

EXCAVATIONS IN HUNGATE, YORK

By KATHERINE M. RICHARDSON

The district in the City of York known in 1950 as Hungate¹ is situated for the purposes of this report between St. Saviourgate, the Haymarket, Dundas Street, the river Foss and Fossgate (fig. 1). This quarter, where formerly stood the houses of well-to-do citizens, surrounded by gardens and orchards, had in later times fallen on evil days, gradually decaying to slum conditions, till finally in 1937 the tenement buildings were condemned and pulled down ; in the post war years it was still waste land.

Circumstances of Excavation

In 1949, as a preliminary to the building of a new Telephone Exchange, bore-holes were sunk in the area nearest to Fossgate from one of which a fine bone comb of Viking type was recovered.² Mr. G. G. Watson of the Yorkshire Museum visited the site and noted a stratum of brushwood and timbers at a depth of about 9 ft. in which the comb had apparently been found. He also collected fragments of leather and sherds of Roman and medieval pottery. In a near-by trench dug by boys of Bootham School, four skeletons were exposed, associated, it was reported, with a Flemish coin of 14th-century date. Notice of these finds was received by the Ministry of Works, and Mr. G. C. Dunning, in consultation with the City Council, arranged for trial excavations to be undertaken in the area to be built over, in the hope of obtaining much needed information on Dark Age York and on the road traditionally held to lead from the South-East Gate of the Legionary Fortress to a crossing of the River Foss.

Accordingly excavations were carried out in Hungate in the summer of 1950 by the writer and continued through the autumn and winter to the spring of 1951 under Mr. John Anstee. Up to six workmen were employed throughout.

A cutting 8 ft. wide (Trench CL), was driven for 80 ft. across the NW. end of the site. This had two extensions and was carried down to the natural

¹ First recorded mention of Hungate A.D. 1161-84, see Farrer, *Early Yorkshire Charters* I (1914-37) 231, no. 299. For derivation, see *English Place-Name Society* XIV (1937), there translated as 'a street where dogs are kept', cf. *Hundegade*, a common medieval Danish Street name (Lindkvist, 369).

² Borehole I, at NW. end of Plan fig 2.

ACKNOWLEDGEMENTS

We should like to record the debt owed to those who have co-operated in the work : the Corporation of the City of York, Messrs. Higgs and Hill Ltd., Civil Engineering Contractors, the Yorkshire Museum, the Castle Museum, the City Reference Library and those specialists who have reported on specific aspects of the work ; Dr. T. Barr, Mr. L. Biek, Mr. R. Blomqvist, Mr. M. P. Balfe, Dr. H. Godwin and Mr. K. Bachem, Dr. D. B. Harden, Miss B. M. Haynes, Mr. J. G. Hurst, Mr. L. Learey and Mr. M. Blockley, Mrs. Jean Le Patourel, Mrs. J. E. Morey, Mr. G. P. B. Naish, Mr. R. Patterson, Mr. H. G. Ramm, and Dr. H. H. Swinnerton. This report is compiled from the plans, sections, records and photographs of all concerned in the excavations, Mr. John Anstee, Mr. R. Hill and Group Capt. G. Knocker. I am also grateful for much help with the documentary references from Miss F. E. Wright, lecturer at the Castle Museum.

sandy clay. A second trench (XYZ) dug 126 ft. to the S. of the first, reached a depth of 15 ft. In both these excavations water began to seep in at 6 ft. below ground level and a motor pump was thereafter in daily use. The trenches were taken down vertically and the sides timbered. Both seepage and shoring boards obscured the sections and made it hard to interpret and record the various features uncovered.

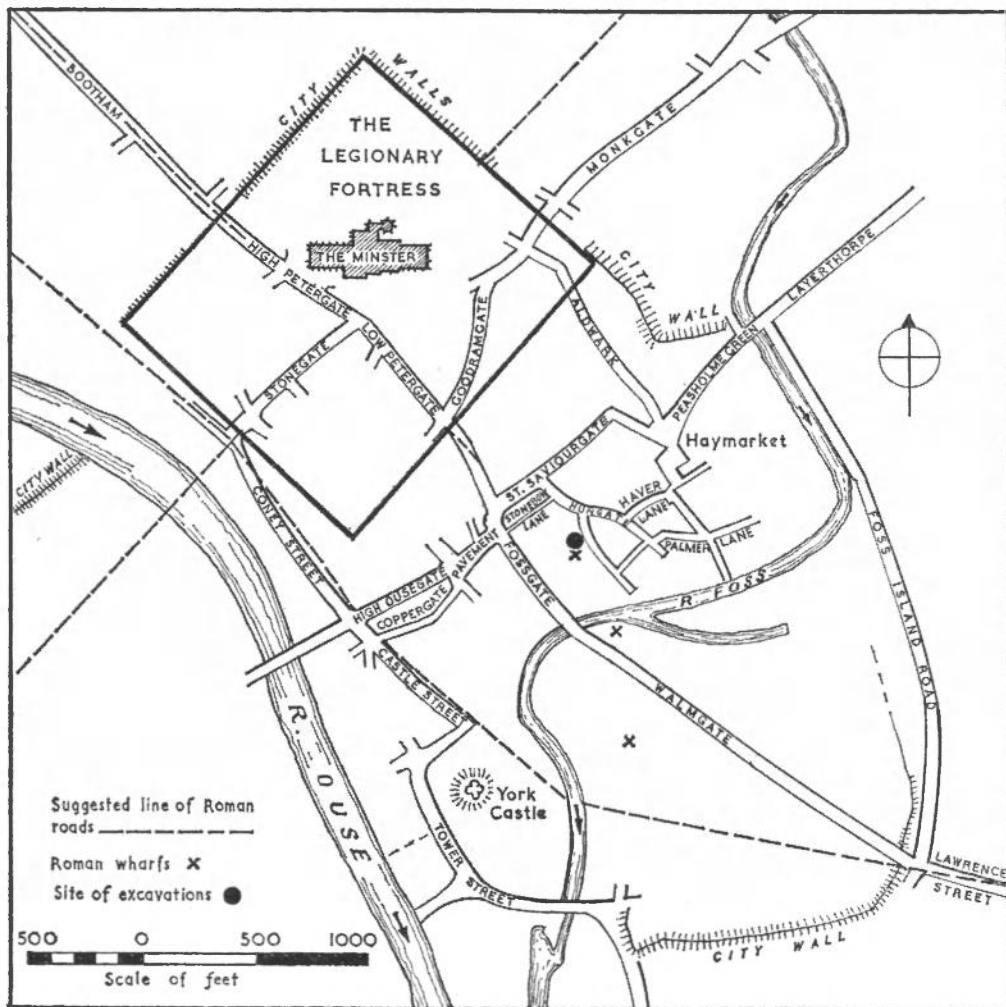


Fig. 1. Map of York showing location of Hungate

Mechanical excavation for the building foundations began in August of 1951 and Mr. R. A. Hill of the Castle Museum undertook to watch the site on behalf of the Ministry of Works. What proved to be a whole time task was taken over by Group Captain G. Knocker, who carried on over the winter

till February 1952. Thereafter and till actual building began the site was frequently visited by Mr. Hill who has described the preliminary work as follows: 'Modern ground level over the site rises gradually from 29.00 O.D. at the SE. end to 36.70 O.D. at the NW. end. An area of 1,980 sq. yards was enclosed by steel sheet piles. The ground thus enclosed was then excavated to about 16.86 O.D., the main foundation trenches continuing down to 7.00 O.D. (about 22 ft. below ground level) at the S. end and 10.00 O.D. (about 26½ ft. below ground level) at the N. end and 2 ft. into the boulder clay. At no time was any recordable feature of archaeological interest visible in its entirety, which made it well nigh impossible to note the relation of the various strata to the features exposed.'

THE ROMAN PHASE

The story of the Hungate site, as will be seen, has largely been conditioned by its proximity to the Foss, the vagaries of that river and man's activities on its banks.

A number of 12th-century documents attesting grants of land in the area speak of the properties as situated in the Marsh of York, '*unam mensuram terre in Hundegate in Mersch*'¹ Of later date is an Inquisition (Ed. III, 1303) which calls for a jury to be present at the church of '*St. Salvatoris in Marisco*'.²

Doubtless some of the land in this area was flooded soon after the Norman Conquest when the Foss was dammed to fill the moat of the Conqueror's castle. Nevertheless it is apparent from the documents quoted that the land lying in the bend of the Foss between Layerthorpe bridge, St. Saviourgate and Fossgate was known as 'in the Marsh' before the 12th century and, indeed, as the oldest recorded form of the word 'le mersch' implies, in pre-Conquest times, though by the 12th century it must have been sufficiently drained for building purposes and of sufficient value to be bequeathed or sold. The creation of the King's Fishpool and its gradual reduction as the City expanded and building room grew scarce, has obscured the original course of the Foss above the Castle, but it seems probable from observations made during excavation that the river formerly flowed closer to St. Saviourgate than it does at the present day. In Roman times, with the higher water-table, flooding must have been frequent hereabouts, and the strata in Trench CL containing Roman material were seen to be interleaved with water-laid silty sand such as would be deposited by the seasonal overflowing of the river, (fig. 3, levels 21-29 and 47-54).

The earliest signs of Roman occupation in Trench CL (figs. 2 and 3) were a scatter of late 1st to mid 2nd-century sherds in layers filling shallow hollows in the natural sand and silt. The remaining Roman deposits apparently accumulated from the end of the 3rd century down to about A.D. 367, thus covering

¹ Farrer, *Early Yorkshire Charters* I (1914-37) 231, no. 299 (1161-84); p. 232, no. 301 (1170-84); p. 234, no. 303 (1170-84); p. 230 no. 298, (1191-1206), *Ecclesia Omnium Sanctorum in Marisco* situated in what is now the Haymarket.

² *Yorks. Arch. Soc. Record Series XXXVII* (1906), 42.

the earlier part of the 4th century after the restoration of the Legionary Fortress under Constantius Chlorus, but antedating the occupation of the Signal Stations. Of a number of pits dug at various times in this area, Pit 8 produced a pie dish with the name of the owner, MONTIVS roughly scratched on its side (fig. 12, 20). Pit 6 was filled with occupation debris, including a three-legged iron candle-stick, five iron-studded boot soles, and late 3rd to 4th-century pottery (see figs. 13 and 14). Pit 5 had the remains of a squared timber framework lining the sides and was perhaps a well or water-hole. From contemporary levels came two penannular brooches, a jet spacer bead, a die, a much worn radiate coin, possibly of Valerian II, and, together with a quantity of pottery, the skulls of four dogs (see fig. 12).

At the SW. end of the trench, some 5 ft. above the natural subsoil, a level of heaped stones was uncovered (fig. 3). This was not road metalling. Nor indeed did indications of a road of Roman date come to light in this area, though it had seemed likely that Trench CL might have intercepted the road presumed to run from the South East Gate of the Fortress, which, if continued on a line with the Via Principalis, (roughly High and Low Petergate) towards Walmgate Bar, would have crossed Hungate hereabouts making for a ford or bridge across the Foss, E. of the modern bridge.¹ But discoveries made during mechanical excavation at Hungate, and recorded by Mr. Hill, would still imply that a road from the South East Gate connected with the river front at some point in this area.

The Roman Building and Wharf

To the S. of Trench CL the remains of a substantial building were uncovered, and unfortunately dismantled by the mechanical excavator before it was possible to examine them in entirety. The structure had originally been about 23 ft. by 15 ft. square, with walls 5 ft. thick. Only the base course of the E. wall survived, of red millstone grit blocks, about $3\frac{1}{2}$ by $1\frac{1}{2}$ ft. and 9 ins. thick. The N., S. and W. walls were of white millstone grit, the lowest course having a 2 in. offset. Only three courses of the W. wall remained, but the N. and S. walls were still standing five courses high. The average size of these stones was 2 ft. by 1 ft. 3 in. by 9 in. Set in a line across the foundations were the lower ends of four timber uprights, 10 in. square, and the remains of planks which had been fastened to them on the landward side. By the time this barrier was erected the building must have been ruined. Immediately to the SW. of the structure an area had been paved with large gritstone blocks. The NE. end of the building was based on a layer of small cobbles.

¹ Recent excavations however, carried out by Mr. H. Ramm on the riverward side of St. Peter's School, Clifton, indicate that the main road from the NW. did not enter the Fortress by the North-West Gate but made for the SW. entrance and river crossing, the road along Bootham being thus of secondary importance. On analogy with these findings, Mr. Ramm suggests that the road approaching from the SE., of which indications have been

found E. of Walmgate Bar, in Hull road and Lawrence Street, also made for the South-West Gate. If continued, the line of the road through these points would reach the Foss near the Castle and, after the river crossing, would lead to the South-West Gate following the course of Castlegate and Coney Street, (see fig. 1). I am much indebted to Mr. Ramm for this information which throws new light on this question.

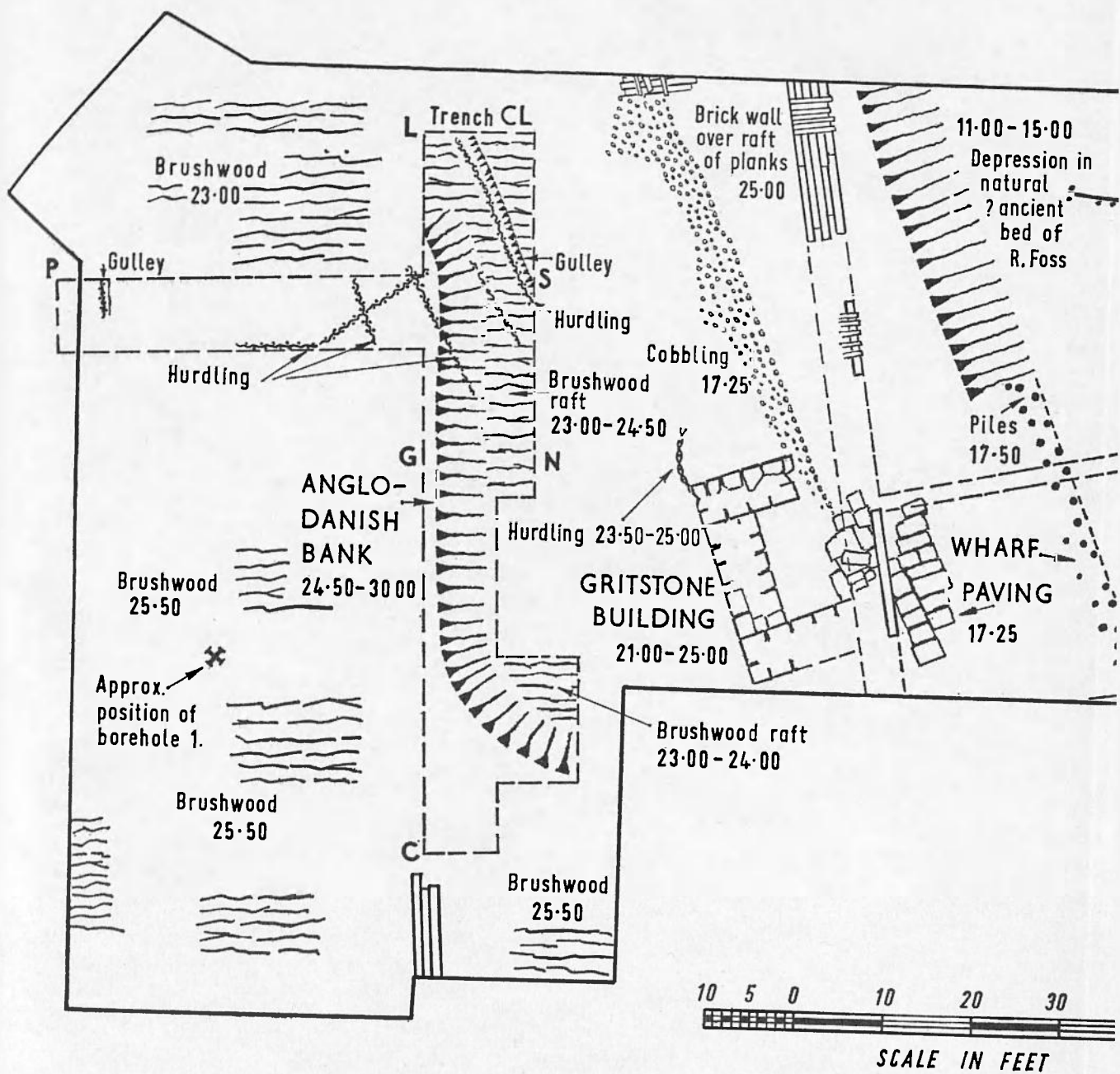
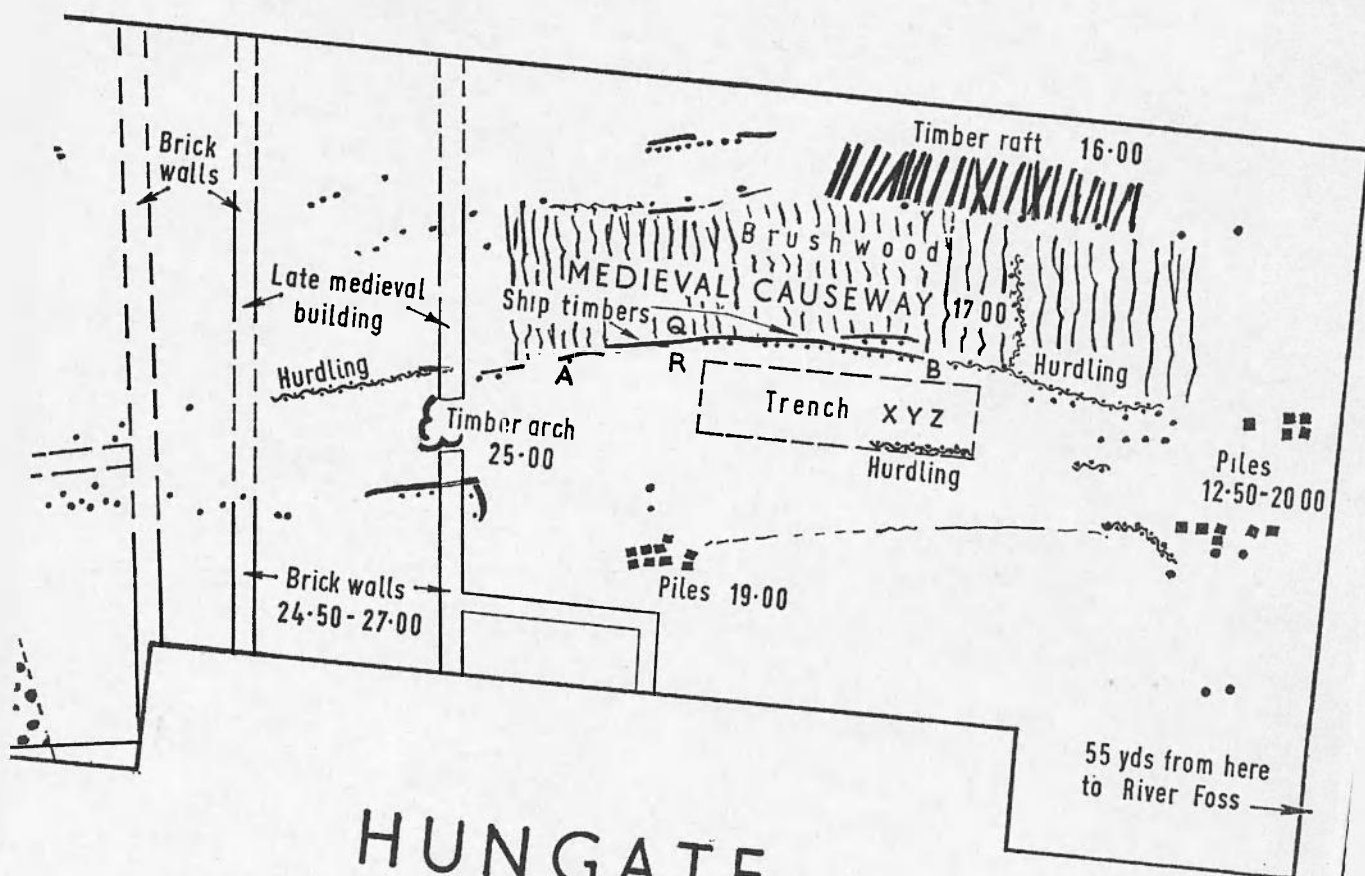


Fig. 2. Plan of the excavated area



HUNGATE, YORK



Modern ground level S.E. end 29.60
N.E. end 36.70
All levels in feet above Ordnance datum



000000

A 15 ft. wide strip of similar cobbling stretched from this side in a NNE. direction across the site, to form a kind of 'hard'. 20 ft. to the SE. and parallel to the 'hard' there was a double line of piles defining a length of a 4 ft. dip in the underlying boulder-clay. These piles had originally been linked by timbers on the SE. side. The structures described indicate the existence of a wharf at this point, at a time when the Foss made a loop which brought it much closer to the NW. end of Hungate than at present. Blocks of stone seen in trenches sunk to the SW. of the gritstone building suggest the presence of other buildings in the vicinity. The actual approach to the quay was not located.

