EXCAVATIONS IN THE CITY OF NORWICH, 1948

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IN Norwich the bomb-damaged areas offered apparently a good opportunity for a systematic examination of the late Saxon and medieval archæology of the city. An archæological approach now probably holds the chief hope of advancing our knowledge of the early history of most English towns, yet very little work has been done along these lines in any town until recent years. In Norwich, records of the context of material found in some earlier excavations, such as at the Castle[1] and at Fyebridge,[2] have been better than in most towns, but there is much material preserved with no proper context recorded, and very much more must have been lost altogether during the past century.

Examination of the available sites, especially those with deep open sections, in company with Colonel S. E. Glendenning and Mr. Rainbird Clarke, showed that in several otherwise promising areas the lowest occupation levels lying on the natural surfaces were datable by their pottery to the thirteenth century. It began to look as though the late Saxon and twelfth-century levels had been largely disturbed by building activity in the thirteenth century, when perhaps more substantial buildings were being erected than in previous centuries. In fact, no pre-thirteenth-century house structures were uncovered in the four sites excavated in 1948. Results of considerable value were, however, obtained from the examination of problems connected with the town defences on three of these sites.

The Norfolk Research Committee and Norfolk and Norwich Archæological Society invited me to direct excavations on their behalf, and these were carried out for two weeks in July and August 1948. We were most grateful for an excellent gang of workmen, under their foreman, Mr. Ted Hall, generously provided by the city authorities, and the City Engineer and his department helped in numerous ways. Dr. E. A. Johnson and Mr. G. P. Larwood supervised the work at the Ber Street, Ber Street Gates, and St. Stephen's sites, and Mr. Harold Roberts and my wife undertook much surveying and supervision of augering. We are also most grateful to Mr. Hallam Ashley for his careful photography. A great amount of voluntary help was given at all sites by numerous members of the committee, as well as by teams of boys from the City of Norwich School under Mr. Larwood, and from Gresham's School, Holt, under the Rev. C. Linnell, and also students from Oxford and from the London University Institute of Archæology. Colonel S. E. Glendenning put at our disposal his valuable knowledge of the development of brick textures and sizes

[1] *Norf. Arch.*, XVII, 1910, 42–5.
[2] *Norf. Arch.*, XIII, 1898, 217.

in East Anglia. I am most deeply indebted to Mr. Rainbird Clarke, without whose unceasing efforts it would never have been possible to carry out this work, for he undertook all the burden of the local organization, and in particular the negotiations with all the very numerous landowners involved. Permission to excavate was readily accorded by all the owners of the properties concerned, especially Norwich Corporation (Barn Road and Ber Street), A. Brett and Sons Ltd. (Barn Road), and Boulton and Paul Ltd. (St. Stephen's).

Through the courtesy of Miss Barnard and Mr. Rainbird Clarke, Dr. Johnson, Mr. Roberts, my wife and myself were able to spend most evenings during the course of the excavation on a fairly intensive study of the late Saxon and early medieval material, mostly pottery, in the Castle Museum preserved from building operations in the city of Norwich. Much of the pottery is incorporated in this report, as well as the more important conclusions arising from its study.

All the archæological material from the excavations undertaken in 1948 has been presented to Norwich Castle Museum.

INTRODUCTION

It has been supposed that the earliest trading settlement at Norwich, probably ninth to tenth century, lay in the south-east of the present city, between Ber Street and the Wensum.[3] An enclosing bank and ditch of such a settlement, along the line of Ber Street and turning down to the Wensum at the south, has been presumed to account for the re-entrant angle in the line of the medieval walls at Ber Street Gates (Fig. 1). This area seems to contain the earliest church dedications, and has yielded what appears to be the earliest archæological material of this period from Norwich, though this is scanty enough and none of it seems earlier than the tenth century (p. 301). In the excavations, however, no sign of any bank or ditch along the line of Ber Street, or to the east of it, has been found, and it is now beginning to appear improbable that any substantial work of this sort ever existed here.

During the eleventh century, Norwich must have expanded greatly, such that by 1066 it was one of the largest towns in England, with 1,320 burgesses, though it had declined again very much by 1086.[4] The distribution of churches with late Saxon architectural features, and those mentioned in Domesday (there are over twenty there recorded but not all named; see Appendix II) and in other eleventh-century records, taken in conjunction with the find-spots of pottery and metalwork in the late Saxon tradition (map, Fig. 1), suggest that by the later eleventh century the whole area of some 500 acres enclosed by the medieval walls was in some measure inhabited, though not necessarily intensively all over. Further accumulation of such archæological evidence is now required. Documentary evidence suggests that this area was surrounded by an earthen bank and a ditch at least by the middle of the thirteenth century. A bank and ditch has, in fact, been found by excavation at a number of places along the line of the wall, but the pottery evidence suggests a date nearer the

[3] *Archæol. J.*, CVI, 1951, 74–5.
[4] *V.C.H. Norfolk*, II, 1906, 35–6; *Geog. J.*, LXXXV, 1935, 444–6; Darby, H. C., *The Domesday Geography of Eastern England* (1952), 139–40.

middle of the twelfth century for its construction—it could not have been much earlier and was probably not much later (see p. 295). On the crest of this bank a flint and mortar wall was built, started (according to documentary sources) in the 1290s and finished during the first half of the fourteenth century. Such comparatively late date for the initial construction of a town wall in stone is proving to be an archæological feature of several English towns, though stone gate buildings set in the line of the earthen bank often preceded the complete walling of the town in stone, as at Southampton,[5] and perhaps Oxford. There may well have been stone gate buildings set in the earthen bank at Norwich, for Ber Street Gate is mentioned in 1146, and just at this point, closest to the site of the gate, the wall footings went down 5 ft. instead of resting on several feet of made bank: Conesford, or King Street, Gate is mentioned in 1175–86, Heigham Gate between St. Benedict's and the Wensum in 1221, and most of the other gates during the thirteenth century.[6] In some towns, such as Wareham, Dorset,[7] and probably Wallingford, Berkshire,[8] the medieval enclosing bank of earth has remained in its original state, with no addition of a stone wall. Some other important English towns, such as Reading, or Salisbury, seem never to have had any enclosing bank or wall, and in others which probably had early ditch systems, such as Cambridge and Bedford, these were probably as much to provide drainage as for any other purpose.

The map (Fig. 1) of evidence so far available for the distribution of settlement in Norwich up to the later eleventh century suggests that while much of the medieval walled area had been in some measure occupied by dwellings, certain concentrations and blank areas may be observed. A concentration is seen on the rise north-westwards from the Castle overlooking the Wensum to the west of Fyebridge, as well as north-eastwards from the Castle as far as the Cathedral, and there is another less marked concentration between Ber Street and the Wensum, in the south-eastern part of the city. That to the north-west and north-east of the Castle site fits well with the record of the Domesday Survey that (f. 116b) "98 houses were in occupation of the castle", and that (f. 117) "in the bishop's own court were 14 houses which King William gave to Erfast for the principal seat of the Bishopric": these entries show that this area had been built up at least by about the 1070s. The map suggests that settlement had spread, at least during the eleventh century, westwards along the ridge overlooking the Wensum as far as the limit of the medieval walled area. This map, and the excavation evidence, suggest a development of Norwich at this period differing considerably from that put forward by Carl Stephenson (*Borough and Town* (Cambridge, Massachusetts, 1933), pp. 197–9, and map, Pl. VI). The area between Ber Street and the Wensum has been supposed to be the site of the earliest trading settlement (tenth century), but though there is a concentration here, there is little positive evidence for a date any earlier than that of the late Saxon material from elsewhere in the city (see below, p. 301).

[5] O'Neil, B. H. St. J., "Southampton Town Wall", in *Aspects of Archæology* (Essays presented to O. G. S. Crawford, 1951), pp. 242–57.

[6] Collins, A. E., *The Walls of Norwich* (1910) *passim*; Blomefield, *History of Norwich*, I, 1741, 67, 77, 86.

[7] *Proc. Dorset N.H. and Archæol. Soc.*, LII, 1930, lxxxvii, and information from Professor Stuart Piggott. The Wareham defences are, however, again under investigation by the Royal Commission on Historical Monuments.

[8] Plan in *V.C.H. Berkshire*, II.

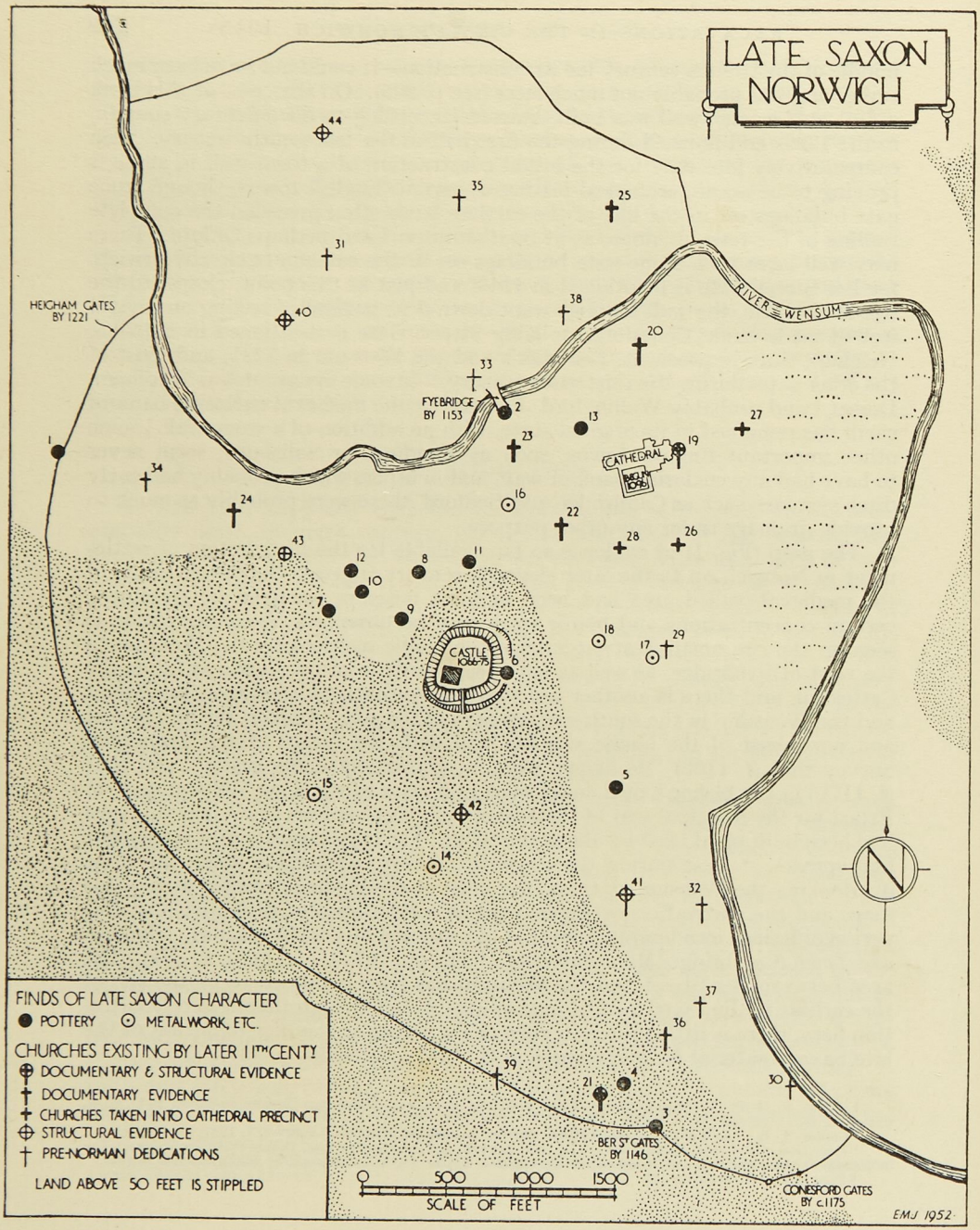


Fig. 1. Distribution in Norwich of material of late Saxon and Viking types, and churches known to have existed by the late eleventh century.

The size of the medieval walled area at Norwich, nearly a square mile, is enormous. Even considering the prosperity of the town, with its 1,320 burgesses in 1066 (D.B., f. 116), if this area had already been marked out in any way, it must have included much open pasture and meadow land which at a town like Oxford, where the medieval walled area was only about one-sixth of that at Norwich, lay outside the walls (Port Meadow). The map (Fig. 1), presents several significant blank areas within the walls which might have been so used, particularly to the west and south-west of the Castle as far as the medieval walls. The blank area in the loop of the Wensum to the east was probably largely marsh, and may have provided the town with reeds, and perhaps some water meadows.

The late thirteenth to early fourteenth-century wall at Norwich had semi-circular bastions at intervals, and one of these, north of St. Benedict's Gates,[9] levelled and built over in the eighteenth century, was fully excavated in 1948.

The archæology of Saxon and medieval Norwich now requires to be systematically studied, excavation sites being chosen not merely by the chance of building operations but with due regard to the outstanding problems, which may be summarized as follows. It is most important that more dating evidence should be obtained for the early earthen bank, not only for the St. Benedict's sector, which has now been provided by the Ministry of Works' excavations directed by Mr. Hurst and Mr. Golson in 1951, but also at frequent intervals all along the circuit of the city walls, especially in the Chapel Field, Ber Street, and Carrow sectors. The whole of the Coslany area, to the north of the river, which contains five early churches, is at present an archæological blank, in spite of recent careful search by Mr. Rainbird Clarke on several sites in the area. Trenches should also be dug at intervals along the west side of Ber Street where yet sites may be available, to conclude the evidence concerning the possible enclosing system of any early settlement which may have existed in this area. Much of this work could be done by fairly small individual excavations, and it should not be too much to hope that in the course of a few years a much more precise picture of early Norwich should be available than it is possible to sketch here. The start which has now been made in Norwich, and in a few other towns, must be continued even more intensively, to bring British archæology up to the standard which is taken for granted in many continental countries in the archæological treatment of the late dark ages and medieval period.

THE EXCAVATION SITES, 1948

The sites were chosen either with specific problems in mind, or because they lay in areas about which we knew little archæologically, and which were liable to be built over again in the near future.

ST. STEPHEN'S (MALTHOUSE LANE). Excavations below the floors of bombed nineteenth-century houses in the area, about 170 ft. south-west of St. Stephen's Church, revealed no medieval structures (Fig. 2). The natural gravel here lies at about 4 to 5 ft. below the present surface, and is overlain by several feet of

[9] It was known to Kirkpatrick in 1711, but the exact date of levelling and building over has not yet been gleaned from documentary sources: from the archæological evidence it was in the later eighteenth century.

black clayey soil (Fig. 2, sections B and C), or light brown loam (section A). Although these trenches produced a fair amount of interesting medieval and later pottery (Fig. 12), the medieval sherds are evidently derived strays, as the lowest levels of the black clay resting on the natural gravel were still producing sixteenth- and seventeenth-century pottery.

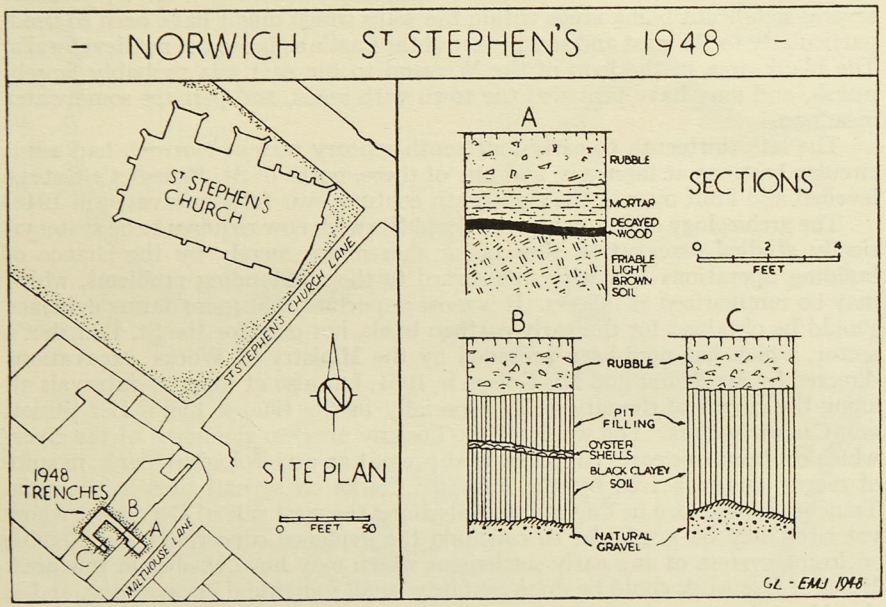


Fig. 2. St. Stephen's, Norwich; plan and sections of excavations, 1948.

