noxious industries as dyeing. The waterfront could have retained some local importance however; John de Berney, who owned a extensive property a few yards downstream, encroached on the river bank and built a tower of some sort in the fourteenth century (p. 149). This early example of a tower is unlikely to have been similar to a tower built in London in the sixteenth century for what seems to have been a somewhat pretentious display of status; 'John Stow records the practice [in London] of several prominent citizens, beginning with the mayor of 1536, building towers of brick or timber, a vanity which he roundly condemns' (Schofield 1984, 161). Berney may have been motivated by more pragmatic reasons; his tower and one known from Bristol (Canynge's House, Pantin 1962-3, 232) front the river and several such towers are known from King's Lynn, of which one, a late sixteenth-century example, is extant at Clifton House on Queen Street. Parker notes that these towers 'seem to have been built with both practicality and prestige in mind' being additionally useful as look-out places or providing living and storage space (1971, 47). Certainly practicality in riverside towers was at least as important a factor as ostentation; the Hanseatic Steelyard in London had a tower (Schofield 1984, 120) which was probably a symbol of commercial power but must also have had a specific function space, while in Hull, a tower of very practical use was adapted as a house: 'the Toure called the Tolle Toure in the tenure of the Broggor' or water bailif in 1465 (Horrox 1981, 112) was still there in the 1580s and had probably been expanded as there was 'a house in the tower over Broger's house' (Gillett and MacMahon 1980, 156).

The Berney tower was an early construction on the river bank but other buildings had followed by the sixteenth century as is shown by Cunningham's map dated 1558[101]. This development of structures effectively reversed any decline in river frontage use that the construction of large street frontage houses such as Building *3132* had occasioned. While the street frontage buildings clearly had quays on the river (in one instance with a latrine, p. 146) and access and drainage rights, the

archaeological evidence for actual structures at the waterfront suggests that they did not predate the 1500s in origin (exceptions such as the Berney tower being outside the area of the excavation). The Cunningham map therefore depicts a development which was of recent genesis. It is most probable that the riverside structures started as parts of the properties in which they stood but some at least were sold off. Cunningham's (admittedly inaccurate) map indicates as much as early as 1558. When such selling did occur, however, access was generally retained as in 1747 when the street frontage of Property No. 3 (Fig. 98), that with Stone Building *2100*, was sold but a right-of-way was retained for that part of the property on the river (p. 143).

Waterfront development took the occasional surprising turn with at least one house being provided with a cellar and another with a well (p. 59-61). Neither facility seems wholly appropriate in the situation but was not unusual; there were wells all along the river frontage in Westwick (Alan Carter, pers. comm.).

By the early nineteenth century this part of the waterfront had been painted and sketched several times (most notably by Henry Ninham) and these works clearly show the density of settlement. It should be added that the angle in the riverside wall at the north end of Bee Hive Yard (which fragment of wall survived until 1984) supported (?timber) privies directly above the water in the nineteenth century and these are possibly represented in a Ninham painting[102].

The growth of settlement at the waterfront in the eighteenth and nineteenth centuries was complemented by a fragmentation and increasingly dense occupation of the buildings at the street frontage. This can best be followed in the documentation (not all of which has been exploited, p. 149) and in the map evidence (a reconstruction of mid-nineteenth-century settlement is shown on microfiche, Fig. 99). While this infilling of the urban topography was clearly the result of several socio-economic factors, its character was such that the linkage of site to site-use was essentially broken. Few of the occupations known from the eighteenth and nineteenth centuries relied directly on the river for their operation although it is likely that developments of saw mills and gasworks in the 1800s were both facilitated by the advantages of water transport for bulky materials, timber and coal.

II. Structural History

Timber buildings

To date, few excavations in Norwich have uncovered evidence of Late Saxon domestic timber buildings. In large part this is due to the destructive nature of later structures although, to some extent, the number of sites excavated using area excavation techniques in locations of known Saxon occupation have been very limited. Many Norwich Survey excavations, for example, were extremely useful in defining the limits of Saxon settlement (such as the site at Alms Lane; County No. 302, Atkin 1985, 255), but clearly found little trace of Saxon activity. In consequence the amount of data recovered from Norwich for early timber structures is extremely limited (Barn Road alone being an exception; Hurst 1963), in contrast to the other major pre-Conquest town in the region, Thetford (Davison 1967; Rogerson and Dallas 1984; Dallas in prep.).

The hypothetical structures of Saxo-Norman date identified in Phases I1 to III of the site under discussion represent the largest corpus of putative buildings yet excavated in the city. It is unfortunate, therefore, that their remains should be so fragmentary. Seven of the twelve 'structures' (A, B, C, F, G, J and M) were located in an area where all surfaces had been removed, merely leaving the subsoil into which features were cut. It was thus not possible to relate buildings by horizontal stratigraphy nor could the original depths of features be calculated. Of the remaining five structures (D, E, H, K and L) only elements were found of each, never more than the alignment of two walls.

Only one proposed structure (Structure C) had a semi-complete plan (Fig. 5). It was built with posts in individual holes and appeared to be associated with a second building (Structure B) with which it could have formed a single entity. Individual post-holes were used in a further three structures although the remaining seven incorporated either elements of post-in-trench or slots for their constructure. The best preserved of these was Structure D where three large post-holes (Fig. 6) seem to have been set into a narrow trench which was more of a setting-out feature rather than a structural element in itself.

In so far as any building could be interpreted, the structures appeared, in general, to be rectangular. The evidence did not survive to suggest whether structures, such as A or D, extended to the street frontage. The vestigial remains imply that larger buildings were constructed at or near the street frontage, at right angles to the street, with smaller buildings parallel to the street at the rear. The surviving evidence is too flimsy to attempt an analysis of their measurements. Considerable quantities of wattle-and-daub were recovered from a post-hole of proposed Structure F (p. 9) suggesting that this method of wall cladding was in use.

As regards function of the structures it has been mentioned above that the available data is equivocal. Despite the destruction of surfaces on part of the site, debris, notably ash deposits, ought to have been evident elsewhere to suggest domestic or industrial occupation. Such debris was, however, notable for its absence although quantities of domestic pottery were found together with fragments of imported vessels. It is suggested that the balance of probability is that domestic occupation was taking place in an area that was otherwise perhaps used for commercial purposes.

Stone building 2100 (documented Property No. 3)

The survival of so much of this building seems to be due to several factors, namely that it was originally (*c.* 1170) set within a deep three-sided foundation cut in the sloping hillside (Fig. 26); its ruination *c.* 1300 (p. 43) was followed by a reuse as an undercroft *c.* 1450 for a rebuilt structure above; and finally, when completely below ground, it was subdivided for continued use as cellars in the nineteenth and early twentieth centuries. Accordingly, most of the lower floor survives almost to ceiling or vault height. In consequence considerable detail remains to be studied and sufficient of the fabric is extant to discuss possible functions of the building both at the excavated level and above.

The excavated remains are characteristically Norman. There are good parallels both for the structure as a whole and its elements. However, because the ruin was uncovered within the context of an archaeological

excavation, it is possible to provide supplementary dating evidence to art-historical parallels. Deposits were poor in finds within the structure, perhaps reflecting function as well as cleanliness, but, east of the remains, the cutting of the foundation pit established a sequence which can be dated from finds. This sequence is illustrated on Figure 37 where the foundation trench is clearly visible, cutting earlier deposits and being sealed by later ones. Crucially, context *525* (which immediately predates the foundation trench and thus provides a *terminus post quem* for the building's construction, although it is not on Fig. 37) contained two cut halfpennies of Henry I (p. 63) who reigned from 1100 to 1135. Regrettably there is no coin evidence for a *terminus ante quem* but it should be noted that well-dated finds of twelfth- to thirteenth-century date were recovered from post-construction levels (Table 1).

Most of the excavated structure has been retained in a large undercroft below the new Magistrates' Courts building and public access to view can be made by arrangement[103]. While most of the surviving fabric is Norman work, it clearly retains elements of later despoilation and additions. These have been itemised in the account of the excavation (pp. 28-59) but the following discursive gloss will highlight aspects of the fabric as well as attempt to resolve some of the apparent functional problems.

The Norman work, the original form of which is discussed below, is almost entirely constructed of flints which were clearly selected with care and were readily available in the immediate locality. The dressings are of limestone, most probably Barnack, which was the nearest source of good building stone and is known from many buildings in Norwich and Norfolk including Norwich Cathedral itself where quite extensive use of the material was made. The tooling on this stone in the excavated building survives in several places where the west face of the central internal buttress (pl. XVI). Here, the tooling is characterised by closely-spaced diagonal lines although chevron tooling is also visible on the west external corner of the turret. The walls themselves appear to have been constructed from within the excavated construction pit; an external foundation trench did not thus always exist (*e.g.* Fig. 44) although on other occasions the wavering edge of the construction pit meant that a gap had to be infilled following construction of the straight wall (*e.g.* Figs 37 and 38). External buttresses are set at two of the corners (p.33).

The actual construction of the long walls is curious. The western wall has an offset exterior foundation course (Fig. 29) which was not unexpected and seems to have been immediately beneath contemporary (twelfth-century) ground surface. The eastern wall, however, while also containing slight traces of offset courses, is characterised by a rectangular *recess* close to the base of the wall (Pl. XIV and Fig. 30, BN-BP, on microfiche). This recess seems to have no structural purpose and its function, if any, is unknown.

Further indications of the actual technique of building were the 'lifts' or building stages, visible as horizontal lines of thicker mortar on the interior face of the eastern wall (p. 33). These were almost certainly effected to allow the successive shuttering of the flintwork which, by its very nature, must have contained very large quantities of mortar. Shuttering of flint-built churches is known[104] and the structural problems encountered in a building such as *2100* would have been similar. Indeed, 'detailed examination of the rubble buildings of the eleventh and twelfth centuries ... appears to show that these walls were poured between shutter boards' (Fowler 1982, 129).

The walls contained no traces of responds for supporting a vault nor were any settings for internal supports located. It seems likely therefore that the lower ground floor of the structure was ceiled in timber. This would have meant a considerable span for joists of some 6.7 m (22 ft) although this by no means unlikely, anything under 9m (30 ft) being feasible (David Stocker, pers. comm.). Certainly, the lack of responds makes a vault similar to that at the Music House in Norwich, the nearest and indeed closest parallel to the excavated building impossible (Kent 1945; a photograph is readily accessible in Platt 1976, 58). A barrel vault springing from the tops of the surviving walls remains a possibility, as for instance in the south end of the east wing of the Bishop's Palace at Lincoln but the resulting interior space would be absurdly high (probably in excess of 7 m) and very difficult to use in conjunction with the street frontage. A smaller version could have been inserted if a spine vault once existed the length of the longitudinal axis of the structure, that is from a respond above internal buttress *2135* at the north end (Fig. 31) to the possible site of a respond in the centre of the south wall (Fig. 30, BQ-BR, on microfiche). Such a spine would need at least one internal support in the centre of the room, that is below the later brick and flint pier *2060* (Fig. 50). This was not removed so the hypothesis remains untested. Nevertheless, the likelihood that the room was ceiled in timber remains the most-favoured possibility and attention is drawn to the similar building at Christchurch where joist-holes survived (Wood 1974, 32) and to the fragmentary remains of a twelfth-century house behind Nos 48 and 50, Stonegate, York which 'comprised a first-floor hall with a timber floor above an undercroft...' (RCHM 1981, lviii). In addition, Faulkner's survey of medieval undercrofts and town houses cautiously notes that 'though most of the surviving examples are vaulted, it by no means follows that this was the rule...' (1966, 120). Interestingly, excavation in the Stonegate house in 1939 revealed traces of central piers or posts for supporting the timber floor above (RCHM 1981, 225a). No such supports were recognised in Building *2100* although, as mentioned above (p. 53), only the northern of the later inserted pier bases was removed.

It is clear that the building was not a single-storey structure for it is furnished with a latrine turret (p. 38ff and below), serving the upper floor. In addition, the setting of the structure at right-angles to the street within a deliberately excavated foundation cut indicates the intention to construct a building with a first floor hall above a basement, a hall moreover that had ease of access from the street itself. Further evidence of at least one additional storey is furnished by the existence of northern buttress *2135* and corner buttress *2136* which acted in concert to support an arch between them, the spring of which can still be determined (Elevation 298, archive). Presumably the arch supported a first-floor feature and may have been necessary if the roof was ceiled in timber rather than stone-vaulted. Such a feature could have been a stair at the north end of the hall to a solar (although a stair here would be very steep and distinctly unusual) or a fireplace (again unusually located). The buttresses are dressed in ashlar on their lower courses, the ashlar being carried upwards on the faces to the basement room but not on to the underside of the arch which seems to have been finished in flint. It ought also to be remarked that the base

of buttress *2135* contains the only *in situ* architectural decoration located in the building, namely a simple chamfered plinth (plinths of similar style have recently been exposed in the passageway of the west gatehouse of the Lower Ward at Castle Acre Castle: Coad and Streeten 1982, 183, fig. 17 and pl. xxb). The roof of the building may have been tiled; numerous fragments of glazed roofing tile were recovered during the excavation, generally from deposits associated with the use and destruction of the Norman structure, p. 99).

Access to the enclosed basement is via two doorways, the principal one (*2004*) located in the west wall. This doorway is dressed in Barnack limestone with jambs being effected against the external threshold. The door, of which a doorpin survives, swung inwards and could be barred from the inside by a drawbar slot, the recess for which was uncovered and is marked in Figure 25. A similar recess with a more distinctive opposing stop (Pl. XX) was located on the small doorway in the north wall (also Fig. 25 and Fig. 32). Such slots still survive at Richmond, Chilham, Luddesdown and Sutton Courtney (Wood 1974, 86). The north doorway was built without jambs but the exterior threshold step presumably acted as a door-stop with the drawbar across the interior.

Such methods of barring the doors, however, implies access to the upper floor from the interior of the basement. No evidence for such access survived although, if the roof was ceiled in timber, a wooden stair could have been installed. The footings need only have been slight and may not have survived. It is unlikely that the arch in the north-eastern corner (above) supported such a stair as it would pass directly in front of the northern doorway. A basement entered separately from the overlying building would not be unusual but does not seem to have been the case here.

The basement was lit by three single-splayed loops of which one survives reasonably intact (Fig. 28). These were almost certainly not glazed originally[105] although traces of window lead were found on the southern loop, probably associated with the late medieval re-use of the window. No evidence survived for the shape of the head of the loops neither was there any evidence of rebating for shutters. Similar examples of single-splayed loops can be seen in the Music House[106]. It has already been noted that the loop sills are set at different heights but not those of the internal window embrasure (p. 38).

Floor levels within the basement consisted of crushed chalk. The sequence of these (p. 40 and Fig. 35) together with the flood deposit encountered at the south-western corner (Fig. 36 on microfiche) suggests a deliberate policy of raising floor levels to counter a rising watertable. The building seems to have been erected barely above the existing watertable in the late twelfth century. The apparent rapid rise in water level from the thirteenth century onwards (above p. 151) must have caused problems in such a low-lying structure necessitating raised levels and, probably, blocking of the north door (p. 40).

The internal elevations of the walls were apparently rendered, much of which survived as indicated on Figure 27, BJ-BK. The upper parts of the wall are now devoid of rendering, probably due to weathering in the fourteenth and fifteenth centuries (below, p. 159). The rendering itself seems to be the same mortar as that used for bonding the flintwork. It was not applied very thickly thus having the appearance of banding where the mortar easily covered the joints but less easily obscured the stonework. It is possible, however, that the mortar does not represent rendering at all but rather the squeezing-out of mortar from the joints during construction.