Although the origin of these structures must remain in doubt, certain observations favouring a Roman date for them may be made. In the first place, it has been suggested that gritstone blocks of Roman origin could have been re-used by medieval builders. It will be seen however, from the detailed evidence compiled by Mr. H. Ramm,¹ that surviving post-Norman buildings are never wholly or even largely built of gritstone, and equally, in post-Roman pre-Conquest buildings this is used along with other miscellaneous material. Even if this structure had been entirely built of re-used gritstone it seems likely that some evidence would have been forthcoming in the shape of carved or moulded stones. Mr. Ramm noted the re-use of stones in the foundations of the Old Ouse Bridge, which were recognised as such in the early 19th century and which included carved stones. Secondly, Mr. Hill noted that a section of wattle hurdling related to the brushwood structure considered to be of late Saxon date (see p. 59) had its vertical stakes embedded in the uppermost courses of the building. Thirdly Group Capt. Knocker observed that 'in the NW. end of the area as far S. as the cobbled 'hard' from about 20.00 to 16.00 O.D. Roman pottery was plentiful, while medieval sherds were relatively scarce. On the other hand, SE. of the 'hard' on the riverward side, there were no Roman sherds but a considerable quantity of medieval pottery. The NW. to SE. section across the site showed that natural clayey sand starts at about 16.00 O.D., just at the SE. edge of the cobbles, and dips sharply to an average depth of 10.00 O.D. over the rest of the area. This has been taken to indicate that SE. of the cobbled quay the ground was probably under water in Roman times. At some later period the Roman occupation level was covered with a deposit of alluvial silt to a height of about 23.00 O.D. This bank of silt seems to have remained in position throughout the Middle Ages, which would account for the lack of medieval pottery below 20.00 O.D.' His observations agree with the sequence noted in Trench CL.

Taken on its own merits, the presence of a wharf hereabouts in Roman times would not be out of place. At this quay supplies brought up the Ouse for the garrison of the Fortress could be unloaded, and the massive building would serve as watch tower and guard house for those supervising the discharge of cargoes. Mr. Ramm has recently recalled that there are indications of other wharves on what would appear to have been the old course of the Foss in

¹ See Appendix I, p. 106.

Roman times. These are shown in his suggested street plan of Roman York and include the Hungate quay.¹ The road from the South-West Gate of the Fortress could have served as a means of access to the quays on the Foss and need not necessarily have crossed the Hungate area.

Without stratigraphical evidence no particular date within the Roman period can be advanced for the building and the wharf (granted that they are Roman in origin), though, as already mentioned, the bulk of the pottery from the nearby Trench CL was of the late 3rd to mid. 4th century.

THE ANGLO-DANISH PHASE

Above the stony level described earlier in Trench CL, the Roman sherds tend to diminish in number and their presence ceases to represent contemporary Roman occupation. At a foot or so down from the top of this accumulation of alluvial sands a few stray Roman sherds are still found, but with objects of later date which had apparently been dropped from time to time on the surface of the marsh.

As a 10th to 11th century date is claimed for the next phase of human activity in this area, the last 2 or 3 feet of silted sands must represent a considerable lapse of time during which sporadic flooding continued and the following events took place.

In the reign of Honorius the legionary forces were withdrawn from Britain and continued Saxon raids were giving place to settlement when, somewhere between A.D. 450 and 550 invaders sailing along the coast from the Wash, or directly from Frisia,² penetrated up the Ouse and overran the Fortress. York survived however, to become a centre of commerce as capital of the Kingdom of Deira, but succumbed once more when the Norse incursions of the latter part of the 8th century culminated in the Viking invasions of the mid 9th century. In 866 the Viking hordes having wintered in southern England marched northwards. York with its partially ruined defences³ can have offered little resistance, and with its fall the conquest of the Danelaw had begun; from now on till 1066 the city, save for one or two brief intervals, was subject to Danish or Norwegian rule.

Dr. Stenton has shown how intensive was this Scandinavian settlement⁴ and how it pervaded the Saxon background. Nor was this Nordic way of life disrupted through the reconquest of the southern Danelaw by the English king in the early 10th century, for, though Ragnvald of York paid homage

¹ *Yorks. Archit. & York Archaeol. Soc. Report* 1953-4, p. 33, note 8, plan on p. 60; and *J.R.S.* XXIX (1939), 204: 'The Ancient Monuments Branch of M.O.W. found at York (on the original banks of the Foss) on the site of the Employment Exchange, Piccadilly, two rows of very rough columns about 3 ft. high and 1½ ft. sq. obviously meant to support a platform, probably a wharf'.

² Collingwood and Myres, *Roman Britain and the English Settlements* (1937), 456, distribution map of Pagan-Saxon cemeteries in use c. A.D. 500, and

341, 412 for similarity of gravegoods from Frisian and Deiran graves.

³ Asser, *De rebus gestis Aelfredi*, ed. W. H. Stevenson (1904), c. 27, pp. 22, 23 and notes. The poor state of the defences is mentioned, explaining the ease with which the Northumbrians breached the walls.

⁴ F. M. Stenton 'The Danes in England', *Proc. Brit. Acad.* XIII (1927), 203-46; H. Shetelig, *Viking Antiquities in Great Britain and Ireland* (1940), pt. I, p. 141.

SECTION C-E

SW O.D. 35.00 NE

PIT 1 PIT 2 PIT 3 PIT 4 PIT 5 PIT 6 PIT 7 PIT 8

HURDLE VII HURDLE VI HURDLE II

UNEXCAVATED UNEXCAVATED UNEXCAVATED

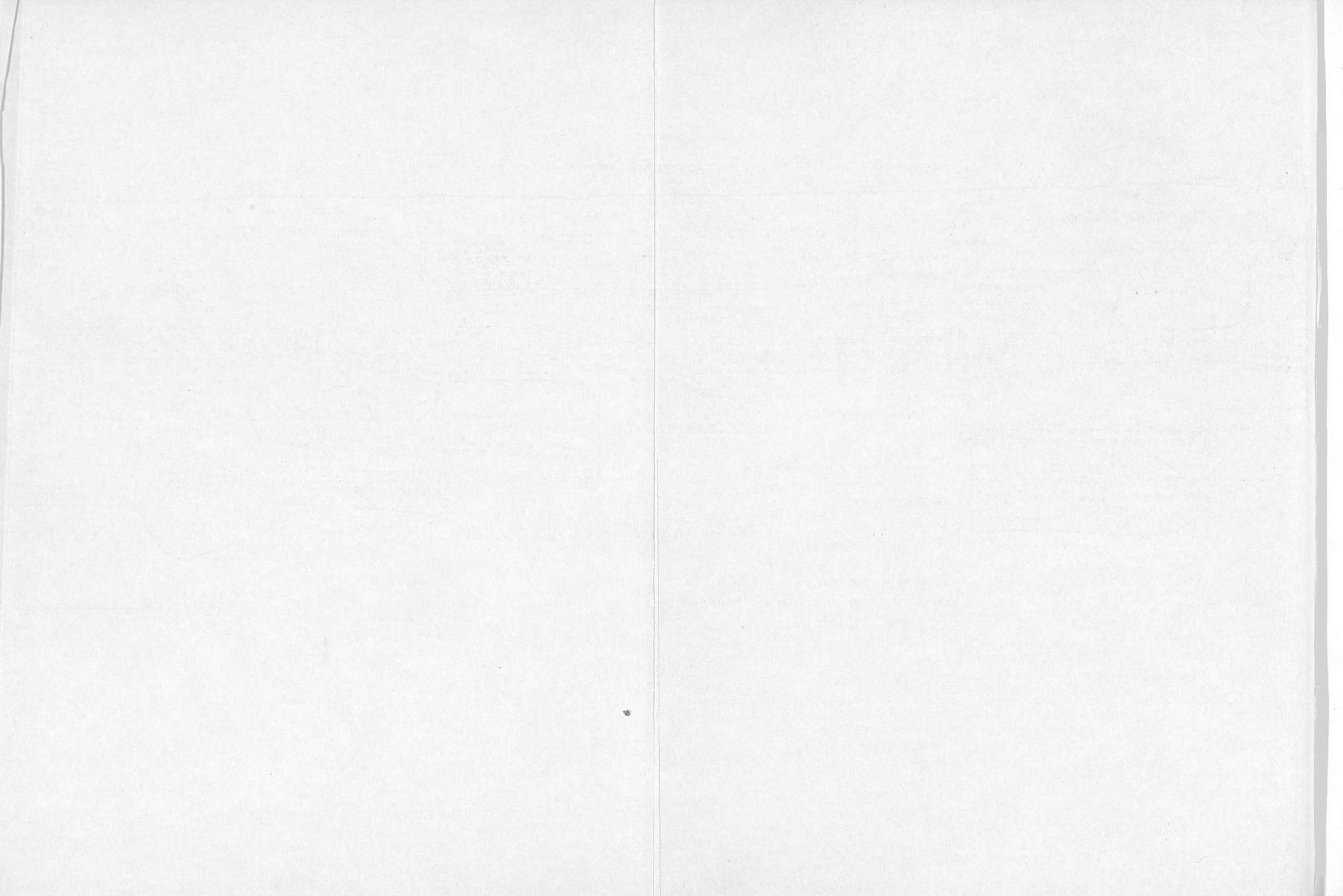
O.D. 15.00

1 19th Century demolition
 2-6 ... Pits 1, 2, 3. MEDIEVAL
 8 10 15 ... Clay
 11 19 20 Silts
 12-14 16 17 ... Brushwood ...
 7 Past Bank silt
 21-29 47 49-54 Sandy silt
 48 Loosely built stones } ROMAN
 Pits 4-8

ANGLO-DANISH EMBANKMENT

SCALE IN FEET

Fig. 3. Section CL



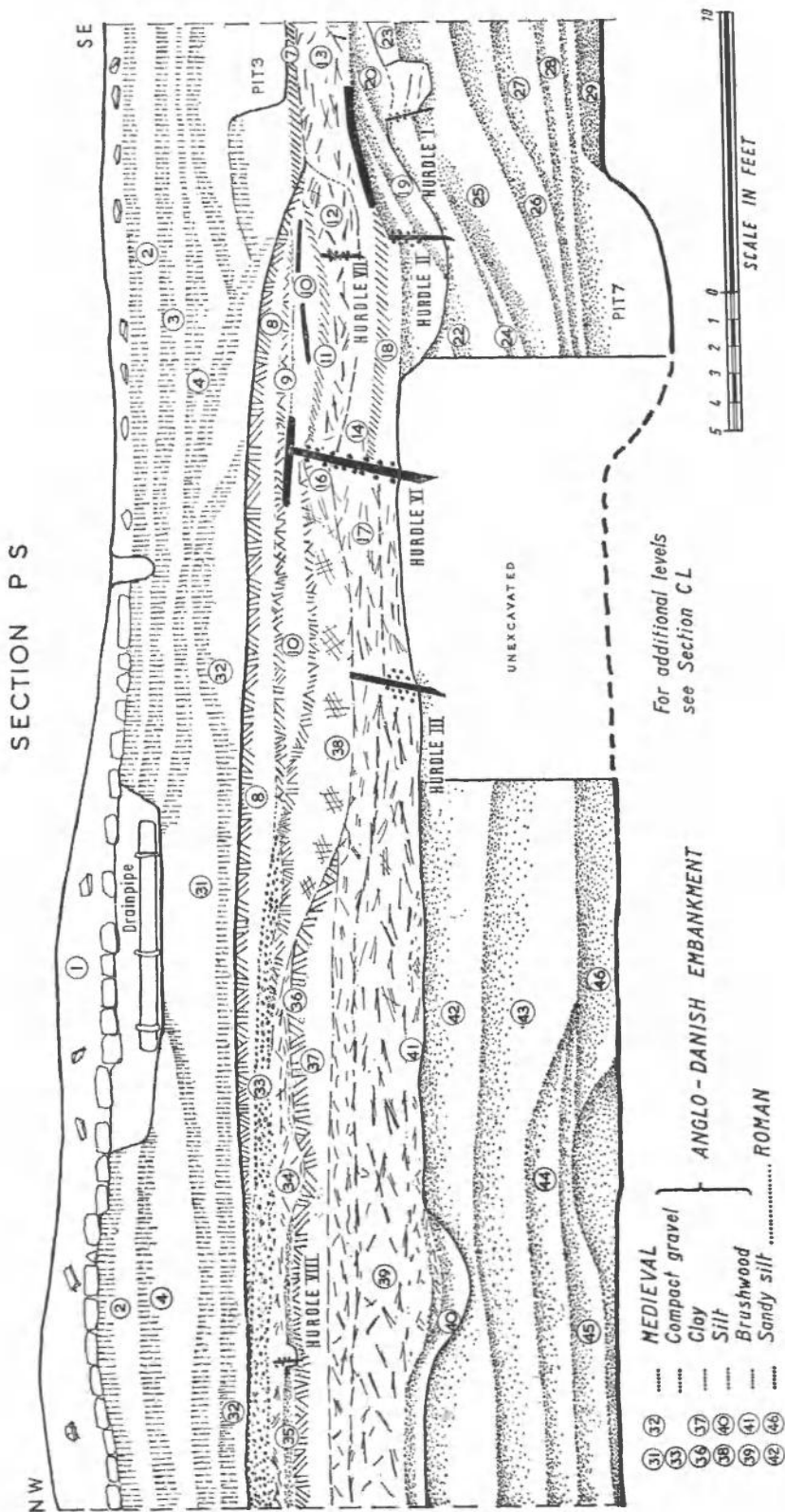


Fig. 4. Section PS

to Edward the Elder, the latter and his successors, Athelstan and Edgar, recognised the autonomy of the Nordic capital, leaving the northern Danelaw to the authority of its own earls. When finally in 1013, after fresh raids, Swein Forkbeard invaded the country, northern England at once submitted as to its lawful ruler, and once more raiding ended in settlement.

The remarkable revival of trade in Western Europe in the early Carolingian period, linking northern Europe with the Baltic countries, has been borne out by archaeological finds. In its first stages this trade was a monopoly of the Frisian marts such as Dorestad, and York, already apparently an important trading centre¹ is known to have had a colony of Frisian merchants in the 8th century,² but even at this early date there is evidence that Scandinavia was trading directly with Britain.³

By the middle of the 9th century however, the Scandinavian ports of Hedeby in Schleswig and Birka on the Island of Björkö, in the Mälarsee, had largely superseded the Frisian markets, extending European contacts yet further eastwards. That there was a lively traffic in goods between England and Scandinavia in the late 10th century is apparent from a treaty drawn up in 991 between King Aethelred Unraed and Olaf Tryggvason of Norway, which includes clauses providing for the safeguard of merchants, while a 12th-century document, which probably includes material of pre-Conquest date, allows for the residence in London for a year of Norwegians and Swedes, presumably merchants.⁴ Again the number of English coins recovered in Scandinavia, in particular of Aethelred and Cnut, often associated with continental coins, indicates a considerable volume of trade.

Scandinavian occupation brought the Kingdom of Deira more especially into the orbit of Baltic trade. Indeed for York this was a period of great commercial activity, as witness a passage in an anonymous life of St. Oswald, written between A.D. 995 and 1005, which tells how at this time York was filled with the treasures of merchants, chiefly of Danish race⁵ from which it would appear that Danish merchants now held the role of the earlier Frisian colony.⁶ This activity suffered little interruption, even during the later invasions which came to a head in 1014 under Swein Forkbeard, for although southern towns like Thetford were sacked, the northern Danelaw escaped pillage by ready submission.

It was not surprising that by reason of her unique situation at the junction of two natural highways, offering direct contact eastwards with the North

¹ Thus Alcuin writing between 735 and 804 speaks of York as '*Emporium terrae commune marisque*' whither come men from foreign lands seeking wealth, *Chron. and Mem. of Gt. Britain and Ireland during the Middle Ages*, vol. 71, I (1879), p. 350.

² F. M. Stenton, *Anglo-Saxon England* (1947), 219, 518.