BER STREET. The main problem here was to search for any sign of a bank and ditch along the line of Ber Street which might have formed the boundary of the early trading settlement. No trace of any bank or ditch could be found in the 1948 excavations on the east side of Ber Street, to the south of St. Bartholomew's Church, and Mr. Rainbird Clarke has subsequently examined a section across Ber Street itself, and found undisturbed gravel close under the road surface all the way across, showing that no ditch can have passed along the road line. There remains only the possibility of a bank and ditch over the crest of the ridge away from the river, on the west side of Ber Street, which is unlikely, and would in any case not line up with the continuation from the re-entrant angle at Ber Street Gates. It appears therefore that no bank and ditch system ever enclosed any early settlement which may have existed in this area, and, in fact, it is hardly possible to point with certainty to any English town which was so enclosed in the tenth century. A small bank of scraped-up earth, carrying a palisade, remains a possibility, as all trace of such work with no ditch would be expected to have been obliterated.

The excavations on the east side of Ber Street (Fig. 3) proved to be partly within the precinct of St. Bartholomew's churchyard, and a number of skeletons were found about 2 ft. below the present surface, with their heads towards the south-west. These were presumably medieval, as the church has been disused since the Reformation,[10] though no other dating evidence came to light. A length of churchyard wall of brick, flint, and mortar was found 50 ft. south-east of the surviving remains of the church, with burials within 2 or 3 ft. of it.

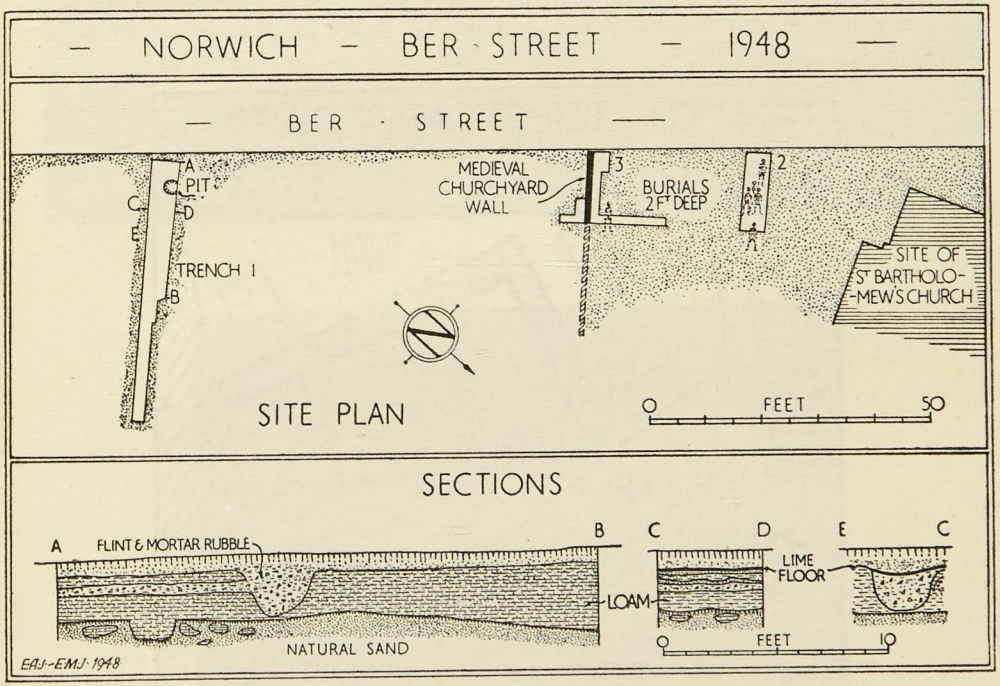


Fig. 3. Ber Street, Norwich; plan and sections of excavations, 1948.

A long trench was cut at right angles to Ber Street, 130 ft. south-east of St. Bartholomew's Church (Fig. 3), in which were found remains of thirteenth-century occupation and a little twelfth-century pottery (Fig. 11). The subsoil here was a soft sand, overlain by loam containing varying amounts of occupation material, and over that lay a good deal of stone and mortar debris of medieval origin, but no good floors or remains of structures were found. Pit H in this trench provided a small associated group of jugs and cooking pottery (Fig. 11, nos. 1, 2, 4, 5) of about the middle of the thirteenth century, and part of a fair-sized upper quern-stone of Niedermendig lava came from this pit.

[10] *Norf. Arch.*, XXIV, 1932, 240.

BER STREET GATES. The gatehouse here, first mentioned in Stephen's charter concerning land for Carrow Abbey (1146),[11] was demolished in 1808. The 1948 excavations here (Figs. 4 and 5) showed that the stretch of wall running south-east from the angle is built upon the crest of a bank of compacted loam about 1 ft. thick (Figs. 4 and 5; trenches C, D, E). The City Engineer has observed that the line of flint town wall dropping down to the river from Ber Street Gates is also built on the crest of a made bank, and a similar sequence was found in the 1948 excavations near St. Benedict's Gates, a mile and a quarter round the wall circuit. By contrast, in trench B at Ber Street Gates the wall running south-west was shown to have foundations going down 5 ft. below the present surface and

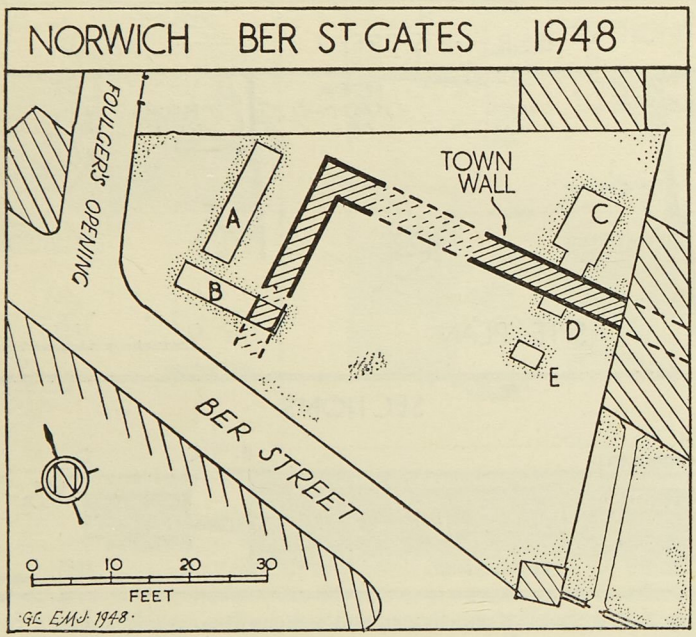
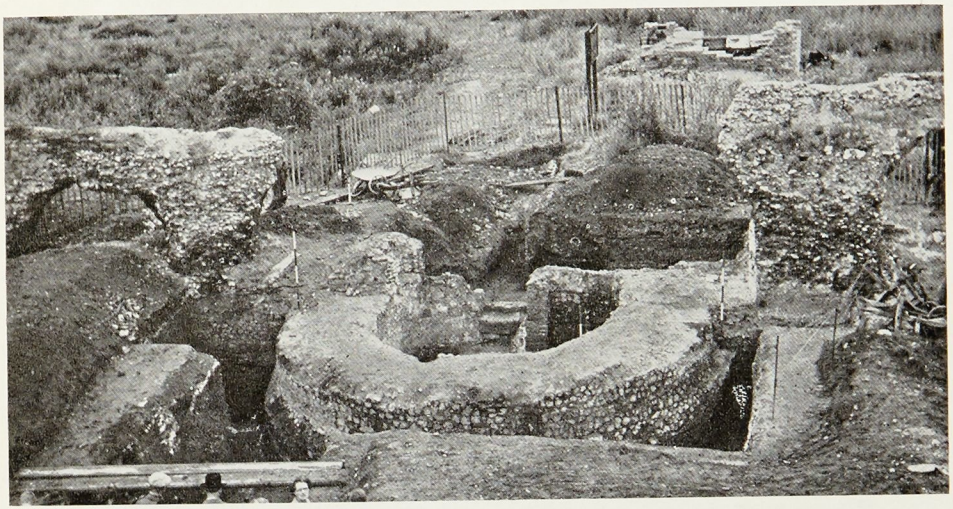


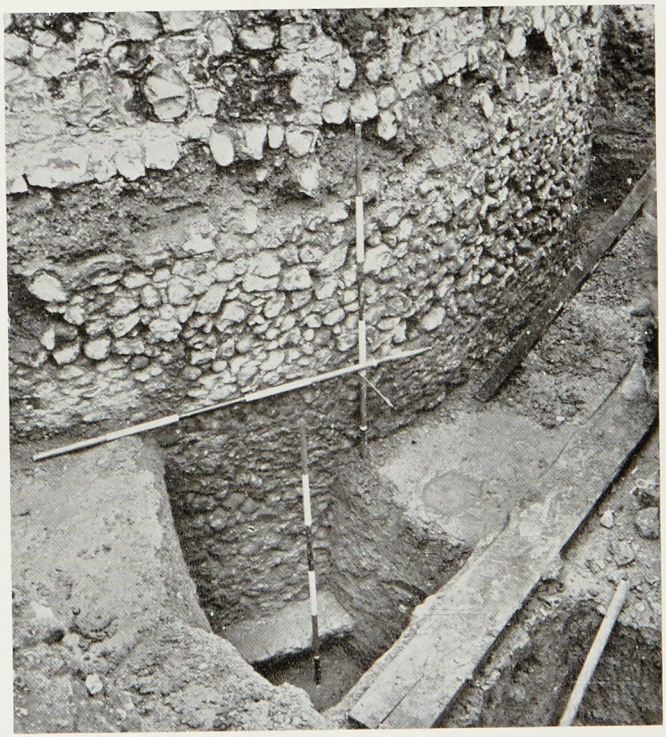
Fig. 4. Plan of excavations in 1948 on site at Ber Street Gates, Norwich.

resting directly upon the natural gravel (Figs. 4 and 5). This is very suggestive of part of an early stone gate structure (the gate is first recorded *c.* 1146), set in the line of an earthen bank, which the Barn Road excavation suggests was built *c.* mid-twelfth century, the stone town wall being built, as is known, on the crest of this bank as late as the 1290s onwards. In view of the important evidence which might be obtainable here, suggested by the trial excavations in 1948, complete excavation of the area cleared by the removal in 1931 of the

[11] Dugdale, *Monasticon Angl.* (1655), I, 246. Carrow foundation charter.

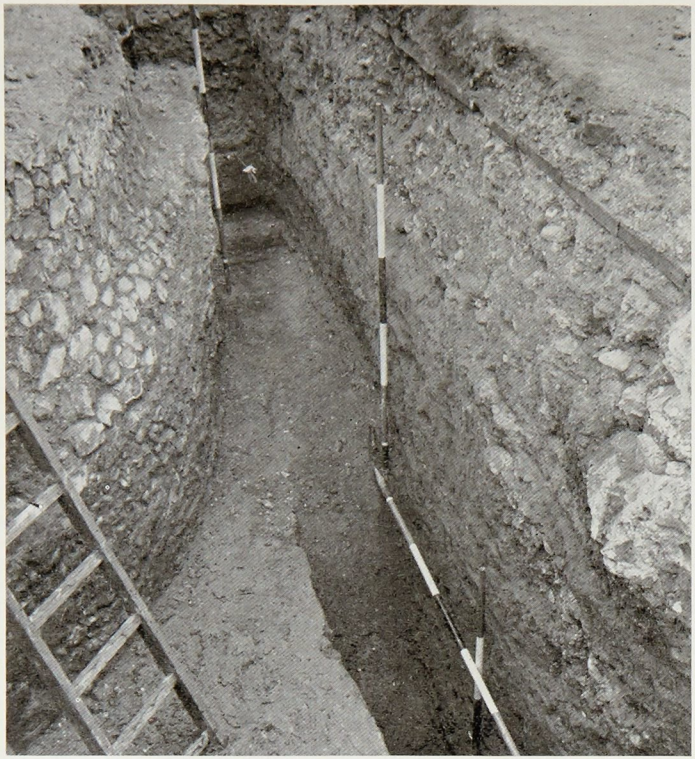


a. BARN ROAD.—General view of bastion as excavated.



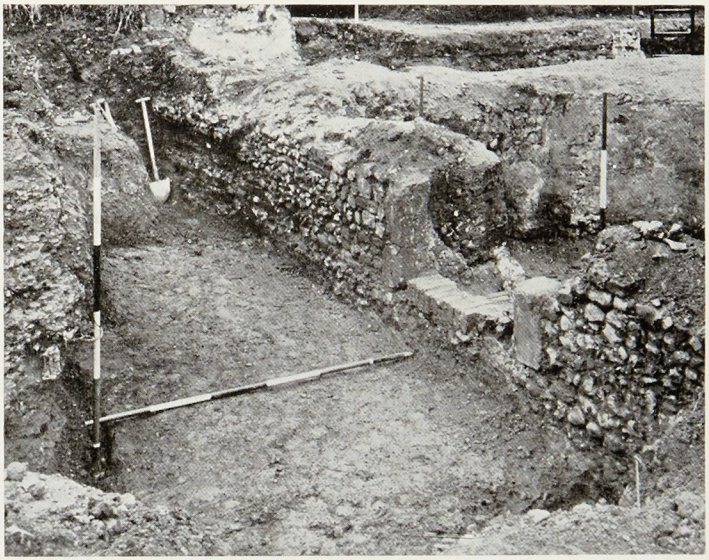
b. BARN ROAD.—Outer face of bastion as excavated, showing footings 13 feet down.

Plate II



a. BARN ROAD.—View showing dark front part of early bank in section (centre), the south face of the bastion (left) and line of ditch (bottom).

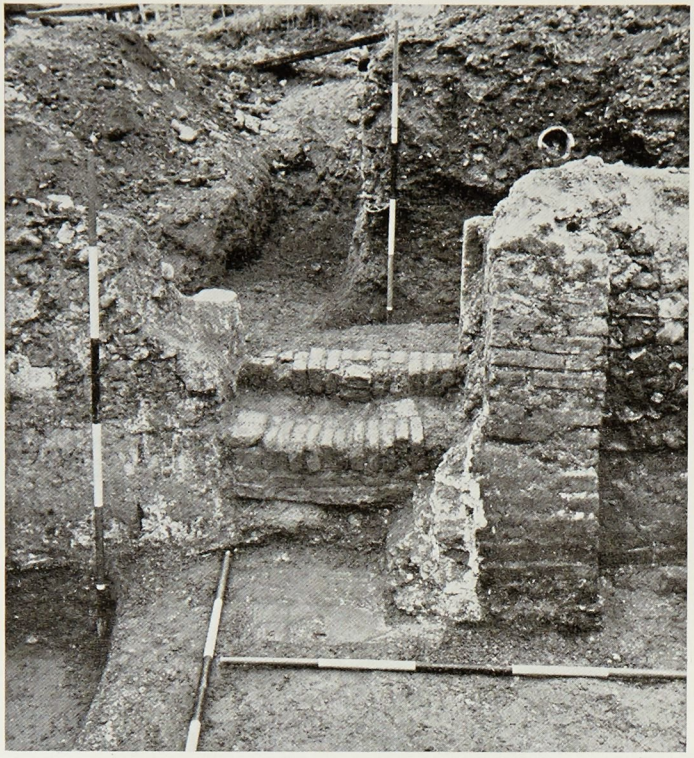
b. BARN ROAD.—View along north face of bastion showing mortar and flint filling of its foundation trench, cut in early bank which has been excavated away.