The building contains one almost unique feature in the provision of a latrine turret at the north-eastern corner. This structure is an integral part of the building although the upper surviving courses are a somewhat clumsy late medieval rebuild. The arched opening faces the river, possibly to allow flood tides to flush any accumulated material away although, as the base of the turret is at almost exactly the level of the original floor surface, this may not have been the intention[107]. Rather, it probably allowed ease of access for cleaning and any spillage on to the river foreshore would not have been deemed to matter. It is clear that material did begin to accumulated against the arch and, perhaps as a consequence of scraping, pit *1061* originated (and was subsequently revetted in timber) to allow clearance of the latrine pit. It is also possible that steps were taken to prevent either water getting into the turret or material getting out as a recess on each side of the arch (Fig. 34) implies the use of a grill or a sluice. The latter seems more likely as the limited evidence suggests wear on the interior, consistent with the opening of a sluice. If this were the case it could be argued that such a facility was a flood inhibitor rather than a cess control as the sluice would have opened internally rather than externally or vertically. It is of interest to note that the rear wall of the latrine pit was battered at its base, although whether this was conducive to the expulsion of the contents remains unproven! The nearest parallels to a latrine turret of this nature are those at Chichester Castle; where the turret is a late-medieval addition to a Norman hall (Wood 1974, 33) and, in Norfolk, at Blakeney where a latrine turret is an integral feature of an undercroft very similar in appearance to the excavated building but probably of fourteenth-century date.

The latrine turret suggests a domestic function for the structure (of some luxury status as deposit (*2003*, phased as III3), contained traces of fig, fennel, coriander, mulberry and walnut) although it will be argued that it probably also acted as a store or warehouse (below). However, any domestic function would have required a kitchen and, of this, no evidence survived. It is possible that a small kitchen existed on the first floor at the northern end, with a fireplace supported by the stone arch (as suggested above, p. 157) but it is perhaps more likely that any kitchen would have formed a separate unit elsewhere within the tenement. No such structure was located within the area of the excavation.

The building is aligned at right-angles to the street, at one edge of its tenement plot. The exact width of this plot was not established by the excavation but has been calculated from documentary and cartographic evidence (p. 158-60). Norman buildings in towns are known both parallel and at right-angles to the street although the latter orientation was 'obviously economical of street frontage' (Pantin 1962-3, 204) and became increasingly common during the medieval period. Local examples can be cited of the Music House and an unpublished vault in Howard Street, Great Yarmouth; certain of the Southampton houses were also at right-angles to the street. It is of interest to note that the boundary wall formed by the east wall of the excavated structure was devoid of openings, presumably to respect the rights of privacy. Rights are known to have been codified elsewhere, for instance in the London Assize of Nuisance where by 1339 it was generally ruled that windows or apertures less than 16 feet from the

ground should be blocked (Chew and Kellaway 1973, xxvi).

The best parallel for the excavated building as a whole is the only other Norman house in Norwich, the Music House on King Street (Kent 1945). Here the structure is of similar date (*c.*1175) and shares a number of characteristics, some of which have already been mentioned. It is built at right-angles to the street (Pl. LI, below), at one side of a tenement, has a blank wall adjacent to the property boundary and is lit by single-splayed loops in the opposing wall. It too is built predominantly of flint although the dressed stone employed is a mixture of Caen and Niedermendig. In scale its proportions are similar, if slightly less wide and greater in length. In style, however, it is more grand with two types of vault, and a spiral stair in the north-eastern corner. Topographically it occupies a similar situation to the excavated structure, adjacent to the river, and documentary evidence survives for a staith (Lipman 1967, 112).

It seems possible that the basement area of both the Music House and Building *2100* served similar purposes as that of a store or warehouse with the Music House perhaps having a shop or office at the street end. The waterfront location of the structures would emphasise the storage possibility with local parallels at King's Lynn (Richmond *et al.* 1982, 122) and, perhaps, Great Yarmouth (the vault in Howard Street), while, at Southampton, 'it would appear that the earlier, say twelfth-century, warehouses were attached to, and formed part of, the domestic complex of the greater merchants...All these are on, or near, the quay...' (Platt and Coleman-Smith 1975, 72b).

The building above the undercroft at the Music House seems to have been occupied as a domestic dwelling and there is no reason to suppose that the first floor of the excavated example was treated differently. Both seem to have been first floor halls and, in the case of the excavated building, the hall had the advantage of almost ground floor access at the street frontage (Fig. 26). A similar situation prevails at the surviving hall of West Dean Rectory in Sussex where 'the fall of the ground allows for the provision of a cellar below one end of the ground floor' (Faulkner 1958, 152). In Norwich, of course, the fall was accentuated by the excavation of a foundation pit into the hill (p. 28 and Fig. 26).

The general function of Building *2100* may have been similar to that of the Music House but the specific ownership of each structure was clearly different. The Music House is identified as being owned by an affluent Jew, Jurnet, in the twelfth century (Lipman 1967, 112). It is one of the few 'Jew's Houses' which has a clearly correct attribution; Moyse's Hall in Bury St. Edmunds, for instance, may have belonged to a monastery (Wood 1974, 14) while there is no evidence that Aaron the Jew lived in the house named after him in Lincoln (Hill 1948, 223). While Jew's Houses remain, however, a popular attribution for twelfth-century stone buildings, a further, less-publicised, grouping is that of ecclesiastical institutions, notably Cathedral monasteries or Minsters. Elements of such buildings survive in York at the Treasurer's House (where the great hall probably contains twelfth-century work), Gray's Court and on Stonegate (RCHM 1981, 69a and lviii)[108] and also in Lincoln where Atton Place, Atherstone Place and Deloraine Court all contain Norman stonework and were attached to the cathedral (David Stocker, pers. comm.). The documentary evidence for the area of the excavated building in Norwich (p. 134ff) shows that the structure lay within the area of the Prior's Fee and that occupiers of the property on which it stood had to pay landgable to the Prior. Furthermore it seems likely that the construction of the building was associated with a reorganisation of tenement boundaries comparable to ecclesiastical plans elswehere (p. 153-4). It is therefore likely that the structure was originally built for the cathedral monastery. It stands on the waterfront, close to the Bishop's Palace and could have been used as a store for the importation of wine and other comestibles (it is perhaps significant that the previously unknown landgable list was found within the cellarer's account to whom landgable was paid). The rare finds, in a Norwich context, of Saintonge pottery, indicative of the Gascon wine trade, may also have been associated with this building (p. 84) and the known provision of a wine cellar in a further ecclesiastical building a little way downstream has been mentioned above (p. 148). Thus, for want of more definite evidence, it seems probable that the original function of this twelfth-century stone house-cum-warehouse was as a store for the cathedral priory with accommodation for a cathedral official.

The general type of building to which the excavated example; and the Music House; belong is paralleled by development elsewhere in north- western Europe. Recently attention has been drawn to the development of *Saalgeschlosshauser* in Lübeck at the beginning of the thirteenth century (Erdmann 1983), structures very similar to the Norwich examples with cellars and first-floor halls as well as being characterised by their alignment between the street and the quay. Such buildings are also known from the Rhineland and Flanders, although these, and the English examples, probably predate the Lübeck buildings which adopted the form late in the Romanesque period.

Whether or not the interpretation of the excavated building's specific function is correct, its usage only lasted to the end of the thirteenth century. Thereafter it fell into ruins for reasons unknown, although the problems of flooding and riot have been mentioned above (p. 148). It seems probable that much of the building collapsed inwards, forming a thick level of debris within the (now roofless) undercroft. This preserved the lower courses of the walls from weathering so that these survive with their rendering in place and toolmarks are clearly visible on the dressed quoins at the corners and the ashlar blocks of the central buttress. Stones higher up, however, are quite badly weathered (*i.e.*, Pl. XXII). The dereliction probably lasted until the second half of the fifteenth century although the tenement itself was almost certainly used, principally for its waterfront rather than its street frontage facilities. Whether the ruin was tolerated is unknown; in London 'ruinous houses...gave offence: one was said to be so ruinous that great and small, horesemen and pedestrians feared to pass by, while its lack of a roof and rotten timbers were the scandal and disgrace of the City' (Chew and Kellaway 1973, xxviii).

Reuse of the ruin clearly involved major rebuilding. Prior to this, however, the site was cleared. All the rubble which seems to have preserved the interior was carted off site. This is the only reasonable conclusion to draw from the almost complete absence of flint and dressed stone rubble elsewhere on the excavation. There must, at some stage, have been a great deal as walls some 90 cm thick of flint contain substantial quantities of stone. The clearance

operation must also have been reasonably closely associated with rebuilding, otherwise weathering would have affected the previously-protected areas. The surviving walls needed occasional patching, notably at the north end of the interior of the east wall, and the wall above the arch had to be rebuilt (it was done somewhat crudely and included the reuse of two ridge tiles (Fig. 78, No. 2) although it is unlikely that these artefacts were part of the original Norman structure).

The rebuilding took the form of re-ceiling the undercroft which was effected in brick by the addition of a vault to the surviving walls, the style of which implies a mid-to-late-fifteenth-century date for its construction. The walls seem to have been cut down slightly from their presumed twelfth-century ceiling height and it is possible that the southern window loop was truncated at this time. Fragmentary remains of the vault survived at the southern end of the west wall (Fig. 27, BJ-BK) (until this had to be cut down again to accommodate the roof of concrete below the new Courts Building forecourt). Three pier bases were cut into foundation pits into the floor to act as supports for the vault, the equi-distant spacing of these piers dividing the internal space into eight 3.35m (11 ft) square subvaults. These piers probably acted in concert with corbels set into the walls of which two (and remains of a third) also survived (Fig. 27, BJ-BK; and also had to be removed for the concrete roof). The vault may have been 'crippled' in order to accommodate existing openings and the location of the surviving corbels could have indicated just such a 'crippling'.

Other repairs to the fabric, including the addition of an external buttress, have been noted on pp. 53ff. There remained, of course, no indication of the nature of the superstructure but presumably it was a building characteristic of the late fifteenth century and essentially timber-framed. It seems likely that a doorway was created above the now-disused latrine pit as steps were fashioned in the rebuilt wall above the arch (Fig. 33). The other doorways were retained, both with raised thresholds. During a later refurbishment a 'witch bottle' was buried inside the north doorway (p. 59; Pl. XXXV). This was the second such find on the excavation, a further similar deposit being encountered on the property to the east (p. 161). Such superstitious interments are known from several late medieval and post-medieval sites such as Hull (Ayers forthcoming b) and Fangfoss (Coppack 1978, 114).

This rebuilt structure may well have been that occupied by John Antell, 'fremason', in 1483 and thereafter occupation seems to have been continuous. By the seventeenth century, and probably earlier, access via the doors was proving difficult. The situation was probably helped by the construction of a stone-lined passageway (walls *2118* and *2119*) to the main door (Fig. 52) in a fashion similar to that excavated, albeit as an original feature, in Building 5 (the camera) at Wharram Percy, Yorkshire (Andrews and Milne 1979, 29 and fig. 18). This passage, however, was infilled and the doorway blocked when a spiral stair was cut into the south-eastern corner (Pl. XXXII). This was probably furnished with a door at the bottom as a recess was fashioned in the face of the south wall to take a door when it was ajar.

The building appears to have been refronted in the late eighteenth century (Pl. XLIV). A brick facade of three storeys was erected. The roof was probably restructured to provide a low overall elevation suitable to hide behind a parapet (the parapet had gone by 1941 when Pl. XLIV was taken). Part of the eastern gable was rebuilt in brick but flintwork below this may well have been part of the original Norman building. The inserted undercroft vault may have been destroyed at the same time, being replaced by rectangular cellars divided by brick party walls and presumably ceiled in timber. Floors were laid, also of brick, sealing the pier bases. At least one of these cellars was used for the storage of coal, judging from the quantities of dust encountered during clearance. The building itself was demolished between 1946 and 1956. Thereafter the shed of the joinery works extended across the site (holes for stanchion pits were cut into the top of the east wall of Building *2100*). This shed was subsequently occupied by a used-car garage, which was demolished in turn in 1980 prior to the excavation.

XLIV. Building above site of Building *2100* in 1941. *(Copyright: Royal Commission on Historical Monuments (England))*

Building 3132 (documented Property No. 4)

The excavation of this structure was unusual in that it involved the recording of two levels of a building, an occurrence normally reserved for standing structures. This was the result of the discovery of an intact vaulted sidechamber to the original undercroft and has necessitated the presentation of the building plans on separate figures (Figs 42 and 43 in Phase III2; Figs 42 and 51 in Phase III3). The excavation was not, however, unduly complicated as little survived of the undercroft bar the sidechamber and, thus, discussion of the building sequence should be straightforward. The structure was destroyed as late as 1962 and some records of it survive; these are summarised below (p. 162ff).

Building *3132* seems to have been erected in the mid-to-late fourteenth century while the neighbouring stone building (*2100*) was in ruins and, indeed, this seems a likely reason for the placing of waste pit *215* which would surely have been objected to otherwise (Fig. 43). In London, the most frequent complaint with regard to easements was 'that the cesspit of a privy was too close to a party-wall and that the sewage from it was penetrating the wall, ruining it, rotting the timber or running into a neighbour's cellar' (Chew and Kellaway 1978, xxv).

Little of the original above-ground structure survived the 1962 demolition and little record was made at the time of the destruction. It seems likely, however, from a comparison with other buildings in the city and from a study of surviving engravings and photographs (Pls XXX and XLVII) that, to first floor level, the building was walled in stone, the structure thereafter perhaps being of timber-frame construction. The footings that survived were of coursed flint, rendered on the interior faces although dressings were of brick. Brick was occasionally used in the wall fabric proper (Fig. 44) but this was exceptional. It was, however, used to support and vault the undercroft (Figs 42 and 45) which was also rendered internally. The vault was a simple barrel-vault, the bricks lying on edge and aligned north-to-south. Evidence for the main part of the undercroft was completely destroyed by a later cellar but it must have been rectangular, parallel to the street frontage. It was entered by a flight of brick steps from the lower end of the hall (p. 46) and was thus an integral feature of the building.

The full extent of the building itself is unknown as there is some evidence that it originally ran eastward, beyond the bounds of the excavation. This could not be checked at the street frontage due to the intrusion of the modern cellar but a badly-robbed wall (Fig. 43) indicated as much. If the width of tenement plots proposed by the documentary and cartographic reconstruction is correct (p. 158-60), there was ample room to the east, Building *3132* being built at the western edge of the tenement. The possibility of an eastward extension of the structure therefore affects a discussion of its form.

The principal surviving ground-floor elements encompassed two rooms (Fig. 43) which can be called the 'hall' and the 'kitchen' for ease of reference. A further room or rooms probably existed above the undercroft but all evidence had clearly been destroyed. The 'hall' was aligned north-to-south, at right-angles to the street frontage and separated from it by a range containing whatever rooms lay above the undercroft. The 'kitchen' lay at the west end of this front range, separated from the rest of the building by a passage. It abutted the stone east wall of the ruined Norman building.

The hall was erected above a dump of clay which levelled the area. It is probable that it was scaffolded during construction and post-holes survived (*i.e.*, against the east wall) which may indicate as much (p. 46 and Fig. 43). Chalk floor surfaces were identified but no evidence for a hearth was uncovered unless features *24* and *23* can be intepreted thus. These shallow features, which contained numerous burnt fills, were sectioned by the trial excavation of 1962 and thought to be the remains of successive hearths. Area excavation revealed, however, that they could not be regarded as hearths in the conventional sense. It is therefore possible that the hall wing was unheated although it is perhaps more probable that heating was supplied by brazier and that the above features supported such a device. Furnishing of the hall may be indicated by the survival of F.*134* adjacent to the west wall (Fig. 43, the group of small, paired post-holes adjacent to wall *51*). This regular feature could have supported a fitted bench or similar; its width and truncated length do not suggest an alternative interpretation as wainscotting.