³ Shetelig instances the parallel development in Anglo-Saxon and Scandinavian ornament of animal types, too personal for indirect contact *via* Frisia or

N. France, *Viking Antiquities in Gt. Br. and Ireland*, Pt. 1 (1940), 6.

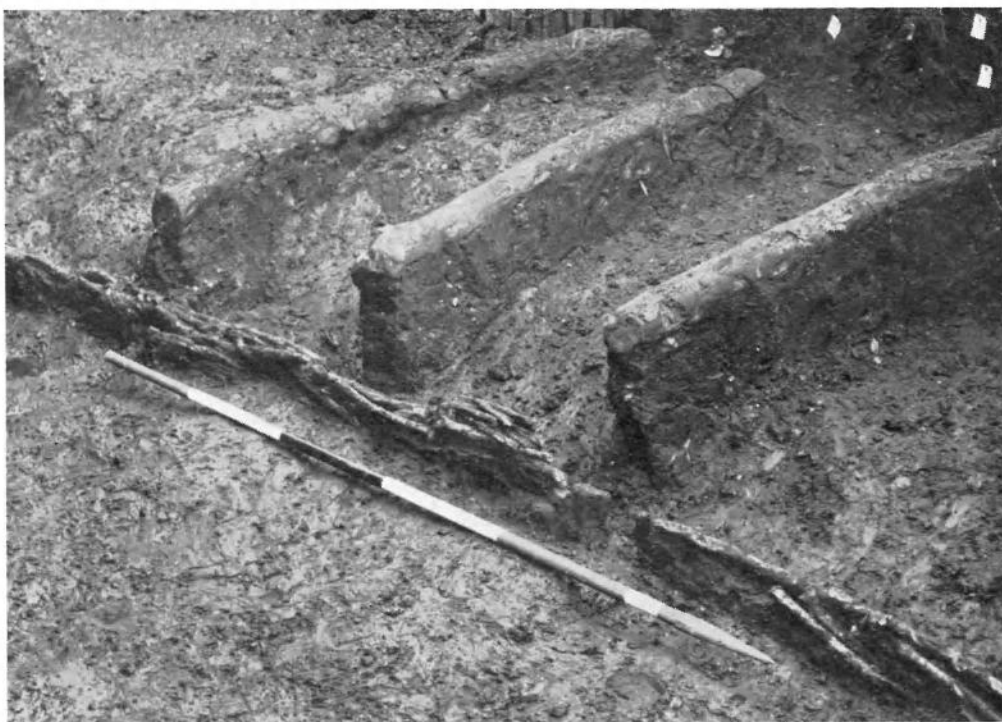
⁴ Stenton, *ibid.* 534, 533.

⁵ *Chron. and Memo. of Gt. Britain and Ireland*, *ibid.*, 454 '*et mercatorum gazæ locuplit (ta) qui undique adveniunt maxime ex Danorum gente*'.

⁶ As Sir Thomas Kendrick has remarked 'The Northman was at heart always more of a chapman than a robber', *A History of the Vikings* (1930), 16.



A. Roman pottery face masks, 1-4 from the Norton kilns, 5 from Hungate



B. Anglo-Danish wattle hurdling



A. The Anglo-Danish embankment looking east



B. Medieval wicker hurdling

Sea and westwards with the interior and ultimately Ireland, the capital of the Danelaw should become the main trading centre for the north of England. Moreover York could provide a market for the sale of personal and household objects from the Scandinavian homeland to the wealthier Nordic settlers, such as those who came in the retinue of Eric Blood Axe¹ in 926, or later settlers following on the invasions of Olaf Tryggvason and Swein Forkbeard from 991 onwards and the union first with Denmark in 1019 and later with Norway in 1028. It is with these later stages of the Baltic trade that the next phase of activity in Hungate appears to be related.

The Anglo-Danish Embankment

Emphasis has already been laid on the marshy nature of the ground in Roman times and the absence of occupation after A.D. 367. Presumably the wharf used during that period had decayed but now steps were taken to reclaim the water-logged land, perhaps to make it possible once more to unload goods from ships on the Foss or to render the land habitable. To achieve this the ground was artificially raised above flood level and drained. In early days lake villages and roads were built over bogs on a foundation of layer upon layer of brushwood, a means still used in historic times, and even very recently mattresses of brushwood and willow have served to build the sea dykes in Holland and river walls in England.²

On the Hungate site brushwood, including bundles of sticks, had been spread over the boggy surface and when excavated formed a compact layer nearly 2 ft. deep which originally must have been considerably thicker (see sections, figs. 3 to 7). This raft of brushwood had been pinned to the old surface by means of pointed stakes from 2 to 5 in. in diameter and from 1 to 3 ft. in length and was anchored by large boulders. The overlying layers formed an embankment running for 60 ft. from NE. to SW. across the site, after which it appeared to be curving in a northerly and southerly direction. The underlying raft of branches projected beyond the banked-up ground to the SE. The embankment itself consisted of a second brushwood layer about 2 ft. thick (as excavated) defined along its edge by stakes and hurdling. Over the brushwood came two layers of clay, again laced with stakes, which were laid both vertically and horizontally. At one point there was a thin matting of interlaced sticks over the second clay layer and faggots pinned by stakes were included in the make-up. Plate VA shows part of the bank excavated with the stakes exposed while fig. 5 is an ideal reconstruction illustrating the various features described.

Related to this structure was a system of small gullies or drainage ditches, each having one side of the channel revetted with wattle hurdling (see fig. 6).

¹ Last Viking king of York, finally expelled in 954, of him Stenton remarks 'The memory of Eric's English Kingdom was preserved for centuries in the Scandinavian north . . . These discrepancies (of chronology) do not affect the Norse

picture of Eric surrounded by his Norwegian followers in the King's Garth at York, reigning in great prosperity'. Stenton, *ibid.*, 357.

² *Ill. London News*, 21st Feb., 1953, 268, and 13th Aug., 1960, 254.

COMPOSITE SECTION ACROSS DYKE

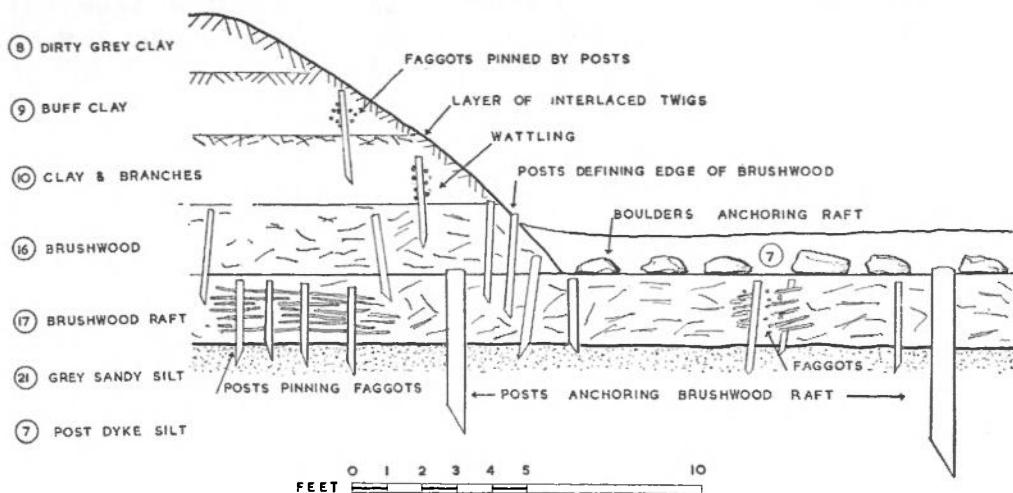


Fig. 5. The Anglo-Danish bank

These gullies cannot have been in use at the same time, for they equate with different levels, the earliest apparently antedating the brushwood raft, but all roughly running in the same direction, presumably for drainage. Doubtless, as the brushwood accumulated, new drainage channels were fashioned at higher levels. A layer of grey sticky mud some 9 in. thick at the foot of the bank seems to represent silt left by stagnant water, or flooding, possibly at a later date when, in post-Conquest days the Foss was dammed resulting in a wide pool known as the King's Viviary (fig. 7, section level 7).

Trench CL did not disclose the full extent of the structures described, but mechanical excavation exposed signs of a brushwood layer over an area 100 ft. long by 60 ft. wide, with odd lengths of hurdling, planks, and stakes. In his account of excavations made in 1902-3 for cellars under houses lying between High Ousegate and Coppergate, G. Benson describes what were apparently rectangular tan-pits. He also mentions a 'wickerwork stockade' which stood 8 ft. high in places but which had been cut away when the foundations of the tan-pits were dug, and was buried in the refuse from the tanning process.¹ This 'stockade' was exposed for a length of 32 ft. and was running roughly N. and S. Benson also mentions brushwood lying horizontally in black 'warp', though whether this was related to the tan-pits or lay below them is not clear. He notes that the district was swampy and had been subject to flooding when the 'warp' was deposited. Many objects were recovered from this area including samian and green glazed pottery, but noteworthy is a shoe of a kind found in the Hungate brushwood (fig. 22, 7)

¹ *Yorks. Phil. Soc. Reports* (1903), 64.

and a sword chape and axe of Viking type.¹ It seems not unreasonable to relate the 'wickerwork stockade' and the 'Danish' finds with the near-by Hungate hurdling and embankment. Mention may also be made of an Inquisition dated 1303 concerning the enclosure of a piece of waste land '*in vico de Merske*' called Dunningdikes.² Though referred to as 'formerly a high road' the name is suggestive, for this land, apparently, was situated not far from the structures described above.

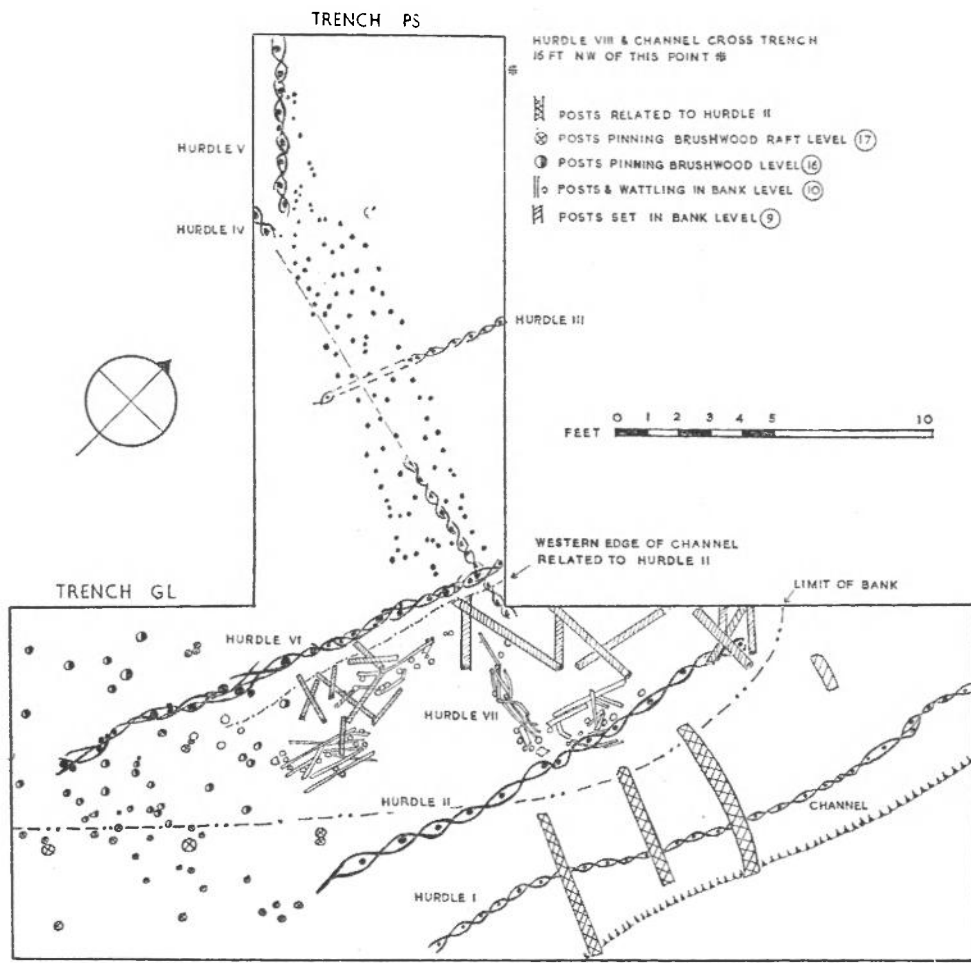


Fig. 6. Plan of drainage ditches and hurdling related to Anglo-Danish bank

¹ G. Benson, *York* (1911), 48, fig. 26 and see below p. 89.

² *York. Arch. Soc. Record Series XXXVII* (1906), Yorkshire Inquisitions, vol. IV, 43.

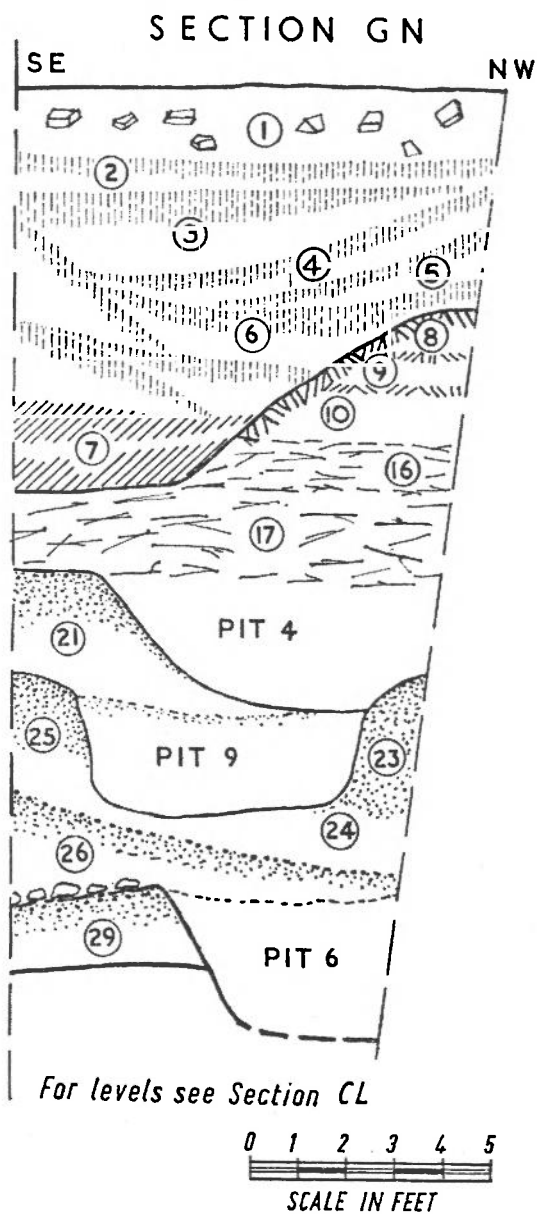


Fig. 7. Section through Anglo-Danish bank and Roman pits

Finds Associated with the Anglo-Danish Embankment

As with objects of leather, wood and metal from certain other water-logged sites, finds from the Roman levels and in particular from the brushwood layers were remarkably well preserved.¹

The stakes pinning down the brushwood, of hazel, alder-beech and oak had retained their bark, while the brushwood itself included many plant remains, seed pods, nut-shells and fruit stones. These are the subject of a report² which shows that aquatic and marsh plants were abundant in the Roman and Anglo-Saxon levels, while two sorts of domesticated plum (one like a damson) and some specimens of rape, spinach and cabbage have been identified. The amount of corncockle seeds present in these Late Anglo-Danish levels is of interest in connection with a theory that the seeds of this plant ground up with the corn would contaminate the flour and induce susceptibility to leprosy in the middle ages.

Part of a lathe-turned wooden bowl (fig. 20) and a carved wooden flute were also recovered, not so well preserved but still recognisable as such (fig. 19, 20). The leatherwork included dagger sheaths of a simple type but the bulk of these finds consisted of shoes and waste leather.

The Anglo-Danish Shoes

Probably as early as the 11th century or earlier, the cobbler's trade was recognised as distinct from the cordwainer's,³ for while the latter fashioned footwear from new skins, the former mended worn shoes, but his main business was buying up old shoes which he patched and sold again.⁴ From regulations issued in the late 14th century it is clear that he mainly used patches cut from old shoes for his cobbling, though new leather was used for the soles.⁵

Although the Hungate shoes might have been dumped with other household refuse as cast-offs, there is every reason to believe that in fact they were thrown out as past repair from a cobblers' work-shop. Old uppers had pieces cut out, probably to use for patching, and hardly any of the surviving shoes had the outer sole intact. Besides actual footwear, many strips and small angular pieces were recovered, obviously the snippets left from cutting up a new skin or an old shoe. It is recorded that in medieval times one of the chief manufactures in York consisted of leather goods. There were tanneries across the Ouse in Tanner Row, and closer to Hungate, in High Ousegate and Coppergate as already noted. Records show that in the 15th century the shoemakers of York maintained their Guild Lamp in the church of the Carmelite Friars situate in the Hungate area,⁶ while in later times, the Shoemakers' Hall, where the Company of Cordwainers held their meetings, stood in Hungate between

¹ Appendix II p. 107.

² Appendix III p. 109.

³ Henry I (1100-35) gave a charter to the shoemakers of Rouen and another to the cobblers.

⁴ Salzman, *English Industries of the Middle Ages* (1913), 180.

⁵ C. H. W. Mander, *A Description and Historical Account of the Guild of Cordwainers* (1931), 54; W. Hazlitt, *The Livery Companies of London* (1892), 449.

⁶ Wills of John Merton, 1444, Elena Hek, 1487 and Alice Clerk, 1506, see Angelo Raine, *Medieval York* (1955).

Pound Lane and Hover Lane.¹ Drake, writing in the early 18th century, speaks of a Saturday market held in Whipmawhopmagate, at the N. end of Fossgate, where old boots and shoes were sold by the 'Company of Translators'.² Having in mind this much later association of Hungate with the shoe trade, and the tan-pits in High Ousegate and Coppergate, it seems feasible that the tanners, cobblers and cordwainers of earlier days also plied their trade in this district, where they had easy access to water and the bog made a convenient dumping ground for their refuse.

Seven shoes were recovered in a more or less complete state and fragments of several more. There were three types (see figs. 21 and 22); a shoe with thongs to tie round the ankle, a shoe with flaps fastening over the instep to latches on the side of the foot, and a simple slipper without fastenings.³ The best analogies for the first type are shoes from Lund in Sweden, which are, however, from levels referred to the 12th century. No parallel has yet been found for the second type, though a similar shoe, as already noted above, was recovered in High Ousegate in 1902.

Other finds from the brushwood levels include four dog skulls and part of the skull of a cat.

The Date of the Anglo-Danish Embankment

Dates for the life span of the Hungate structures rest on evidence of the pottery and associated finds recovered from related levels. The pottery is discussed in detail (p. 76-81) where it is shown that it is unlikely to antedate the 10th century and could have continued in use down to the later 11th century. As for the various objects (figs. 18 and 19) which all came from the brushwood or immediately under it, many can be paralleled from Scandinavian sites known to have been engaged in the Baltic trade, e.g. Birka⁴ near Stockholm, Hedeby⁵ on the east coast of Schleswig, and Trelleborg⁶ in West Seeland.