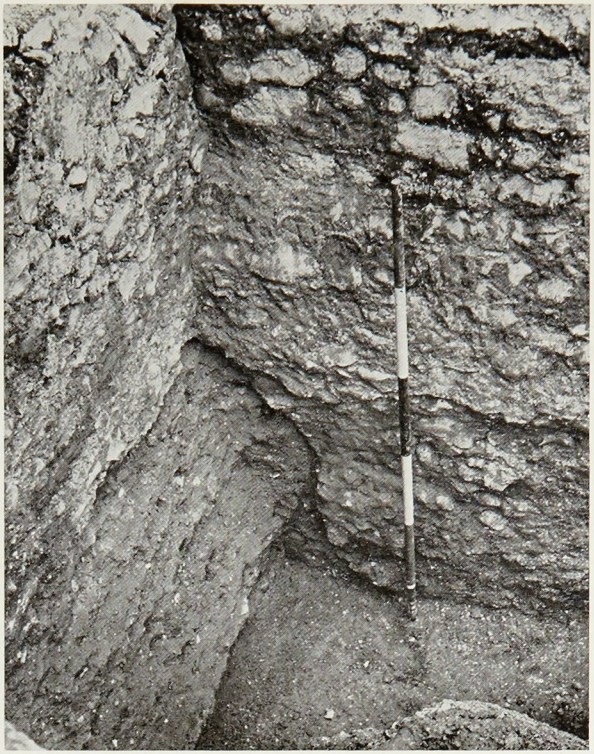
a. BARN ROAD.—General view of back of bastion and inner face of town wall, showing old cobbled road surface inside it.

b. BARN ROAD.—General view of interior of bastion, as excavated, showing eighteenth-century cellar (bottom square chamber). The upper cavity was filled with rubble at that time. The medieval limewash can still be seen on the interior walls of the bastion (top).

Plate IV



a. BARN ROAD.—View, looking east, out through entrance to bastion, across medieval brick step. The eighteenth-century brick buttress may be seen (right).



b. BARN ROAD.—View of footings of north face of bastion, falling away abruptly to the natural gravel from level of footing of town wall, built on three feet of made bank.

"Richmond Hill" public-house is most desirable, notwithstanding the extensive modern disturbance of the ground to some depth due to cellars.

BARN ROAD, NORTH OF ST. BENEDICT'S GATES. The cutting on Barn Road revealed the site of the first bastion to the north of St. Benedict's Gates, known to Kirkpatrick in 1711 but levelled and built over in the later eighteenth century.[12] This bastion was completely opened up in 1948, with the adjacent sections of town wall. The wall at this point was found to have been built along the crest of a pre-existing earthen bank, and founded therefore on some 3 ft. of made gravelly loam. The weight of the flint and mortar wall is considerably reduced by the arcading of arches on the inner face, but even so it is remarkable that the bank should have held the wall so well: the great strength of the wall mortar no doubt contributed considerably to this stability. The City Engineer reports that the town wall is similarly founded on the top of a bank in the sector south of Ber Street Gates running down to the boom towers at the river, and this was shown also in the 1948 excavations at Ber Street Gates (p. 294).

Early Bank. This bank, revealed in several cuttings (Fig. 5), consists mainly of hard compacted loamy gravel, but it has a front element of less gravelly brown soil, seen clearly in the section (Fig. 5 and Pl. IIA). This front element is to be interpreted as scraped-up surface soil from the ground cleared for the digging of the ditch, and represents merely a setting-out bank or a preliminary stage in the ditch and bank construction. It was, moreover, this front element of pre-bank topsoil which yielded the majority of the pottery from the structure of the early bank as a whole, showing that this pottery was litter on the surface at the date of bank construction. Behind this darker front element the compacted gravel showed occasional thin layers of soft lime mortar (very much softer than that of the stone town wall above, see p. 298f.), the source of which is not clear, though it must indicate that some stone building was going on near by at the time (see Appendix IV). No dark turf-line could be observed between the dark bank and the natural gravel, but only a thin layer of reddish fine sand, with no pebbles, between these layers. The profile of the surviving part of the bank (Fig. 5) suggests that it had been reduced to about two-thirds or half its original height when the flint and mortar wall was built along its crest, from the 1290s onwards. No palisade post-holes or evidence of other timber structure was found in the bank, but these could not be expected if the bank had been considerably reduced in height. On the inner side, part of the bank had been cut away in making a roadway (late- or post-medieval) parallel to the wall and close up against it. This had cut the bank away to well below the town-wall footings and flush with them, and must have seriously weakened its foundations, though without serious results.

Date of Construction of the Early Bank. The pottery from the core of this bank is mainly of late Saxon character, in hard grey ware, but there are a number of fragments which seem more appropriate to the later eleventh or the succeeding period of the twelfth century. In all there were 133 sherds, of which 130 came from the dark front element and 3 from the lighter gravel behind it.

[12] See Footnote 9, p. 291.

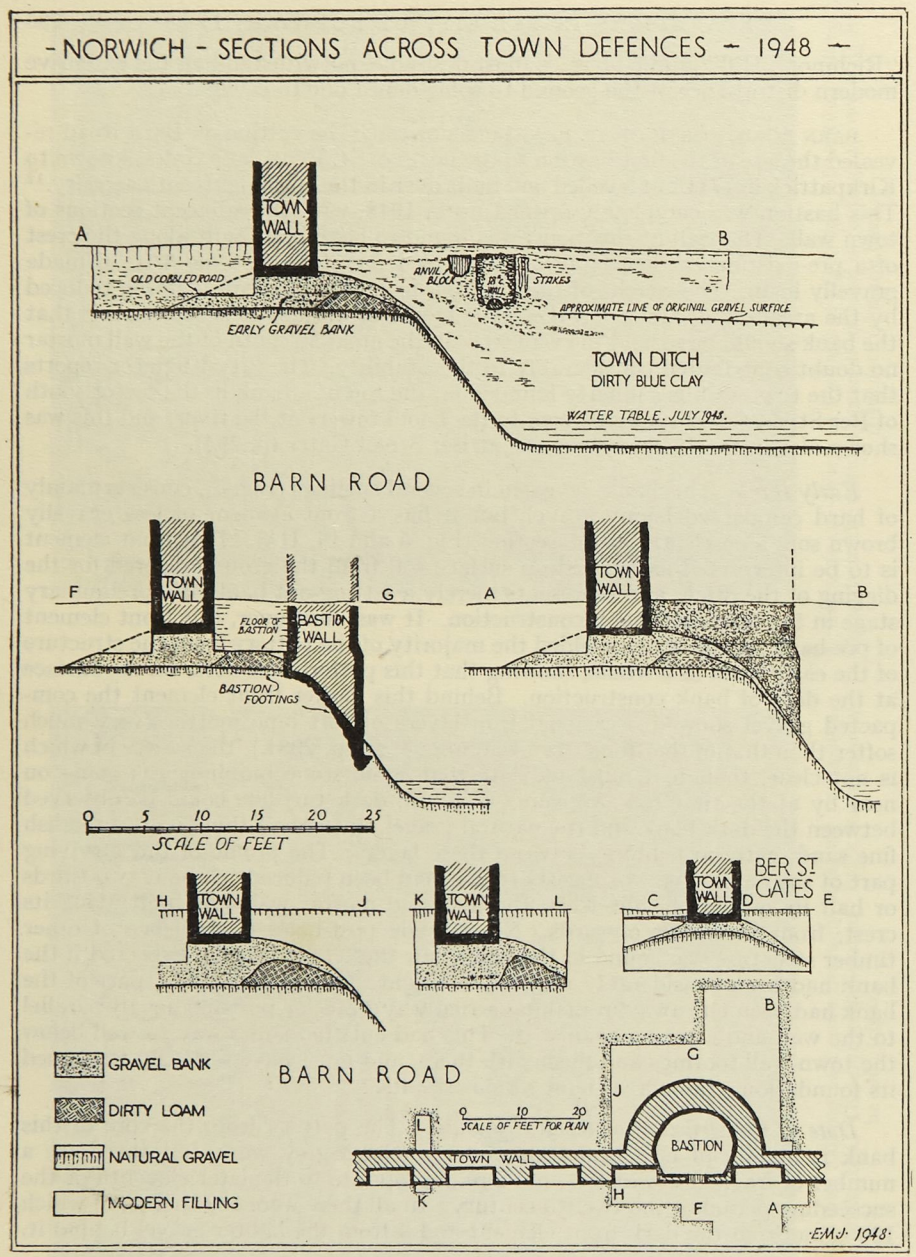


Fig. 5. Sections excavated across the Norwich Town defences at Barn Road and Ber Street Gates, 1948 (for plan of Ber Street Gates excavation see Fig. 4)

They are of a softer brown fabric, and one rim (Fig. 7, no. 6) and the convex cooking-pot base (Fig. 7, no. 7) are in the medieval rather than the late Saxon tradition, though how early the typical medieval cooking-pot with everted rim and convex base originated in this area cannot yet be stated. Present evidence, however, suggests that in this region the late Saxon type of cooking-pot with flat, narrow base, in hard grey fabric, gave way to the wider convex-based pot, often in softer and apparently inferior fabric, some time during the later half of the eleventh century. On the other hand, the bank structure produced no fragment whatever of glazed jugs, fairly numerous fragments of which were found lying about in the area behind the wall, and also sealed under the medieval floor of the bastion, in the make-up between the top of the early bank profile and the horizontal floor (Fig. 5). The traditionally accepted date for the construction of this earthen bank, based on an unsatisfactory interpretation of documentary evidence, is 1253,[13] but it seems unlikely that a bank thrown up at such a date would have had no sherds whatever of glazed or other early thirteenth-century pottery included in its structure, which must have been in common use for well over half a century in this region, when it did contain much unglazed pottery, and when glazed pottery had been strewn over the area during the next half-century, as the bastion evidence shows. True, the volume of bank cleared was not extensive, but it did produce 133 sherds, and the archæological evidence so far obtained does indicate a date in the middle of the twelfth rather than of the thirteenth century for the construction of this bank. Further work on the bank is very desirable, not only here,[14] but at other points on the wall circuit. Mr. A. E. Collins (*Walls of Norwich*, pp. 7–9) clearly voices a suspicion that a bank existed before 1253. Blomefield (*History of Norwich* (1741), I, p. 76) states that coins of Henry I were dug up in the ditch in 1312, though such a reference is perhaps not worth much. But it must be emphasized that only along Barn Road has it been shown that the bank is probably mid-twelfth century: the rest of the circuit still *could* be later, and the 1253 grant to the citizens to enclose their town with a bank and ditch might refer to the completion of a considerable part of the circuit. Some further excavation at other points in the circuit is most desirable to obtain dating evidence.

This conclusion that the earthen bank at Norwich might be of twelfth-century construction and that the stone wall was built in the late thirteenth to fourteenth century may be compared with the available evidence from other towns. First, the construction of earthen banks at a similar period may be paralleled at Wareham, Dorset, where the earthen bank, which there has never been crowned by a stone wall, contained pottery of late Saxon character in its structure.[15] At Wallingford, Berkshire, plain earthen banks still exist, which approach the castle fortifications in one quarter of the town layout in such a way as to suggest that they were constructed after the castle was built[16] (by 1086), though this needs investigating by excavation. At Southampton the

[13] *Norf. Arch.*, XII, 1892, 38–41, 49.
[14] This has been remedied in the St. Benedict's sector by the Ministry of Works' excavations directed by Mr. Hurst and Mr. Golson in 1951, an account of which will appear in the next volume.
[15] See Footnote 7, p. 289.
[16] Plan in *V.C.H. Berkshire*, II.

town wall was built in stone from about 1260; before this the town was surrounded by a bank and ditch in the line of which during the twelfth century there were at least two stone gate buildings,[17] as there seem to have been also at Norwich. At Oxford recent excavations have shown that in the north-east sector at any rate the stone wall was not built until the thirteenth century (murage grants from 1226 onwards), but no earlier bank has yet been traced.[18] And it must be borne in mind that towns like Reading, Salisbury, Cambridge, or Bedford never became medieval walled or embanked towns: the most they could boast were ditches, and those may have been primarily for drainage.

The Ditch. This could only be excavated in 1948 to within about 4 ft. of the bottom (Fig. 5), but its profile was established by much work with an 8-ft. auger, most skilfully made at short notice by the City Engineer's department. This was carried out by Dr. E. A. Johnson and Mr. Harold Roberts, and the auger required the efforts of three or four men and a large levering system to extract its full length from the grey clay and consolidated black slime. The ditch had been cut into gravel, the original surface of which falls away to the west. By auger observations in pits cut for the purpose on the west side of Barn Road, the ditch was shown to be here at least 60 ft. wide at the bottom, which was flat, about 17 ft. below the present pavement surface here. The water table in July 1948 lay at about 15 ft. below the pavement (+3·7 ft. O.D.), and was probably higher in the Middle Ages. This sector of the ditch probably therefore held a good depth of water at least up to St. Benedict's Gates, to which barges could no doubt have been brought if required. The auger samples showed that there was about a foot of consolidated black slime at the bottom, on top of which lay a very tenacious dirty grey-blue clay. The side of the ditch below the bank and wall must be substantially in the form it assumed when the early bank was constructed. It may later have been widened or deepened, but the fact that the surface soil scraped up to make the front part of the bank, presumably from the site of the ditch, contained so much pottery of late Saxon type, suggests that there can have been no ditch of any significance along this line in late Saxon times. The ditch was probably kept cleaned out through the Middle Ages. Late seventeenth-century pottery was found as far as 8 ft. down in the ditch filling a few feet out from the bastion, and a 1672 farthing came from 5 ft. down near its front face. The bastion was finally levelled and the ditch filled up and built over in the later eighteenth century.

The Town Wall. The flint and mortar town wall is said by Blomefield to have been begun in 1294 (the murage grants begin in 1297) and finished during the first half of the fourteenth century,[19] though a more slender stone walling on top of the bank might have existed in some parts of the circuit before 1294. The flint and mortar construction of the existing wall is exceedingly strong. It is 5 ft. 9 in. thick, and on some sectors, as at Barn Road, it has tall pointed relieving arches on its inner face, recessed 2 ft. 3 in., which it may be compared

[17] See Footnote 5, p. 289.
[18] *Oxoniensia*, XVI, 1951, 28–41.
[19] See Footnote 6, p. 289.

with the fourteenth-century wall of Lynn.[20] The relieving arches are faced with large flat yellow bricks, 10 by 5 by $1\frac{3}{4}$ in. The wall and its towers have been well described by Mr. A. E. Collins (*Report on the City Wall*, Norwich, 1910). Along Barn Road, at St. Benedict's Gates, to the south of Ber Street Gates, and near Carrow Abbey, the wall has now been shown to have been built on the top

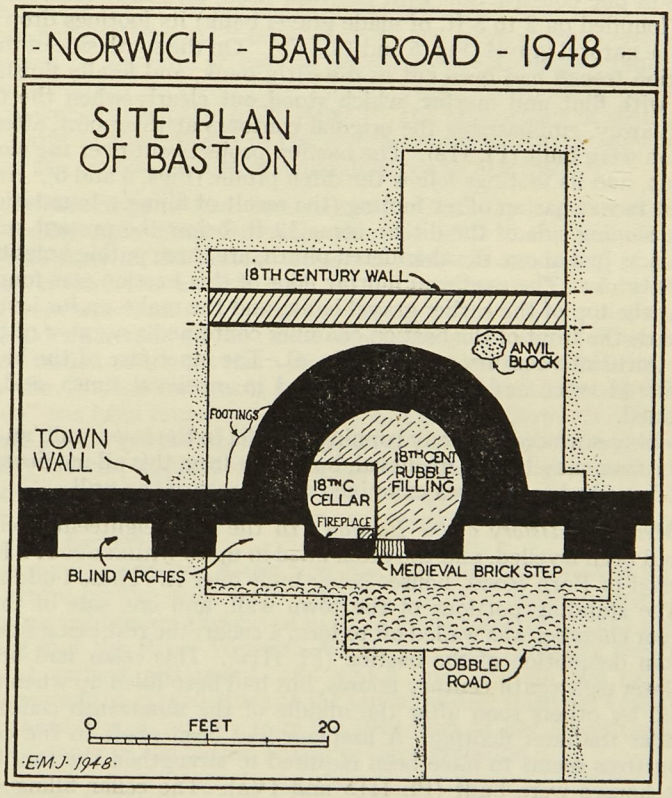


Fig. 6. Barn Road, Norwich; plan of excavated wall-tower, 1948.

of the earlier gravel bank. It had no more provision for foundations than a shallow trench, and its footings have been frequently undermined by a roadway along the inner face or for the digging of cellars. That much of it remains standing so well today is a tribute to the outstanding strength of its lime mortar (see Appendix IV).