Access to the hall was effected at the north end via a doorway in the north-west corner; at the south end via the passage opening from the south-west corner, and possibly from opposed doors in the southern ends of the west and east walls. Evidence survived for a doorway in the west wall (Fig. 43) but not to the east although a later door in this position is known. A passage across the lower end of the hall might be expected but evidence was lacking for a screen partition. A screen could, however, have run north-to-south from doorway *9* (that in the north wall). Here a line of bricks (*205*) may have formed part of the support for such a feature, perhaps in association with a small recess in the interior face of the wall which would thereby act as a socket for a small sillbeam. The evidence, however, is hardly satisfactory.

Doorway *9* itself, while relatively well preserved, was somewhat odd in that it only had one rebate and that was external, implying that the door opened outwards. There is evidence (p. 51) that is thereby opened into an enclosed corridor or gallery constructed at the western side of a yard. This gallery ran to the north end of the yard where a possible 'witch bottle' deposit was located. A passage thus ran the length of the western side of the building and yard, from street frontage to river foreshore, the kitchen alone being separated to the west (a probable safety precaution). Access from the gallery to the yard seems to have been effected by a further doorway at its southern end, at right-angles to doorway *9*. Here the door would have hung on the doorpin which survived in the north face of the north wall of the hall (Fig. 46), swinging into recess *10* when open.

The incidence of rendering on the walls of the building, presumably an internal feature, suggests the possibility that the above interpretation of the northern area as a yard is erroneous. All four surviving internal wall faces of the hall were rendered as were the three surviving walls of the kitchen. The east wall of the 'yard' was either beyond the limit of the excavation or destroyed by a more recent wall; the west wall barely stood above foundation level. The south and north walls, however, were both rendered 'internally' implying a similarity of function to those rendered walls elsewhere. In addition the recess (*10*) may have been a little too neat for a feature in an open yard. Perhaps, therefore, the building was larger than indicated on Figure 43 although Pit *61* would now need explanation.

The hall was presumably lit by a window to the east, although the bay window demolished in 1962 did not exist at the earliest phase. It may have been lit from the north and west but the latter possibility is perhaps less likely given the proximity of the neighbouring property (a later window is known in this position from photographs taken in 1956 and held by the National Monuments Record: AA56/2242 and AA56/2243, p. 162ff). The kitchen was probably lit directly from the street frontage. Access to the kitchen was not located although it was clearly off the passageway, presumably immediately adjacent to the south wall. The alternative position for a doorway, at the north end, seems to have been occupied by an oven (F.*322*, Fig. 43). This feature, which was originally brick-lined

(impressions survived on its south wall), contained evidence of extensive use. The interior floor had a central depression, probably the result of continuous rakings, and fragments of burnt clay were located in the fill (indicating the use of river mud as samples contained freshwater molluscs, ostracots, fishbone and stonewort oogonia, p. 118). The bricks were either removed upon disuse or had vitrified and crumbled away. The oven would have been of a common late-medieval type, examples of which have recently been excavated in Hull (Ayers forthcoming b) and Bedford (Baker *et al.* 1979, 131-2).

North of the kitchen, a waste-disposal pit was added (Figs 43 and 48) with an apparent chute through the north wall of the kitchen to facilitate the dumping of rubbish. The pit was partially vaulted (which survived) and was built adjacent to the east wall of the ruined Norman building. It was cleaned out prior to filling and probably regularly cleaned before that. Its location is similar to that of stone-lined pits recorded elsewhere in the city (Carter *et al.* 1974, 45-7) and indeed in other towns. At Ironmonger Lane in London, for example, houses rebuilt in 1420 were described in 1649 with 'latrine pits...accommodated in the cellars and one was beneath a kitchen; they were stone-lined...' (Keene 1983, 142). Stone-lined pits were clearly common in late medieval towns, both in England (*e.g.* York; Bishop 1976, 18) and on the Continent (*e.g.* Gottingen; Schütte 1984, 44, Abb. 59, 60). Atkin, however, cites little evidence for their use prior to the fifteenth century as lined cess pits in Norwich (1979, 284) and the fourteenth-century pit under discussion here need not be taken as contradictory testimony. Its function, indeed, seems to have been more specific than that of general cesspit. Filling of the pit would have been possible from the side but the kitchen chute would have made its usage more straightforward. It seems therefore to have been constructed with the specialised function of kitchen waste-disposal in mind, a juxtaposition of pit and kitchen also noted in London (John Schofield, pers. comm.).

A bay window was added to the hall in the mid-to-late fifteenth century. This must have entailed considerable structural changes which are hinted at by the archaeological evidence. The structure (Fig. 51 and Pl. XLVII), rather than being added to the outside of the house wall, was added on to the wall, only two lights being created, the main five- light opening to the east and a narrow opening to the south. A northern opening was not possible as the boundary wall of the yard (subsequently adapted as part of a northern room,) existed in this direction. to the south evidence was recovered from deposits of Phase III2 date (Fig. 43) that the front range continued to the east. If so, the southern light could not have functioned. Accordingly, it seems likely that part of the front range was demolished, at least one bay being cut back and presumably a new gable wall constructed; most evidence for this somewhat drastic alteration, however, had been destroyed by the modern cellar (Fig. 51).

The provision of such an ornate structure as the bay window in such an unusual fashion requires a degree of explanation. It is perhaps likely that the addition of a northern room above the yard blocked light to the hall and it is also possible that any lights in the west wall would have been obstructed by the rebuilt Norman ruin, which seems to have been brought back into use in Phase III3. The need for a good light to the east would thus have been considerable although the simplest method of achieving this would have been to build the bay in advance of the existing wall. As this was not done, there may have been reasons to inhibit such a construction. It is unknown whether Beehive Yard existed as a thoroughfare as early as the late fifteenth century although it is possible that some form of common access unrecorded in the documentation was extant. Indeed there is evidence to indicate that this was the case by 1729 when the eastern abuttal of a building, most probably that under discussion, is given as 'the great gatehouse', a feature that seems to have been conveyed with either the property to the east or that associated with the excavated building. It may have been impossible, therefore, to build out to the east.

What this 'great gatehouse' was or apertained to is unknown but it could have been part of the original Phase III2 structure, perhaps the entrance to a courtyard. The building may have been built across two properties (Nos 4 and 5, Fig. 98), both owned by John Julles in 1483 (Table 38), which subsequently separated once more. The excavated building, on Property No. 4, could have been cut back from the gateway to allow light to the added window.

Little archaeological evidence survived on the interior of the building from Phase III3 when the bay window was added. The heavily-built footings for an inserted arch leading to the bay have already been mentioned. Within the bay, at foundation level, a pit full of struck flint (*201*) was discovered, the filling possibly being builder's rubble. Slight evidence for a screened passage, once more running north-to-south, was recorded with post-holes *50* and *59* (Fig. 51). Within the kitchen a large hearth (*77*) was presumably associated with a chimney within wall *115* of the (now rebuilt) Norman house. Access to the rubbish chute may there by have been blocked or obstructed although there was no evidence to suggest that the pit had gone out of use. The western side yard was at least partially paved in brick, above which was found a silver penny of Henry IV (p. 63, No. 5).

Development of the building thereafter has to be followed in the documentation or, where possible, extracted from the bare plan drawn before demolition (and now redrawn as Fig. 53). A description of the property is given in 1562 when its was described as 'the high house and mansion called Everard's w. adjacent garden wall, houses, tenements, buildings, gardens, curtilages, cellars, solars, wells, vault' (p. 144). This somewhat all-embracing outline suggests a certain amount of sub- division although probably some slight outbuildings to the north were not recorded by the excavation. Sub-division was clearly well under way by the time Greenwood paid for all his windows although it should be stressed that some of these must have related to Property No. 5 which had been reunited with Property No. 4 in 1568.

In 1746 Property No. 4 (separated once more from No. 5) was acquired by Samuel Fremoult 'berebruer' (Table 38, above). It was described (in 1717, 1719 and 1729) in terms which suggest the the excavated building:

> kitchen (and adj. washhouse), chamber over and cellar under
> parlour adj. to kitchen and chamber over
> old hall next to kitchen and chamber over
> one room next to the hall and chamber over covered with lead
> and one little yd. next to stairs going to chamber covered with lead.

With reference to Figure 51 it is not too fanciful to interpret the washhouse as the westernmost room (ex-kitchen) of the front range, the kitchen as above the vaulted undercroft, the parlour east of that, the hall, 'one room next to the hall' being that to the north, and 'one little yd.' being that to the west (presumably partly covered).

By 1760 the building was known as the Buck public house and remained so until at least 1838. It was the Beehive in 1890 by which date, and probably some time earlier in the century, the front range had been substantially altered and a new cellar built (this altered range is that illustrated in Fig. 53; amongst other things the passage was repositioned centrally). Perhaps prior to this a porch had been added to the east door (Fig. 53 and Pl. XLVII). The ownership and occupancy of Building *3132* is outlined in the documentary report (p. 143ff). Here, however, it ought to be reiterated that the main result of the documentary work has been to dispel the traditional attribution of the building as 'Calthorpe's House'. It is now quite clear that Calthorpe never owned any of this property and that he was associated with a building further to the east (p. 149). As the most distinguished occupant now seems to have been Robert Everard it is perhaps more fitting that the structure be commonly referred to as 'Everard's House'.

General parallels for this excavated building have not been sought as it is difficult to know its original form. The writer is confident that the footings which were uncovered only related to the western part of a larger structure. If this is correct the structure was within the tradition of such surviving courtyard buildings as Bacon House on Colegate in Norwich but was probably considerably older, being a late fourteenth century building. Its loss as late as 1962, therefore, is the greater as it is now realised (Smith and Carter 1983, 5) how very few pre-sixteenth century buildings survive in the city. Its loss with almost no record has moreover made the above outline of structural development the more difficult to chart.

Building 3132: an assessment from the pre-demolition records

(Fig. 53)

Building *3132*, the archaeological excavation of which has been discussed in the preceding section, was demolished in 1962 pending immediate development which subsequently never took place. Various records were made of it prior to its destruction, the most thorough being a survey by the Royal Commission on Historical Monuments (RCHM) in 1956. Photographs and drawings are held by the National Monuments Record (NMR) but are supplemented by other material held by Norwich Castle Museum and the Norwich Survey. In addition a print by Henry Ninham, published in 1842 contains some useful information. The surviving data is summarised on microfiche (M5) where the RCHM survey is also reproduced.

The external views of the building generally concentrate on the eastern elevation, the one with the bay window. Two of these are reproduced (Pls XXX and XLVII). Other views show the front elevation (Pls XLV and XLVI) and some photographs are extant of the rear and side yards. Interpretation is difficult but it seems clear that the end gable wall forming the east elevation was either rebuilt or at least radically repaired in relatively recent times. Ninham's print of 1842 (Pl. XXX) suggests a gable quite unlike that in the photograph of 1946 (Pl. XLVI). Certainly the pitched part of the gable in 1946 consisted of quite modern brickwork, perhaps associated with a new chimney stack visible on the 1956 photograph (Pl. XLV). The west stack may have been rebuilt at the same period although it is interesting to note that it overlies a hearth position first established in the fifteenth century (Fig. 51). The roof line was perhaps a little low in relation to the wing behind and may also be a reconstruction. The front elevation, where visible below render, seems to have been of flint construction to first-floor level and then brickwork above. If this was so it is possible that the range was rebuilt from first floor up, replacing a timber-framed facade (timber-framing may have survived on the rear elevation (NMR photo AA56/2241) see microfiche M5). Such a construction, with flint gables and groundfloor walls, was a common constructional technique in Norwich (a later, high quality, example is Bacon House on Colegate).

The elevation of the rear wing with the bay window is, however, more informative. The wall above the door visible as a low porch in both Plates XXX and XLVII is described as knapped flint and knapped flint is indicated below the window. The RCHM elevation (microfiche M5) also reproduces faithfully the timberwork of the wall above the window, as seen on Plate XLVII. Comparison with Ninham's drawing, however (Pl. XXX), suggests that this timbering postdates 1842. His print appears to illustrate a timber-framed construction resting on a bressumer which itself rested on top of the knapped flint wall. The apparent bressumer (below the timber-framing, top left of Pl. XXX) is level with the top of the bay window. This suggests that the bay roof indicates the pitch and line of the original roof of the hall, especially when it is remembered that the window is not a projection from the early hall but follows the line of the east wall of the hall (p. 56). The smaller windows above the bay on Ninham's print have the form of dormer or luccam windows, possibly added gradually at dates unknown but, most probably, from the sixteenth century onwards, and ultimately forming a clerestory above the roof line. These must have been some of the windows which Hugh Greenwood paid tax on in 1708/9 (p. 144).

This upper part of the hall seems to have been rebuilt between 1842 and 1946 (Pl. XLVI). Indeed, a photograph of the north elevation taken from the rear yard (AA56.2240 on microfiche, M5) and two further photographs of the west elevation from the side yard (AA56/2242 and AA56/2243 also on M5) indicate that the brick and timberwork section on Plate XLVI was a total rebuild.

By way of confirmation that the roof of the hall wing was a complete replacement by 1956, the words 'added attic' are annotated above the internal elevation of the building which shows the arch inside the bay, allowing access to the hall. This arch, the upper part of which is illustrated on Plate XL, was inserted contemporaneously with the window (pp. 55-56). The arch was ornately moulded with five orders of moulding and provided with capitals cut from glazed tile. This was observed by A.P. Baggs in 1962, who noted that the top moulding of each capital had been cut down from nine-inch square glazed tile which was three-quarters of an inch thick while the bottom moulding was cut from six inch square tile of similar thickness. The glaze was described as yellow speckled with brown. Plain shields were set into the spandrels facing the hall with a hood mould around

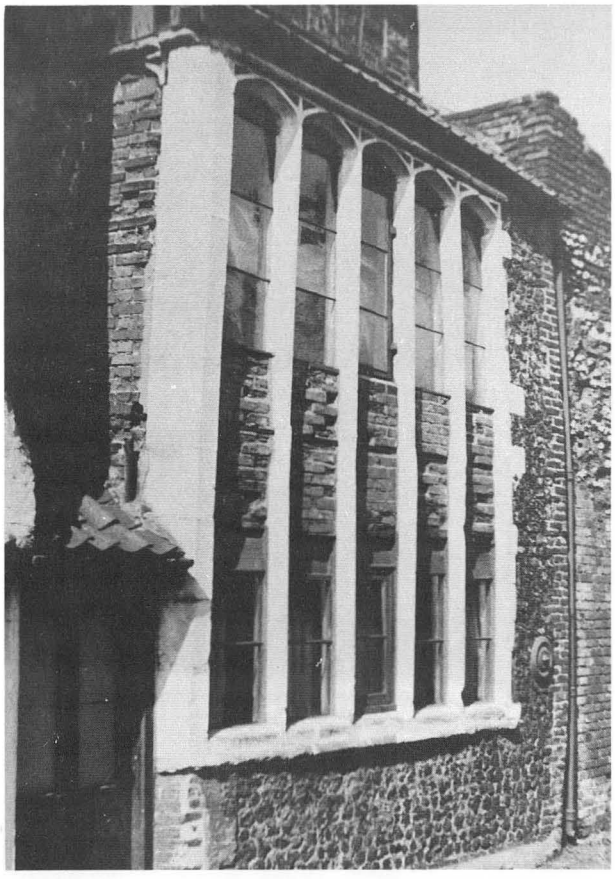
XLV. Front elevation of Building *3132* in 1956 looking north-east towards the gasworks. (*Copyright: Royal Commission on Historical Monuments England)*

XLVI. Building *3132* (18, St. Martin-at-Palace Plain) in 1946. (*Copyright: Royal Commission on Historical Monuments England*)

apparently resting on small corbels. The mouldings to the arch and jambs were 'run in hard plaster on apparently small boasted stones' (RCHM annotation to moulding plan).