The first two towns were flourishing between the mid 9th and the end of the 10th century, the last over the period A.D. 1000-1050.⁷ The Hungate finds include the wooden flute already mentioned, with late chip-carved decoration, similar to examples from Friesland dated as not earlier than Carolingian and not later than the 10th century.⁸ A disc brooch can be matched by examples found in York and East Anglia and is of a type actually made in Hedeby. This form is dated by Mr. G. C. Dunning to the 10th century. A long tanged,

¹ Benedict Horsely *Iconography or Ground Plot of the City of York* (1697), shows the Cordwainers' Hall, no. 60. This is also mentioned in a list of certain lands and tenements of 1587 'Firste, the occupation of Cordiners doe presente one tenemente with appurtenances in Hungate, wherein they make their assemblies'. *York Civic Records* vol. 8, 137.

² F. Drake, *Eboracum* (1736), 310; for 'Translator' see Wright, *English Dialect Dictionary* vol. 6, 'a term for a cobbler who works up old shoes into new ones' or 'who fits old uppers to new soles'.

³ The shoes from Hungate are fully discussed on pp. 86-90.

⁴ H. Arbman, *Birka I* (1940), Die Gräber.

⁵ H. Jankuhn, *Die Ausgrabungen in Haithabu*, 1937-9, (1943).

⁶ P. Nørlund, *Nordiske Fortidsminder* IV, I (1948).

⁷ The finds actually fall within the period 950-1050 but dating is narrowed down by Nørlund who associates Swein Forkbeard with the founding of this Viking fortress.

⁸ Boeles, *Friesland tot de Elfde Eeuw* (1951), 203.

short bladed knife finds its counterpart in the majority at Trelleborg. To these may be added the carefully wrought and ingenious little padlock (fig. 18, 4) recovered during mechanical excavation and comparable to others found at Birka and Trelleborg, quoted by Arne as proof of the lively trade existing in the 9th to 10th centuries between East Scandinavia and Byzantium.¹ The small finds appear therefore to be types current mainly in the last half of the 9th and down to the end of the 10th century.

The historical background of this period must, however, also be considered as offering limiting factors.²

The autumn of 1066 had seen Tostig, the exiled Earl of Northumbria, joined by Harold Hardrada of Norway in an attempted invasion of Yorkshire. Having defeated Edwin and Morcar at Fulford and made a separate peace with the men of York, the allies did not occupy the city but were awaiting hostages at Stamford Bridge when Harold of England, hastening from the south, fell on their armies. Tostig and the Norwegian King were slain and the invaders routed. Harold was still at York when news came of the Conqueror's landing. Although York had formally submitted to William, the city nevertheless became the focus of resistance to Norman rule in the North. In 1068 a Norman garrison was installed in the newly built castle to police the city.³ The following year a revolt in support of Edgar the Aetheling was quickly put down, though William had to come to the garrison's relief and planned a second castle before he left.

In the autumn of the same year, Swein Estrithson, King of Denmark, encouraged by these disorders, made a bid to re-establish a Scandinavian kingdom in the North and, having joined forces with the Aetheling, marched on York. The castle garrison, perhaps fearing the hostile citizens as much as the foreign foe, set fire to the suburbs;⁴ the fires spread and much of the city between Foss and Ouse was destroyed. Meantime William had come north and, having isolated the city by the reduction of a broad belt of land to north and west, forced the Danes to retreat and finally to come to terms. York was once more in the Conqueror's hands but this time, realising that the independent spirit of the North must continue to foster rebellion, he deliberately laid waste the countryside, leaving it a wilderness, its population decimated and reduced to starvation level.⁵ Seventeen years later large areas were still derelict.

These unhappy events, and more especially the fire of 1069, must surely set a term to Late Saxon activities in this area of York. The early part of the 10th century and the Conquest may thus be taken as the upper and lower brackets for the Hungate embankment system of ditches.

¹ T. J. Arne 'La Suede et l'Orient', *Archives d'Etudes Orientales* vol. 8, (1914), 200.

² For the following section see Stenton, *Anglo-Saxon England*, Chap. XVI and *V.C.H. York*, vol. III, 393-397.

³ Orderic Vitalis, *Hist. Eccles.* Bk. IV, Ch. 4.

⁴ *The Church Historians of England*, ed. J. Stevenson (1855), vol. III, pt. 2, p. 550, Simeon of Durham writes in his 'History of the Kings of England':

'The Normans who garrisoned the Castles, fearing lest the houses which adjoined the Castles might be of use to the Danes in filling up the moats, began setting them on fire. The conflagration increasing exceedingly, seized on the whole city and with it consumed the monastery of St. Peter'.

⁵ *ibid.* 551 for a graphic description of the harrying and its results.

THE MEDIEVAL PHASE

Reference has already been made to the creation of the King's Fishpool, resulting from the damming of the Foss below the Conqueror's castle, to fill the castle ditches and those of the city's defences, whereby some 120 acres of land are said to have been flooded.¹ How far this affected Hungate at the time is not known, but as noted earlier, the grants and exchanges of land made during the 12th century in this area, and the existence there of churches such as All Saints, Peaseholme and St. John, Hungate, show that by that time this quarter of York was habitable.

The 12th and 13th centuries are here only represented by pottery sherds deposited as rubbish and a few unstratified finds of that date (figs. 23, 24). Certain features uncovered during mechanical excavation, however, may be interpreted in the light of the history of Hungate in the 14th and 15th centuries, as reflected in a number of charters of that period.

The Medieval Quay

At the close of the 13th century, the Carmelite Friars, who had originally settled outside the city walls in Bootham² received from William de Vescy a grant of land in Hungate³ where they built a new priory to which they finally removed. A charter of Edward I (1300) confirms this gift, which comprised a messuage in 'Le Stainbogh', extending from that street to the Foss and from le Mersk street to Fossgate.⁴ From this may be identified the N., S. and E. boundaries of the property, for 'Le Stainbogh' equates with Stonebow Lane, a narrow slype parallel with and S. of St. Saviourgate once joining Hungate to Fossgate and after which the modern by-pass is named.⁵ Le Mersk street has not been identified but must have run parallel to Hungate and perhaps not far E. of that street.

In the same year Edward I gave eight oaks towards the building of the Carmelite Church.⁶ Further details of the Priory lands are to be found in an agreement drawn up between the Rector of St. Saviour's and the Prior and Brethren.⁷ In 1314 Edward II conferred on them by charter a messuage '*in vico de Mersk*'⁸ and a day later certain rights on the Foss vivary, namely permission to build a quay and to keep a boat for ferrying stones and wood for

¹ H. Scaife 'Domesday Book for Yorkshire', *Yorks. Arch. Journ.* XIII (1895), 325, 'Of this land the King's Pool (*Stagnum Regis*) destroyed two new mills ... and of arable land and meadows and gardens nearly one carucate'. The bounds of it are set forth in an Inquisition of 17 Ed. II.

² *V.C.H.* III (1913), 291, where Pat. 8 Ed. II, pt. i, m.21 is quoted.

³ *ibid.* p. 292, Pat. 23, Ed. I, m.3 (sched.) 1295.

⁴ Drake, *Eboracum* (1736), Appendix p. li, quotes Pat. 28, Ed. I, n.20.

⁵ An earlier mention of the Stonebow is in a document of 1295, where one Thomas de Grantham grants to John of Wakingham, cordwainer, his messuage in 'le Staynbowe', *Yorks. Arch. Soc. Record*

Series, LXXVI (1930), Yorkshire Deeds, p. 183, no. 595. For the derivation of the word see *English Place-Name Soc.* XXVI (1956), 150, 'Stonebow, Old Scandinavian *stein-bogi*', i.e., arch of stone, and this should be compared with the similar name attached to the 15th/16th century gatehouse of Lincoln which replaced either an earlier medieval gateway or the original Roman south gate of the enlarged Colonia, *Arch. Journ.* CIII (1946), 41 and 159.

⁶ *V.C.H. ibid.*, 292; Cal. Close Rolls 28 Ed. I, m.6.

⁷ Dugdale, *Monasticon Anglicanum* (1830), VI, pt. iii, p. 1582, note c.

⁸ Drake *ibid.*, p. lii, Pat. 8 Ed. II, p. 1, m. 19.

their needs.¹ The construction of a quay and the use of a boat, presumably at this date to ferry building materials, is of significance when considering the features now to be described. Mr Hill has contributed this account of the finds.

Within the SE. half of the area, at a depth of 16.00 O.D., about 15 ft. below the modern ground surface, fragments of timbers, stakes and wickerwork were exposed (fig. 2). Briefly, these appeared to be the remains of a causeway leading from the river end in a NW. direction across the swampy ground, consisting of a wattle mat many layers deep, averaging 15 ft. in width. This mat, laid over branches and small tree-trunks, was flanked by wicker hurdles reinforced in places by disused ship's timbers. Groups of massive piles, 8 in. square and upwards of 12 ft. long, to the S. of the causeway, at the riverward end, suggest a pier head. From hence the level of this 'corduroy' road rose slowly landwards towards the NW. but traces of it were lost in the immediate vicinity of the gritstone building already described. The muddy level across which the causeway extended ended about midway along the site, on a line with the 4 ft. rise and double row of piles indicating the bed of the river in Roman times.

On plan it will be seen that the second excavation trench XYZ was dug on the very confines of the 'corduroy' road, and at about the same depth, 16 ft. below the modern surface, was found part of the same wickerwork flanking the brushwood matting (Pl. V).

The almost complete absence of Roman pottery in this area with the relative abundance of medieval wares is significant. Both pottery and small finds from the lowest levels of Trench XYZ range from the 13th to 15th century. Thus the levels which overlie the hurdling would appear to be rubbish dumped over a period of time while the causeway was in use, to reinforce it, but certain ship's timbers found flanking the wattle matting are more solid proof of the medieval date of this structure.

The Medieval Ship-Timbers

Some 32 ft. of this timber revetting, held in place by posts set at 1 ft. intervals, was uncovered. The timbers consisted of clinker-built planking, up to 12 ft. in length, the planks being 1 in. thick and 9 in. broad (see figs. 8 and 9). They had to all appearances been cut off a ship's framework, for adjacent holes in the middle of the planks showed where the wooden pins had fastened them to the ribs or timbers, and indeed remains of some of the wooden pins were still in place. The space between the overlapping planks was found to be caulked with pitch and wool. A length of planking was examined by Mr. G. P. B. Naish of the National Maritime Museum from whose report it appears that a very wide dating is possible for the clinker-built timbers

¹ *ibid.*, p. lii, Pat. 8 Ed. II, p. 1, m. 17 'Concessimus eis et licentiam dedimus . . . quod ipsi in proprio solo suo infra mansum suum in civitat. predict. (York) super ripam vivarii nost. de Fosse quamdam Kayam construere

. . . cum batello in vivario predicto ad petram, busca et aliis necessariis suis tam subtus pontem de Fosse quam alibi in vivario predicto usque mansum suum predict. ducendis'.

as such.¹ On the other hand, there are certain similarities in construction between the Hungate timbers and those of a vessel found in the Hamble river, near Bursledon. The latter ship has been identified as Henry V's *Grace Dieu*, built in 1418 and destroyed by fire in 1439. On the strength of this analogy, Mr. Naish ventures to suggest a date within the first half of the 15th century for the remains of the Hungate ship.

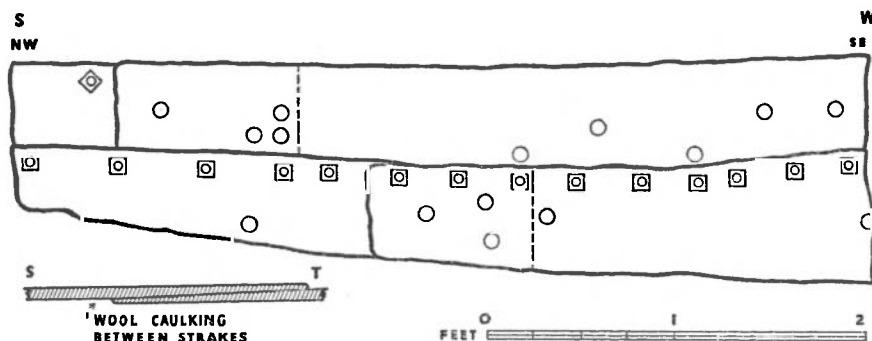


Fig. 8. Ship-timber revetting medieval causeway

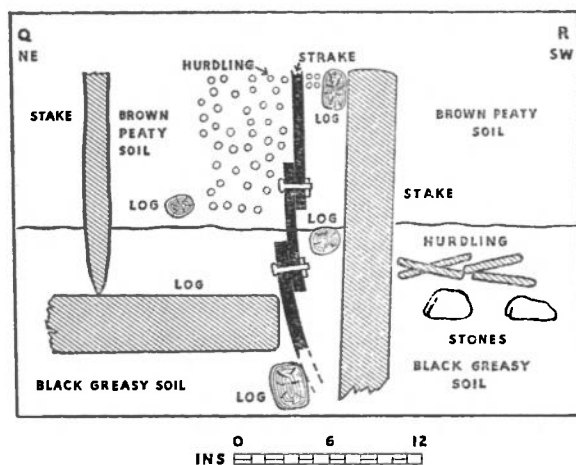


Fig. 9. Section through ship-timber revetting medieval causeway

One further point of interest arises from the examination of the material used for caulking the timbers, which has proved to be composed of pitch and wool 'of Merino type', that is, a very fine-fibred wool.² Mr. Patterson has pointed out that there was an important manufactory of worsteds in York

¹ Appendix IV p. 113.

² Appendix V p. 114.

at this time and one of the waste products from this industry would be the shorter, finer hairs, thus obtainable in bulk at a low price and highly suitable for caulking.¹ It seems then reasonable to suppose that the ship was English built and not Spanish as the Merino type wool might have suggested; the breed of sheep, in any event, was not raised in this country till the reign of George III.²

The timbers from this derelict ship of early 15th century date could have been used to shore up the sides of an already existing structure. We know that already in 1348 the White Friars were anxious to extend the quay into the Foss to avoid an accumulation of mud³ no doubt due to winter floods which would also weaken the existing structures. In 1393 the Carmelite friars received further gifts of land at the E. and W. end of the church which enabled them to enlarge it.⁴ Building operations were still in progress in 1404, when the Bishop of Durham bequeathed £40 in his will towards the completion of the work, if not finished before his death.⁵ This would mean much activity at the quay and the need to keep the causeway in good repair; the more so that by shipping goods from without the city walls directly to their private landing stage the Friars would escape the heavy duties levied at the city gates on goods brought in from the countryside.

The following century put an end to these activities when, at the Dissolution, on November 27th, 1539, the Carmelite buildings were 'surrendered into the King's hands by the prior, nine brothers and three novices'.⁶ The Priory was doubtless first stripped of any valuables and five years later the site was granted to one Ralph Beckwith.⁷ Within the next half century the church and possibly the monastic buildings were demolished, for Speed's plan of the city⁸ does not record it nor two other churches in the neighbourhood, All Hallows, Peaseholme, dismantled in 1585, and St. John the Baptist, Hungate, which was united to St. Saviour's that year, though there is no record of its destruction.

The Late Medieval Building

Following on the disuse of the causeway the site continued to serve as a dumping ground for domestic rubbish. In Trench XYZ, more than 5 ft. of domestic rubbish layers interleaved with peat-like deposits were finally sealed by apparently water-laid silt and a level of stiff loamy clay. This accumulation contained 13th-15th century pottery, sherds of the same vessels

¹ Appendix VI p. 114.

² Allan Fraser, *Sheep Husbandry* (2nd. ed. 1951)

15, 20.

³ V.C.H. III, 292, note 14, Inq.A.Q.D., file 291, no. 8.

⁴ *ibid.*, 293, Grants from John Berden, John Braythwayte, John de Acom and Henry de Percy, Lord of Spofforth, Pat. 16 Ric. II, pt. 2, m. 21, 28.

⁵ *ibid.* Test. Ebor. i, 308.

⁶ Drake, *Eboracum* I, 310, note (p) Claus. 30 Henry VIII, para. 5, num. 67, Rolls Chap. (1539).

⁷ Angelo Raine, *Medieval York* (1955), 65, corrects

Ambrose to Ralph Beckwith and notes that the site is mentioned with all its buildings, orchards, etc., in the will of his brother William Beckwith, *York Corporation Records*, E.26, 58b, in 29 Elizabeth. It is of interest that Ambrose Beckwith was Collector of Rents from the Monasteries and acquired property at the Dissolution, see *York. Arch. Record Series* XLVIII (1912), 111, while Leonard Beckwith was appointed the King's Particular Receiver, see *ibid.*, 121.

⁸ Inset, W.Riding Yorks., *Theatre of the Empire of Great Britain* (1608).

recurring at different levels. Though well defined these layers have therefore no stratigraphical value and can add nothing to the chronology of York pottery. The small finds have, however, been illustrated (fig. 28) and include two keys and a rowel spur of the 14th century, a latten spoon of the 15th and a mould for casting circular brooches in common use over the medieval period. Sherds of 16th century vessels were found above the silt and clay loam, and the remains of a building with walls standing in places 12 courses high, built of bricks 11 in. by $5\frac{3}{4}$ in. by 2 in. Against one wall stood a brick fireplace with cobbled hearth. The foundations of another wall consisted of a 5 ft. wide raft of re-used timbers which appear to have been derived from a medieval half-timbered building, possibly from the dismantled Priory, for it was from these footings that a wooden arch of about 8 ft. span was recovered (fig. 10). In the shape of a trefoil, it had deeply cut roll mouldings, composed of three timbers, 9 in. by 9 in. in section. With this were also found fragments of limestone mouldings and dressed stones judged by Mr. Willmot to be of 14th-century date.