[20] *Norf. Arch.*, XVIII, 1912, 129 ff., Pl. opp. p. 137.

The Excavated Bastion.[21] This was built of flint, semicircular in plan outside and three-quarter circular inside, with an outer wall 6 ft. thick and a slight chamfered plinth of flint on the outer face (Fig. 6). It has a thin back wall, 1 ft. 9 in. thick, part of the original construction, with an original door at ground-level, the oolite limestone (probably Barnack) jambs of which are still in situ, though the fine step of red medieval brick may be later (Pl. IVA). The bastion is of one construction with the wall itself, and as it comes away from the wall (founded on 2 to 3 ft. of made gravel bank) its footings drop abruptly down to the natural gravel (Fig. 5 and Pl. IVB). On the south side of the bastion a foundation trench had been cut in the early bank, and finally finished off by filling in with flint and mortar, which stood out clearly when the bank was excavated away, emphasizing the original contours at this point, after the wall and bastion were built (Pl. IIB). The bastion projects out over the sloping side of the ditch, and its footings follow the ditch profile (Figs. 5 and 6). At the base of its front face it has an offset footing (the result of filling a foundation trench cut in the sloping side of the ditch), some 13 ft. below the present surface. In the front face, just above the chamfered plinth, are three putlog holes lined with flat yellow bricks. The medieval mortar floor of this bastion was found intact; it lay near the top of the earlier gravel bank, and the make-up for levelling this floor towards the front of the bastion chamber contained a number of fragments of glazed thirteenth-century pottery (Fig. 5). The inner face of the bastion had been plastered twice and then whitewashed in medieval times, and much of this remained.

The pebbly-surfaced roadway running parallel to the town wall, and close up to its inner face, may be late medieval, but apart from this all medieval features had been disturbed in the area examined to the east of the wall.

Post-Medieval History of the Bastion. In the later eighteenth century the bastion had been levelled, and the ditch filled in up to within about a foot of the present level of Barn Road, houses being built over it. These buildings incorporated the standing portions of the town wall, and one side of the bastion ground-floor chamber was walled off to form a cellar, the rest being filled in with rubble from demolition of the bastion (Pl. IIIB). This cellar had been in use with the later eighteenth-century houses, but had been filled up when they were superseded by others soon after the middle of the nineteenth century, being sealed under the later flooring. A fireplace had been made in the cellar, and a brick buttress seems to have been required to strengthen the thin back wall when the houses were built (Pl. IIIB and IVA). The cellar filling contained pottery and other remains up to about the 1830s, and the floors of the subsequent houses material from about the middle of the nineteenth century, including a fine china four-poster bed complete with occupants, inscribed "Last into Bed puts the light out". The late eighteenth-century structural remains consisted of strong flint, brick, and mortar walls, bedded well down in the ditch filling; into the footings of one of these was built a beehive quern. From the large amounts of slag and the large timber anvil-block (Fig. 6), a late eighteenth-century forge had evidently been situated just near the north-west side of the bastion.

[21] After this was already set in type, Mr. B. H. St. J. O'Neil pointed out to me that this would be better called a tower than a bastion.

LATE SAXON AND MEDIEVAL POTTERY IN NORWICH[22]

The late Saxon pottery of Norwich, as of East Anglia generally, is founded securely on that of the lands on the opposite North Sea coasts, and ultimately of the Rhineland factories, where there is a continuity from Roman times of pottery shapes thrown on a wheel and fired hard in fairly high temperature kilns. Hence comes the strong Roman flavour of many of the late Saxon pottery forms in East Anglia.[23] Even the forms of pottery of this period in East Anglia which are not particularly Roman, such as the large globular vessels (Fig. 8), are also seen to originate across the North Sea in Carolingian times, and there seems to be nothing surviving of a "native" pagan Saxon tradition, such as may be seen in some other parts of England.[24] The appearance of such continental pottery forms in East Anglia in the eighth or ninth century may be regarded as part of the general picture of expanding North Sea trade.[25]

The Earliest Norwich Late Saxon Pottery. Of all the large amount of pottery of late Saxon style from Norwich, there is little that must necessarily be regarded as early in the period. However, there is one group of eight vessels from Ber House, two similar ones from Mountergate Street, and one from Palace Street which may be early by their possible analogy in shape with the "Reliefbandamphoren" of the ninth and tenth centuries, of Rhineland origin, but much traded to the northern marts such as Hedeby and Birka, apparently through the Frisian Dorestadt.[26] No example of real Rhenish "Reliefband-amphoren" has been found so far on any English site, however. These Norwich vessels are probably related, though there is little reason to consider them imports; they lack the applied rouletted bands of the Rhenish vessels. Even these plain vessels are hardly recorded from other English sites, though Group-Captain Knocker tells me that a few have been excavated in Saxon Thetford, presumably of local manufacture.

The historical evidence shows that Norwich had developed as an important trading centre by the early tenth century, and it is worth noting that two of these groups containing this possibly early form come from that area between Ber Street and the River Wensum, which has been generally regarded as the site of the earliest settlement, and which does contain the earliest church dedications and the carved stone of the tenth century from St. Vedast's Church. Another sherd (Fig. 8, no. 10), from the 1948 work at Ber Street Gates, looks an early piece, more in the earlier Saxon pottery tradition.

Absence of Imported Wares from Norwich. The lack of any recognizable imported pottery of the late Saxon or early medieval periods among the large amount so far examined from Norwich is perhaps remarkable, in view of the known trading importance of the town and the presence of continental imported

[22] I wish to express my thanks to Mr. G. C. Dunning for frequent discussions concerning problems connected with the pottery, to Group-Captain Knocker for showing me much Thetford pottery, and to Drs. Roth, Wideen, and Dagmar Selling for the opportunity of studying much of the Swedish material.

[23] G. C. Dunning, in *Archæol. J.*, CVI, 1951, 72–3.

[24] As at Whitby, *Archæologia*, LXXXIX, 1943, 75–82; Sussex, *Antiq. J.*, XIV, 1934, 393.

[25] See Arbman, H., *Schweden und das Karolingische Reich* (1937); Boeles, P. C. J. A., *Friesland tot de elfde Eeuw* (2nd ed., 1951), II.

[26] Jankuhn, H., *Haithabu 1937–39* (Berlin, 1934), Pl. VI; Arbman, H., *Schweden* (Pl. XXIII); Boeles, *Friesland* (Pl. L, no. 4).

pottery on other English sites.[27] The known imported material has a London–south coast distribution, and is not found on sites up the North Sea coast (except possibly for one piece of red-painted buff ware of the twelfth century from York, shown to me by Mr. D. M. Waterman), though the Rhineland lava querns (found in late Saxon contexts at Thetford, Oxford, and Deddington, Oxon.) and Schist hones (ones from Easton and Rockland St. Mary, both near Norwich, are in the Norwich Museum)[28] indicate that a North Sea trade was actively carried on in this area, the only such quern from the Norwich excavations comes from a thirteenth-century context at Ber Street (p. 293), and no Schist hones are recorded from the city itself.

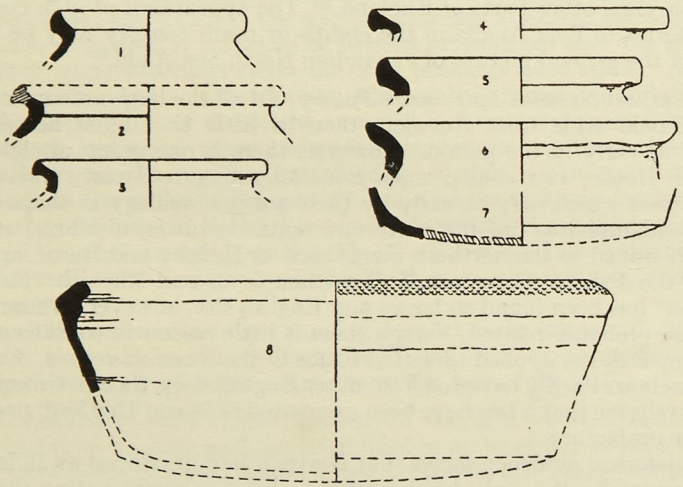


Fig. 7. Barn Road, Norwich, 1948; pottery of late Saxon types, from the structure of the Early Bank. (Scale, $\times \frac{1}{4}$).

The General Dating of Norwich Late Saxon Pottery. The important group of pottery found sealed under the Castle mound in 1906[29] gives a series stratified in a pre-Norman context: the pottery is to be published by Mr. G. C. Dunning. Another group should pre-date the building of Fyebridge some time before 1153 (Fig. 10),[30] though this evidence is not of the same quality as that under the mound. Apart from this, dating must be by comparison with dated material from other sites, the most important being that from the recent excavations of the Saxon town of Thetford, carried out for the Ministry of Works by Group-Captain G. M. Knocker.[31] It is at least clear from such evidence that the

[27] Wheeler, R. E. M., *London and the Saxons* (1935), Pl. VIII; Dunning, G. C., in *Archæol. News Letter*, II (May 1949), 5–6.
[28] Jewry Wall, Leicester, *Soc. Antiq. Res. Rep.*, XV, 1948, 230–2.
[29] *Norf. Arch.*, XVII, 1910, 42–5.
[30] *Norf. Arch.*, XIII, 1898, 217–32.
[31] *Archæol. News Letter*, II (January 1950), III (August 1950); *Archæol. J.*, CVI, 1951, 72–3.

cooking-pot with roll rim and narrow flat base (Fig. 9), the deep dishes with thickened or inturned rims, and the large storage vessels with small strap handles and applied finger-pressed strips, in hard grey ware, are late Saxon types. The roll rim is slightly hollowed on the inner surface on these late Saxon pots. The narrow flat base is a continental influence appearing in eastern

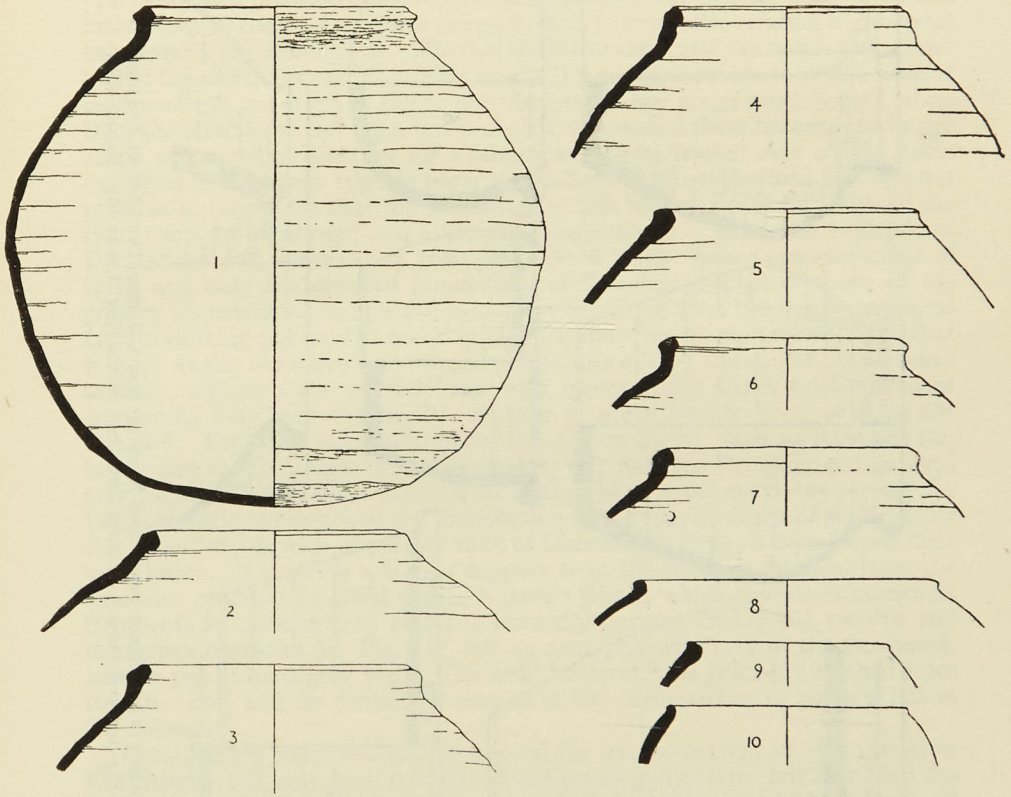


Fig. 8. Pottery vessels of a late Saxon type from Norwich; nos. 1–7, Ber House (1843) (Fig. 1, site 4); nos. 2–9, Mountergate Street (Fig. 1, site 5); no. 10, Ber Street Gates (1948) (Fig. 1, site 3). (Scale, $\times\frac{1}{4}$).

England about the ninth century. It is to be found at Norwich, Thetford, Ipswich, and Colchester[32] in hard-fired sandy grey ware. In the Cambridge area this type of vessel appears with a base a little broader, and convex in form, and the fabric is almost always a smooth shelly ware ("St. Neots", Thetford, Group II), which is very rare in Norwich and Ipswich (Fig. 10, no. 9; one bowl from Falcon Street, Ipswich). However, the flat base may be found as far west

[32] *Colchester Mus. Rep.* (1937), p. 45.