Ninham's drawing of the bay window indicates that the hall had been subdivided by an inserted floor prior to 1842, this floor surviving until demolition. The south light of the bay was also blocked by 1842 although this light must have been impeded anyway by the addition of the porch. The joists of the inserted floor suggested in Ninham's print were no longer visible by 1946, the space between the upper and lower parts of the window being blocked by brickwork. Ninham shows the upper lights casemented. By 1946 the transom had gone and the lights had been reglazed, four of them as fixed frames, the central one (both at first and ground floor level) as a casement.

The survival of the bay window confirms the accuracy of Ninham's work so it is interesting to note that he also drew a smaller two-light window of very similar style in the east wall of the northern room (Pl. XXX). If this window was contemporary with the construction of the room (and Ninham gives no indication that it was an insertion) its existence tends to confirm the sequence established by the excavation (p. 57). The northern room



XLVII. Bay window, Building *3132*, prior to dismantlement during demolition in 1962 (Provenance unknown)

was in ruins in 1842; it seems to have been repaired by 1946 but was ruinated again by 1956. The repair destroyed the small window, replacing it with a simple rectangular frame.

Access to the hall was obtained through opposed doorways at its southern end as indicated by the excavation (Fig. 51). That in the eastern elevation survived within its low porch (Pl. XLVII) and appears to have been

XLVIII. Interior of arch to bay window, Building *3132*, on upper (inserted) floor in 1956. (*Copyright: Royal Commission on Historical Monuments England*)

undistinguished. The doorway in the west elevation, however, was photographed in 1956 (NMR photo AA56/2244) and, while showing a half-glazed door, also illustrates an attractive oak doorcase with a four-centred arch. A staircase, aligned north-to-south, stood in the centre of the hall and led to the inserted first floor. This floor was wainscotted (probably in recent times) and had a ceiling with carved oak beams and cornices (pl. XL). The cornices were particularly elaborate and are illustrated on microfiche (M5).

Plans of the building drawn in 1956 indicate the various rooms existing at that time. The plan of beams in the first floor ceiling of the wing suggests the original location of the hall although the space was subdivided and elements of woodwork destroyed by staircases. The building was clearly a major survival of a large late medieval town house.

The bay window from Building 3132: an architectural assessment

by Stephen Heywood

During the demolition of 18A, Palace Plain in 1962, the bay window was carefully dismantled (pl. XLIX) and the components numbered. Subsequently it was rebuilt on the gable-end of 10, Palace Plain, approximately 80 m west of its original site. The stone was in good condition and it would appear that none of the principal elements needed replacement during its re-erection. However, the rectangular bay within which the window is set is slightly narrower than the original. The masonry of the bay, apart from the window, consists of random flint and brick with re-used brick quoins (the original window stood above a wall with a knapped flint face). The window, constructed out of shelly limestone, is of five lights divided from a single south-facing side light by a polygonal corner shaft. The tall, hollow, chamfered mullions support simple four-centred arched heads with hollowed-out spandrels. There is no evidence to suggest that there were transoms. Pre-demolition photographs show a horizontal saddle bar at mid-height and the damage which was caused can be seen

on the re-erected mullions where new pieces of stone have been inserted.

The style of the window suggests a date anywhere in the fifteenth or sixteenth centuries. The demolished contemporary archway into the bay was four-centred with bordered spandrels, single-shafted responds, polygonal capitals and shallow wave mouldings all suggesting a mid-to-late fifteenth-century date. The 'open hall' which was lit by the bay window would be an unusual element after the middle of the sixteenth century. On the evidence available a date in the second half of the fifteenth century would be expected.

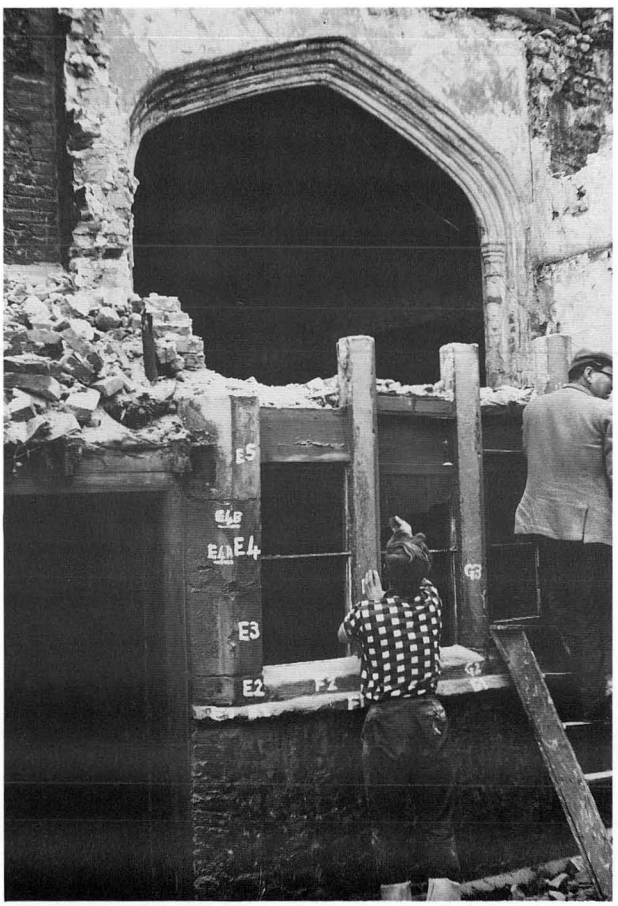
Waterfront structures

The 1981 excavation allowed a much larger area of waterlogged deposits to be uncovered than had been possible during trial work upstream in 1979 (Ayers and Murphy 1983) and allows a reassessment of earlier conclusions. Paradoxically, however, the most striking feature of the 1979 excavation (the provision of brushwood to consolidate the foreshore) was not as well preserved on the 1981 site. Nonetheless, some remarkable upstanding features survived.

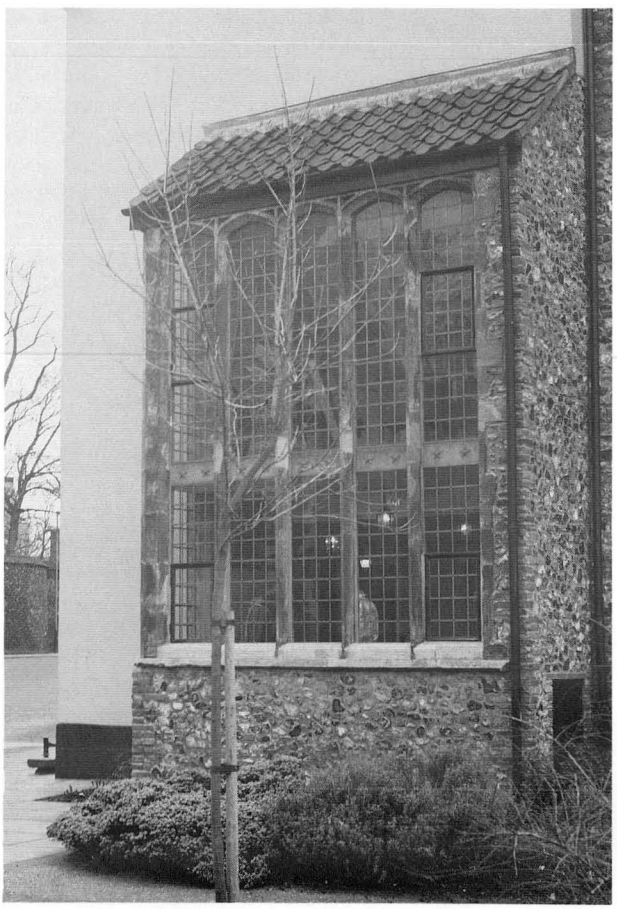
The northern part of the excavation contained a series of wickerwork fences, lying both at right-angles and parallel to the river (p. 15ff and Fig. 12). It is argued elsewhere that these fences may have been constructed to an overall plan on a tenemental basis (p. 153); here their function is of interest. They were associated with brushwood surfaces, generally on both sides so that it is possible to say that the fences lay within areas of brushwood consolidation. It is suggested that they thus fulfilled a uniform purpose with the surfaces, anchoring the brushwood to the underlying gravel. Without the fences it is clear that the brushwood could easily have parted from the gravel in time of flood or, indeed, at every tide (the river being marginally tidal).

The fences, however, by running parallel to the river as well as at right angles to it, would have impeded any shipping which it was intended to berth upon the consolidated surface. It was suggested in the report of the 1979 work (Ayers and Murphy 1983, 55) that shipping did beach on the brushwood but this interpretation can now be seen to be misconceived. Such beaching of vessels would very soon destroy the wickerwork fences which quite patently survived. Rather, the surfaces probably acted as a firm footing within the generally quaggy waterfront area and enabled the ready transhipment of goods from vessels to the street frontage. The vessels themselves, however, did not beach on the surfaces south of the fences.

There is evidence, nevertheless, that they may have beached north of the fences in association with further timbers uncovered by the excavation. A feature of this area was the provision of occasional posts in concert with the fences, notably at the eastern edge of the site and adjacent to Fence *1189* to the west (Fig. 12). These, generally squared, oak posts could only be set firmly because of the consolidated brushwood surface. Without this the gravel around the base of each post would have been eroded away gradually by water action. The posts, fences and brushwood can thus be viewed as an interdependent entity



XLIX. Dismantlement of bay window, Building *3132*, in 1962 (Photographer unknown)



L. Bay window, Building *3132*, as re-erected at 10, St. Martin-at-Palace Plain (BUD4)

of elements allowing full utilisation of the waterfront. The specific function of the posts may have been to support low platforms (a fragment of plank (*1172*) may have formed part of a crude decking were found in association with Post *1121*; Fig. 12). Such platforms were not very common or necessarily very high. The evidence from the excavation suggests that posts were only erected in certain areas and any platform would probably not have exceeded 0.6 m in height. They would therefore have limited, specific purposes and location, for instance above the projection formed by Fences *1136* and *1139* in the north-eastern corner of the site. As such they appear to have acted almost like low wharves, that is, as unloading platforms, rather than as walkways from the street frontage tenements (the latter being a characteristic of waterfront structures at the earlier site of Dorestad (Van Es and Verwers 1980).

If these platforms did function in a manner similar to wharves, their importance is that they are a manifestation of a different system of berthing for vessels. The construction of a vertically-sided wharf, no matter how low, is conceptually an advance on the more traditional method of beaching craft on a foreshore. The latter can perhaps be designated *horizontal* berthing and would have been used by the vessels of Scandinavian type known from several sites in Northern Europe (such as Skuldelev, Olsen and Crumlin-Pedersen 1967) and depicted beaching on the Bayeux Tapestry (the panel showing the Norman Landing: Denny and Filmer-Sankey 1966). *Vertical* berthing next to a wharf becomes a necessity once shipping develops towards deeper draughted vessels which are less easily refloated after beaching (*e.g.* the Bremen cog, see McGrail 1981, fig. 21E). However, such facilities could also be used by beached shipping as unloading over the side would be easier in either case. Early wharves of similar date have been excavated at Schleswig (Vogel 1977).

The intricate network of brushwood, fences and post supports was clearly not unique to Norwich. The Plessenstrasse site in Schleswig consolidated the foreshore in a similar fashion (Vogel 1977) and other brushwood surfaces have been cited previously (Ayers and Murphy 1983, 55-6). Recently a striking example of the technique has been excavated in Utrecht at Jan Meijenstraat, north of Water Straat (de Groot and Kylstra 1982, 34, Afb. 29) where a wickerwork fence was found within a sequence of riverside revetments. This site lay east of a similarly impressive excavation where hurdles of brushwood seem to have been laid in association with fences (Hoekstra 1976, Afb. 14, 15 and 16). The dating is considered to be twelfth century, slightly later than the Norwich or Schleswig examples but within the same period of ship development. Taken together, the various sites seem to reflect a concious experimentation with waterfront facilities, adapting existing techniques of consolidation to that of primitive revetment or wharf construction prior to the development of revetments proper.

Later medieval development at St. Martin-at-Palace Plain could not be studied because of the proximity of the north section although, even if this could have been removed, it is unlikely that much medieval embanking took place in the area. Commercial activity almost certainly moved downstream in the twelfth century (Ayers and Murphy 1983, 56-7) and, while the Norman stone building may have been used for trade (p. 158), such a function would be limited, not requiring the construction of complicated wharfage.

The actual construction of the excavated fences was simple enough although materials varied. Split or whole stakes were used for vertical support (the possible significance of the different woods used is discussed on p. 153) and horizontal withies woven in between (Fig. 13). The posts were set into pits (as opposed to the fence stakes which were driven), some of which were recorded running at right-angles to the river (Fig. 12). The function of these is unclear although they were set at the approximate interface of the probable waterlogged area with the dryer and higher land; they may thus have been used in association with a simple ramp or jetty to facilitate access to and from the foreshore. Dating the features is more problematic as dendrochronological study has so far (December 1984) been unable (with one exception, see above p. 130) to crossmatch any of the timbers satisfactorily. It is argued elswehere (p. 169) that the artefactual evidence suggests eleventh- and twelfth-century occupation. As the brushwood and fence structures occurred early in the sequence it seems likely that they were eleventh century in date although most probably after 1040 or even 1080.

While the interdependent features outlined above could have been used as part of a commercial waterfront, the discovery of several other timbers pegged to the foreshore immediately north of Fence *1189* (Fig. 12) suggests additional riverside activity. These timbers ran beneath the north excavation section but were aligned east-to-west parallel to the river. Once again a parallel has been observed at Schleswig (Vogel, pers. comm.) where better preserved and fully-exposed timbers contained mortice joints for diagonal bracing. These features were suggested as footings for possible boat-building frames and such an interpretation of function can be applied to the Norwich examples. Vessel construction on the foreshore is a most likely possibility and boats would need to be proposed in a fashion similar to that illustrated by McGrail from Newfoundland (1981, 22, fig. 23). Props, however, would be unstable on a gravel foreshore as at Norwich and thus the secured base plate timbers may have been employed to provide a more stable footing. Alternatively, however, the timbers may have had a more prosaic function, acting in tandem with the brushwood and forming a base for shipping to rest upon in case they should stick upon the surface (McGrail 1981, 22).

One of these base plate timbers (*1203*) has provided the only dendrochronological date from the site (above, p. 130). This date, of felling of the tree not earlier than AD 1193 is at variance with the other datable material recovered from this area. The reasons for this are not known but, as the timbers were excavated rapidly in appalling conditions in late December, it is possible that an intrusive cut from a higher level (in order to insert the wood) was missed. A section could not be drawn prior to backfilling and so the point remains unproven.