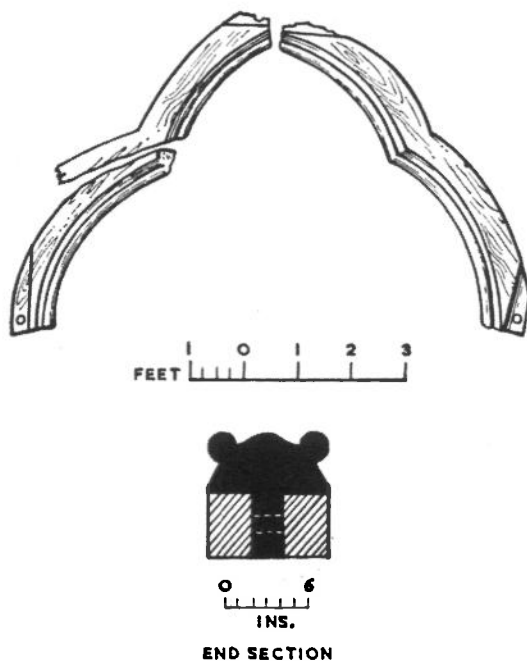


Fig. 10. Fourteenth-century wooden arch

The raft-like foundations of this building suggest that at this time, in spite of the underlying accumulation of debris, the land in this area was still waterlogged. Evidence as to the age of the structure was lacking, but the very thin bricks have led Mr. Hill, who was then supervising the site, tentatively to date it within the 16th century. The date of its destruction is also

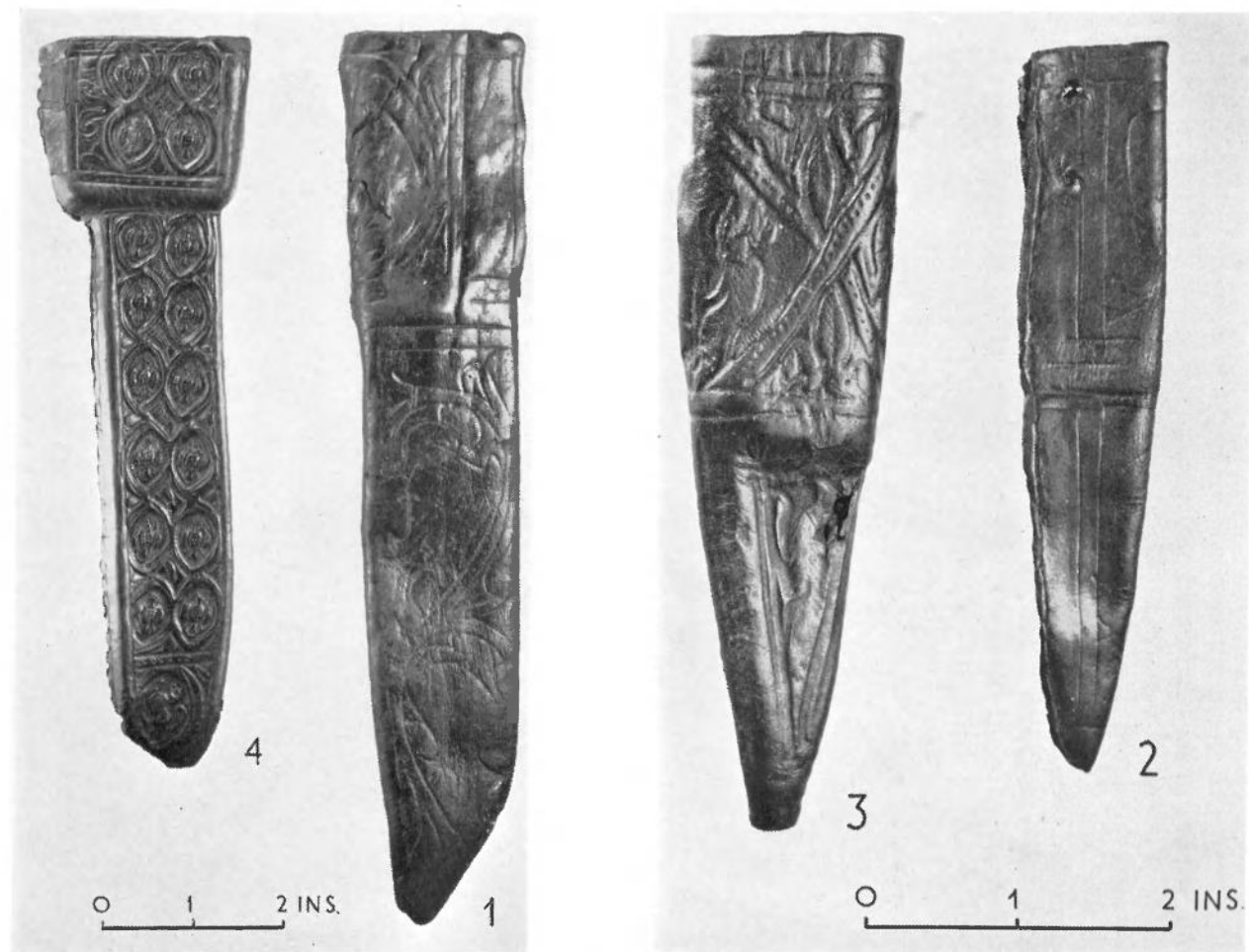
A. Tankard
(see Fig. 26, 34)



B. Lug handle (see Fig 26, 18)



C. Ring handle (see Fig. 26, 19)



Medieval leather sheaths (see Fig. 29 and pp. 102-105)

unknown and no reliable information on the history of Hungate at this period is to be gained from studying the town plans of the early 17th century. Map makers were chiefly concerned with the street plans, and though churches and other public monuments may figure, private dwellings are reduced to a conventionalised row of houses lining the streets, while the areas so enclosed are left empty of buildings. Thus Speed's plan of 'The most famous and



Fig. 11. Speed's plan of York, 1608

fayre Citie of Yorke¹ shows a row of houses fronting Fossgate and Stonebow Lane, but none on the S. side of Hungate, and the land bounded by these three streets is apparently devoid of any houses. Horsely's plan, published towards the end of the century, gives no details of buildings lining the streets.² The first plan of the city which appears to aim at giving an accurate width to the streets and the area covered by houses is G. Rocque's, published in 1750. By this date habitations had spread along either side of Hungate as far as Hover

¹ Speed, *Theatre of the Empire of Great Britain* (1611-12); the plan of York is dated 1608.

² Benedict Horsely, *Iconography or Ground Plot of Ye City of York* (1697).

Lane, but a large area between Hungate, Stonebow Lane and Fossgate within a margin of buildings survived as orchards and gardens. Thomas Jeffrey's plan of York (1772) and Cattle and Barber's (1820) follow the same lines as Rocque's so that individual buildings apart from churches and the like cannot be identified.

In Trench CL to the N. of the foundations described above, there is evidence of rubbish tipping from the late 16th to the 18th century.¹ Domestic pottery from these levels includes green glazed tripod cooking pots, colander dishes with slashed decoration and a considerable number of dark brown glazed mugs with applied decoration (see fig. 25-6). In the upper levels immediately below the foundations of 19th-century buildings, clay pipes appear in some quantity, many with initials stamped on the foot which can be identified with those of pipemakers working in York or Hull between the mid 17th and mid 18th centuries as well as pottery of the same period. The absence of real china in the latest level indicates that the domestic rubbish can hardly have been deposited much after the first half of the 18th century.

Hargrove writing in the early 19th century² records that a Mr. Rusby built several houses here in about 1800, 'which was not long ago occupied as a garden'. There are indications from other sources that the pleasant properties of an earlier day were fast falling into the hands of speculators, to be replaced by habitations of a less spacious type, to meet the growing population of an industrial age.³ Building evidently continued well through the 19th century. The lists of additional streets found in the Directories between 1823 and 1867 attest an ever growing network of lanes, places, courts and yards, bordered by tenements such as stood in Hungate and Stonebow Lane, the ancient Le Stainbogh, now reduced at the Fossgate end to a tunnel-like passage through the houses.

After 1860 there is a rapid fall in the status of the district,⁴ which was well on the way to the slum conditions prevailing in 1908.⁵ It was not till 1936 that the tenements were finally cleared of their inhabitants and demolished.

The war of 1939-45 put a stop to any building projects in this district which remained derelict till 1951.

Many of the finds described in this report were recovered during mechanical excavation or came from domestic rubbish dumps not strictly stratified, nevertheless the work carried out in this relatively small area has produced material related to succeeding phases in the history of the City. Now that the pile driver has penetrated well below the earliest levels of occupation there

¹ See Section, fig. 3, levels 2-6.

² Hargrove, *City of York*, 3 vols. (1818), II pt. 2, 325.

³ *York Chronicle and Weekly Advertiser*, 30th July, 1773: 'To be let immediately in little tenements, on reasonable terms all that new built house, pleasantly situate in Hungate, consisting of 24 commodious rooms (application to be made to Peter Wilson,

cooper, who also purposes to carry out building with greatest expedition).'

⁴ Mr. Biggins (City Reference Library), to whom I am indebted, notes from a perusal of the newspapers of the period a very sudden and swift drop in the status of the district from 1860 onwards.

⁵ E. M. Smith, *Report on the Sanitary Conditions of the Hungate District*, 1908.

has risen on this land a new Telephone Exchange, while a broad new road, opened to traffic in 1955, named after the ancient Le Stainbogh, links the past with a new phase in the life of Hungate. It is to be hoped that this old Norse name will in like manner be preserved.

THE FINDS

ROMAN

POTTERY

FIG. 12. Sherds recovered from the lowest levels of Trench CL have not been illustrated. In fig. 12, nos. 1-11 are from Pit 6, and nos. 12-19, and 21-23 are from contemporary levels; no. 20, from Pit 8, is of late 2nd-early 3rd century date. The following types of pot are included:

- A. *Dales Ware* jars nos. 10, 11 and 13, in use over the period A.D. 230-370 with greatest incidence A.D. 290-320 (*Ant. Journ.* XXXI (1951), 154, fig. 1).
- B. 'Proto Huntcliff' type jars, nos. 15 and 19 with flaring rim, calcite gritted, but lacking the groove on the underside of the rim on the Huntcliff type vessel. They have been found in the following contexts: at Throlam (P. Corder, *Roman Malton & District Rep.* no. 3 (1930), fig. 9, 7 and 9) but not made in kilns thought to have been active till c. A.D. 280; Langton (P. Corder, *Roman Malton & District Rep.* no. 4 (1932), fig. 27, 111) but not found in a well with late 4th-century material; Carrawburgh (*Arch. Ael.* 29 (1951), 1, fig. 11, 43) in an early 4th-century deposit; Bewcastle (*Cumb. & West. A. & A.*



Fig. 12. Roman pottery (4)

Soc. 38 (1938), 195, fig. 27, 70, 72) in 'vesicular' ware and from surface levels not distinguishable from level of period A.D. 297-367; Cardurnock (*Cumb. & West. A. & A. Soc.* 47 (1948), 78, fig. 11, 16, 17, 19) found with Huntcliff type pots and in levels devoid of 3rd-century types; Signal Stations (*Arch. J.* LXX XIX (1932), 243 where they are said to be uncommon. They are therefore typical of the first half of the 4th century.

C. *Calcite gritted bowls* nos. 16 and 17, found on the Signal Stations, (*ibid.*, 220, type 31, fig. 14, 3); Langton (*Roman Malton & District Rep.* no. 4 (1932), fig. 27, nos. 139-141); Knapton (*ibid.*, fig. 30, 19-20) with Huntcliff type pots; Brough (P. Corder, *Excav. at the Roman Fort of Brough* 4th Rep. 1936, fig. 15, 139) with late 3rd—early 4th century pottery; they are contemporary with the 'proto Huntcliff' type.

D. *Swanpool type jars*, no. 14, in grey pimply ware characteristic of the kilns active over the period A.D. 280-330 (*Ant. Journal.* XXVII (1947), 61, fig. 5, H).

Attention should be drawn to the following sherds:

20. Pie dish in dark grey ware with the *graffito* MONTIVS From Pit 8 and of late 2nd—early 3rd century date.
21. Rim of Castor ware beaker, cream core and dark green surface, with the *graffito* CA on the neck.
22. Fragment in smooth yellow ware decorated with applied arc and rosettes of dot and circle type, made by pressing the mould against the potter's finger. If this is compared with other fragments from the Crambeck kilns (P. Corder, *Roman Malton & District Rep.* I (1928), fig. 20, p. 41 and *Ant. Journ.* XVII (1937), 405) it will be recognised as from a face, the applied arcs being part of the eyebrow, one circle an eye and the others enclosing the face with an arc of curls.
23. Part of a face mask in hard, dark grey ware from a type of vessel complete examples of which may be seen in York Museum. Vessels of this kind in grey ware were made in the Norton kilns, examples of which are seen in Pl. IVA¹, in particular nos. 1 and 2 which are comparable. The rest of this group appears to fall within a late 3rd and mid 4th-century bracket.

FIG. IVA.

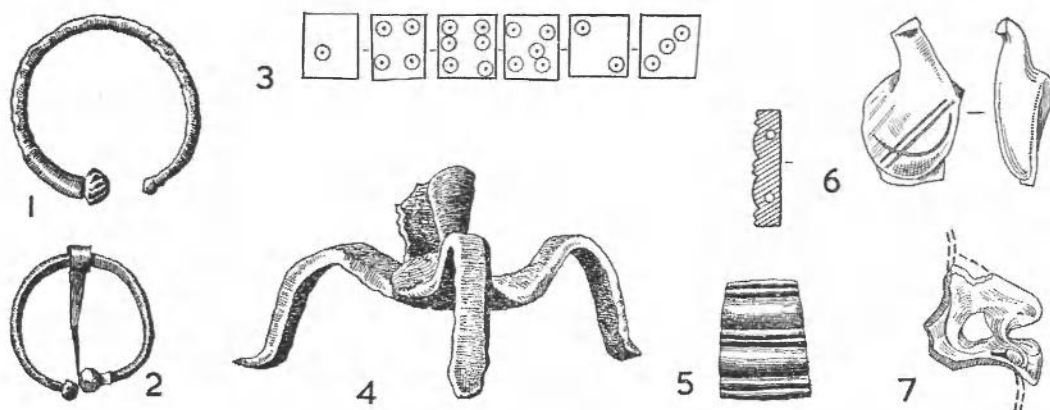
1. Hard grey ware, the pupils of the eyes, earholes and hair are indicated by incised circles. (Malton Fort Excav. 1927-30, SE.1.125).
2. Hard grey burnished on cheeks. Hair represented by circles clustered in style shown on bronze studs from Malton Fort excavations. From filling of furnace, Kiln I, Langton Road, Norton.
3. Coarse light grey ware with hole for pupil, V shaped incision for nostrils and hair indicated by 'slashed' cordon. From Kiln I as above.
4. A cruder example than nos. 1 and 2 but of Norton fabric. From garden of Sutton Cottage, Langton Road. (*Ant. Journ.* XVII (1937), 406).
5. From Hungate, see no. 23, fig. 12.

SMALL FINDS

FIG. 13.

1. Bronze penannular brooch with knobbed terminals decorated with grooves. From PS(45).
2. Bronze penannular brooch with knobbed terminals of unequal size. From CL(50).
3. Bone die of normal type. From CL(49).
4. Three legged iron candlestick with socket which apparently was open. Similar candlesticks but with a tall socket are known from Caerwent (Ward, *The Roman Era in Britain*, 214, fig. 61A), and Lydney, (R. E. M. Wheeler, *Report Research Comm. Soc. Ants. Lond.* IX (1932), fig. 23, 191 and 192. From Pit 6.
5. Jet spacer bed. From CL(49).
6. Part of a solid drawn claw (or handle) in colourless glass from a flask or jug, with trailed thread decoration. Late Roman, probably early 4th century (F. Fremersdorf 'Zur Geschichte des frankischen Russelbechers', *Wallraf-Richartz-Jahrbuch* (1933-4), 11, figs. 8-10). From CL(23).
7. Fragment showing part of neck and shoulder and one handle of a cylindrical 'dolphin' bottle in bluish glass. Late Roman, probably early 4th century (F. Fremersdorf, *Denkmäler des rom. Köln* I, Pl. 30). Notes on nos. 6 and 7 by Dr. D. B. Harden.

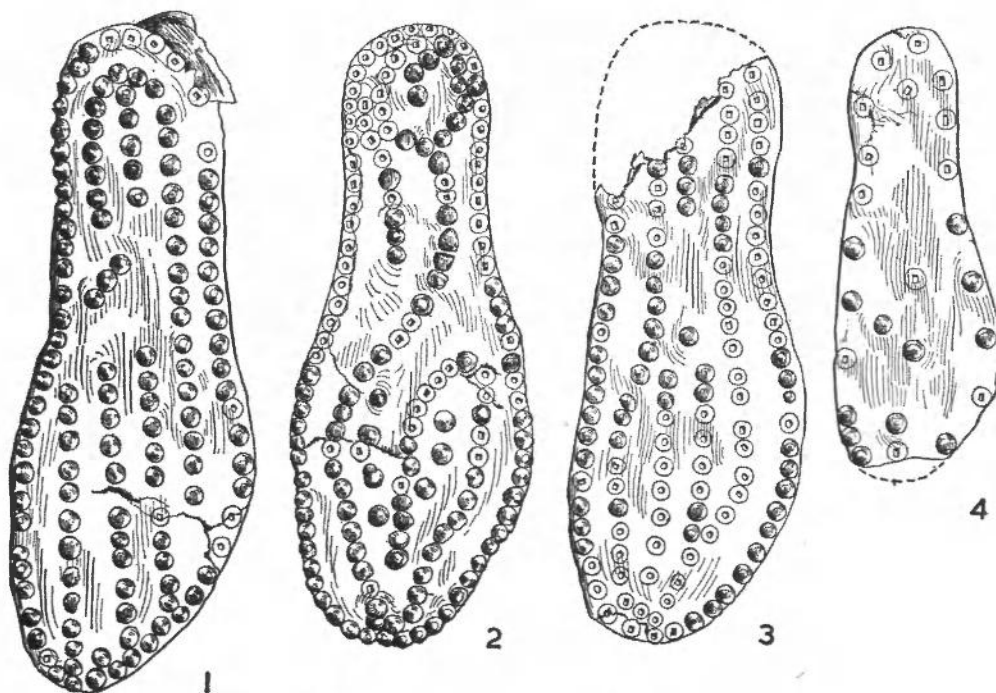
¹ Photographs and notes by kind permission of Mr. R. H. Hayes.

Fig. 13. Roman small finds ($\frac{1}{2}$)

BOOT SOLES

FIG. 14.

- 1-4. Nail studded soles of *calcei* or boots. No. 2 has part of the heel still in place; no. 4 which is smaller and more sparsely studded, is probably from a child's boot. A fifth sole was too fragmentary for illustration. All from Pit 6.

Fig. 14. Roman boot soles ($\frac{3}{4}$)

COIN

Obv. Very worn, possibly Valerian II, Caesar *c.* A.D. 253. *Rev.* Indeterminate. From CL(24).

THE PRE-CONQUEST PHASE

NOTE ON A MIDDLE SAXON SHERD

By J. G. Hurst

FIG. 15.

This is a typical sherd of Middle Saxon pottery and is quite clearly an import from East Anglia. As only the rim is present it is not possible to tell if it was a large jar or if it is a pitcher. It is more likely to be a pitcher as it is a long way for a cooking pot or jar to be exported. On the other hand most of the pitchers have a decoration at the junction of the neck and shoulder extending as high as the surviving part of the Hungate sherd. (see *Proc. Cambs. Ant. Soc.* L (1957), 40-42).