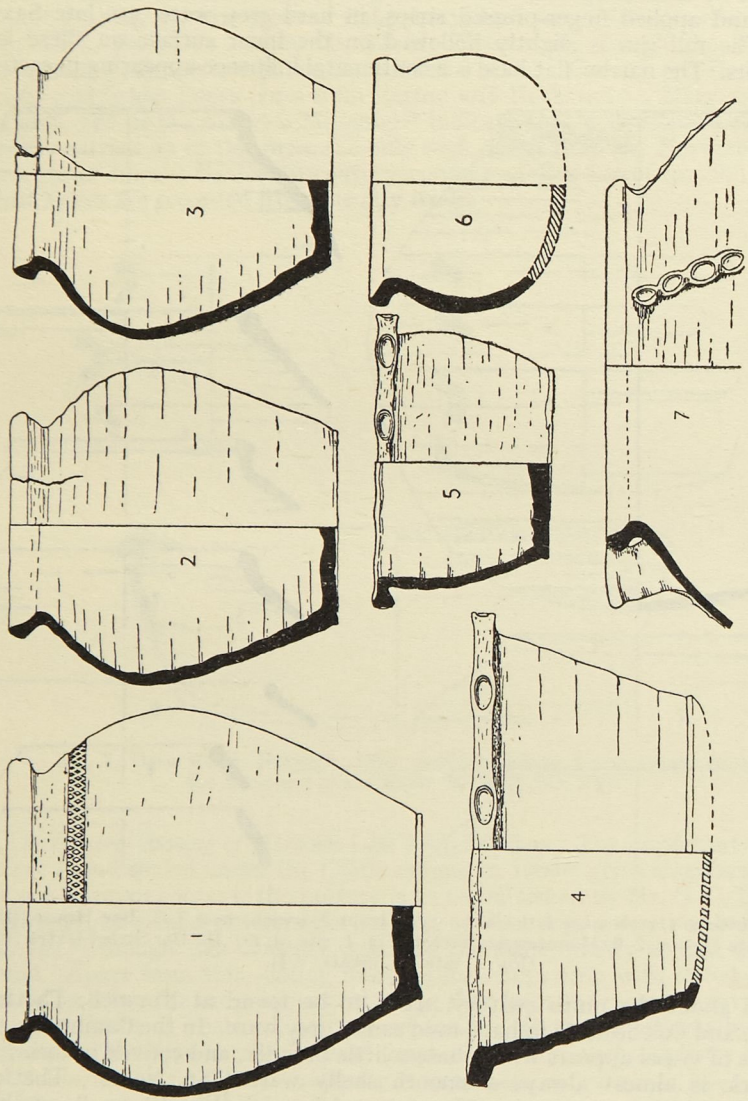


Fig. 9. Pottery of late Saxon types from Norwich; nos. 1–3, from Dove Street, the Market-place (Fig. 1, site 7); nos. 4–7, from Exchange Street (Fig. 1, site 10). (Scale, ×¼).

as Northampton, though in the shelly fabric.[33] These flat-based East Anglian pots show on the underside of the base a series of eccentrically placed striations, which are the direct result of removal of the pot from the throwing turntable, before firing, with a "cheese-wire" (Fig. 14, no. 6): the bases seem to have been given no secondary pressing with the hands or a pad, in contrast to the usual practice which produced the convex bases on medieval cooking-pots. This tall, rather narrow cooking-pot form seems, in fact, to bear little relation to the usual baggy medieval cooking-pot. Whether the latter came into use before the second half of the eleventh century in East Anglia it is hardly possible to say on present evidence, and the origin of the type is obscure. They are of much poorer fabric than the late Saxon tall type, but probably superseded them because the baggy shape was more satisfactory for a large vessel to be heated over a fire. Some examples of the baggy type do occur on the Saxon site at Thetford, but it is not possible to be certain that the habitation of this site on the Suffolk side of the river came to an abrupt and complete conclusion in *c.* 1070 (the evidence of Domesday—943 burgesses in 1066, and 720 in 1086—makes one suspicious of this), and only the detailed publication of the stratigraphic relations of the pottery there will tell us how far back in the life of the town this baggy, medieval type of cooking-pot may be found in use. On the other hand, it seems likely that in East Anglia the narrow, flat-based pot did not outlast the end of the eleventh century, although the related form with convex base shows a development continuing long into the twelfth century in areas farther west, such as the Fenland. The same applies to other late Saxon forms, such as inturned rim bowls and spouted jugs. For the present, this flat-based cooking-pot in hard grey fabric is accepted in Norwich as a late Saxon type, surviving during the later eleventh century, and the distribution map (Fig. 1), designed to illustrate the extent of Norwich about the time of Domesday (1086), is based upon that assumption. It receives a hint of support from the pottery obtained from the clearance of the stone-lined well in Norwich Castle, which contained numerous fragments of cooking-pots of types normally current during the twelfth and thirteenth centuries (cf. Fig. 11), but no examples whatever of the flat-based, narrow pot in hard grey ware. The well, however, was probably cleaned from time to time, and we cannot be certain of the earliest date of pottery left in the bottom.

Considerably more evidence is needed for dating pottery of this period in East Anglia, not only from coin-dated and associated groups, but also from the excavation of well-preserved mound and bailey castles, of which, in spite of some well-documented early ones (such as Castle Acre, or Eye, Suffolk),[34] there is not one excavated example in the area.

Other pottery types in the late Saxon tradition are the deep dishes with clubbed or inturned rims (Fig. 7, no. 7; Fig. 10, nos. 9 and 13), the tubular-spouted pitchers with strap handles (Fig. 9, no. 7), a common type across the North Sea, large storage vessels with applied strips and strap handles near the shoulder (Fig. 10, no. 12). The globular cooking-pots with no base angle (Fig. 9, no. 6) are not common in England (there are two from Leicester, unpublished),

[33] *Assoc. Archit. Soc. Rep.*, XVI, 243–51.
[34] Armitage, E. S., *Early Norman Castles*, 1912, pp. 124, 155.

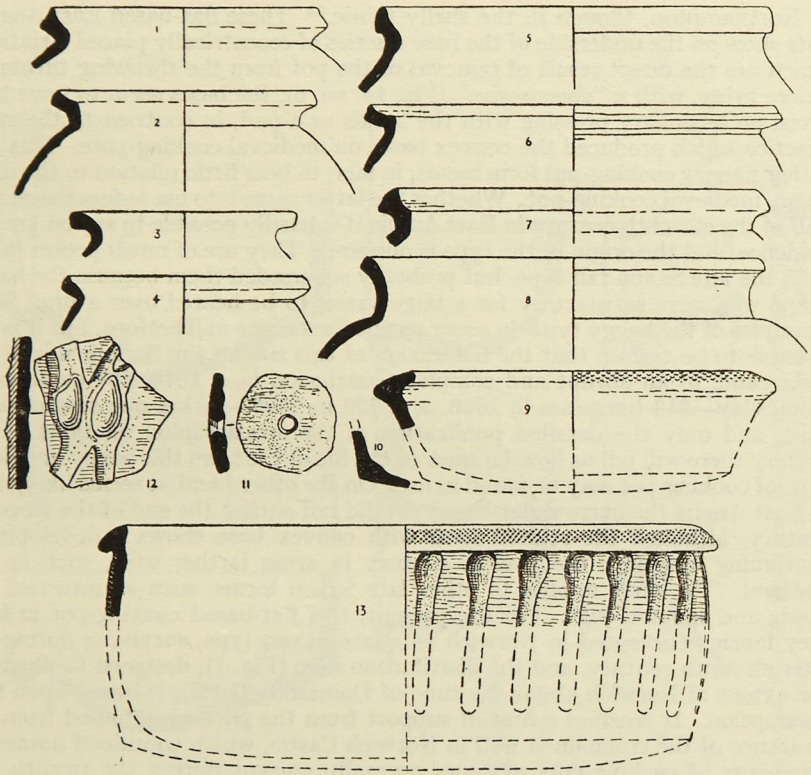


Fig. 10. Pottery of late Saxon types, from Fyebridge, Norwich (Fig. 1, site 8). (Scale, $\times \frac{1}{4}$).

but with a flared rim flange are a commoner element in the late Saxon tradition of southern England.[35] They are commonly found across the North Sea in late Dark Age contexts,[36] though when in close contact with the Rhineland factories, such as Pingsdorf, the type developed features such as a footring. The simple globular type lasted, however, in many parts of the continental coastlands, through the twelfth and into the thirteenth centuries.[37]

The bowls with out-turned rim flanges (Fig. 9, nos. 4 and 5), though in hard dark grey fabric, appear not to be really a late Saxon type. Group-Captain Knocker tells that they do not occur among the excavated material at Thetford,

[35] Old Sarum, late eleventh century, *Antiq. J.*, XV, 1935, 187–9; also Pevensey.
[36] Boeles, *Friesland*, II, Pl. LIII, etc.
[37] Holland, Braat, W. C., in *Bonner Jahrbücher*, CXLII, 1937, 157–76; Lund, see Blomquist, R., in *Med. från Lunds Univ. Hist. Mus.*, 1948, 150–76, esp. no. 37, etc., p. 164.

and Mr. G. C. Dunning tells me that they may be paralleled among the pottery from a kiln excavated at Torksey, Lincolnshire, by Mr. Spencer Cook.

None of the pitchers with free-standing spouts are known from Norwich, though there is one from Ipswich (Carr Street), and they are common at, for instance, Winchester. This seems to be a Rhineland–Frisian type,[38] and the distribution of the local copies of the form in England once again emphasizes a southern trend of English contacts with the Frisian marts in the ninth, tenth, and eleventh centuries. Apart from the probable continuation of the late Saxon spouted pitcher forms (Fig. 9, no. 7), it is hardly possible at present to point to any jugs of distinctive twelfth-century types from Norwich, but by the thirteenth century they become numerous (see below).

Late Saxon and Early Medieval Fabrics and Decoration. The hard grey fabrics, fired in a fairly high-temperature reducing kiln (about 1100° C.) seem to be almost universal for the late Saxon forms in the eastern coastal part of East Anglia. Farther west, in the Fenland–Cambridge–Bedford–Oxford–Northampton area the related forms are almost always in a softer, smooth shelly ware ("St. Neots", Thetford Group II),[39] only the later derivatives occurring in harder wares.[40] The soft shelly wares are rare in Norwich and Ipswich (one bowl each), and are a minority at Thetford.[41] On the other hand, hard grey wares are rare on late Saxon forms in Cambridge, and not known at all farther west. In Norwich the hard grey wares probably continued in use through the twelfth century to some extent, and became much commoner again on the cooking-pots of the thirteenth century (Fig. 11, nos. 7 and 8). Many Norwich twelfth-century cooking-pots are in an inferior ware, often with larger stone particles, sometimes friable, badly mixed, with slight admixtures of sand and crushed shell, fired at a lower temperature (about 1050° C. or lower) (Fig. 7, nos. 6 and 7; Fig. 10, no. 8).[42]

Decoration on late Saxon pottery in East Anglia is confined to applied strips of clay, often finger-pressed (Fig. 10, no. 12), and rouletted bands on shoulders of cooking-pots (Fig. 9, no. 1) or rims of bowls (Fig. 7, no. 8). Such rouletting is common on continental pottery of the period, and it is used on the applied strips rather than finger-pressing.

Sites of Late Saxon and Early Medieval Pottery Manufacture. The excavation of three fine late Saxon kilns at Thetford show the conditions under which this hard late Saxon pottery was fired.[43] Another kiln producing this type of pottery was found in Carr Street, Ipswich, in 1935, but was not properly excavated, though much pottery was preserved (Ipswich Museum). A complete pot, badly twisted in firing and very like some of the Ipswich wasters, was among the group found sealed under Norwich Castle mound when the Shire Hall was enlarged in 1906,[44] and suggests a kiln site near by. Two complete vessels from Norwich

[38] Boeles, *Friesland*, Pls. L, no. 1; LIII, no. 4.
[39] *Proc. Cambs. Antiq. Soc.*, XXXIII, 1933, 137; *Berks. Archæol. J.*, L, 1947, 49 ff.
[40] *Antiq. J.*, XVI, 1936, 396–411; *ibid.*, XXXI, 1951, 45–50.
[41] *Archæol. News Letter*, II, January 1950, 120.
[42] See *Norf. Arch.*, XXVII, 1940, 312–14.
[43] *Archæol. News Letter*, III, August 1950; *Archæol. J.*, CVI, 1951, 72–3.
[44] *Norf. Arch.*, XVIII, 1910, 42–5.

market-place (Fig. 9, nos. 2 and 3) have firing cracks at the rim, but it is quite probable that pots with flaws no worse than this were marketed and used, and could not be taken to indicate with any certainty a kiln site near by. A kiln of the early twelfth century has been excavated at Torksey, Lincolnshire, and another has been recorded at Stamford.[45] Much work remains to be done on kiln sites of this period, and as they provide the basic data for the study of the pottery which is such significant archæological evidence, they should receive the utmost skilled attention whenever they come to light.

Notable Types Absent from the Norwich Late Saxon Pottery. The absence of imports of continental wares originating in the Rhineland,[46] such as Pingsdorf, has already been noted (p. 301). None of the fine late Saxon glazed wares now firmly established at Thetford have so far been observed in Norwich,[46] though these late Saxon type lead-glazed wares have been recorded farther west.[47] Cresset and pointed hanging lamps, while not unknown in Norwich, as in the group sealed under the Castle mound and London Street (Appendix I, site 7) (Fig. 14) are less abundant than in Thetford, and the large very shallow dishes common at Thetford are not as yet recorded in Norwich.

Thirteenth-century Pottery in Norwich. The thirteenth-century cooking pottery in Norwich is derived from the twelfth-century baggy forms, but made in better ware, resembling that of the late Saxon pottery only with a finer surface, and showing some development of rim moulding (Fig. 12, nos. 4, 5, and 6), though the marked clubbing of the rim seen generally at the end of the thirteenth century, as at Bungay, is not yet recorded in Norwich.[48]

Unglazed thirteenth-century jugs in hard grey fabric somewhat like that of the late Saxon pottery are fairly frequent in East Anglia (Fig. 12, no. 1).[49]

The thirteenth century was in Britain an age of profusely decorated, plastic shaped glazed jugs, and Norwich has some good examples (Fig. 11, nos. 1 and 9; Fig. 13, nos. 2 and 4).[50] Decoration consists of applied strips and scales, and of multi-coloured effects obtained with dark clay or pipe-clay strips or painting under the green or orange glazes. Face masks and animal modelling do not happen at present to be well represented in the Norwich collections. These jugs may have either pinched-out lips or carefully made bridge spouts (Fig. 13, no. 2). Thumb-pressed and frilled bases were first introduced into common use on jugs in the thirteenth century (Fig. 11, no. 1; Fig. 13, nos. 2 and 4).

Some Regional Characteristics in Norwich Pottery. One of the striking features in the study of medieval pottery is the emergence of regional variants on the general development of styles throughout the country, a regional character that can also be seen, for instance, in church and domestic architecture.

[45] *Antiq. J.*, XVI, 1936, 410, and Pl. LXX, no. 3.
[46] Some have been found by Mr. Hurst and Mr. Golson in their 1951 work at St. Benedict's Gates for the Ministry of Works, and on top of the Castle Mound, 1950.
[47] Southoe, Hunts., *Proc. Cambs. Antiq. Soc.*, XXXVIII, 1939, 161, no. 7; Oxford and Deddington, *Oxoniensia*, XIII, 1948, 70–2; XVII, 1952, in press, York, Elgee, F., *Archæology of Yorkshire*, p. 211.
[48] *Proc. Suffolk Archæol. Inst.*, XXII, 1939, 334–8.
[49] Rackham, *Med. Eng. Pottery*, Pls. II & LXXXI.
[50] Rackham, *Med. Eng. Pottery*, Pl. LXXXI.

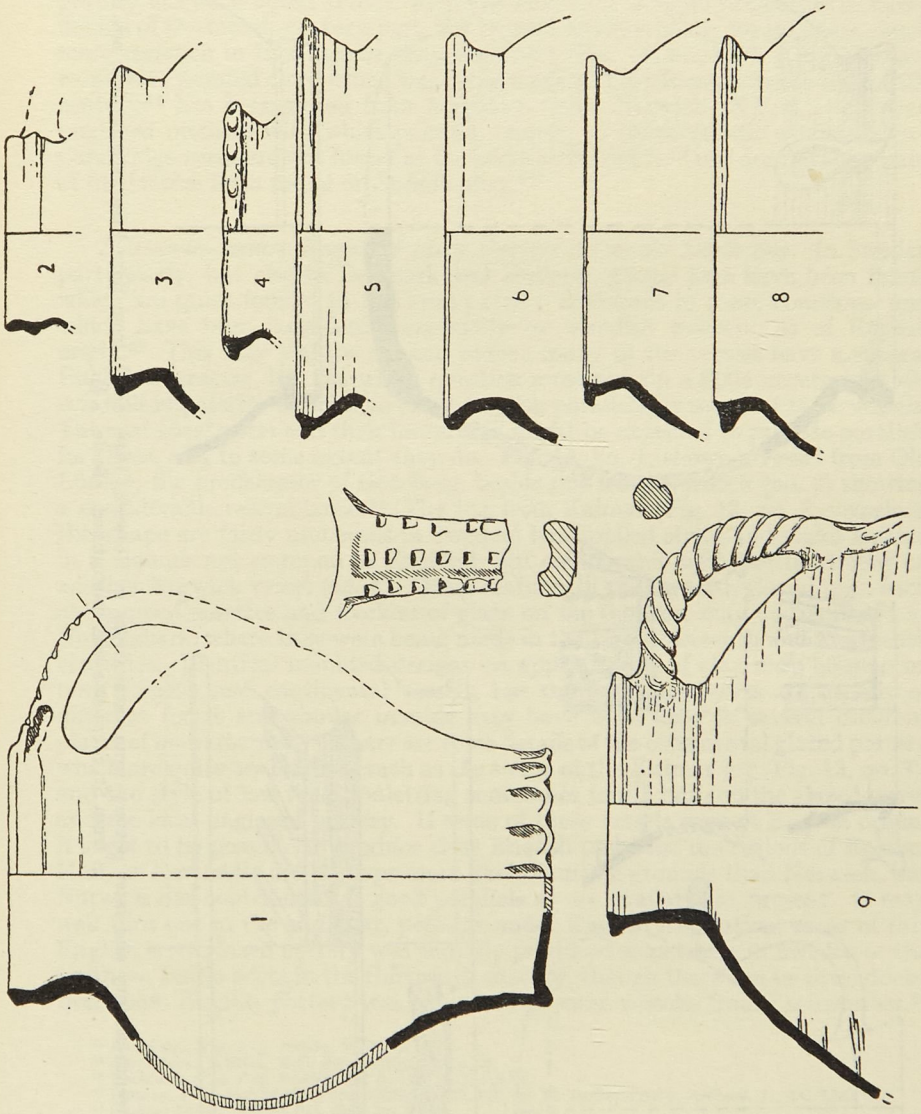


Fig. 11. Twelfth- and thirteenth-century pottery from Norwich; nos. 1, 2, 4, 5, from pit H (and no. 3 from overlying soil), Ber Street, 1948. Nos. 6–9, from the bottom of Norwich Castle Well, cleared in 1890. (Scale, $\times \frac{1}{4}$).