Other timber features were also observed at the waterfront. The fences were augmented, and possibly replaced, by a crude planked fence, probably in the twelfth century (Fig. 15). This only survived in a fragmentary condition and it is difficult to interpret satisfactorily. The evidence, however, certainly does not suggest the remains of a revetment and the fence was probably non-structural, merely demarcating an area of the foreshore. South of this a wickerlined pit (*1164*) was almost certainly used as a cesspit (p. 120ff). It employed a variety of timber in its construction (p. 127) and was presumably located both as a means of convenience for people at both the street frontage and waterfront and perhaps also for occasional flushing by

the river. Similar pits are known from other towns such as London (Schofield and Dyson 1980, 54, a pit from Milk Street of twelfth-to-thirteenth century date) and York (Bishop 1976, pl. IIb, from Skeldergate, also twelfth century in date). Latrines were clearly an important feature of the river frontage; on Property No. 1, west of the excavation site a messuage '*cum cayo latrina*' existed in 1461 (microfiche 2:E.10). Access to this quay and latrine was reserved in 1513/14 and in 1587 while in 1705 a property was described there 'with rights of way to river and use of Jakes...' (microfiche 2:E.11).

The cessation of commercial activity at the waterfront meant that waterfront structures ceased to be built or, at least, were not constructed within the area of the excavation. It is likely that utilisation of the river continued, principally for industrial purposes (p. 169ff) but this has left no record in the archaeological archive (other than an unstratified pit full of horn cores observed in the excavation section). Indeed, it was only in the sixteenth century that features were once again established on the foreshore within the excavation site. Ground which, until this period, had stagnated as a slowly accumulating pile of rubbish, silt and ordure was divided up by walls of flint and buildings were established on the river frontage. The likely sequence of development has been outlined above (p. 59ff) but it should be noted here that some of the newly-created riverside properties were probably separated by boundary walls from the street frontage tenements (for example wall *1009* on Fig. 54) and such walls are indicated on the Cunningham map of this area (Ayers and Murphy 1983, pl. 1).

The post-medieval development of the waterfront can only be followed in the documentation. Suffice to state here that it did not revert to commercial use but instead maintained a mix of domestic and industrial occupation into the nineteenth century. This low-key usage meant that the area was never, or rarely, consciously infilled as part of the development process but gradually accumulated material, generally from rubbish disposal. The peripheral location of the waterfront from the twelfth centurey onward meant that it was not subjected to the pressures of space which were characteristic of more affluent and commercial areas. In consequence the archaeological discoveries reflected the history of the area, activity being identified in the early and later periods when commerce or a growing population was influential.

III. Economic and Social Development

Discussion of the economic and social development of any multi-period urban site clearly labours under certain difficulties. The earliest material is almost exclusively archaeological and the problems and consequent controversies inherent in any attempt to extract social and economic information from such data are almost legion. The later medieval material frequently includes varying amounts of documentary evidence, much of it very useful and often leavened by cartographic, artistic and even photographic records but, somewhat paradoxically, not always matched by the data from the archaeological deposits which can become increasingly unstratified and mixed. Nevertheless, it is possible to subject the available evidence of each period to the processes of historical reductability in order to determine the main trends in development, isolate general lines of enquiry and yet not exclude the possibility of alternative hypotheses.

There is some evidence that a 'false start' was, to a certain extent, broached upon the site with the probable layout of a graveyard (generally to the east and discussed above, p. 151) and evidence in the nature of the soil itself that the area may have been used for horticultural purposes or similar prior to real urban development (p. 132) (it could be argued that the large percentage of pig bones (p. 111) in very early levels was perhaps the result of husbandry). These activities were probably taking place at the beginning of the eleventh century but, during the course of that century, there is archaeological evidence to suggest the establishment of some semblance of a mercantile community in occupation of the site. This evidence takes several forms, being most apparently manifest in the finds assemblage, notably the pottery (pp. 74-98). These finds suggest an international trade in commodities although whether this was in preference to a national or local trade, coexistant with such an undertaking, or simply a by-product of occasional traffic, is difficult to quantify. Certainly the amount of imported pottery, although startling within a Norwich context, is hardly dominant within the assemblage (p. 85) and it must be accepted that such finds do not imply a mercantile community *in situ*. Indeed similar quantities of pottery from the Fuller's Hill site in Great Yarmouth, a town essentially composed of fishermen in the eleventh and twelfth centuries, can only be regarded as by-products of contact with merchants (Andrew Rogerson, pers. comm.).

The finds by themselves must, therefore, be treated with caution. They were frequently found, however, in association with the elaborate consolidation of the foreshore of the River Wensum in the form of brushwood surfaces, wickerwork fences, posts and timbers (pp. 165-167). This work, similar to constructions noted from ports of the Saxo-Norman period elsewhere in Northern Europe, does not seem to have been associated with a policy of deliberate landfill (as later waterfront constructions undoubtedly were, for example at Trig Lane in London; Milne and Milne 1982) nor would such extensive structures have been necessary for occasional utilisation of the foreshore. Rather, the coherence of the design and the ubiquity of construction across the waterfront, most probably westward from the site as far as the bridge and beyond[109], implies a marine or riverine use, namely as a facility for the berthing of shipping.

Thirdly, the vestigial remains of buildings uncovered at the street frontage (also discussed above p. 155) were notable for their apparent lack of domestic features. The most obvious omission was evidence for hearths and cesspits. While it must be admitted that conditions at the street frontage were such that relatively small individual features such as hearths could have been destroyed by later intrusive features, it must also be noted that the lack of ash, charcoal and rubbish detritus from the levels associated with these proposed structures is almost total. In other words there is a lack of evidence to suggest that any buildings at the street frontage were houses but they could have fulfilled an alternative, non-domestic function such as storage or, given their location, warehousing. This conclusion, however, has to sit beside the considerable quantities of domestic artefacts recovered from these early deposits. It seems unlikely that these were all traded items, especially the locally-produced pottery. Perhaps it remains best to view the evidence as representing a commercial-domestic mix.

In short, three forms of evidence, none conclusive in itself but more compelling in concert, suggest mercantile activity in Period I and the early part of Period II. It is more difficult, however, to determine how important this activity was, either to the local economy or to a larger regional-cum-North Sea economy, and to establish how such an activity fitted into society as a whole. Both problems can be approached initially by a careful consideration of the date of the material involved, particularly with regard to whether the bulk is Late Saxon or Saxo-Norman in origin[110].

Such a consideration essentially means a consideration of the imported ceramic material, as little of the local or regional material can be closely dated. An exception is Stamford Ware where a glance at the catalogue (pp. 88-98) will show that much of that which was recovered from the site probably dates from the late eleventh or twelfth century. Similarly, the imported material (p. 87) indicates little evidence of tenth-century activity but a gradual rise in the number of imports through the eleventh century. The incidence of French wares (Table 5) is particularly interesting. Although very few in number, they do not occur in the earliest phase but are present increasingly from Phase I2 onward. Indeed, the range of ceramic material seems to fit into an eleventh-twelfth century context rather than a tenth-eleventh century range. This conclusion would tend to prove Hodges' point that 'it is...clear that Norwich...was little involved in international trade [pre-Conquest]. At least this is the tenor of the absent imports... The Late Saxon absence of imported pottery is beyond dispute' (Hodges 1982, 181)[111]. The reiteration of this conclusion, however, while undoubtedly of importance, raises several issues pertinent to the commercial development of Norwich.

If North Sea trade, as evidenced by the imported ceramic material, is an essentially post-Conquest development, the Late Saxon function of the settlement needs to be reassessed. It remains clear that the tenth and eleventh centuries witnessed extensive, probably polyfocal, urban growth in Norwich; growth almost certainly associated with a market economy taking advantage of a superb geographical position, the development of an urban manufacturing base and the importance of the settlement as an administrative centre (Campbell 1975, 76). What is not so clear is how far this market economy expanded beyond its immediate region. The evidence is now beginning to accumulate that it perhaps did not extend very far. Testing this against Hodges' model of commercial development (1982, 183-4) it becomes possible to see that Norwich may not have been a Late Saxon 'emporium' with an extensive trade across the North Sea. Rather, contacts could have been much more restricted, only gradually growing as the commercial network of the settlement itself became more confident and settled. Hodges argues the trend noting that 'there is a great deal of historical evidence suggesting that it was not until...the firm establishment of a market-based economy, that long-distance trade...thrived'. He goes on to state that 'the stimulus came from the Rhineland' with the interests of Rhenish traders being established first 'towards England, perhaps in the reign of Edward the Confessor...' (1982, 183).

Accepting this model of international commercial activity implies that any importance Norwich may have had within the North Sea trading network was essentially a Saxo-Norman development, although pre-Conquest commercial interchange was not unknown. The pre-Norman church of SS. Vedast and Amand, for instance, has been thought a possible centre for an immigrant Flemish community (Campbell 1975, 6, note 65) while it has also been proposed that the 1066 duty (recorded in Domesday Book) of Norwich burgesses to provide the King with a bear implies trade with Scandinavia (Campbell 1975, 6b). These, however, do not disprove the main thesis; rather they reinforce it for the development of international trade probably needed the establishment of alien communities (and even the occasional specialised contact such as bear provision) in order to foster commercial links.

Any objection to this thesis, that the development of an international trade for Norwich was Saxo-Norman rather than Late Saxon, cannot therefore be drawn from an analysis of the known material. Instead caveats must be expressed within the known political and economic situation of the settlement at this period. Indeed the signs hardly look propitious for a mercantile community on Palace Plain in the second half of the eleventh century. Much of the Late Saxon settlement of Conesford to the south was probably destroyed in 1075[112] and was certainly removed after 1094[113]. The population of the town seems to have fallen steeply between 1066 and 1086[114]. The market centre was relocated at some distance from this stretch of the waterfront. None of these factors would have contributed to commercial growth at Palace Plain.

Two solutions can be suggested to this problem, of apparent commercial growth at a time of political and economic retrenchment. The first is that the excavated features at St. Martin-at-Palace Plain do not represent a mercantile community at all. The relatively slight incidence (in context) of portable imported finds can be explained by the occasional visiting trade vessel, the consolidated foreshore by use of river traffic. Alternatively the trade of Norwich developed with the Rhineland in the decade or so prior to the Conquest (as Hodges has expressed in general terms for England as a whole, quoted above), peaked about the time of the Conquest but had enough impetus to keep going until the end of the century.

The first solution can probably be discounted. It fails to take into account the hegemonous position that Norwich held in the regional economy by the time of the Conquest and the inherent likelihood that its developing market would take advantage of its prominent East Coast position to exploit the possibilities of international trade. Palace Plain was well-placed to act as part of the commercial waterfront and the imported ceramic assemblage, although quantatively slight, is still a major corpus from one site. The second solution is an hypothesis that needs more fieldwork but, with some adaptation, currently seems to have been feasible. International trade could have developed in the decades immediately prior to the Conquest but would seem, from the imported pottery alone, to have thrived at least until the twelfth century, only dropping away thereafter (p. 87).

The Palace Plain site itself, however, appears to represent the development stage rather than inception of such a commercial undertaking, perhaps denoting expansion of port facilities into a fringe area from a location situated more centrally within the core of settlement. Such a location may be that on the south bank of the Wensum between Whitefriars and Fye Bridges, an area sampled in 1979 (Ayers and Murphy 1983) although even there the data was equivocal and certainly contained

much later eleventh-century material. More promisingly a recently sampled (1985) waterfront location lies on the north bank of the river in the Fishergate area (Fig. 1). The results indicate settlement and probably trade of an earlier date than has been recovered from the south bank and it is thus to the environs of Fishergate that archaeological attention must be turned next if the origins of the international port of Norwich are to be sought (Ayers forthcoming a).

The above discussion has spread some way from a consideration of the site in hand. It was, however, necessary in order to establish a context for the features located at St. Martin-at-Palace Plain. The topographical siting and construction of these features has been discussed above (p. 151ff). Their actual use must remain conjectural but various elements of timberwork at the waterfront clearly indicate a function consistent with the beaching or berthing of vessels from the river. This function was probably associated with warehousing at the street frontage although the location of domestic buildings in the immediate area can also be inferred from the presence of the church of St. Martin-at-Palace and from the burials discovered at the east edge of the excavation (p. 11) which may, in turn, suggest a further church (p. 151). In addition, the deposition of waste material on site in the early phases (including the construction of wickerlined pit *1164* which, comparatively speaking, had an almost 'luxury' fill of material which included medlar and *Prunus* fruitstones) indicates that people were living as well as working in the vicinity. The artefactual evidence implies that the commercial use of the site occupied the later eleventh and probably early twelfth centuries but that thereafter the port facilities became disused and evidence for trade was replaced by evidence for small-scale industrial working.

The apparent disuse of the site, and indeed the area (*cf.* Ayers and Murphy 1983), for commercial activities was probably related to factors outside the control of any community working at Palace Plain. It seems likely that the pattern of marketing within the city itself was shifting and becoming more localised within Norman parts of the settlement by the twelfth century. The establishment of specialised markets on the periphery of the great provision market undoubtedly led to a concentration of capital in the western part of the town, leaving the Palace Plain waterfront area even more on the fringe of the occupied area than it had been before the Conquest. In addition the expansion of the Cathedral Close meant that any commercial activity on this stretch of the Wensum was divorced from centres of population. Thirdly, shipping of the twelfth century was gradually becoming larger, vessels of deep draught replacing the shallow craft of the Saxo-Norman period. Such vessels would be unable to berth at Palace Plain but could do so downstream at King Street. All these factors must have contributed to make the area a backwater.

The archaeological evidence seems to confirm that this is precisely what happened for a thick, homogenous deposit (*1005*) began to form above the waterfront levels (p. 21) from *c.*1100 onwards. At the street frontage few vestigial remains of buildings were located, levels being generally denoted by pits indicating a major change of use. The best complex was that encountered east of later Building *2100* where a yard surface *613* was located in association with a hearth *609*, slots and stakeholes (Fig. 18). These were almost certainly used for some industrial function, perhaps associated with iron-working (the stakeholes could be viewed as successive positions of a portable anvil). Gully *562* appears to have been dug at the same time, probably as a boundary but also providing drainage for the frontage, layers within the fill containing a high iron content. Abundant traces of dyer's rocket (*Reseda*) were also located in this feature, suggesting dyeworking as an additional activity. The gully stopped short of the frontage and no continuation of its alignment was apparent although this does not, of course, mean that any did not exist. It may be that the gully was shared by adjoining street frontages but that to the west was utterly destroyed by the construction of Building *2100*.

The iron-working, suggested by the traces of iron in the soil samples, was probably a fairly low-grade process, extracting iron from the river gravels. The possible roasting hearth (*609*) was not as well defined as those at Alms Lane north of the river (Atkin 1985, 152 and fig.4) but it is possible that others may have existed west of the gully, in the area subsequently destroyed by the construction of Building *2100*. It should be noted that several features on Figure 18 were either burnt or contained burnt fills (p. 22).

The evidence for dyeing was much less equivocal. The documentation indicates that the process was widespread in the area of the site and the dyeplant *Reseda* was discovered in the environmental samples. The location of such an industry is only to be expected on a riverfront position in a major cloth-producing city and a dyeworks was excavated further upstream in 1972 (Carter and Roberts 1973, 457-62). Similar juxtapositions of river and dyeworks are known from other towns, such as Redcliffe Street in Bristol (Youngs and Clark 1981, 205).

In the later period the documents imply that work may have been concentrated on Property No. 1 next to the bridge, an area that was not excavated, although dyers also owned Properties 3 and 5 at various times. No. 5 was not excavated and only a small part of the waterfront area of No. 3 was uncovered which may explain the general lack of archaeological evidence for such a major industry.

These two activities were probably the most important industries but other indicators suggest that manufacture of leather goods was undertaken in the area. Considerable numbers of offcuts were recovered (see microfiche list) and a tanner owned Property No. 4 (part of the excavated site) in the 1390s (p. 144).