Fig. 15. Middle Saxon pottery (4)

This sherd is of considerable interest as it is only the second Middle Saxon piece to be found in York. The other, a fragment of a pitcher showing stamped decoration, comes from the site of the Tempest Anderson Hall (*J. York. Arch. Soc.* XXXIX (1956-8), 426). The Hungate sherd was found in brushwood levels with Late Saxon ware. CL(12).

ANGLO-DANISH POTTERY¹

The pottery is grouped as follows:

- I From all levels stratigraphically earlier than the brushwood deposits.
- II From the brushwood deposits related to the bank.
- III From the clay levels of the bank and other related levels.²

The ware of the majority of vessels comes under five heads:

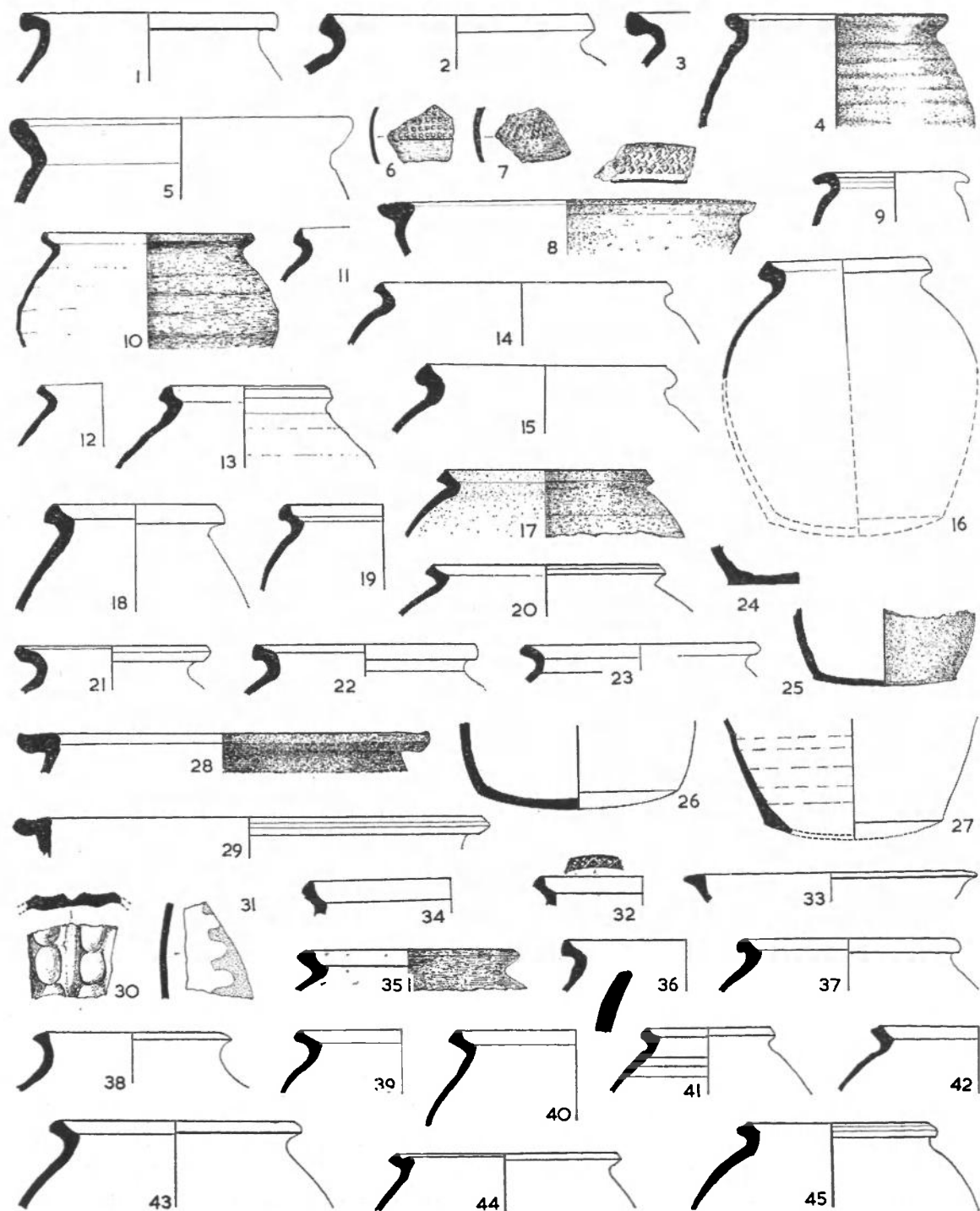
- A. Relatively hard ware backed with grits which give the surface of the pot a toadskin or pimpled appearance; the core and surface are of one colour, red or buff.
- B. Ware almost metallic in hardness and overfired as is shown by cracks at the neck or rim and distortion as in a waster. The paste is fine but harsh to the touch, the core is grey and the surface dark buff or grey, sometimes burnt orange.
- C. Hard, dark grey ware, somewhat harsh to the touch, the core showing sandy grits.
- D. Relatively soft ware, with abundant shell grits, pale buff in colour, the surface soapy to the touch, equating with St. Neots ware.
- E. Stamford ware, off-white to pale grey, with or without yellow glaze.

Cooking Pots: This type, which is in the majority, is a relatively small, globular jar with everted rim, frequently rebated to seat a lid, the base flat or slightly sagging. The outer surface is usually encrusted with burnt matter. The pots from Group I levels tend to be in A ware, with a few in D ware, those from Group II are largely in A ware, but some are in B ware and a few in D ware, while those from Group III levels are largely in B ware, with only a few in D ware. One pot only was found in E ware from Group III levels. Rilling on the body is seen on pots from Groups I and II. Two fragments with rouletted decoration, one in D ware,

¹ This report was written some time before the publication of Mr. J. G. Hurst's four papers on Saxo-Norman pottery from East Anglia, *Norfolk Arch.* XXXI (1955), 56; *Proc. Cambs. Ant. Soc.* XLIX (1956), 43-70; *ibid.*, L (1957), 29-60 and LI (1958), 37-65. Mr. Hurst's findings from all available

material confirm the groupings of the types described below.

² Among the sherds from this group were found intrusive fragments of later medieval glazed pitchers.

Fig. 16. Anglo-Danish pottery ($\frac{1}{4}$)

are from the shoulders of pots from Group I. Stamping on the rim occurs on vessels from the same group.

Bowls: This category comprises large flanged bowls, some with thumb-print decoration on the rim, and smaller flanged bowls including a skillet. These are in C ware, and are from Groups II and III. An exception is a bowl in D ware with flanged rim decorated with a stamped pattern.

The Hungate cooking pot in B and D wares is a vessel characteristic of sites within the Danelaw. Thetford¹ in East Anglia has produced a whole range of this type; those with dished rim in hard ware, native to the site, appear already in the mid-9th century A.D. and are most abundant in the early 10th. A later series still with dished rim, is in shelly gritted St. Neots ware and was probably imported from that area (see *Arch. News Letter* 3,3 (1950), 45).

In a note on two pots from Chester, *Ant. Journ.* XXXIII (1953), 31, Mr. G. C. Dunning has quoted sites in the Midlands where examples of this type in hard ware with harsh surface have been found. These range from not earlier than the 10th to the late 11th or early 12th centuries (see Alstoe Mount, Rutland and Stamford Castle, Lincs. *Ant. Journ.* XVI (1936), 402; Leicester, *Report Research Comm. Soc. Ants.* XV (1948), fig. 60 and Northampton Castle *Assoc. Architect. Soc. Reports* (Northampton) 16 (1881), 243. Rouletted and stamped decoration is also seen on pots from these sites. The type is ultimately derived from the Rhineland. The York examples, often overfired, cracked and distorted, suggest local manufacture rather than the importing of 'seconds' from southern England.

In contrast to these are the Hungate vessels of this form, but in A ware with toadskin pimply surface and rilled body, which are found in the lowest levels. These cannot be matched in fabric from Midland or East Anglian sites, though pots with rilled bodies are reported from Thetford with 9th century associations. It is presumed that these cooking pots were made in kilns in or near York.²

The bowl forms in C ware, which begin to appear in Group II levels, can again be paralleled on the same Midland sites as some of the cooking pots, e.g., Stamford and Leicester, and to these may be added the kiln material from Torksey.³ They are, however, also found at Thetford with the skillet type (fig. 17, no. 53) associated with 10th-century material.

The pottery from Hungate in D ware (St. Neots) forms a small group, the rims of eight vessels only being represented. The ware is most common in Late Saxon times in the Bedford-Huntingdon-Cambridge region, whence it appears to have been traded to Thetford fairly early, though it is not found in any quantity below the early 10th-century levels. It occurs more rarely at Northampton, Leicester, Lincoln, and in and around Nottingham. The rims of three cooking pots and a rouletted sherd from the body of another are of the normal type (fig. 16, nos. 7, 34, 35); a comparable vessel in shelly ware, also with rouletting on the shoulder, is illustrated from a Birka grave (Dagmar Selling, *Wikingerzeitliche und frömmittelalterliche Keramik in Schweden* (1955), Pl. IV, 1 and fig. 14, 2, p. 60) dated to the 10th century. The dish fig. 17, no. 59, from the highest level, is well represented in the collections of the Museum of Archaeology and Ethnology, Cambridge.⁴ It is found at Thetford and one was recovered from a Late Saxon pit under the Oxford Mound (*Oxon.* 17-18 (1952-3), fig. 35, 53) with pottery which Mr. Jope thinks was probably in use during the 11th century up to c. 1070. The flanged bowl with stamped decoration, fig. 16, 8, is matched in form by shelly bowls found at Leicester (*ibid.*, fig. 60, 5) Stamford Castle and Alstoe Mount (*Ant. Journ.* XVI (1936), 402, fig. 4, 19 and fig. 6, 13) of post-Conquest date; at Thetford it has a 10th-11th century range.

¹ I am indebted to Group Capt. Knocker for showing me examples of this material and letting me have notes on them.

² More recently sherds said to be of this ware and other 'Saxo-Norman' pottery have been recovered in York from a trench dug near the South Corner Tower of the Legionary Fortress, *Yorks. Arch. Journ.* XXXIX (1956-8), 522. At the C.B.A. Conference on Anglo-Saxon pottery held in Norwich,

April, 1958, it was agreed to call this type of fabric 'York Ware'.

³ I have to thank Mr. G. C. Dunning for showing me drawings and some pieces of this unpublished material, which, however, he considers might be even of 12th century date. Now in Lincoln Museum.

⁴ Since this report was written Mr. J. G. Hurst has published some of the material from Cambridge. *Proc. Camb. Ant. Soc.* XLIX (1956), 60, fig. 5, 32.

As to E ware vessels (Stamford ware) only six fragments were recovered, the unglazed cooking pot no. 50, the glazed handle no. 55, the glazed neck of the vessel no. 56, and three other fragments also glazed but not illustrated. Although much of this East Midland ware is from Castle Mound sites, it was being produced prior to the Conquest. Yellow glazed wares have been found at Thetford, associated with a coin of St. Edmund (A.D. 870-905) and in the pre-castle levels at Oxford. On p. 81 a note will be found by Dr. Swinnerton comparing these sherds with glazed wares from the Stamford region. The strap handle, which is of late type, i.e., late 11th to early 12th century, was found in a post-bank level in which late 12th and 13th-century sherds occurred.

Of miscellaneous pieces, the fragment, no. 30 with finger-print ornament is from a type of large storage jar which is rare at Thetford in the early period (*Arch. News Letter* 2, 8 (1950), 120) but is commonly found in the later period. Lastly, there is one sherd of Pingsdorf pottery, no. 31. At Hedeby this is found overlapping with Badorf wares c. A.D. 900 and is not likely to have reached England before the early 10th century. Fragments from Pevensey Castle and Dover point to continued importation in the 11th and 12th centuries.

To sum up, it appears that the cooking pot and bowl types represented at Hungate have a fairly long life, for comparable material found on some sites with 10th century associations elsewhere is still current in the 11th century. In the lower levels occur rilled cooking pots which recall earlier types of Rhenish derivation, but the fragment of Pingsdorf ware in the brushwood levels points to those deposits as hardly antedating A.D. 900. On its own merits the group may be said to range from the 10th well into the 11th century.

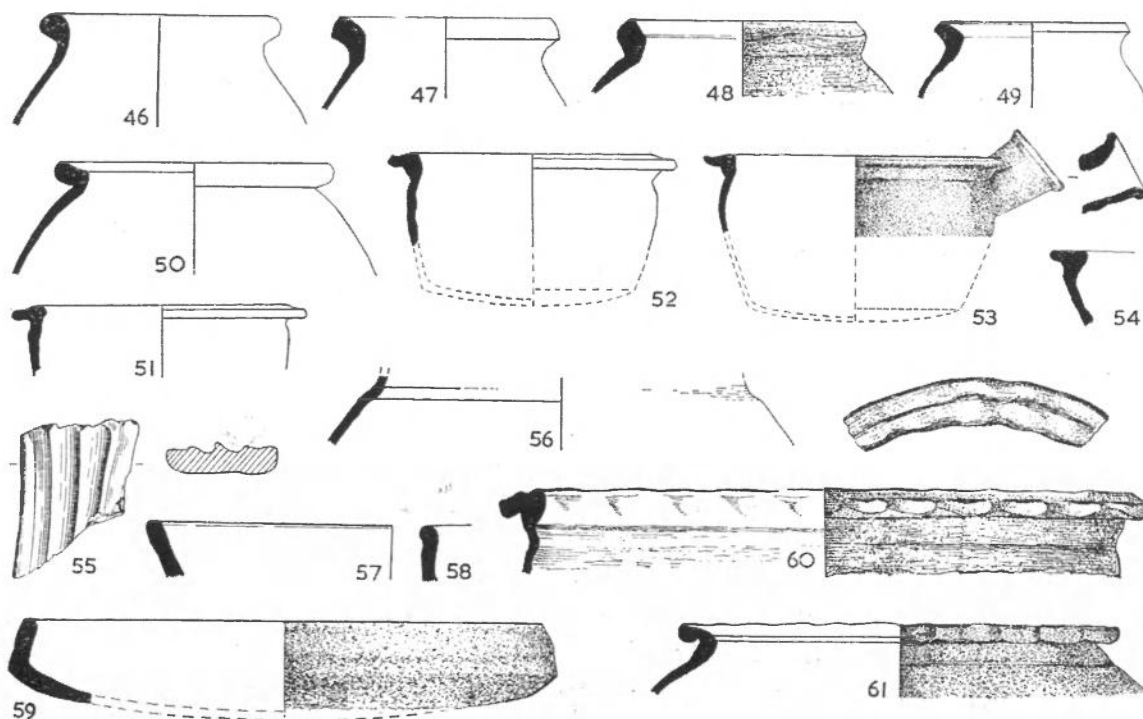


Fig. 17. Anglo-Danish pottery (4)

GROUP I

FIGS. 16 AND 17

- 1, 2, 3. Cooking pots in A ware with characteristic hatchet profile, but not rebated. From CL (25) (18) and (21).
4. Cooking pot in A ware with rilled body, roughly made; the mouth of the vessel is ovoid in shape, with rebated rim. CL(20).
5. Rim of large vessel in C ware. CL(21).
6. Fragment of very thin-walled pot in fine sandy ware with grey core and buff surface, decorated with rouletting. CL(21).
7. Fragment of vessel in D ware with rouletted pattern. CL(21).
8. Bowl in D ware decorated on the flange with a stamped pattern. CL(18).
9. Small cooking pot in A ware, exceptionally hard; the rim is unusual. CL(21).

Unillustrated, E ware. One fragment of thin, reddish ware with yellow glaze, CL(18) and a partially glazed fragment, CL(21), see sherds D and B in note on Stamford ware sherds, p. 81.

GROUP II

- 10-12. Cooking pots in A ware with very thin walls and rilled as no. 4. CL(16).
- 13-20. Rims of cooking pots in A ware with hatchet profile and internal rebate. From CL(16) (17).
21. Cooking pot in A ware with red surface. CL(13).
- 22, 23. Cooking pots in gritty grey fabric with buff surface comparable in texture to A ware. CL (12) (13).
24. Flat base of cooking pot in B ware showing marks where it has been cut off the wheel. CL(16).
25. Sagging base of cooking pot in A ware. CL(16).
26. Sagging base of cooking pot in C ware. CL(12).
27. Sagging base in B ware. CL(13).
- 28, 29. Large flanged bowls in C ware. CL(16).
30. Fragment from a large storage jar in C ware with finger-print decoration applied directly to the body of the vessel. CL(16).
31. Fragment of Pingsdorf ware, fine, off-white, sandy paste with gritty surface and painted yellow pattern. CL(16).
32. Cooking pot rim in hard A ware, dark brown surface stamped on the outer edge. CL(16).
33. Rim of small bowl in C ware. CL(12).

GROUP III

- 34, 35. Cooking pots in D ware. CL(10) PS(35).
36. Cooking pot in A ware. CL(10).
- 37, 38. Cooking pots in gritty grey fabric with buff surface and unusual rims. CL(7).
- 39-45. Cooking pots in B ware. CL(9) (10), PS(35) (36) (37).
- 46, 48, 49. Cooking pots in B ware and cracked under the rim from overfiring, the rims are of unusual form. CL(10) PS(37) (33).
47. Cooking pot in B ware very metallic in texture. PS(33).
50. Rim of cooking pot in typical off-white Stamford ware. Mr. Hurst notes of this fragment: 'Almost all the sherds of Stamford ware in York come from glazed pitchers or bowls. In fact unglazed cooking pots are very rarely exported outside the immediate distribution of Stamford ware in the East Midlands. There are however examples at large towns such as Thetford, and one may therefore expect them in York'. (See *Proc. Camb. Ant. Soc.* LI (1958), 52). From CL(8).
- 51, 52, 54. Flanged bowls in C ware. CL(10), PS(36) (37).
53. Reconstruction of a skillet from two fragments, a rim and handle socket, in C ware. PS (36) (37).
55. Large strap handle in off-white ware with yellowish surface, the two central grooves and middle ridge glazed pale green; from PS (32) a level above the Late Anglo-Saxon bank and associated with late 12th and 13th-century sherds. Mr. Hurst notes 'It is too large to be a strap handle from a pitcher and comes from one of the late 11th or early 12th-century jugs like that from South Bond Street, Leicester (*Report Research Comm. Soc. Ants.* XV (1948), 229, fig. 61, 2) from Stamford School (*Proc. Camb. Ant. Soc.* LI (1958) 49, fig. 3, 9) and from Thetford. These are not at all common and this is only the fifth example to be found'.