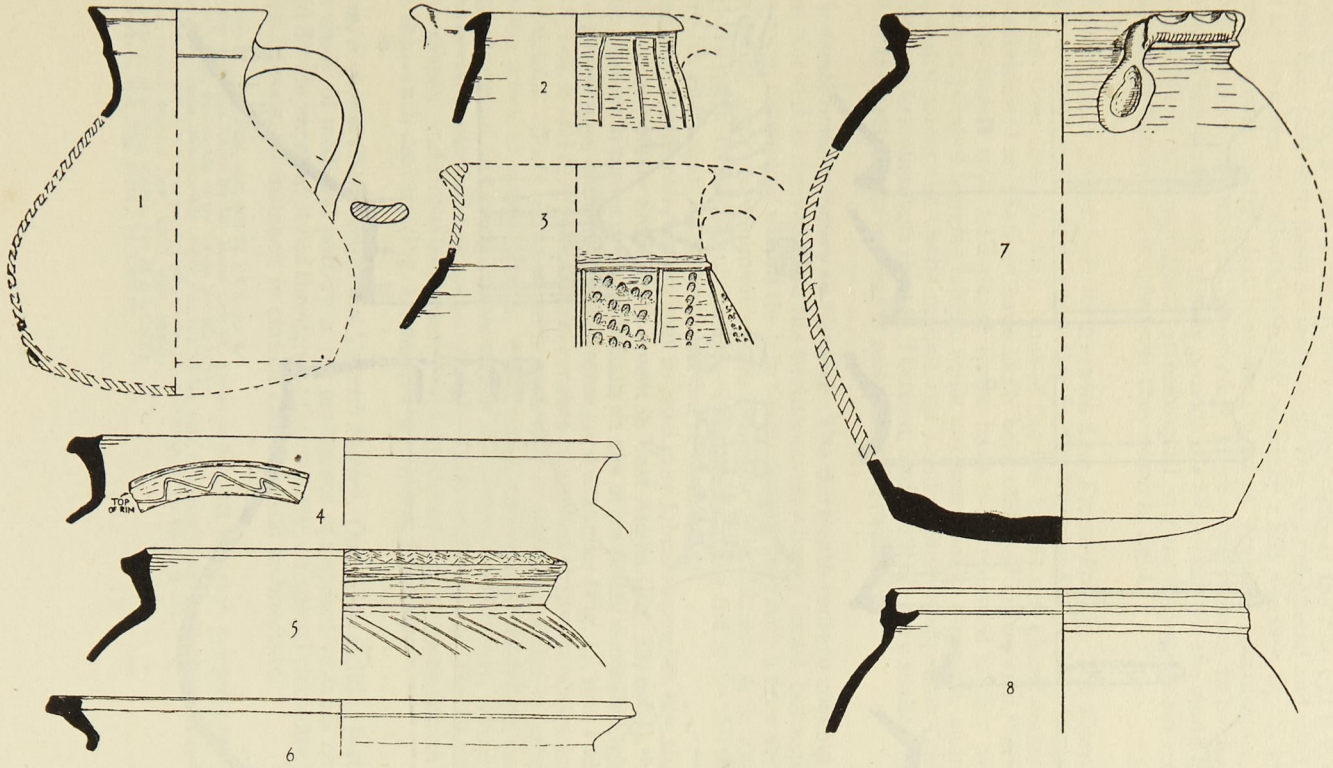


Fig. 12. Thirteenth-century and later pottery from excavations in Norwich, 1948; no. 1, from Barn Road, unstratified; nos. 2–8, from St. Stephen's site, unstratified. (Scale, $\times \frac{1}{4}$).

The restricted distribution of the various types of fabric on the late Saxon pottery has been noted above. Regional character is again noticeable in many details of thirteenth-century jugs, the twisted handles being, for instance, much more common in East Anglia than elsewhere (Fig. 11, no. 9).[51] A type of face mask with pointed chin, which was being made at East Runton in the thirteenth century[52] has been noted from Magdalen Gate, Norwich (N.C.M.). The red unglazed pitchers with white painted designs, so characteristic of the Essex–Cambridge area, are not found as far north as Norwich,[53] nor are the large pans of distinctive form found on Suffolk sites.[54]

Thirteenth-century English Pottery Exports across the North Sea. In Sweden particularly, but also in Denmark and Holland, glazed jugs have been found which are quite foreign to the local pottery traditions in those countries, and which have been considered, especially by Swedish workers, as of English origin.[55] This may well be so, and indeed many of the vessels have a general English character, but the whole question must remain a little uncertain while it is still impossible to point to exact English parallels for many of these vessels. The east coast ports and their hinterland might be expected to provide parallels for these, and to some extent they do. Fig. 13, no. 1, shows a vessel from Old Lödöse, the predecessor of Göteborg, beside one from Norwich (no. 2) showing a considerable resemblance.[56] The jug from Kalmar (Fig. 13, no. 3; vessels of this shape are fairly numerous in Sweden) has applied strips and scales treated in a manner not common in England, but comparable with the treatment on another Norwich vessel (no. 4). Other features of the Swedish glazed jugs, such as stamped rosettes and freckles of glaze on the interior, may be paralleled at Nottingham, where they were being made in the later thirteenth and fourteenth centuries. Identical moulded designs on applied pads of clay may be seen on both English and continental vessels, but the jugs themselves are usually of different forms and similar moulds may have been used in several different places of manufacture.[57] There are some details of the continental glazed pottery which are quite un-English, such as the shape of the Kalmar jug (Fig. 13, no. 3), and the style of low relief rouletting sometimes found both on the glazed wares and the local unglazed pottery. If some of these vessels were of English origin, it *ought* to be possible to produce close English parallels: the regions of Boston, Hull, or Newcastle are perhaps more likely hunting grounds than Norwich, but Norwich has contributed as good parallels as are available at present. It may well turn out in the end that, perhaps under English inspiration, some of this English style glazed pottery was actually produced somewhere in Sweden or the southern Baltic ports in the thirteenth century, though there can be little doubt that some English pottery was exported, as some vessels, from Leeuwarden,[58]

[51] Rackham, *Med. Eng. Pottery*, Pl. XXXIII.
[52] *Norf. Arch.*, XXVII, 1940, 308–11 (Fig. 12, no. 6).
[53] Rackham, *Med. Eng. Pottery*, Pls. L, LII, LIII, LXIX.
[54] Bungay, *Proc. Suffolk Arch. Inst.*, XXII, 1939, 337, no. 10; Butley Priory, *Archæol. J.*, XC, 1933, 275.
[55] Dagmar Selling, *Situne Dei*, 1943, pp. 53–66.
[56] af Ugglas, C., *Gamla Lödöse*, 1931, Pl. III; also from here is a 'Polychrome' jug from S.W. France, probably Saintes—Pl. IV.
[57] Rackham, *Med. Eng. Pottery*, Pl. IX; *Bonner Jahrbücher*, CXLII, 1937, Pl. XLV, top centre.
[58] *Bonner Jahrbücher*, CXLII, 1937, Pl. XLV, top right and left.

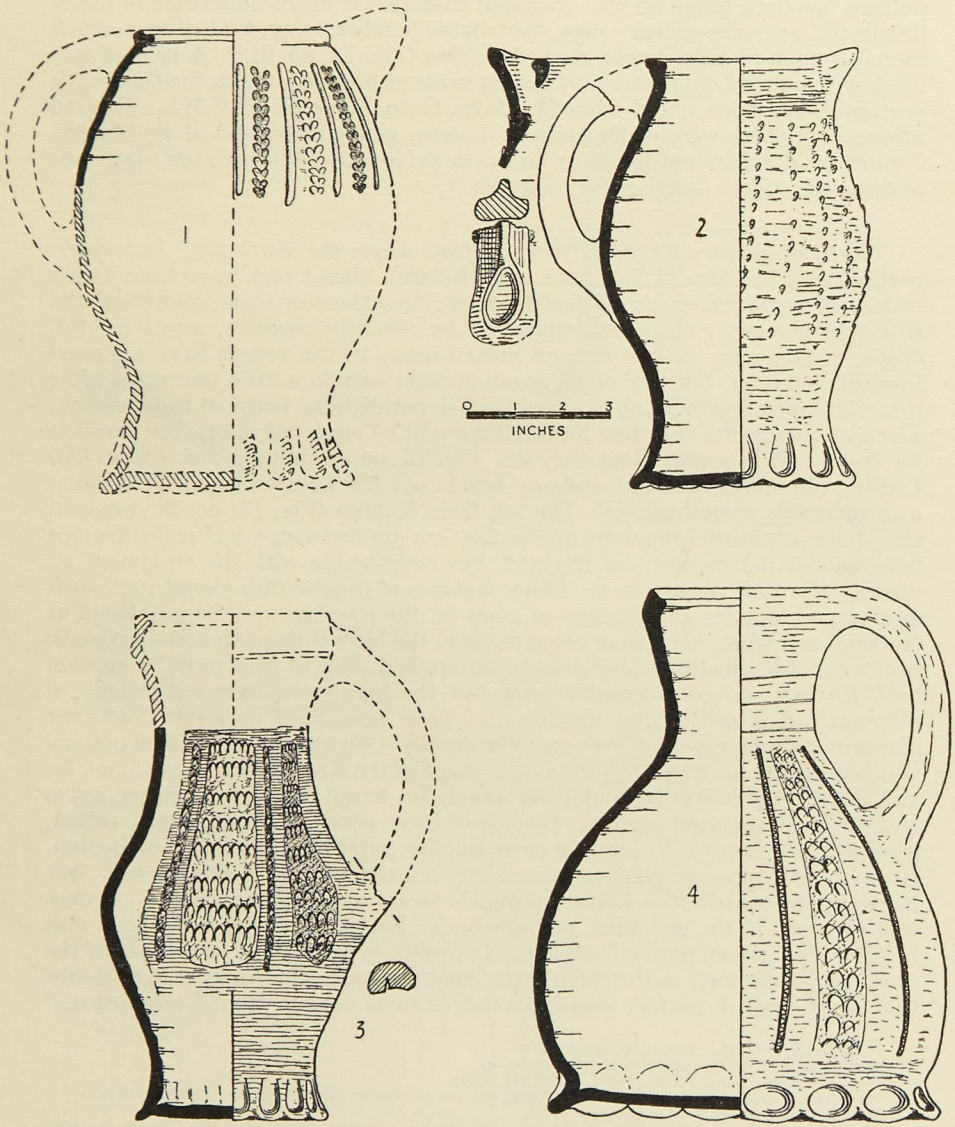


Fig. 13. Thirteenth-century glazed jugs from Norwich and Sweden; no. 1, from old Lödöse, near Göteborg; no. 2, from near Norwich; no. 3, from Kalmar Castle, S.E. Sweden; no. 4, from unrecorded site in Norwich. (Scale, $\times \frac{1}{4}$).

and Denmark,[59] for instance, as well as that from Old Lödöse illustrated here, are most English in their appearance.

Late Medieval Pottery. Pottery of this period is in many areas not nearly so well recognized as that of the earlier Middle Ages, and little can be said about it at present in Norwich. The large vessel with interior channel for lid seating, from St. Stephens, is a late medieval form.[60] Tall biconical jugs of hard ware, with sparse patchy glaze, are also typical of the later Middle Ages in many areas, especially the Home Counties, and one has been found in Norfolk containing late fourteenth- and early fifteenth-century coins at Terrington St. Clements.[61] A few fragments probably from this type of jug were found in the 1948 excavations, and they should be carefully sought among East Anglian collections. There were also a few pieces of imported Rhenish "Sieburg" late medieval pottery.

Post-Medieval Pottery. The large vessel with horizontal handles on the rim (Fig. 12, no. 7) is probably post-medieval, yet it preserves in the convex base a most medieval feature.

From the ditch filling at Barn Road came a large amount of both fine and coarse pottery of the sixteenth, seventeenth, and eighteenth centuries. There has been no opportunity yet to make a detailed study of this later material, and pottery of this period stands in urgent need of serious attention from archæologists. Among the most notable pieces of the later pottery was a "teapot"-like vessel of bricky red ware with a treacly, very dark brown glaze, bearing the date "161–" inscribed on the shoulder.

DESCRIPTION OF POTTERY

Fig. 7. *Pottery from the structure of the Early Bank at Barn Road* (Appendix I, site 1).

Nos. 1–6. Rims of cooking-pots of late Saxon type (cf. Fig. 9, nos. 1–3), of hard grey fabric, similar to the main bulk from Thetford (Group A).[62]

No. 7. Part of convex base of large cooking-pot of early medieval type, made on a slow turntable, and showing signs of finger-pressing. Hard grey ware, blackish on outside, but more friable than the late Saxon wares. Not illustrated are from this deposit several body fragments of this type of pot, with purply-brown exterior surfaces, streaked where smoothing with fingers or a cloth has gathered up small particles of grit and scratched the clay. Probably twelfth century.

No. 8. Rim of large deep bowl of late Saxon type, with inturned rim, rouletted on exterior. Of hard grey ware with blackish surfaces. Dishes of this type with rouletted rims occur at Thetford, but the type lasted into the Norman period in many parts of eastern England.[63]

[59] Rackham, *Med. Eng. Pottery*, Pl. LXXXIX.
[60] *Oxoniensia*, XIV, 1949, 78–9; *Archæol. News Letter*, II, March 1950, 156–7; cf. *Colchester Mus. Rep.*, 1928, Pl. XXIII.
[61] *Num. Chron.*, 6th Ser., VII, 1948, 183–5.
[62] Group A, *Archæol. News Letter*, II, January 1950, 120.
[63] Alstoe, Rutland, *Antiq. J.*, XVI, 1936, 402–11; Leicester, *Soc. Antiq. Res. Rep.*, XV, 1948, Fig. 60, no. 5.

Fig. 8. *Early Pottery from Norwich.*

Nos. 1–7. A series of large globular vessels of unusual shape (see p. 301): from Ber House, 1843 (Appendix I, site 4).[64] Of fine hard light grey ware. For discussion of this type, see p. 301. Probably tenth to eleventh century.

Nos. 8–9. Two vessels of similar type and fabric from Mountergate Street, 8 ft. deep in the centre of the street, 40 ft. from the junction with King Street.

No. 10. Rim of a small vessel from Ber Street Gates' excavations, 1948. Of softer blackish fabric, and in form more like the vessels of an earlier Saxon tradition.

Fig. 9. *Pottery of Late Saxon and Early Medieval Types from Norwich.*

Nos. 1–3. From the market-place (Appendix I, site 7, Fig. 1). Cooking-pots of late Saxon form, with flat or slightly concave bases: of hard grey fabric. The bases show eccentric ridges made by removing the pot from the turntable with a "cheese-wire". Nos. 2 and 3 have firing cracks at the rim. No. 1 has a shoulder band of rouletting.

Nos. 4–7. From Exchange Street, 1935 (Appendix I, site 10), vessels of hard dark grey ware. Nos. 4 and 5, deep pans with out-turned rim flanges decorated with finger-tip impressions, seem to be a late eleventh- to early twelfth-century type (see p. 306). No. 6 is a small globular cooking-pot of more friable grey ware. It is wheel turned, as seen at the rim, but the body has been extensively worked over by hand: it has no base angle, and this type is not common in eastern England (see p. 306).