A further industry suggested by finds from the site was fishing, in particular that for herring. The quantities of herring compared to other fish (as high as 47% in Period I, p. 115) tend to confirm the implications of historical sources (Campbell 1975, 7a) that the herring industry was important for Norwich. The urban dimension of the concentration of such a commodity is underlined by Campbell: 'Fish, like pottery and ironware, was a basic commodity needed, but not produced, in every village' (1975, 7a). The proximity of the Wensum to the excavated area clearly meant that the site could have been used for the off-loading of fish and probably was on occasion, particularly in the early period. Later on it is perhaps more likely that the fishing boats berthed upstream, perhaps off Fishergate and, for the shellfish boats at least, certainly at Quayside.

These fairly low-grade activities inferred from the excavated features, finds and documents appear to have been initiated after the acquisition of the site by the Bishop as part of the episcopal fee or liberty. Just as the area was

on the fringe of the city, so also was it on the fringe of the liberty. However, it appears from a combination of archaeological, documentary and cartographic evidence (pp. 153-4) that the site was newly laid out, with generally realigned boundaries and within a land rental system of standard design, by the ecclesiastical authorities, probably at the time of the construction of Building *2100* (that is in the mid-twelfth century)[115]. Building *2100* and its probable function have been discussed above (p. 156ff) but, despite the act that it was an exceptional discovery in this part of the Norman settlement, it seems to have been divorced from social and economic reality in the parish. This reality is demonstrated by the deposits on the plot to the east which, after an hiatus, probably caused by disruption during the building of *2100*, once more took on the character of small-scale industrial work, even reusing an earlier pit (*370*) as well as the gully. Attention should be drawn to this reused pit as it was lined with sand with a curious 'castellated' effect at its south side (Fig. 38). The reason for this is unknown.

The archaeological evidence suggests that the somewhat unlikely juxtaposition of small-scale industrial working and grand house-cum-warehouse occupation continued throughout most of the thirteenth century. Towards the end of that period, however, the building fell into ruins. The cause of this is not documented although speculations have been advanced elsewhere (p. 148). The actual street frontage site of the structure seems to have been left a ruin. However, occupation of the tenement as a whole continued, as indicated by the earliest known documentation; or rather, Prior's landgable was paid in 1327 by one John de Hakeford, a shoemaker. This payment does not prove that he occupied the site (it is quite possible that he did not, p. 145) not does it prove activity on the site but the likelihood must be that some activity was taking place. Indeed the probable siting of dyeworks on the two properties to the west has been mentioned above, a dyer owned the next property but one to the east and ultimately a tanner was established immediately to the west and a further dyer on the tenement with the ruined building itself. Dying and tanning are both processes that need ready access to water and both were elements of important industries within the local economy, the former being associated with the growing cloth industry, the latter with the incredibly diverse leather trade[116]. Neither activity, however, could be described as a high- status occupation and indeed the impression is gained of a small industrial quarter. Only one shop is mentioned in the documentation (and this may refer to a workshop, pp. 46-7) while, of the considerable number of people engaged in the provisions trade *c.* 1300 known from the City's enrolled deeds for the sub-leet of St. George Tombland, only one (a fisherman) is recorded from the parish of St. Martin-at-Palace[117].

The actual quality of life of the people using the site is perhaps best reflected in the environmental evidence (p. 111ff). While the animal sources for food were predictably predominated by cattle, sheep and pig, it is interesting to note that the diet was supplemented by the hunting of hare and deer. The importance of fishing has been noted. The variety of food plants identified is wide ranging, from wheat and rye to grape and walnut although these latter were clearly far from common fare.

The essentially low-grade activity identified through both the archaeological and the documentary evidence for much of the fourteenth century began to change shortly before the fifteenth century. This initially took the form of the construction of a grand house on Properties Nos 4 and 5 (Fig. 98), the remnant of which was demolished in 1962 and subsequently excavated as Building *3132* (Figs 42, 43, 51 and 53). It seems reasonably clear that it was built at a time when the adjacent stone building was still ruinous (p. 45ff). The use of this building, however, went hand-in-hand with a general upgrading of the area if the apparent occupiers identified from the documentation are any yardstick. By the end of the fifteenth century, masons, a worsted weaver and a cooper (the latter with at least three boats) are all recorded as holding property here. The ruined building was eventually cleared out, rubble carted off the site, a vault inserted and, presumably, upper floors constructed, re-establishing occupation on the street frontage of its tenement. All the properties were still within the liberty of the Prior or Bishop and the masons, at least, may have generally worked on Cathedral buildings[118] but the evidence clearly suggests that the area was ceasing to be solely an industrial 'suburb' and was becoming more residential.

This late fourteenth- and fifteenth-century development probably coincided with a decline of direct waterfront utilisation. Although a decline had been obvious once trading activity moved elsewhere the probable exploitation of the river by the dyers and tanners maintained the river frontage as a centre of usefulness, more so than the street frontage where it has been seen that occupation almost ceased in the fourteenth century. By the late fifteenth century, however, it is likely that the street formed the more important frontage on most properties (with the possible exception of that occupied by Thomas Baldwyne, the cooper, who owned boats and perhaps even made them, p. 145). The number of masons living in the area may have owed something to the river; presumably the delivery of raw materials was facilitated by their proximity to water. Nevertheless, the style of the excavated buildings and the fact that a shop was in existence on Property No. 2 by 1505 both point to a more cosmopolitan and, indeed, affluent way of living.

It seems likely that some of this resurgence owed its momentum to the indirect interest of the church. The masons must have been employed generally on ecclesiastical buildings, as it is known some of them were. However secular interest in the area can also be observed, the acquisition of plots by John de Berney allowing the presumed construction of a large house. The house had been acquired by Sir Thomas Erpingham by 1409 and he must have been a major local employer; numerous servants and others are mentioned in the will of John Middleton, another of his servants (p. 149). Wealthy occupants will have also stimulated the local economy; when Jane Calthorpe wrote her will in 1540 she bequeathed to Elysabeth Aslak 'a new covering of redde now at the dyeing' (presumably not far away).

This rise in the status of many of the occupants of the area is hardly reflected in the material finds of the excavation, other than by the quality of the buildings themselves. Indeed the dearth of good late medieval and post-medieval finds is remarkable. In part this may be due to the excavation policy which led to machine-stripping of the upper deposits at the rear of the street frontages, removing most of the post- medieval material. To a degree, however, the objects may not have been there to find. The buildings were certainly kept clean; traces of rush matting being visible in the kitchen of one of them while it has

been suggested elsewhere (p. 133) that the common find of bracken and heather in the soil samples indicates the use of such plants as flooring; and rubbish could have been removed from the site, as is known to have happened in the sixteenth century on Colegate (Atkin 1985, 255b). Indeed the analysis of the bone suggests that this was most likely; by Period IV the most common animal bone recovered was that of the domestic cat (p. 111) implying that domestic food waste was disposed of elsewhere.

The trend towards large buildings (as exemplified by the Erpingham house) or for buildings of some quality on pre-existing properties (as shown by the excavated examples) seems thus to have been a feature of the later fourteenth and fifteenth centuries. It was not, however, sustained and indeed there is archaeological evidence to suggest that Building *3132* on Property No. 4 (Fig. 98) may have been subdivided or partly demolished before the end of the fifteenth century. This did not necessarily mean an immediate decline in status; the reverse may, in fact, have occurred at Building *3132* with the addition of the large bay window. The stage was set, however, for continued subdivision in the sixteenth century as the wealthier occupants moved out, generally returning to the countryside, a movement recognised nationally although not necessarily all one way traffic.'In London and in the provincial towns the merchant class was constantly changing in composition, losing its successful members to the landed class and recruiting from the same class, though possibly from a lower level' (Hoslins, quoted in Rowse 1971, 77). Neither was this two-way migration an innovation of the sixteenth century (Platt 1976, 189) but clearly fashion dictated the suitability, or otherwise, of urban localities and fashion had swung away from Palace Plain. The occasional affluent occupier remained including Leonard Spencer who owned Property 4 in 1543/4 and whose family had recently acquired the entire site of the Carmelite Friary across the river. Some of the dead from the Palace Plain skirmish during Kett's Rebellion in 1549 were apparently buried in his garden (Table 38, above). No trace of these, however, was uncovered by the excavation.

Property No. 4 was in fact joined with Property No. 5 in 1568 but this may have been a piece of speculation as they are referred to in 1570 as providing dwellings for poor families (Table 38, above). The implication is one of subdivision although the property continued to be recognised as a unit, being referred to as the 'mansion place called Everards or Spencers' in 1649 when it was conveyed to a dyer. Most of the other properties were, or had been, in the hands of cloth workers by this date. Weavers are mentioned in the sixteenth century and by the seventeenth century dyers and callenders are numerous. This, of course, ties in closely with the dramatic expansion of the Norwich cloth trade from the late sixteenth century onwards under the influence of the 'Strangers' who formed a third of the population by 1600 (Campbell 1975, 18a). Property No. 3 was in the hands of a probable naturalised alien, Sam Carnby, dyer, in 1619-20 (Table 37, above). Later seventeenth- and early eighteenth-century travellers, such as Celia Fiennes (1698) and Daniel Defoe (1722), were to comment on the predominant role that the cloth trade played in the City's economy. Celia Fiennes met 'old people who spinne yarne, as does all the town besides for the Crapes, Callimanco and Damaskes which is the whole business of the place...' (Morris 1984, 137).

Most of this activity, however, is only known from the documentation. No direct evidence for cloth workers, particularly dyers, was recovered from the excavation. The best opportunity for this would have been on Property No. 3 to the north of the Norman building but it was not possible to excavate this area with the resources available. A number of post- medieval wells were located north of Property No. 4, in two instances divorced from buildings at either the street or river frontages (Fig. 54). These could have been used for drawing water for industrial processes in the rear areas. No portable finds were located to support the documentary indications.

Dyeing and clothworking continued as important activites into the eighteenth century (the number of windows that Hugh Greenwood, a weaver, paid tax for in 1708 may indicate the addition of numerous weavers' windows to the attics of this property, p. 144) but, by the 1750s, the excavated properties (Numbers 3 and 4) were established in different fields such as No. 4 which became, and remained, a public house. Samuel Fremoult 'berebruer' acquired it in 1746 and may have been attracted to the area by the river. Brewing at the waterfront in London is known from the fourteenth century (Schofield 1984, 103) while in the sixteenth century, William Harrison emphasised the importance of water quality in brewing and stated that Thames water was the best (Rouse 1971, 128). This opinion was probably disregarded in Norwich whose beer-brewing was flourishing by the late seventeenth century and 'considerable wealth was made in the brewing of Norwich *Nog*, a heavy, dark brew made from local barley' (Corfield 1976, 252)[119]. The use of Wensum river water for brewing at this period, however, is not a thought to entertain with equanimity! The public house attracted the attention of local artists in the nineteenth century (Ninham's view is reproduced as Pl. XXX) and gave its name (The Beehive) to the yard to the east. Elsewhere subdivision continued and population density increased. A new street was laid out (Talleyrand St; Fig. 99 on microfiche) running north to the river from World's End Lane but ultimately this and the lane were removed to make way for the gasworks which survived for over a hundred years. Much of the remaining river frontage, including the excavated site, was given over to industry, only the Beehive pub surviving together with a few houses on the street frontage. The northern part of the site and the land to the west became a timberyard. This latter was bombed in September 1942, killing four people (Banger 1974, 77). After the war the site eventually passed to a second-hand car firm (who vacated their premises in late 1980) and the pub was acquired by the Gas Board and demolished in 1962. This demolition, pending immediate redevelopment, led to trial archaeological excavation over two days in December of that year, the results of which were a major factor when the, still undeveloped, site was considered for area excavation in 1981.

In conclusion, therefore, it has been possible to establish a broad framework for the social and economic development of the Palace Plain waterfront area in general, and the excavated site in particular, from the eleventh century to the present day. The economy has been seen as initially commerce based, prior to a decline and supplantation in the twelfth century by river-based small industries such as iron-working and dyeing. These may have co-existed with specialised trading conducted via the twelfth century stone house and eventually progressed to a late medieval mix which incorporated affluent households. In the post-medieval period the cloth industry held a near-

ubiquitous position but diversification set in during the eighteenth century before large-scale industry changed the character of the area in the mid-nineteenth century. Socially, a commercial-domestic mix of the eleventh to twelfth centuries seems to have given way to an industrial quarter throughout the thirteenth century with the exception of the construction of a large house-cum-warehouse which was almost certainly a 'special case'. This building was in ruins by 1300 but domestic building reappeared by the middle of the fourteenth century and thereafter formed a major element in land-use until the nineteenth century. The area seems to have never been very poor nor very rich, an equilibrium probably maintained by its proximity to a useful resource (the river) and its isolation from the principal parts of the city. It might be added that a similar sort of situation appears to prevail to the present day, the area being neither central nor yet peripheral.

IV. Stone Houses in Norwich

The discovery of a Norman stone house on the site of the 1981 excavation, bringing the number of survivals of such buildings in the city to two , has prompted an appraisal of other stone buildings which once existed. This exercise is not easy for several reasons. Firstly, it is quite likely that, as a proportion of the buildings within the settlement, the number of Norman stone houses was never very great in Norwich simply because of the lack of good quality local building stone (flint, an excellent building medium as evidenced by very many surviving churches, is also a laborious stone to use; limestone is much easier and probably more cost-effective, hence the numbers of stone buildings or fragments thereof surviving in Lincoln for example which is situated on the limestone belt). Secondly, most buildings seem to have been destroyed either in antiquity or, perhaps because of their generally flint structure, unrecognised in more recent times without either a drawn or photographic record. In consequence, it is difficult to attempt a survey such as that undertaken by Crummy (1981) for Colchester where, frequently, engravings and descriptions survive of now destroyed structures. Thirdly, engravings and other pictorial or written evidence tend to survive for 'picturesque' buildings which, in Lincoln or Colchester, often means those with architectural decoration, an embellishment infrequently found on flint buildings for obvious reasons.

Nevertheless, despite the above problems, it remains true that stone buildings were very much the exception rather than the norm and, in consequence, more likely to appear in the available documentation as topographical indicators. Such circumstances have been noted by Hill in Lincoln (1948), Urry in Canterbury (1967) and at Southampton where 'it was the size as well as the expense of such houses that attracted the attention of contemporaries. For many years the 'great stone houses' of Richard of Leicester, an early thirteenth-century notable of Southampton, remained a landmark in the port' (Platt 1976, 58). Similar references occur in the Norwich records. This is not to say that any specific reference to a stone building necessarily refers to a Norman structure but the probability is that this is so in the majority of cases. It ought perhaps to be noted here that the value of stone houses against fire was recognised. The London Building Assize of 1189 mentioned that 'in past conflagrations many dwellings had been saved by the presence of a single stone house which stood in the way of flames' (Colvin 1958, 69).

The gazetteer (below) is presented in alphabetical order of parish. Each entry is a brief synthesis of the documented reference. All the records quoted are held by the Norfolk Record Office whose reference numbers follow each entry. The houses are numbered for ease of location on Figure 100. It should be noted that the positions of some buildings are not known. Not all the structures were houses (*e.g.* No. 16, the Jewish Synagogue) and no attempt been made to specify the type of house that any particular entry might represent although inferences can be drawn where additional information has been given (*e.g.* No. 5). The apparent concentration of buildings on King Street is of interest and invites parallels with waterfront buildings in King's Lynn (Parker 1971; Richmond *et al.* 1982; Wade-Martins 1982) and Southampton (Platt and Coleman-Smith 1975, 83-90) and with excavated examples, where cellars at least were of stone, from London (Schofield 1981, 24-6). The possibility that the remains of such structures lie below ground on King Street (a development area) highlights the importance of prior archaeological investigation of redevelopment sites in this part of the city.