56. Fragment from the neck of a vessel in fine hard, off-white ware, glazed pale yellow with greenish streaks, there are also traces of glaze on the inside. Another fragment from the same level has a darker core. See note below on the ware, no. 56 figures as A and the other fragment as C. From PS(36).
- 57-59. Dishes in D ware. CL(10) and PS(36) (34).
60. Rim of a large flanged bowl in C ware; the outside of the flange and the inner edge of the vessel have been decorated by pinching the rim between forefinger and thumb, after which the tip has been smoothed. CL(10).
61. Rim of a large vessel in C ware having the outer edge of the flange decorated with finger prints. PS(37).

NOTE ON GLAZED STAMFORD WARE SHERDS

By Dr. H. H. Swinnerton

The matrix of sherds A, B, and C has a close resemblance to the Stamford type of pottery made from the Upper Estuarine Clays of this part of England, which stretch from the Humber to Northamptonshire. The matrix, however, lacks certain distinctive features which I regard as characteristic of pottery made at Stamford. Sherds from the Newark Castle site appear to be similar; like the Hungate specimens they are thicker and slightly coarser than the typical Stamford ware. I am inclined therefore to think that they come from a pottery somewhere else on the outcrop of the Upper Estuarine away from Stamford. Sherd D is thinner and of better quality. It might conceivably have been made from a layer at the top of the Estuarine at Stamford.

See above, p. 80, Group I (not illustrated), and Group III, 56.

THE ANGLO-DANISH SMALL FINDS

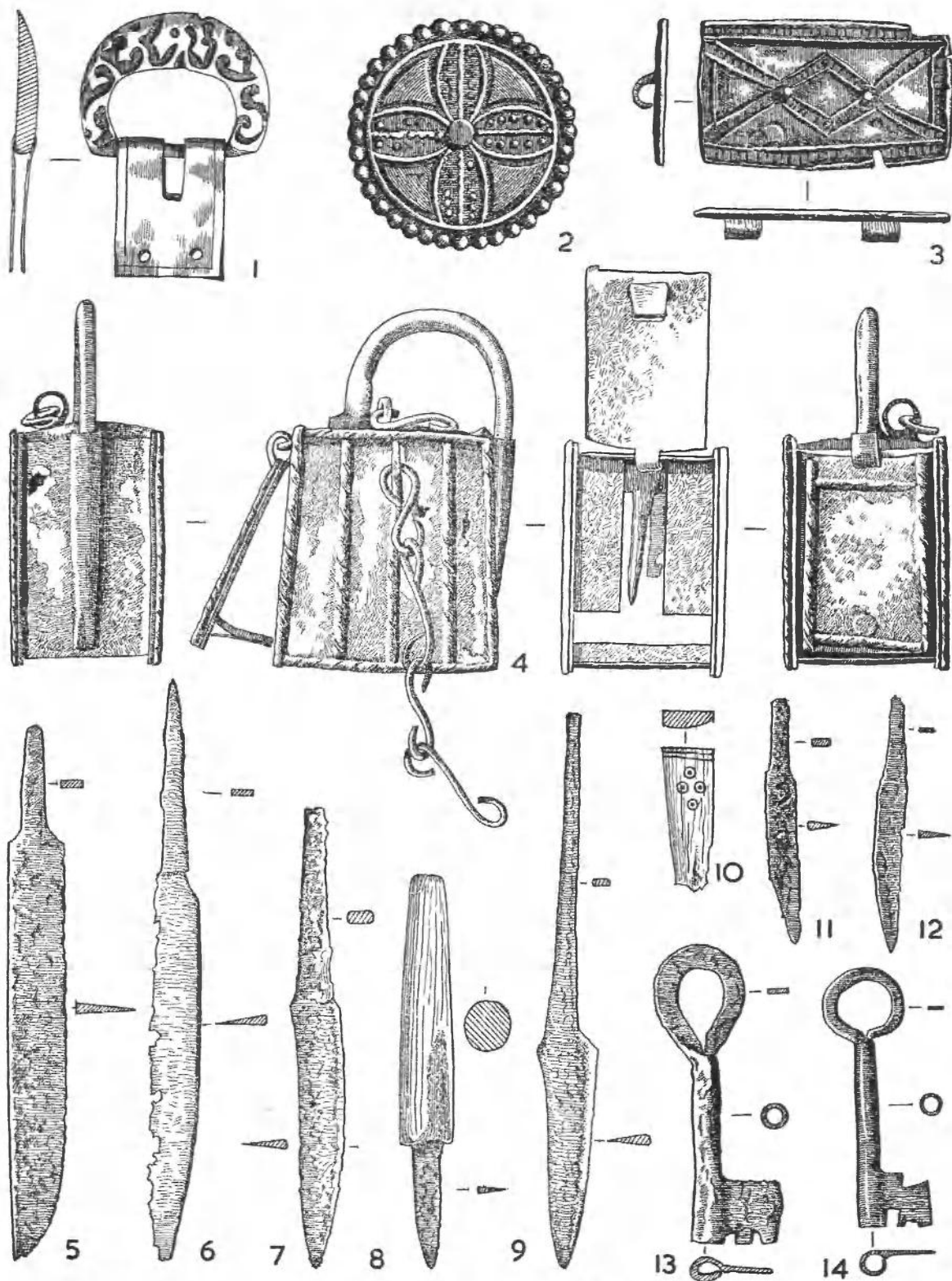
FIGS. 18 AND 19

1. Bronze buckle decorated with a chased pattern, possibly derived from the acanthus leaf. A somewhat similar disintegrated design (not embossed) is seen on a buckle from Vestfold (J. Petersen, *Vikingstidens Redskaper* (1951), 495, fig. 273) in Norway, dated to A.D. 910; compare also a buckle from Whitby (*Archaeologia* 89 (1943), 60, fig. 12, 11), site destroyed in A.D. 867. CL(17). Residues of white metal, substantially silver, were found in a few places, including the grooves of the decoration.¹
2. Disc brooch of pewter with geometric cruciform decoration of small pellets, all set within a border of larger pellets. Disc brooches with similar decoration (also in animal style and imitating coins) have already been found in York and East Anglia (mainly in Norfolk and Cambridgeshire). The same type is found at Hedeby, where moulds for their manufacture were also recovered. They are consistent with a late 10th-century dating.² CL(17).
3. Rectangular lead clip or brooch decorated with a design of ribbon-like bands with pellets at their intersections. A brooch of this shape with *Kerbschnitt* decoration is from Hedeby. (H. Jankuhn, *Die Ausgrabungen in Haithabu* 1937-9 (1943). Tafel 1, n and p. 70.)
4. Iron padlock consisting of a rectangular box of which the two longer sides are decorated with three ribs of twisted iron wire within a like framework, applied to the panels. Traces of 'bronze' on the object are probably accidental, resulting from the brazing process used in manufacture.¹ The arm of the padlock has one end fitting into a sheath fixed to one panel, the other end passing through the top of the box. The other panel has a hinged flap, also framed with twisted wire. This originally had a spring closure, which could be released by pressure from a rod inserted through a small hole in the base of the box. When raised the flap exposes the actual key-hole, cut like an inverted T. To open the padlock the head of the key, shaped like a spade and perforated, was inserted through the horizontal slot of the key-hole and the stem was then pushed up the vertical slot. A number of rods and the end of the padlock arm, all projecting downwards from the box top, passed through the corresponding perforations in the key, and a V-spring on the arm was compressed thus releasing it. Although the padlock was found during mechanical excavation (at a depth of 23 ft. below modern ground level and on the natural sand), parallels for it from Scandinavian sites and one from Thetford relate it to other finds from the 'brushwood levels' at Hungate. Similar wire ribbing is seen on an

¹ Examined by Mr. L. Biek.

² My thanks are due to Mr. G. C. Dunning for letting me see his notes on this type of brooch.

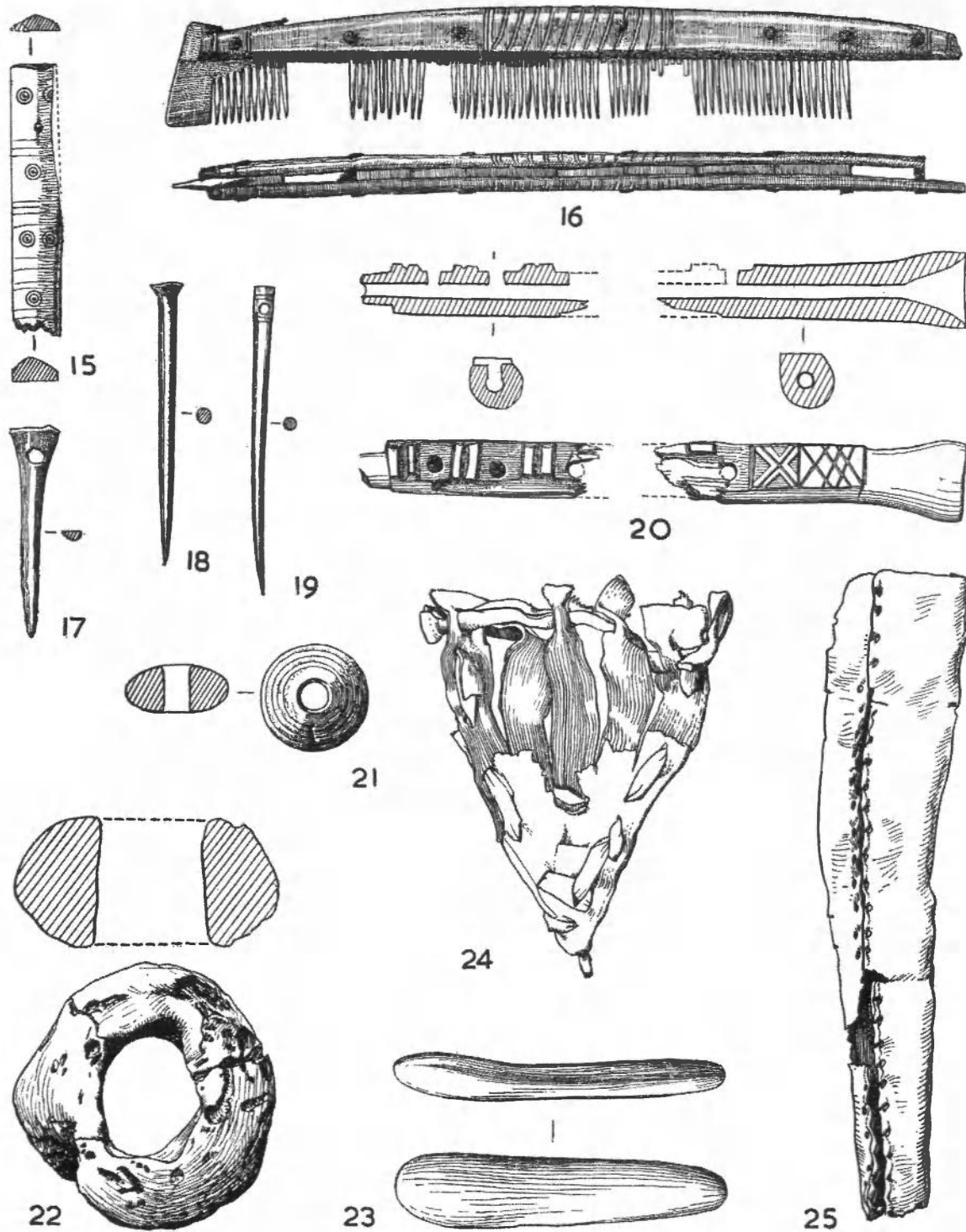
A note on the metal of this and the lead clip will be found on p. 86.

Fig. 18. Anglo-Danish small finds ($\frac{1}{2}$)

example from Birka (Arbman, *Birka I, Die Gräber*, 1940, Taf. 273), and others are from Trelleborg (Paul Norland, *Nordiske Fortidsminder*, IV 1 (1948), Pl. XXIV, 1 and 2). T. J. Arne in his study of the relations between Sweden and the East (*Archives d'Etudes Orientales* vol. 8, (1914) 200, fig. 337) uses the distribution of this type (which together with the cylindrical padlock is found in Norway, Sweden, Denmark, Finland and across into south-east Russia) as proof of Russo-Swedish trade in the Viking period. The type probably originated in Persia. This trade began about A.D. 800, continuing into the first quarter of the 11th century, while a lively interchange of goods was carried on during the 9th and 10th centuries between Scandinavia and Byzantium *via* Kiev, where Princes of Swedish origin had been in power since the latter half of the 9th century (see Trelleborg *ibid.*, 283).

- 5-12. The small knives described below are all, excepting no. 8, characteristic of the Anglo-Saxon period, when the scramasax was a dual purpose knife used for defence or to cut up meat. Nos. 5 and 9 are of interest as more particularly Nordic in type.
5. Iron knife with straight back and cutting edge rounded near the point, conforming to Wheeler Type II, commonly found in Scandinavia in the 7th and 8th centuries (*London Museum Catalogue* no. 6, 1935, 176).
6. Small iron knife found during mechanical excavation at a depth of 21 ft. from ground level and 3 ft. above the natural sand.
7. Small iron knife with rounded back. CL(21).
8. Knife with bone handle. An X-ray of the handle shows the end of the tang but also traces of iron in the upper part of the handle, probably of a second tang making this a double tool.¹ The existing blade is thin and still very sharp, the tool could have been used in working leather and was found in the same level as the shoes. CL(21).
9. Iron knife of distinctive form with exceptionally long tang and short blade. In the majority at Trelleborg (*ibid.*, Pl. XXVIII) and also found at Birka (*ibid.*, Taf. 181, 1). The type has been found at Thetford in association with material of the late 9th-11th century (*Arch. News Letter* 2, 8 (1950), 121; also *Archaeologia* 97 (1959), 73, fig. 7, 4 & 5, from York).
10. Bone knife handle with remains of iron tang, decorated on two faces with ring-and-dot ornament. Found with later material but in all probability derived from these lower levels. CL(4).
- 11, 12. Small iron knives with angular back of a kind commonly found in Anglo-Saxon graves of 10th and 11th centuries (Wheeler Type IV, see no. 5). From CL(16) and (47), 1 ft. 9 in. below the brushwood.
13. Iron key with hollow stem and forged from a single piece of metal.¹ The bow is oval and flat in section, the end fitting into the top of the stem. Similar keys have been found at Birka (*ibid.*, Taf. 274, 7); Hedeby, (*ibid.*, fig. 64a, p. 129) and Trelleborg (*ibid.*, Pl. XXI, 6 and 7) and also at Thetford. From CL(47).
14. Iron key of similar type to 13, but with circular bow and more elaborate wards. See no. 13 and cf. also *London Museum Catalogue* no. 7 (1940), Type II, fig. 42 and Pl. XXX, 21 and 22, from Westminster, apparently of similar type but there dated anywhere between the late 11th and 13th centuries.
15. Part of the plate of a bone handle decorated with incised parallel lines and double ring-and-dot ornament. It has been broken at the second rivet hole. Possibly the handle of a bone comb of a type rare in this country. Found in Borehole I, and from a description of the strata made at the time by Mr. Watson it can with some confidence be assigned to levels equating with the brushwood layers of Trench CL.
16. Long bone comb of common Viking type, consisting originally of ten toothed plates held in place by two cross pieces fixed by iron rivets. Small nicks on the cross bars show that the teeth were cut after the plates had been assembled. The back is slightly curved; the cross pieces do not reach the limits of the outer plates which do not rise above the maximum curve. The decoration consists of pairs of diagonally incised lines, 11 on one side, 12 on the other, flanked by triple vertical lines. There are two pairs of vertical lines at the ends. Combs of this form with similar decoration were found at Hedeby (*ibid.*, fig. 75, h and 76, i) where they occurred in levels 14, 13 and 10, the latter dated A.D. 850-900 and are ascribed by Hankuhn to his Group E. Found in Borehole I, see above no. 15.
17. Bone needle with triangular expanding head of a type frequently found on Pagan Saxon sites, e.g., Sutton Courtney (*Archaeologia* 73 (1924), 182, Pl. 28, fig. 2) or Mildenhall (*Proc. Camb. Ant. Soc.* 33 (1931), 137, fig. 3, 1). The type is also common on Viking sites, e.g., Hedeby (*ibid.*, fig. 70, a) and Trelleborg (*ibid.*, Pl. XLVIII, 17 and 20, 'made from a delicate footbone naturally widening into a triangular shape') see also perforated pins made from pigs' fibulae from Lagore (*Proc. Royal Irish Acad.*, 53 (1950), fig. 105, no. 1269) and others from York (*Archaeologia* 97 (1959), 85, fig. 14, 17-21). The Pagan Saxon examples are usually found together with loom-weights and spindle-whorls and it seems likely that these objects are tools like no. 19 and not toggles. Triangular headed needles were used until recently in the Shetlands in making straw baskets. CL(21).
18. Bone pin with roughly trimmed head. PS(39).

¹ Kindly examined by Mr. L. Bick,

Fig. 19. Anglo-Danish small finds ($\frac{1}{2}$)

19. Finely worked bone needle, the head decorated with two incised lines above and below the eye. Compare one from Hedeby (*ibid.*, fig. 70, i and k) dated to first half or mid-10th century. In giving examples of polished bone needles of this kind found in Lund ('En medeltida skotyp', *Kulturen* (1945), 144, fig. 10) Mr. R. Blomqvist has called them 'handicraft tools' and notes that as recently as the 19th century they were used to fashion a kind of textile.
20. Wooden flute of hawthorn or applewood.¹ This may originally have had five or even six stops. The two panels nearest the expanded end are decorated with incised trellis and a raised saltire in *Kerbschnitt* style, the stops are separated by two raised ribs. Two very close parallels for this flute come from Achlum and Blija in Friesland (Boeles, *Friesland, Tot de Elfde Eeuw* (1951), 203, Pl. XXXI, 4 and 5) and are decorated in late chip-carving style. These are described as rare types, and dated as not later than the 10th century and not earlier than Carolingian.² From CL(17).
21. Stone spindle-whorl, decorated with incised concentric circles. Although found during mechanical excavation, the depth at which it lay, in brushwood and associated with a shell gritted sagging base, suggests it is of this group, though it could as easily be Roman by its shape (but cf. Trelleborg, Pl. L, 9-14, all with concentric circles).
22. Baked clay loom-weight with relatively large central opening. It appears to fall between the two types of annular and bun-shaped weights. It was found 1 ft. 9 in. below the brushwood and thus could antedate that structure by some time. CL(47).
23. Whetstone of fine-grained compact banded rock which may be a metamorphosed siltstone or slate and possibly a glacial erratic derived from the Lake District or the south of Scotland. CL(16).
24. Triangular appendage made of leather straps broken off below a rigid tubular thong with knobbed ends threaded through the straps to keep them spread out. The two outer straps are also threaded with thongs, one of which passes through the apex. Perhaps used for suspending a dagger or purse from the belt. CL(18).