Fig. 10. *Pottery from Fyebridge* (see Appendix I, site 2).

Nos. 1–7. Cooking-pot rims of late Saxon type in hard grey ware, wheel turned.

No. 8. Cooking-pot rim of twelfth-century type, of fairly friable reddish-brown ware with grey core, containing a little shell.

No. 9. Bowl of late Saxon type, with inturned rim rouletted on outer surface. This is one of the very few examples so far recorded in Norwich of the soft smooth shelly fabric ("St. Neots", Thetford Group II). It has a reddish surface and grey core.

No. 10. Convex base of twelfth-century cooking-pot of fairly hard grey ware with brownish exterior surface.

No. 11. Perforated disc made out of the side of a late Saxon wheel-turned pot in hard grey ware.

No. 12. Body fragment of large storage jar of late Saxon type in hard grey ware with blackish outer surface. It has crossing diagonally applied strips finger-pressed at the junctions.

No. 13. Large deep dish with clubbed rim rouletted on outer surface, in hard grey ware; decorated with vertical channels made by pulling the fingers down the side of the pot.

Fig. 11. *Twelfth- and Thirteenth-century Pottery from Ber Street and Norwich Castle Well.*

Nos. 1, 2, 4, and 5 were associated together in Pit H at Ber Street (Plan, Fig. 3), and No. 3 was in the soil above. The pit also contained the Niedermendig lava quern stone.

No. 1. An unglazed jug of fairly hard sandy light brown to grey ware. It has a rather narrow, thumb-pressed base, and thick strap handle decorated with stick jabbings, and probably had a pinched spout. Thirteenth century.

No. 2. Jug rim of hard reddish-brown sandy fabric; no glaze. Thirteenth century.

No. 3. Cooking-pot rim of fairly hard dark grey ware with black surface. Twelfth century.

No. 4. Cooking-pot rim with slight finger-pressing, of light grey sandy fabric. Twelfth century.

No. 5. Cooking-pot rim of hard grey sandy fabric. Thirteenth century.

Nos. 6–9 came from the bottom of Norwich Castle Well, cleared in 1890.

No. 6. Cooking-pot rim of brown to grey sandy fabric, but with some crushed shell. Twelfth century.

Nos. 7 and 8. Cooking-pot rims of hard fine pale grey ware. Probably late twelfth to thirteenth century.

[64] *Norf. Arch.*, IV, 1855, 353.

No. 9. A large fat jug of hard grey ware with twisted handle, of a type common in East Anglia. There are four of this type from the Castle Well, another from the well at Happisburgh,[65] several at Thetford Priory, and at Cambridge.[66]

Fig. 12. *Thirteenth-century and later Pottery from Barn Road and St. Stephen's.*

No. 1. From Barn Road, unstratified. Unglazed jug of hard grey ware.[67] Thirteenth century.

Nos. 2–8. From St. Stephen's, unstratified.

No. 2. Top part of jug of hard greyish ware, with olive glaze, and applied vertical strips. It probably had a strap handle and pinched spout. Thirteenth century.

No. 3. Top part of jug in hard reddish-brown ware, with greenish glaze, decorated with vertical strips with scale ornament between (see p. 310). Thirteenth century.

Nos. 4 and 5. Cooking-pot rims of fine hard grey ware. No. 5 has a lightly incised wavy line on the top of the rim. Thirteenth century.

No. 6. Cooking-pot rim of hard grey ware, with a moulding suggesting late thirteenth century.

No. 7. Parts of large jar of very hard-fired fabric, with grey core and reddish outer layers, and areas of olive-green glaze. It has the remains of a horizontal handle at the rim (there were probably two originally), and a thick convex base, a most medieval feature. Probably sixteenth or seventeenth century.

No. 8. Part of a large vessel with channel for lid seating, in hard-fired ware with grey core and reddish surfaces, with some greenish glaze. This type appears to be late medieval.

Fig. 13. *Thirteenth-century Glazed Jugs from Norwich and Sweden* (see pp. 309–12).

No. 1. Top part of a jug of fine sandy grey ware, with olive-green external glaze. It is decorated with applied vertical strips with rows of dark and of body-coloured applied scales alternating in the spaces between. This jug has an unusual shape at the mouth, and is reconstructed here on the lines of one from Norwich, no. 2. From Old Lödöse, near Göteborg, Sweden[68]. Old Lödöse was superseded by New Lödöse about the end of the Middle Ages,[69] and that was itself replaced by the present Göteborg in the seventeenth century.

No. 2. Jug from near Norwich, almost complete. It is of fine dark grey hard ware, with buff interior surface and light green glaze on outside. It is decorated with vertical lines of scale ornament of body colour only, set slightly skew. It has a handle with moulded rib up the back, drawn down to a thumb impression at the bottom, and a well-made bridge spout, and thumb-pressed frilled base. Thirteenth century.

No. 3. Large baggy jug from Kalmar Castle, Sweden (Statens Historiska Museet, Stockholm). It is of buff hard fairly fine fabric, with clear brown to olive-green lead glaze on the outside, and the inside has numerous tiny spots of glaze, a feature so characteristic of this Swedish glazed pottery (not, however, of no. 1 above). It is decorated with almost black applied vertical bands with diagonal rouletting, and between them panels of scale ornament. The base undersurface is covered with a thick almost black glaze. It has a round-sectioned handle, thumb-pressed base, and pinched lip. There are a number of vessels of this class from Kalmar Castle.

No. 4. Jug from unknown site in Norwich. Of fine hard red-buff fabric and light green glaze. Of waisted form and thumb-pressed base. Decorated with applied scales, arranged vertically in lines and panels, alternately brown and body-coloured. Thirteenth century.

Fig. 14. *Various objects of Pottery, Bone and Iron of late Saxon and Viking or related types, from Norwich, hitherto unpublished.*

No. 1. Large socketed iron axe, from London Street (see Appendix I, site 9: Norwich Castle Museum, 25.18). This axe is flaking badly and has not been cleaned; it is covered by a layer of gluey material which obscures its detail, though a laminated structure can be

[65] *Norf. Arch.*, XXX, 1950, 159.
[66] Rackham, B., *Med. Eng. Pottery*, Pl. XXXIII.
[67] cf. Rackham, *Med. Eng. Pottery*, Pl. XVIII.
[68] af Ugglas, C., *Gamla Lödöse*, 1931, Pl. III, nos. 8, 9, and 10 fit together to give the profile of my drawing.
[69] Strömbom, S., *Nya Lödöse*, 1923.

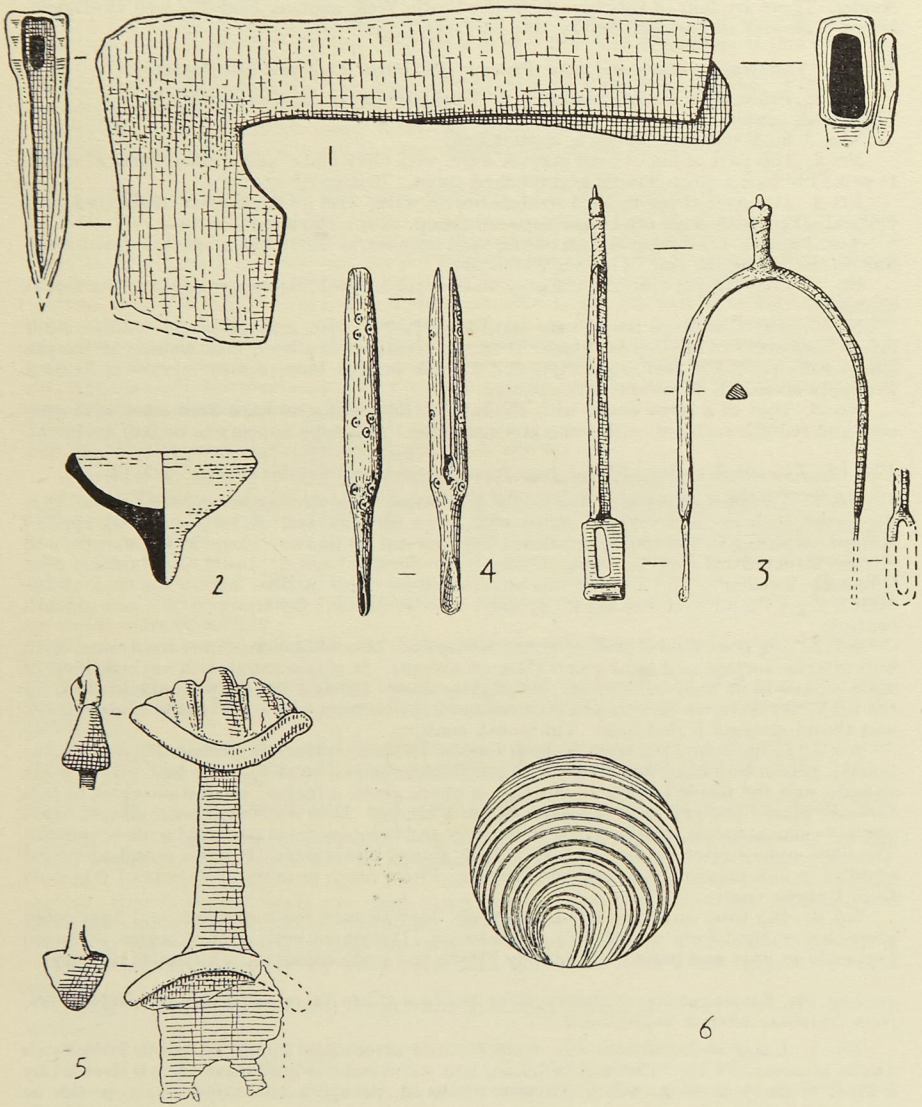


Fig. 14. Pottery, bone and iron objects of Saxon and Viking types from Norwich; no. 1, large iron axe from London Street (Fig. 1, site 9); no. 2, spiked cresset pottery lamp from same London Street site; no. 3, iron prick spur from All Saint's Green (Fig. 1, site 14); no. 4, bone tweezers and earpick from King Street (Fig. 1, site 12). (Scale, $\times \frac{2}{3}$); no. 5, Viking iron sword from the River Wensum at Norwich; no. 6, cheese-wire markings on the base of a late Saxon cooking pot. (Scale: all $\times \frac{1}{3}$ except no. 4, which is $\times \frac{2}{3}$).

traced. It is not possible to decide whether the appended plate down one side of the haft socket belongs to the axe or is merely extraneous and held in place by rust. It is difficult to find another axe with a haft socket so long, though it may be compared with ones from London and Richborough.[70]

The bearded blade shape may be compared with two others from London.[71] The type with the bearded blade originated in Frankish times, but lasted into the twelfth century, and may even be found in use later in the Middle Ages.

No. 2. Pottery Lamp from London Street found with the axe, no. 1, above (Appendix V, site 9, Norwich Castle Museum, 25.18). Of moderately hard sandy grey-brown ware. This spiked type is common enough in late Saxon contexts in southern and eastern England, though it must have remained in use into the twelfth century in some areas, and from Forfar[72] comes an example with a thick olive glaze on the interior which must be thirteenth or even fourteenth century.

No. 3. Iron spur from All Saints' Green (Appendix I, site 14; Norwich Castle Museum). It bears traces of white metal on the surface, presumably tinning, near the prick. Tinning is widely used on spurs of Saxon and Viking times; the technique continued through the Middle Ages and is found even on elaborate rowel spurs of the sixteenth and seventeenth centuries.[73] This spur shows also sign of some material, either a now corroded or removed metal strip, or else leather or textile, twisted spirally up the stem of the prick. Yellow bronze strip can be seen occasionally wound on iron objects of Viking age.[74] This spur is slightly larger than most prick spurs of this period. The prick may be compared with simple late Saxon examples,[75] though the style of the completely preserved terminal can be found in use during the twelfth century:[76] the other terminal seems to have been of type D, and the whole spur may be described as of type CD2. It is probably of the eleventh century.

No. 4. Bone toilet instrument, a combined tweezers and earpick, from King Street (Appendix I, site 18; Norwich Castle Museum). This type of toilet instrument has its origin in the Roman world and is really more appropriate to a context in the immediate post-Roman period. No good parallel has, however, yet been found for it, and it is included here as an object from Norwich probably dating from some time in the Dark Ages.

No. 5. Handle and part of blade of Viking Age iron sword from the River Wensum at Norwich, exact find spot not recorded (British Museum, BM 54, 11–7, 12). I am most grateful to Mr. D. M. Waterman for his notes on this sword. Traces of yellow metal inlay remain between the lobes of the pommel. This sword is of Wheeler Type V,[77] and may be dated late ninth–early tenth centuries. It is thus among the earliest Dark Ages material from Norwich, but cannot of course be used as any evidence of settlement.

No. 6. Underside of flat base of typical late Saxon cooking-pot, probably from Norwich (Norwich Museum 609, 76, 94) (e.g. Fig. 9, nos. 1–3), showing the cheese-wire markings made in removing the vessel from the turntable before firing. These markings are typical of these flat based late Saxon pots, but are worked away in the pressing out to make the convex bases usual on medieval cooking-pots. These cheese-wire markings are commonly found on present-day pottery.

[70] *London Mus. Med. Cat.*, 1940, 59; Fig. 14, no. 1. *Richborough, Second Report* (*Soc. Antiq. Reg. Rep.*, VII, 1928), pl. XXIV, no. 70.
[71] *London Mus. Cat.*, 60; Fig. 13, no. 1; Fig. 14, no. 2.
[72] *Nat. Mus. Antiq. Edinburgh*, M.E. 238.
[73] *Antiq. J.*: in press.
[74] *Oxoniensia*, XV, 1950, 30; Fig. 12a, and Pl. VI B.
[75] *London Mus. Med. Cat.*, 1940, 95, type 2 and Fig. 29, no. 4.
[76] *ibid.*, 96.
[77] Wheeler, R. E. M., *London and the Vikings*, 1927, 35.

APPENDIX I

SITES YIELDING LATE SAXON MATERIAL IN NORWICH

By R. R. Clarke and E. M. Jope

We have listed here archæological material found in Norwich which may reasonably be regarded as late Saxon, and the map (Fig. 1) is designed to present a largely archæological picture of Norwich during the eleventh century. The numbers in this list correspond to the sites on the map.

(*a*) Pottery

1. *Barn Road*, 1948 and 1951; see this paper.
2. *Fyebridge*. This paper (Fig. 10). This pottery was found while widening Fyebridge in 1896 (*Norfolk Archæology*, XIII, 1898, 217–32). It lay on the gravel surface between the stakes which presumably carried a causeway predecessor of Fyebridge, which was built by about 1153. The group is mainly of late Saxon character, with one rim (Fig. 10, no. 8) and one base (Fig. 10, no. 10) of twelfth-century type, and with the group was a coin of William I or II.
3. *Ber Street Gates*, 1948. This paper (Fig. 8).
4. *Ber House*, 1843. *V.C.H. Norfolk*, I, 1901, 319; *Norfolk Archæology*, IV, 1855, 353; original publication in Norfolk and Norwich Museum *Report*, 1843; drawings in British Museum, Add MS. 23038, f. 137. This paper (Fig. 8).
5. *Mountergate*; given by Mr. J. T. Hotblack, *c.* 1910. This paper (Fig. 8); otherwise unpublished. There are in the Norwich Castle Museum about a hundred fragments from a pit 6 by 3 ft. on the surface and 8 ft. deep, in the centre of the street, 40 ft. from the junction with King Street.
6. *Under Castle Mound*. Pottery found in levels sealed under the mound when this was cut back for the Shire Hall extension in 1905–6 (*Norfolk Archæology*, XVII, 1910, 42–5). This material must have been derived from some of the houses which the Domesday Survey records as having been destroyed to build the Castle, which was built between 1066 and 1075. This pottery is to be published by Mr. G. C. Dunning. One complete pot from this site was a waster (cf. Carr Street, Ipswich). Norwich Castle Museum, 57.05.
7. *Dove Street*, 1852 and 1898. Found on the site of Chamberlain's warehouse. This paper (Fig. 9). A large collection of pottery has been found on the site of Chamberlain's warehouse in 1852 and again in 1898 (called Roman at the time of discovery). Several pots were complete, some being obvious wasters. Pottergate runs on the north side of this site. *Norfolk Archæology*, IV, 1855, 360; *Eastern Daily Press*, 9 April 1929 (photo). Norwich Castle Museum, 85.52; 69.929.
8. *Bridewell Alley*. One rim sherd from here is in the Norwich Castle Museum, 32.926.
9. *London Street*, at the corner of Swan Lane. Pottery was found at a depth of 15 ft. on this site in 1862 (*Norfolk Archæology*, VI, 1864, 384) and subsequently. That preserved in the museum (for instance, a cresset lamp) appears to be late Saxon in character. Norwich Castle Museum, 25.18; this paper, Fig. 14, nos. 1 and 2; the rest is unpublished.
10. *Exchange Street*. Pottery was found here in 1827 (Woodward, S., *Hist. and Antiq. Norwich Castle*, 1847, 2), and again in 1935 in laying telephone cables. This paper (Fig. 9). Norwich Castle Museum.