Gazetteer

(Fig. 102)
(compiled by Margot Tillyard)

1. St. Andrew

1312. Edmund le Tundur sold to Will. But the east part of his messuage which was on the road north of St. Andrew's church. To the north of the part sold was Will. But's property which may have run down to the river (*Roll 6 5d.*).

1319. Tundur sold But a *stone house* to the west of the above, with a yard and a privy to its north, surrounded on the north, west and south by Tundur's capital messuage (*Roll 9.4*).

2. St. Cuthbert

Stone house lay between Tombland to the north and the cemetery of St. Cuthbert to the south. To the west were the houses on the road leading to Conesford, and to the east buildings on the road next to the Priory Wall.

First mention in 1254 (*DCN R236A Reg. 5 p. 29 (iii)*).

Gave its name to the family living there in the thirteenth century *e.g.* 'Simon de Stonhus, son of Richard Forester to Holy Trinity for Cellerar, rent from house called the 'Stonhus'' (*D+C. 535 St. Cuthbert*).

Became City Property in 1303 (*NRO Case 4 Private Deeds St. Cuthbert 1*).

3. St. Etheldreda

The Music House,. See Kent 1945; Lipman 1967; Wood 1974; 59, Carter 1980, 310-312 Pl. LI and above p. 158.

4. St. George Tombland

North of lane at the north side of the churchyard and on the corner of Tombland (? below Augustine Steward house or Samson and Hercules).

Described as a stone house in the fee of Carrow in 1306 (*Roll 4. 20d*).

5. St. George Tombland

At the corner of Wensum Street and Waggon and Horses Lane, north side (below Black Horse Bookshop).

Stone house called 'le Heybothe' and included three shops in 1283 (*D+C Deeds, St. Geo. Tombland 560*).

Owned by a vintner followed by a taverner.

Possibly the same house as that later called 'Depestead' (mentioned in several documents).

6. St. Julian

Part of a messuage at the east front of seller's messuage next to the road. Probably on the west side of the road. Dated 1307 and concerns a stone solar with another room and an outhouse (?) plus a stable and right of way past the seller's gate (?), past his hall and through the courtyard for horses and men.

Richard Dragge to Sir Nicholas of Hulme for life (*Roll 4. m35*).

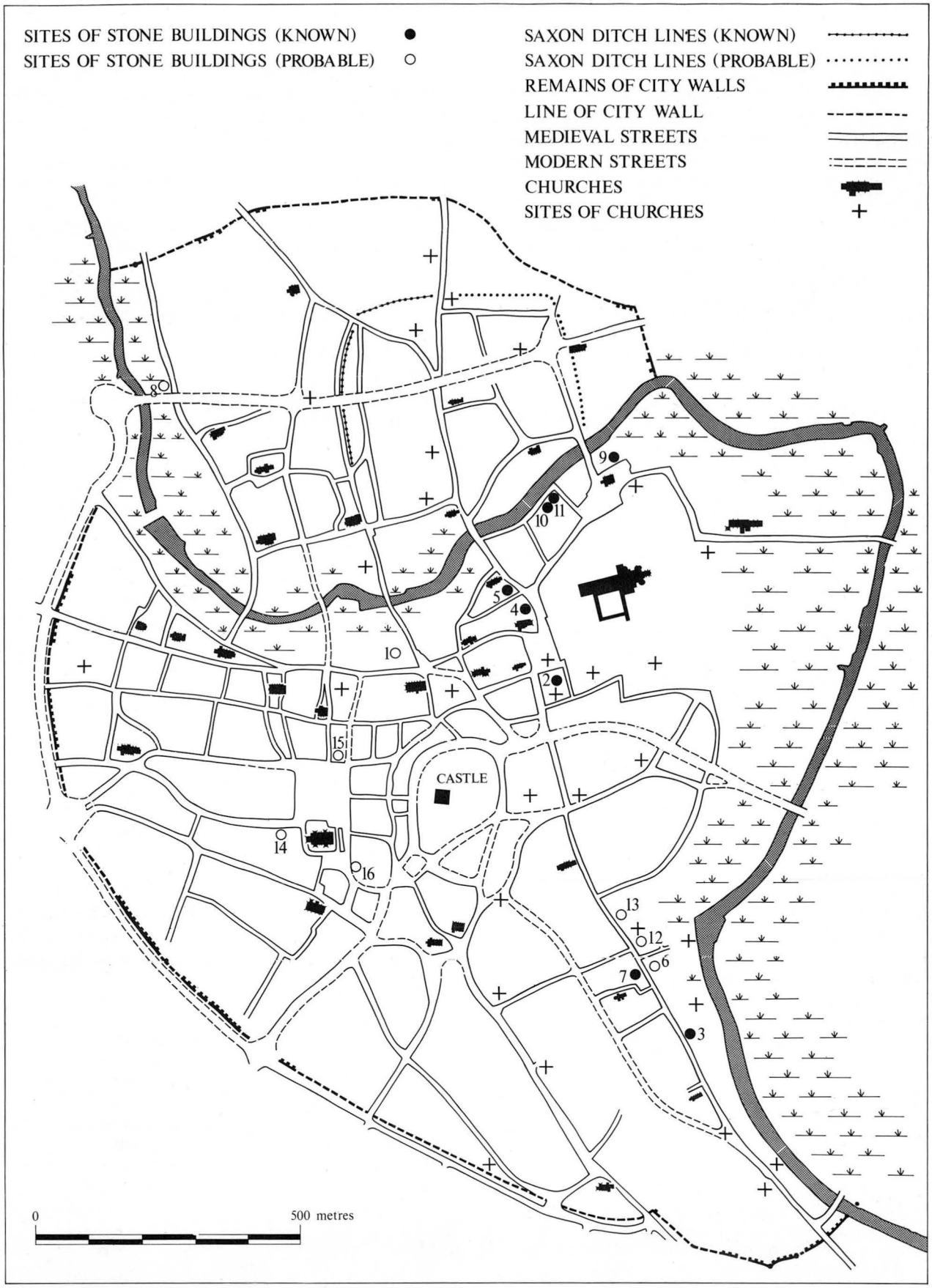


Figure 102. Map showing known and probable locations of stone houses in Norwich. Scale 1:10953.

7. St. Julian

Blomefield (1806, IV.83) called the following property a stone house (of between 1155 and 1189).

Formerly Ralf Wankel's father's. Ralf sold it to Nicholas de Hakeford, measurements given as 27' by 18', whose son in turn sold it to William de Dunwich in 1262. Its abuttals are then given as Conesford east and cemetery of St. Julian south. When, in 1265, the master leased it, the property stretched from the road as far as the lane from St. Julian's churchyard to Sandgate (Thom Lane). By 1322 the land to the west had again been separated from the original property (*NRO Private Deeds St. Julian 1-11, Case 4*).

8. St. Martin-at-Oak

House on the river called le Stonhalle in 1332 (*Roll 12.37d*) then held by Sir John de Norwich (afterwards held by Sir John Fastolf). Sir John de Norwich inherited it from his father St. Walter who had acquired it in 1320 (*9.8d*).

9. St. Martin-at-Palace

Excavated stone building, 1981. Remains preserved beneath the new Magistrates Court building.

10, 11. St. Martin-at-Palace

Two stone houses on the quay owing rent to the Prior. Subject to a dispute between the Master of the Hospital of St. Giles and the Prior which was settled in 1302/3.

On the corner of the lane leading to the quay from the west end of the Plain, with the lane to the east and the river north (below Busseys garage).

'Land with quay and quayside building' in 1282.

There was a row of buildings here facing the river, paying rents to the Priory, the Hospital of St. Giles and the Hospital of St. Mary Magdelena. It is possible that others were of stone too.

(References: *DCN R236A Reg. 2 ii 91d 1302/3; D+C Deeds 1056 St. Martin-at-Palace 1282; NRO Case 1 Roll 2.8d, 10, 25d and Roll 6.6 and 62*).

12. St. Michael Conesford

Between Conesford and the river.

1288/9. The Abbot of Woubum sold to John, son of Adam Page, a piece of land from the west part of the abbey's messuage. One of its abuttals was a stone house belonging to the abbey. It is unclear from the description given whether it was on the street or not. Probably disappeared when the area became part of the Austin Friary. (*Roll 2.17*). Printed in Hudson and Tingey 1910, 10.

13. St. Michael Conesford

This was on the river.

A 'Berghus called the Stonhus' was leased by William Burel to Ralf de Berwode for ten years in 1329. It carried rights to a yard and a quay and the lessee was given access by day and night to the gates and the quay. Abuttals were S.Fischus of William Burel.

N. Common Lane.

E. River.

W. -

(Roll 12.13d).

14. St. Peter Mancroft

Stone house belonging to the Chapel of St. Mary in the Fields on the south side of Bethel Street (*Roll 4.1*).

First mentioned in 1289 (*Roll 2.7*). Later (1313) merely described as a tenement (*Roll 7.1*) but, in September 1383, it is described as the stone hall and tenement' (*Liber Albus: f3; NRO Case 17b*).

See Hudson and Tingey 1910, 4.

This may be the same building described in 1368 as 'a certain fair mansion' for the chaplain of the Lettice Payn chantry in St. Stephen's Church (Harrod 1859). Harrod notes that it had a '*volta subterranea*'. It is mentioned as 'the stonehall' in the lists of landgable rents for St. Peter Mancroft in 1570 and 1626.

15. St. Peter Mancroft

Building called the Stonhalle on the north side of the market, east of Dove Street. See Hudson and Tingey 1910, 3.

16. St. Peter Mancroft

The Jewish Synagogue was probably of stone, burnt or demolished *c.*1290 (Lipman 1967, 123). It was situated on the east side of Haymarket, just to the north of the Lamb Inn yard (where the Star Hotel stood in the ninteenth century).

Addendum

St. Peter Mancroft

There is a reference to a stone house in the Cartulary of Old Warden (Fowler 1931).

Charter No. 306. Matilda Parson sells to the Abbey there a property described as '*domum meum de petra quam edificavi super terram quam emi de Brigrich Hunderwode cum omnibus ad eam pertinentibus ... excepto langable scilicet i quadrante*'.

Charter No. 307. John, Bishop of Norwich, and prior Gerard confirm the land (*'terrulam'*) bought by the convent of Warden in Norwich at an annual rent of 1 lb of pepper.

These documents can be dated to between 1185 and 1200.

The only Norwich parish in which Blomefield lists a holding of Old Warden Abbey is St. Peter Mancroft.

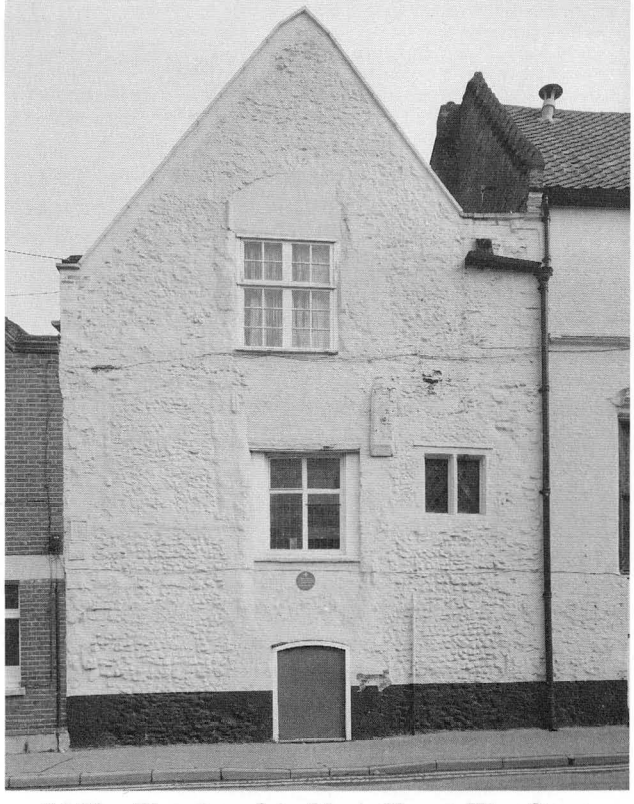
The house may not be one of those already listed in this parish.

V. Concluding Assessment

The variety of data recovered from the project that had, as its core, the excavation of the Magistrates' Courts site has been summarised earlier in this chapter. It remains necessary to sum up the importance of the results.

While it is both pleasing and of considerable interest that the excavation should result in the preservation, as a monument, of a large twelfth-century building it must be remembered that this is an additional benefit not sought by the project. The real importance of the work is that it has enabled the, frequently quite detailed, reconstruction of a sizable sample area of the medieval city. By a combination of disciplines the work has uncovered much evidence for the use of the natural advantages of the site, the development of trade and industry, the evolution of building types, the establishment of economic and social patterns of urban life and the changing form of the background environment. It has also highlighted areas of continuing ignorance, the early origins and development of settlement perhaps remaining as the major lacuna.

An attempt has been made in the foregoing report to place the site into context, to view its development within that of the settlement as a whole. The result has been observation that the area of St. Martin-at-Palace Plain at least, and perhaps much of the south bank of the River Wensum, did not develop as a settlement of urban type



LI West Elevation of the Music House, King Street, (*Copyright: Norfolk Museums Service*)

much before the beginning of the eleventh century. Such conclusions raise the questions of just where earlier settlement was situated and how it was characterised. Furthermore, if occupation did move to the south bank in the eleventh century, the motive force for such a migration needs to be studied. It seems likely from recent work north of the Wensum (Ayers forthcoming a) that tenth-, and possibly late ninth-century occupation may have been located there. If this should prove to be the case the future study of urban growth in Norwich will need to draw on the Courts site material as a major resource for the attempt to understand the period of transition.

In summary, therefore, the work at the Magistrates' Courts site needs to be viewed as an example of the importance of the large-scale integrated approach to the problems of urban development. The project has utilised archaeological, documentary, topographical, architectural, artefactual and environmental data to reconstruct the site sequence. The result has been to provide a detailed appraisal of a sample area from which much wider inferences, including those concerning patterns of commerce and industry, can be drawn. The project originated within a problem-orientated approach to the research needs of the historiography of the city and was undertaken within a rescue framework. As ever questions have been answered but others have surfaced. The City of Norwich is a large palimpsest organism; the Courts project has provided invaluable data for a better understanding of part of that organism and suggested routes for further research.