11. *St. Andrew's Hill*, at Norfolk News Company's printing works in 1947–8 (adjoining site of St. Christopher's Church). Much pottery of late Saxon and of later types came from this disturbed area, mainly from refuse pits extending to 20 ft. below the surface. Some of the late Saxon material from here may be compared with that from pit I on the Palace Street site, 1952 (see 13, below). Norwich Castle Museum, 8.952.
12. *Site of Norfolk House*, adjacent to St. John Maddermarket, 1949. Pottery was found here in soil over chalk, 4 ft. below road level (*Archæological Newsletter*, III, 1950, 39). Norwich Castle Museum, 163.949.
13. *Palace Street*, site of the seventeenth-century lodge of the Grammar School, burnt during the war, 1939–45. In 1952 four pits were found containing pottery of late Saxon character. Pit 1, which had been dug into soft yellow sand, was excavated by the Norwich Museum staff to a depth of 6 ft. 6 in. (14 ft. 6 in. below the surface of the playground) before the sides fell in. This area was probably taken into the Cathedral Close in 1318, if not by 1096. Previously Canon Raven had referred to "thumb-marked pottery from the north side of the Cathedral" (*Hist. Suffolk*, I, 1895, p. 27; *V.C.H. Norfolk*, 1901, I, 319).

    Pit 1 contained the usual assemblage of late Saxon style pottery. Many bases are flat, with the marks of removal from the turntable with a "cheese-wire" showing as eccentric ridges on the undersurface. There is also a variety of convex bases, which must have been already much used before the end of the eleventh century. The range of rims is such as may be seen here in Figs. 9 and 10, and there is one excellent example of the ginger-jar type (cf. Fig. 8, no. 8) and also parts of large vessels with crossing applied strips and thumb impressions at the intersections (cf. Fig. 10, no. 12), and part of a baluster cresset lamp. Pits 2, 3, and 4 contained similar material. Pit 1 also contained pieces of brick, hard-fired red to black, made in a sanded tray and finished off by swiping across the top, $1\frac{3}{8}$ to $1\frac{1}{2}$ in. thick (cf. those built into Holy Trinity Church, under the east end of Norwich Cathedral, and sporadically in the Norman work of the Cathedral fabric itself: Dean Cranage took these to be derived from some Romano-British building, but this is by no means clearly so (*Antiq. J.*, XII, 1932, 117–26). There was also well-preserved burnt daub with wattle marks.

    Almost all the pottery is of the usual hard dark grey fabric, there being one piece only of the shelly "St. Neots" ware, and a few pieces of more friable softer ware. There are a few simple everted flange rims in this softer ware, such as have recently been shown to be the main bulk of the pottery from the pre-1071 levels under the Castle Mount at Oxford (*Oxoniensia*, XVII, 1952, in press).

(*b*) Miscellaneous Small Finds

14. *All Saint's Green*. An iron prick-spur found in 1895. Norwich Castle Museum. This paper (Fig. 14, no. 3).
15. *St. Stephen's Churchyard*. A bone draughtsman from here is in Norwich Castle Museum, 422.76.94. Illustrated in *Norfolk Archæology*, V, 1949, 231–2; *Cat. Antiq. in Norwich Museum*, 1909, no. 1247.
16. *Prince's Street*, 1874. A bone draughtsman was found here in 1874 with a contracted skeleton (*Norfolk Archæology*, V, 1874, 330; Tillett, *Hist. St. George Tombland*, 1891, p. 36; not illustrated, but said to be similar to that from St. Stephen's (15) above). Present whereabouts unknown.
17. *Site of St. Vedast's Church*. From here came the portion of the carved shaft of a stone cross now in Norwich Castle Museum, 75.96, of hard grey sandstone (Brønsted, J., *Early English Ornament*, 1934, pp. 213–4; Brown, G. Baldwin,

Arts in Early England, VI (part 2), 1936, 282 (illustration); *V.C.H. Norfolk*, II, 1906, 556–7 (plate).

18. *King Street*, site of Mann, Egerton, Ltd. Combined ivory tweezers and earpick found in 1934. Some pottery was also found, but is not now traceable. This paper (Fig. 14, no. 4). Norwich Castle Museum, 81.934.

From Norwich come parts of two Viking Age swords which cannot be exactly located and are not mapped, but are recorded here for completeness.

From an unspecified part of the *River Wensum* comes a Viking sword-hilt (Wheeler type V). Now in British Museum (1854.11.7.12) (on map in Wheeler, R. E. M., *London and the Vikings*, 1927, p. 35, Fig. 14). This paper (Fig. 14, no. 5).

From "near Norwich" comes the pommel of a sword of Wheeler type IV (*Proc. Soc. Antiq. Lond.*, XXIII, 1909, 302–3; Shetelig, H., *Viking Antiquities in Great Britain*, IV, 1940, 61). Norwich Castle Museum, 425.76.94.

APPENDIX II

NORWICH CHURCHES IN EXISTENCE BY THE LATER ELEVENTH CENTURY

By A. B. Whittingham and E. M. Jope

Our aim here is to list the churches of late Saxon Norwich. Hence we have excluded those known to be of Norman foundation, such as Losinga's Magdalen Chapel (Lazar House), but we nevertheless prefer not to state a hard limiting date for the churches mapped, in view of the difficulty of deducing exact dates, particularly from structural evidence.

(*a*) Documentary Evidence

The Domesday Survey of 1086 implies the existence of at least some twenty-five churches in Norwich, almost all of which are referred to as already existing in 1066, and of which the six listed below (19–24) may be definitely identified.

Blomefield takes the reference (D.B., f. 116b) to a church of All Saints' to be that in Magdalen Street, on the grounds that the one in the Domesday Survey had two acres of meadow belonging to it, and that the Magdalen Street All Saints' lies nearer the meadow than All Saints' Westlegate. This argument carries little weight, however, and the All Saints' referred to in the Domesday Survey is more likely to have been the latter, which is in the neighbourhood of the Saxon place-name of Needham. Also, the Domesday Survey records (f. 118) that in the new borough "there is a certain church which the Earl Ralf built" (therefore before *c.* 1075): this probably referred to St. Peter Mancroft. In view of the doubt about these locations no symbols have been plotted on the map for these entries. The site numbers in the list of churches follows on from these in Appendix I.

19. *Holy Trinity* (D.B., f. 116b). In 1930 the lower part of the apse of this church was excavated under the east end of the present Cathedral, the building of which was begun under Bishop Losinga in 1096. The earlier structure can still be seen (*Antiq. J.*, XII, 1932, 117–26); but there is no reason to consider the remains as any earlier than the first half of the eleventh century).
20. *St. Martin at Palace* (D.B., f. 116b). It shows structural evidence of Saxon style.
21. *St. John de Sepulchre*, Ber Street (D.B., f. 117b). There is structural evidence of Saxon style here.

22. *St. Michael Tombland* (D.B., f. 116b). This church is mentioned in the foundation deed of the Cathedral Priory, which was drawn up by Herbert Losinga in 1101 (Dugdale, *Mon.*, IV, 15–16). It was pulled down in Losinga's time.
23. *St. Simon and St. Jude*, Elmhill (D.B., f. 117b).
24. *St. Lawrence*, Charing Cross (D.B., f. 116b).
25. *St. James Pockthorpe*. This is possibly the church of the manor of *Letha* recorded in the Domesday Survey (D.B., f. 199b). If not actually St. James, this Domesday church must have been in this area.
For *St. John Timberhill* see 42 below.

(*b*) Churches taken into the Area of the Cathedral Close

The Close was expanded, and the following churches (26–8) taken within it, at various dates from the foundation of the Cathedral Priory (1096) until the fourteenth century. They are none of them likely to have been founded after 1096. (See also *Holy Trinity* (19) above.) This argument cannot, however, be applied to St. Matthew's, which is known to have fallen into disuse in the fourteenth century.

26. *St. Mary-in-Marsh*. Dugdale (*Mon.*, IV, 1–7) prints a Norwich Cathedral register of *c.* 1300 which states that this church was founded long before the Conquest, but the argument may be tendentious. It was, however, taken into the Close in the thirteenth century.
27. *St. Helen* was taken into the Close in the thirteenth century.
28. *St. Ethelbert* was taken into the Close in 1096. The dedication suggests a pre-Norman foundation.

(*c*) Pre-Norman Dedications

The following Scandinavian dedications suggest pre-Norman foundation:

29. *St. Vedast*. The carved cross-shaft (17 above) came from here.
30. *St. Olave*, King Street.
31. *St. Olave*, Pitt Street.
32. *St. Clement*, King Street.
33. *St. Clement*, Colegate.

The following non-Scandinavian dedications suggest pre-Norman foundation:

34. *St. Swithun*, St. Benedict's.
35. *St. Botolph*, Stumpcross.
36. *St. Edward*, off King Street (Saxon).
37. *St. Etheldred*, King Street (Saxon).
38. *St. Edmund*, Fishergate (Saxon).
39. *St. Winwallow* (or St. Catharine) (Celtic).

For *St. Ethelbert* in the Close, see 28 above, and for *St. Julian*, see 41 below.

(*d*) Structural Evidence

There is structural evidence of Saxon architectural style in the following churches; some might be post-Conquest in actual date, however (Baldwin Brown's "Saxo-Norman Overlap", *Arts in Early England*, 2 (2nd edition, revised, 1925), 377–437).

40. *St. Mary Coslany*. This has triangular headed windows and Barnack mid-wall shafts in a round tower (*Norfolk Archæology*, XVII, 1908, 31).
41. *St. Julian*, King Street. Also Saxon dedication.

42. *St. John Timberhill.* Founded in the time of the Conqueror (*Cathedral Register*, III, 57).
43. *St. Gregory.* Inside the belfry.
44. *St. Augustine's.* The nave has Saxon proportions.

See also **19**, **21**, and **29**, above.

APPENDIX III

COAL FROM THE SEVENTEENTH- AND EIGHTEENTH-CENTURY DEPOSITS AT BARN ROAD, NORWICH

A number of small pieces of coal were found among the material dating from the seventeenth and first half of the eighteenth centuries in the filling of the city ditch against the outer face of the bastion at Barn Road. As this ditch was filled in at least by the later eighteenth century, these were considered to be of interest as giving a possible pointer to the sources of coal imports to Norwich in the seventeenth and eighteenth centuries. Accordingly, two specimens from 4 ft. 6 in. below the chamfered plinth of the bastion were submitted to the National Coal Board, whose officers have kindly provided the report below. I am most grateful to Mr. V. C. C. Saunders for arranging these contacts. The results here are not very conclusive, though they show possibilities, and an accumulation of such data from all over the British Isles should considerably enlarge our knowledge of the mining and distribution of coal at such periods.

Report on Coal Specimens by Dr. L. Slater,
National Coal Board Scientific Department, Coal Survey, Sheffield

Naked Eye Examination

The specimens were lightly smeared with clay and on cleaning with water had a bright appearance and were apparently little affected by weathering. They consisted largely of bright coal with no durain but with a few very thin fusian bands. No pyritic inclusions or dirt bands were observed.

Each piece was cut into two, part being reserved for microscopical examination and the remainder crushed through 70-mesh size for analysis.

Owing to the small amount of the sample only a limited number of analytical results were possible. The results are given below:

Proximate Analysis. (Coal air dried at 55–60 per cent humidity)

	per cent air-dried coal
Moisture	2·3
Volatile matter (less moisture)	34·5
Fixed carbon	62·1
Ash	1·1
	per cent dry ash-free coal
Volatile matter	35·7
Colour of ash	Deep buff

Calorific Value

B.Th.U. per lb. (air-dried coal)	14,360

Sulphur

per cent (air-dried coal)	1·2
B.S. Crucible Swelling No.	3½

Ultimate Analysis	air-dried coal	ash-free dry coal
Carbon per cent	80·6	83·5
Hydrogen per cent	5·3	5·5

Thin sections for microscopical examination were prepared in a direction at right angles to the bedding plane from each of the pieces submitted, and examined in transmitted light. The appearance under the microscope confirmed the naked eye observations in that both pieces were seen to consist of interbanded clarain and vitrain with occasional thin fusain inclusions. No pyrites were observed and inclusions of mineral matter were very small and infrequent. Three megaspore types were observed which are to be found in the bright coal from many seams.

The microscopical study has given no information which would serve to distinguish these coal fragments from specimens from numerous bright coal seams.

Mr. A. C. Maries and the late Dr. L. Slater commented as follows on the analytic data.

The ash and sulphur figures are low but not exceptional. The marked caking properties (B.S. Swelling $3\frac{1}{2}$) and the results of ultimate analysis show that the coal has been remarkably well preserved. The analyses, though incomplete, do not reveal any exceptional qualities in the coal, such for example as those which created a demand for Tan Hill coal[78] in northern England throughout the Middle Ages.

These analytical figures can be matched with those of the bright coals of many seams in the East Midlands, North Eastern and Northern (N & C) Divisions, for example, the Kilburn seam of the East Midlands Division and the Plessey and other seams in the Northern (N & C) Division. On these figures we can, however, exclude the Leicestershire and South Derbyshire coalfield and the northern part of the Northumberland coalfield. The Durham coalfield, except perhaps for the coastal strip and the extreme south, could also be excluded. A study of mining history in the seventeenth and eighteenth centuries would clearly narrow the possible sources still further.

APPENDIX IV

THE MORTARS

Mortar samples were taken at Barn Road from the medieval wall and the layers noted in the early bank structure, and also, through the kindness of Mr. A. B. Whittingham, from the late Saxon and early Norman work at Holy Trinity chapel beneath the Cathedral east end (site **19**, Fig. **1**). These were sent to Dr. Norman Davey at the Building Research Station, Watford, but some proved too small for a full report. As it was comparisons between these which were significant, they have been left over for full reports in the forthcoming report of the Ministry of Works excavations at St. Benedict's Gates and Barn Road, by Mr. Hurst and Mr. Golson.

In their excavation of a considerable length of the early bank southwards from the wall-tower excavated in **1948** in Barn Road, Mr. Hurst and Mr. Golson showed that a deep trench seemed to have been dug in the early bank under the line of the medieval town wall before that was built, and that there these layers of mortar noted in **1948** were part of its filling. This can be suspected from Fig. **5**, section K-L, but this section was dug at the very end of the **1948** excavations and not followed up; such a trench along the line of the bank was not clear in the other sections near the wall-tower (A-B, H-J). Dr. Davey, moreover, reports that the mortar of these layers is similar to that used in the medieval flint and mortar wall, started in the **1290**s (although that found in these thin layers in the **1948** excavations seemed softer than that of the wall, this must have been due to the unexposed position of the buried layers). Mr. Hurst and Mr. Golson will deal fully with the implications of this surprising structural sequence in their forthcoming report.

[78] Wandless, A. M., and Slater, L., "An Examination of the Tan Hill Coal and a Jurassic Coal from North Yorkshire", *Trans. Leeds Geol. Assn.*, 5, pt. 4 (1936–7).