Endnotes

1. The place-name is discussed in Campbell 1975, 25 and the area itself in both Carter and Roberts 1973, 445 and Ayers and Murphy 1983, 2-3.
2. The arguments are explored most comprehensively in Carter 1978a.
3. Evidence for the possible existence of such a road is briefly discussed in Ayers 1985a.
4. The only Period I material located below this structure was an edge cut into the sandy subsoil with an associated piece of timber. These could not be phased and are therefore discussed under Phase I3, the latest possible phase for their use. A watching brief, undertaken on 5th September 1983 when a contractor's trench was excavated south of the Phase II2 building, revealed a dark-brown gritty silty clay loam which was cut by the Phase II2 foundation trench and overlay natural gravel. This deposit contained Thetford-type and Stamford Wares.
5. Throughout the text the term 'the waterfront' is taken to specify that area of the excavation north of the medieval building line, essentially the area north of the Phase II2 stone building *2100*. It also includes the unexcavated area between the northern perimeter of the excavation and the modern river line. The phrase is thus used as a generic term to describe that area which 'fronted on to the water'. Installations, which were themselves constituent parts of the waterfront, will be referred to by technical or common usage terminology (such as *revetment, wharf, staith, jetty*). Strictly speaking, any warehousing south of this area would have also formed part of the waterfront as would access lanes and streets. For reasons of clarity and continuity, however, such structures and features will be regarded as part of the street frontage.
6. As used at Plessenstrasse, Schleswig (see Milne and Hobley 1981, figs 95-97) and Abbey Street/King's Road, Reading (Fasham and Hawkes 1984).
7. South of fence *1189* the following sequence was observed: natural sands and gravels; structured peat *1193*; grey silty sand; structured peat and sparse brushwood *1192*; sandy silt; structured peat and sparse brushwood *1191* (see also Fig. 14).
8. The site notebook, under the entry for context *2399* but referring to all contexts subsequent to *2327*, summarises the weather conditions encountered in November and December 1981 when these pits were excavated as 'successive coverings of frost, snow, frozen snow, thaw, flood and torrential rain' (the flood apparently the result of an overnight North Sea surge).
9. Building *2100* has been incorporated into the new Magistrates' Courts.
10. This feature is no longer visible, having been backfilled for the redevelopment.
11. This feature is also no longer visible, having been backfilled for the redevelopment. The exterior southern end of the east wall is the only area that cannot be seen (the exterior of the south wall is also buried but was clearly, with the exception of the surviving courses at the very top, always intended to revet the street frontage).
12. The turret is clearly *not* an addition. It appears to have functioned as an integral part of the building and its eastern wall is a continuation of the east wall of the main building.
13. An attempt was made to remove the concrete floor of the modern cellar but this proved to be impracticable.
14. With excavation the bricks were salvaged by the Architect's Department of Norwich City Council to help with restoration work at the Old Barge, King Street. Average size of bricks 23×11 x 5 cm.
15. A sample squint brick was retained (ref: B/T*386*). A sketch plan with dimensions is available in the Brick and Tile Register in the Archive (basic dimensions 24.5×12×4.6 cm).
16. The construction of such a feature adjacent to a property boundary, and a house wall at that, is probably further evidence of dereliction of the property to the west, but see also p. 160.
17. Wall *186* was rendered on its south face. This may mean that the interpretation of the enclosed area north of the wing as a yard is erroneous (but see p. 161). Rendered walls are marked on a sketch plan in site notebook 2, p. 206 in the site archive.
18. Top of stone in pit *197*: 1.98 m OD.
    Top of stone in pit *65*: 1.93 m OD.
19. Regrettably this brickwork also had to be removed to facilitate the new development.
20. For a discussion of the presumed vaulting see p. 176.
21. The rubble had clearly been tipped, or fallen, into the turret chute as the pit at the base was unevenly filled. Material also tipped through the arch from accumulated exterior deposits but neither filling completely removed a void which became evident as excavation proceeded (external filling essentially deposit *1054*).
22. A possible superstructure is discussed on p. 160.
23. The buttress had to be removed to facilitate the safe total excavation of the Norman building.
24. An architectural appreciation of the window can be found on p. 165.
25. Sandwiched between layers *140* and *113* was a patchy survival of rush matting (*122*).
26. A generally unannotated plan of the area, prior to demolition in 1962, indicates a gate in a yard wall at this point. A copy of the plan is available in the excavation archive.
27. Both walls contained bricks of a non-typical Norwich size; namely 27×13×5 cm. This size, incidently, is the average size of the celebrated brick of medieval Hull.
28. I am grateful to Michael Day, latterly Assistant Keeper of Social History at the Bridewell Museum, Norwich for looking at this material. Information available in a memorandum to the writer dated 8th April 1982 held in the correspondence file in the Archive.
29. This fragment was photographed by the writer prior to the excavation and is deposited in the Archive (slide no. 15). The location of the wall is indicated on the pre-demolition survey drawing of the County Architect's Department, a copy of which is also in the Archive.
30. As stated above (endnote 13), an attempt was made to remove this concrete but it proved impracticable to do so.
31. Analysis of the timbers revealed them to have been made of sweet chestnut. It was not possible to subject them to dendrochronological analysis due to a lack of comparanda (see p. 128).
32. McKinley has published more detailed analysis of Norwich locative surnames and has calculated that between 1317 and 1350 some '49 per cent of all freemen had locative surnames or bye-names' (1975, 82). Where Reaney had used data from the Norwich Deeds and Leet Rolls, McKinley looked at the lists of enrolled freemen. His results confirm Reaney's findings of a large number of immigrants from Lincolnshire but he goes on to state that 'very few locative surnames occurring in East Anglia can be certainly derived from places in the south east Midlands (Bedfordshire, Buckinghamshire, Hertfordshire, Huntingdonshire and Northamptonshire), despite the nearness of the region to East Anglia' (1975, 80). Subsequently McClure has published a paper in which he calculates, from an analysis of locative surnames, that Norwich had an effective catchment area of fifteen to twenty miles which was greater than Nottingham and Leicester, roughly the same as York, but less than London (1979, 177). He did, however, find it 'notable that the percentages between 20 and 40 miles, though markedly lower than those between 10 and 20 miles, are as high as they are...' (1979, 179).

    All this reveals little about the movement of pottery into Norwich. Nevertheless it does reveal the perhaps self-evident truth that Norwich dominated its own hinterland and certainly had connections further afield, a network of links that would help rather than hinder the importation of pottery and other goods.
33. *NRO Case 17 b) Book of Pleas f. 26-28.*
34. *NRO Case 5 b)* and see Hudson 1892.
35. *NRO Case 17 b) Book of Pleas f. 26, 27 Iters 1249/50 and 1265/6.*
36. List of St. Martin-at-Palace inventories kindly supplied by Mrs U.M. Priestley. Details of some wills from calendars extracted by Mr R. Greenwood.
37. *NRO DCN R236A Reg. 5 p130d* and *NRO DCN R236B Cellerar Box 2 No. 128. Also see Postscript: Berney's Inn*
38. *NRO DCN 236A.*
39. Properties in the following parishes are the subject of entries in Register II:
    All Saints and St. Margaret Fibriggate
    St. Andrew
    St. Augustine
    St. Edward Conesford
    St. George Tombland
    St. Giles
    St. Gregory
    St. James
    St. John Conesford

St. John Maddermarket
St. Martin in Bailey
St. Mary Coslany
St. Mathew
St. Michael at Plea
St. Paul
St. Peter Conesford
St. Peter Hungate
St. Peter Mancroft
St. Saviour
SS. Simon and Jude
St. Stephen
St. Vedast

40. *DCN R236A Reg. II ii f. 91d.* and Private Deed St. Martin-at-Palace *NRO Case 4 g) Box 6.*

41. Register IV mentions properties in St. Mary Parva and St. Peter Parmentergate only.

42. Register V lists Cellarer's interest in properties in the following parishes:
St. Benedict
St. Clement Fybriggate
St. George Tombland
St. James
St. John Maddermarket
St. Martin-at-Palace
St. Mary Combust
St. Mary in the Marsh
St. Mary Parva
St. Mathew
St. Michael Coslany
St. Peter Mancroft
St. Saviour
St. Stephen
St. Vedast
and
Conesford
Fybridge
Holmstrete
Newport
Quay

43. Register VI concerns properties in St. Mary Parva, St. Peter Parmentergate, St. Stephen and Holmstrete.

44. Register XI concerns properties in St.Cuthbert, St. Martin-at-Palace, St. Mary in the Marsh, St. Mary Parva and St. Stephen.

45. For a discussion of the etymology of Bichehil see Campbell 1975, 25.

46. *DCN R236A Reg. V f. 122* and for a transcription see microfiche.

47. *NRO DCN R236B.*

48. *Leet Rolls NRO Case 5b).*

49. *NRO Case 17b) Book of Pleas f. 26.*

50. *NRO Case 18d) Landgable 1541-1626.*

51. *NRO Case 17b) Domesday Book f. 47.*

52. *NRO Case 4g)* Private Deeds *Holmestrete 5, 23, 24.*

53. *NRO DCN R236B Cel 2 127.*

54. *NRO DCN R236B Cel 2 118;*
R236C Cel 6/8 127B;
R236B Cel 2 130;
R236B Cel 2 135

55. *NRO Case 18d) Landgable 1541-1626.*

56. *NRO DCN R236A Reg V 122.*

57. *NRO DCN R236B Cel 2 122.*

58. *PRO E179/149/9.*

59. *NRO Case 7i).*

60. *PRO E179/150/218.*

61. *NRO Case 7 i).*

62. *PRO E179/253/43.*

63. *PRO E179/154/701.*

64. *NRO DLV 1/52.*

65. *NRO DCN 236A Reg. V p. 122.*

66. Priory of Ely records kindly furnished by Dr D.M.Owen. A fuller account of these transactions may be found on microfiche.

67. *NRO Case 4 g) P.D. St. Mathew 11.*

68. *NRO DCN R236A Reg. V f. 130d.*

69. *NRO DCN R236B Cellarer Box 2 No. 128.*

70. *NRO Leet Roll 1375 Case 5 b).*

71. *NRO DCN R231C Roll 1Am3d.*

72. Information from Mr. Graham Pooley, Norfolk Archaeological Unit.

73. *NRO Case 4 g) P.D. St. Martin-at-Palace.*

74. *NRO NCC Wills Platfoote 197.*

75. *NRO NCC Wills 9 Corant.*

76. *NRO Case 1 Roll 40m 44.*

77. *NRO Case 1 Roll 40m 59d.*

78. *NRO Case 1 Roll 50m 1.*

79. *NRO MS 18624/84.*

80. *NRO MS 18624/83.*

81. *NRO Case 2 Roll 74m. ult.*

82. Transcription of 1851 Census in Colman and Rye Library, Norwich.

83. *NRO EG1/22.*

84. *NRO MS 4371 T1 38B.*

85. Norwich. Colman and Rye Library *P.N/WOR.7072.*

86. The Cremorne Works of the Eastern Gas Board 1962. Colman and Rye Library, Norwich.

(Footnotes 87-94 refer to microfiche text M4f)

87. *NRO Case 4 g)* Private Deeds *St. Mathew 27. 1347.*

88. *NRO DCN R236A Reg. 5 p122.*

89. *NRO Case 17 b) Book of Pleas p. 28.*

90. Manuscript name index kept at the Centre of East Anglian Studies, University of East Anglia.

91. *NRO Case 4 g)* Private Deeds *St. Martin, 1536* and *Case 20 Great Hospital Lease Book A p.68.*

92. Norwich Colman and Rye Library *N.942.62 (083) Tillett Scrapbook Vol. 17.*

93. *NRO Norwich Court Roll 103m 10, m 13.*

94. Norwich Colman and Rye Library *Photograph N/BIS/21036.*

95. It should be noted that, until the construction of the Magistrate's Courts between 1982 and 1985, the land fell away to the north, east and west of the church of St. Martin-at-Palace.

96. I am grateful to Alan Carter for these observations.

97. I am grateful to Alan Carter who first made this suggestion, on site in 1981.

98. Now completely destroyed following largescale soil removal in the summer of 1984 prior to construction of the Crown Courts. A watching brief undertaken by the writer confirmed suspicions that destruction and contamination by the gasworks was extensive. Nothing of archaeological value could be seen although a possible earlier course of the River Wensum was observed (a map detailing this alignment is held by the Norfolk Archaeological Unit and by the Norwich Castle Museum; I am grateful to Mr R.Kett, Clerk of Works at the site, for providing this information).

99. For a later but similar arrangement in medieval Hull see Ayers 1983b, 87.

100. Removed by machine-work, January 1981.

101. A detail of this map, showing this area, is reproduced as plate I in Ayers and Murphy 1983.

102. This oil has not been published. It is entitled '*Norwich Scene with Whitefriars Bridge*' (Accession No. 428.961) and was presented by Canon E.A.Parr in 1961. It is felt that the view depicted looks west with the site of the excavation on the left hand (south) side. A similar but less detailed pencil and watercolour, also by Ninham, has recently been published (Moore 1985, 122).

103. The major loss has been the removal of the corbels and the top courses of quoins in the south-western corner where the wall has also been slightly lowered. Elsewhere, the southern external elevation of the east wall has been backfilled (Fig. 30, BN-BP on microfiche) and part of the internal elevation obscured by a lift shaft. This same lift shaft entailed the removal of the northern pier base (context *2070*, Fig. 50).

104. Comment by Warwick Rodwell at Churches Conference, Oxford, April 1985.

105. The earliest reference to a glazed window in London occurs in a deed of 1263/4 (Chew and Kellaway 1973, xxvi).

106. It will become clear that the best parallel to the excavated structure is the Music House in King Street, Norwich. Unfortunately this building has not been the subject of a thorough survey nor have any elevations or sections (other than a schematic sketch in Kent 1945, 34) been executed to the knowledge of the writer. This most interesting building, comprising major elements of twelfth-, fifteenth-and seventeenth-century architecture, urgently requires careful study before it can be understood.

107. If it was flushed it clearly saved unenviable labour. In London in 1425/6 a latrine serving two houses was emptied: '80 pipes (more than 1000 gallons) of ordure was carried away...' (Keene 1982, 142).

108. The Treasurer was an office established by Thomas of Bayeux, Archbishop of York under William I. The Stonegate house was Minster property by the fourteenth century at the latest (references as in the text).

109. Brushwood was recovered from a borehole close to the bridge in 1980 (site investigation data on archive) and extensively in a trial trench west of the bridge in 1979 (Ayers and Murphy 1983).

110. A notoriously difficult and, to some extent, artifical separation to seek in the archaeological record. However, any discussion of economic and social development in Norwich needs to tackle the problem as the effect of the Conquest must have been felt in most, if not all, communities.

111. Written and published before Dr Hodges saw the material from this site.

112. During the rebellion of Earl Ralph Guader.

113. Following the establishment of the Cathedral Close.

114. Domesday Book records 1320 burgesses in 1066; by 1086 this had fallen to 665 English burgesses but with 480 bordars. Some 297 messuages were vacant, twenty-two burgesses had gone to Beccles and ten had quitted the burh. There were, however, 124 French burgesses in 1086 (Darby 1971).

115. Such a reorganisation could have come earlier. Carter (1978a, 186) has argued that landgable became fixed *c.*1130 and thereafter was not allocated to newly developed areas. However, this refers to city landgable and not to that of the Prior's (Bishop's) Fee and, in any case, it does seem that later adjustments were 'necessary to keep the totals for each parish correct.' In other words, the excavated site would have paid landgable pre-1130 so that, even if it was redeveloped in *c.*1170, a reimposition of landgable would have been necessary.

116. An analysis of the City Enrolled Deeds by Serena Kelly has revealed that leatherworkers represented the largest industrial group *c.*1300 and included fifty-nine shoemakers, fifty tanners, thirty-four skinners, seventeen tawyers, eight saddlers, three parchment makers and two whitanyers (Kelly 1983, 22).

117. See Kelly 1983, 27. The sample is statistically invalid at parish level and, in any case, much of St. Martin-at-Palace lay within the Prior's Fee and so was excluded from the enrolled deeds. The example, however, serves its purpose, especially given the individual's trade.

118. Robert Everard certainly did. John Antell has recently been identified as the probable Master responsible for the fifteenth-century work at the churches of St. Michael-at-Coslany, St. George Colegate and St. Martin-at-Oak (Frank Woodman, pers. comm.).

119. The exploitation of a particular topographical environment for specific industries such as dyeing or brewing has wider implications as Keene has noted for Winchester: 'the city's specialised requirements influenced the agriculture of its immediate hinterland: in the fourteenth century madder and teasels were extensively cultivated in suburban crofts, to be followed in the sixteenth century by...hops' (1983, 140-1). The same was surely true for the hinterland of Norwich.

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