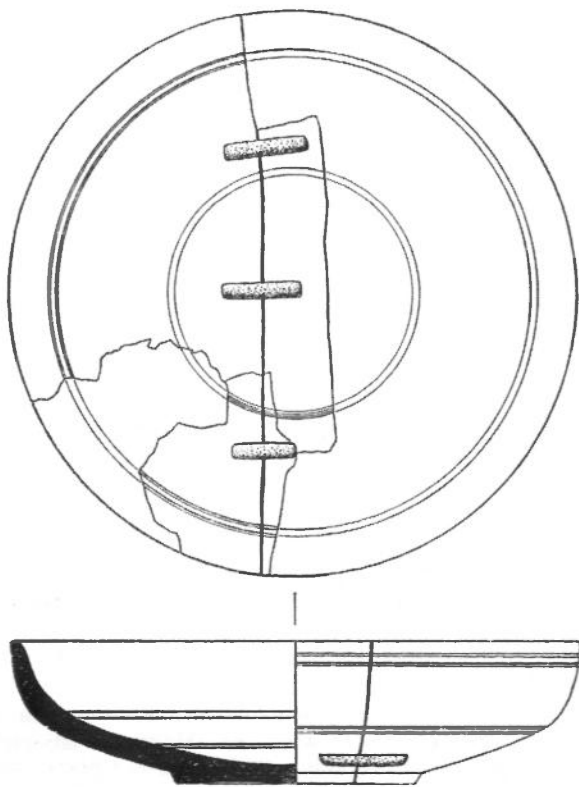


Fig. 20. Anglo-Danish wooden bowl ($\frac{1}{3}$)

¹ Identified by Mr. J. F. Levy, Botany Dept., Imperial College.

² I am indebted to Mr. G. C. Dunning for drawing my attention to these analogies.

25. Leather knife sheath of simple type with seam up the centre. From CL(39). Fragments of three others were recovered from these levels too fragmentary for illustration, one being decorated with two pairs of grooved lines running parallel to the seam.

FIG. 20

Lathe turned wooden bowl, possibly maple wood (*Acer campestre*), decorated with two pairs of grooves inside and out and having a slightly dished footstand.¹ This bowl had anciently split into two unequal halves and had been repaired with three stout iron rivets on the lower part. Comparable bowls with grooved decoration have been found on Irish sites of the 7th-10th centuries; e.g., Lagore Crannog (*Proc. Royal Irish Acad.* 53 (1950-1), 156, fig. 77); Ballinderry I Crannog *ibid.*, 43 (1935-7), 142, fig. 13B); and Lissue Rath (*Ulster Journ. of Archaeology* 10 (1947), 54, fig. 14, 1). The York bowl is closer to the earlier vessel from Lagore, which tends to be shallower with a small footstand or none at all, than to the Lissue bowl. CL(17).

Not illustrated. A disc of oakwood,² diameter $9\frac{1}{4}$ in., with central hole 1 in. in diameter, identified by Mr. G. C. Dunning as one end of a wine barrel with central vent hole, comparable to the remains of a wine cask from an early Norman pit at Pevensey Castle (see *Ant. Journ.* XX XVIII (1958), 213, figs. 4 and 5). From CL(17).

NOTE ON THE METAL OF THE BROOCHES

By L. Bick

Spectrographic analyses of these objects were made in the Laboratories of the Associated Lead Manufacturers Ltd. by courtesy of Mr. W. W. Robson who reports as follows:

- '(1) Disc Brooch (fig. 18, 2). This is made of pewter consisting mainly of metallic tin alloyed with a small proportion of lead.
- (2) Rectangular brooch. (fig. 18, 3). This is mainly metallic lead containing a small percentage of tin.'

It is of some interest to find that the two contemporary brooches are about as different in composition from each other as they could be, although belonging to the same material class. The properties of the tin-lead alloy vary with composition and there are certain optimum proportions for certain uses. There is no doubt that there was some standardisation both in Roman times and in the Middle Ages (cf. J. Newton Friend, *Man and the Chemical Elements*, 195), but even in my limited experience there have been a number of cases which did not conform. Whether or not the difference between tin and lead was well understood in every case (the two metals were almost certainly not distinguished by the minters of Chinese coins until the 10th century, see Hanson, *Chill-cast Tin Bronzes*, 4-5) objects made from all types of tin-lead alloys probably exist.

THE ANGLO-DANISH SHOES

From the brushwood levels came seven nearly complete shoes, seven recognisable fragments of some size and many snippets identified as the refuse from a cobbler's working place. The shoes fall into three categories: A, shoes with the seam at the side, secured by thongs passed through slits near the top of the upper and tied round the ankle; B, shoes with a seam at the side, and one or two flaps which cross over the instep and are fastened by latches; and C, slippers with a seam at the heel. All three types have 'whole cut uppers' i.e., they are made from one piece of leather. Though roughly made, the soles were in most cases recognisably shaped for a right or left foot.

Much of the leather was split into two or more thicknesses and this was at first thought to be intentional, to render the skins more workable. However, laboratory examination of fragmentary uppers and soles proved that this splitting was not due to human agency but to

¹ Mr. G. C. Dunning very kindly drew and described the bowl shortly after it had been sent to London from York and before it had shrunk considerably. I am indebted to the Forest Products

Research Laboratory at Princes Risborough for identifying the wood.

² Identified by Mr. J. F. Levy, Botany Dept., Imperial College.

continued immersion in water (technical report on p. 90). This delamination of the skins helped to decide a point which had previously been in doubt, namely whether the shoes had double soles; for some showed exposed thong stitches, giving the impression that an outer sole had come away. It was now clear that all the shoes were single soled, but in some cases one thickness had scaled off. The soles are thought to be of cattle hide and the uppers possibly of deerskin, all vegetable tanned.

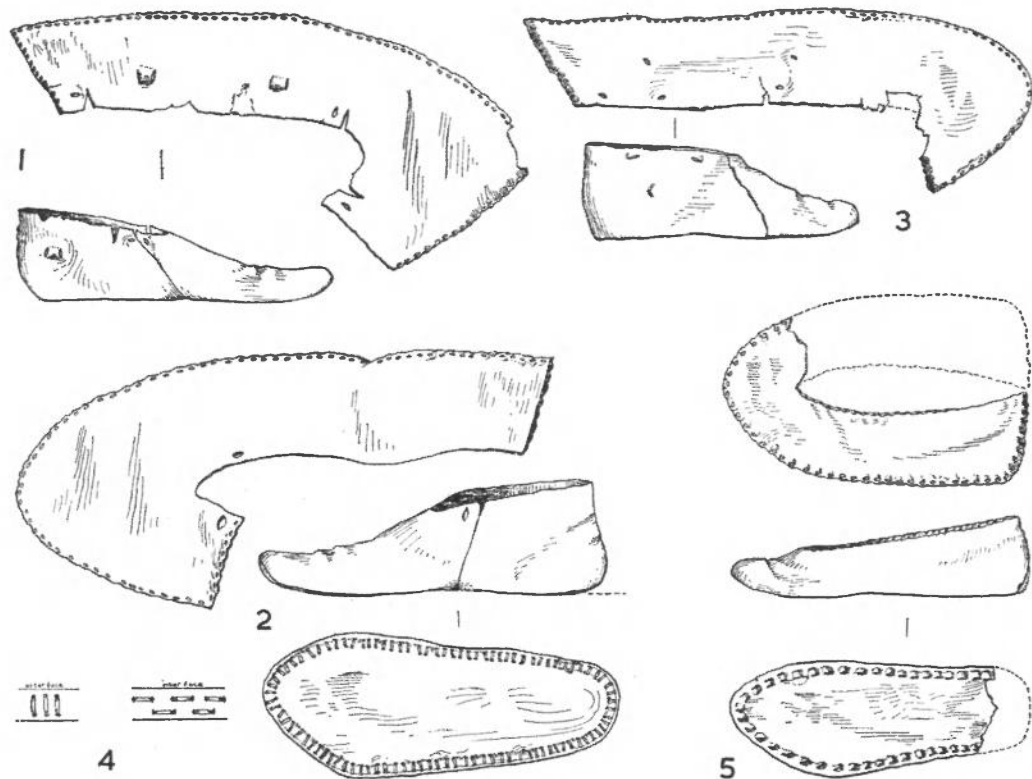


Fig. 21. Anglo-Danish shoes (†)

The shoes were submitted to Mr. J. Learey and Mr. M. Blockley of the Cordwainers' Technical College, Hackney, who kindly have made these comments on the method of manufacture.

'The shoe was probably made on a rough form or last. The upper having previously been thonged together, was pulled over and thonged to the sole, the finished appearance of thonging being parallel to the edge (see fig. 21, 4). The shoe was then removed from the last, wetted to soften it and then turned, the left shoe being now the right and the right, the left. The thonging is with strips of leather $2\frac{1}{2}$ mm. wide'.

The study of early footgear, as that of textiles, is obviously a difficult task owing to the perishable nature of the material, and it is only from sites where conditions similar to those at Hungate have prevailed that leather objects have been recovered, e.g., London and Coventry, but these have been chance finds and undated by any associated material. More recently,

however, fragments of shoes have been found at Winchester.¹ Part of a vamp with seam at the side and blind stitch holes at the throat, the sole fastened to the upper by thonging, on the turn-shoe method, comes from a telephone cable excavation at the corner of St. George's Street and Parchment. An almost complete sole and part of another with similar stitch holes for thonging, are from the premises of Messrs. Edmonds & Sons, St. George's Street and from the site of the Post Office Tavern respectively. Saxo-Norman pottery has been recovered in connection with these finds. Though comparable to the Hungate shoes in the method of fastening the soles, the Winchester examples differ in outline, being more markedly shaped for the right or left foot, sharply waisted between sole and heel, and pointed at the toe. In fact they are nearer in shape to the later medieval shoe soles illustrated below in fig. 30, 2 and 3.

Since these notes were first written in 1955 more material has been found in York, from a trench dug outside the South Corner Tower of the Legionary Fortress, (*Journ. Yorks. Arch. Soc.* XXXIX (1956-8), 525, fig. 6). These fall into two groups, the earlier, lacking any associated dating material, includes a boot, no. 5, not unlike the Hungate Type B shoe, and has a toggle for fastening. The second group, found with Saxo-Norman sherds, similar to pottery from Hungate, includes a shoe, no. 3, comparable to Hungate Type A. In this group, however, there is a type of shoe with triangular projection at the heel end of the sole. None of the Hungate shoe soles suggest this kind of footgear.

Certain finds from a Swedish site also provide some comparable material. Over the last 50 years many articles of iron, wood and leather have been recovered from Lund preserved

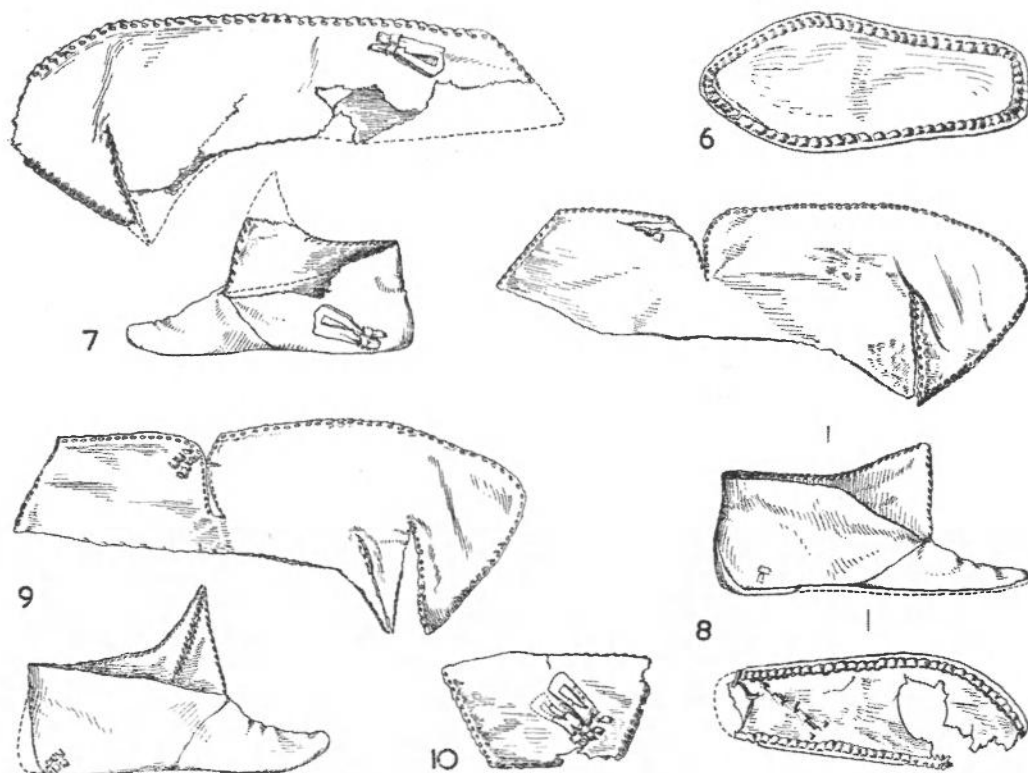


Fig. 22. Anglo-Danish shoes (4)

¹ Examined through the courtesy of Mr. F. Cottrill.

in soil conditions very similar to those at Hungate. The site was unfortunately originally excavated in spits so that the chronology of the levels cannot be accurately established. The material has been re-examined by Mr. R. Blomqvist¹ and the section published in diagrammatic form with approximate dating of layers, together with an amply illustrated series of shoes. 'Medeltida skor i Lund', *Kulturen* (1938), 189 ff). Fragments of shoes were found in the lower levels assigned to the 11th century, but a shoe closely comparable to Hungate Type A from the 15th spit is referred to the 12th century (fig. 13). Though dating may differ, the description of the shoe is of interest. Mr. Blomqvist notes the seam at the side as typical of the medieval series from Lund, and, with the exception of fig. 16, the absence of a seam at the back of the heel. This particular shoe had a sole with triangular projection at the back, other shoes having a corresponding notch at the heel; these he dates to the 12th-13th century ('En medeltida skotyp', *Kulturen* (1945), 138, fig. 17-19 and 20-22). This notch at the heel recalls Hungate shoe no. 8 but as already noted no shoe soles with projecting heels were found here.

Nothing has so far been found at Lund to compare with the Hungate Type B shoe. A shoe with two flaps was illustrated by Benson (*York from its origins to the end of the 11th century* (1911), 53, fig. 27a) and described as Danish and derived from a site in High-Ousegate and Coppergate which also produced objects of 'Danish' date (fig. 26) including a Viking type axe (Wheeler Type V, 9th-10th century) and a sword-chape recognised as an import from Scandinavia of 10th-century date (see D. Waterman, *Archaeologia* 97 (1959), 72, fig. 5, 8 and fig. 6).

It was to be hoped that in the matter of dress some information might be forthcoming from a study of contemporary illuminated MSS., but this has not proved fruitful. In the earlier MSS. of the 8th-10th centuries² the personages, usually saintly or regal, are represented barefoot or dressed in flowing robes which cover all but the tip of the foot. When visible the shoes are elaborate, possibly of different coloured leathers or cloths, presumably such as were worn by dignitaries of Church and State. 10th and 11th century MSS. show figures wearing simple shoes combined with cross-gartering, which have a seam or inlet strip of leather running down from the throat of the shoe to the tip.³ In other MSS. the shoes are simply shown as black and at too small a scale to show details of seams etc.⁴ None are comparable to the Hungate footwear.

FIGS. 21 AND 22

- 1-3. Type A; a simple shoe made from one piece of leather and with one seam only on the outside of the foot; there are slits for thongs to pass round the heel, cross over the instep and tie round the ankle. No. 3 is of thicker leather and is still attached to its sole by means of fine double thonging. There is ancient cracking of the upper round the heel on the inner side of the foot, probably due to the foot spreading over the sole. No. 1 is from CL(16), 2 and 3 from CL(18).

Not illustrated; part of a shoe of type A but has a slit at the heel as no. 8. CL(16).

Not illustrated; toe of an upper, probably of Type A. The sole shows signs of repair in rough thong stitches running parallel to the edge. CL(12).

4. Diagram illustrating the stitching of soles, see note on method of manufacture.
5. The only example of type C, better described as a slipper. Part is missing and there might have been a side seam as on A and B, but probably not, as the slit at the heel is complete. CL(12).
6. A well preserved sole, but the thong stitches are beginning to show through the outer side. The upper of this shoe, too fragmentary for illustration, is of simple type A, but judging from the surviving stitch holes there appears to have been a reinforcing triangle of leather fixed to the inner side of the heel as in no. 7. CL(18).
7. Shoe of Type B. As nos. 1-3 it is made of one piece of leather but cut so as to provide a flap which would cross over the instep and be made fast by the surviving latchet, presumably by means of a

¹ I am much indebted to Mr. Blomqvist for replying to various questions put to him. The Lund collection is still being added to.

² Canterbury Psalter, B.M. Cotton MS. Vespasian A 1 f.30b; MacDurnan Gospels, Lambeth Library, MS. 1370; Book of Kells, Trinity Coll. Library, Dublin.

³ Aelfric's Pentateuch, c. 1025-50, B.M. Cotton MS. Claudian B4, f.61; Anglo-Saxon Psalter, c. 1050, B.M. Cotton MS. Tiberius, CVI, f.9.

⁴ Harley Psalter, c. 1000, B.M. Harley MS. 603 and later versions of the Utrecht Psalter.

thong or cord stitched to the end of the flap or a leather toggle, though no signs of these have survived. The top edge of the upper shows fine 'blind' stitch holes which also continue round the flap possibly to secure a lining to the shoe or a narrow binding of material along the edge. Mr. Blomqvist notes that in at least 90% of the shoes from Lund there were seam holes at the opening for the foot, showing that there had been an edging but this has been preserved in only a few specimens (see *Kulturen* (1938), 216). It should be noted that in the case of nos. 7 and 9 the stitch holes cease two ins. short of the side seam. There is a reinforcing triangle of leather stitched by thongs to the inside of the heel. CL(18).

8. A more elaborate version of Type B, with flap to cross over the instep. The latchet is missing, but there are slits on the side of the shoe through which it was threaded. The back of the upper is slit two thirds of the way up the heel, to take, so it would appear, a triangular gusset, the lower edge of which has been sewn with thongs to the sole. Mr. Learey suggests that the slit at the heel seen in this and the other shoes need not have been made to take a gusset, but the sides could have been sewn together again as is done in modern shoes to bring in the upper so as to fit the curve of the heel as it joins the sole. In this case, the apparent gusset is a triangular patch stitched on, partly overlapping the split at the heel to cover a tear in the upper near the latchet stitches. The sole also shows signs of repair thong stitches across the heel. This cobbling has been very roughly carried out. Finally, perhaps when past repair, a piece has been cut out of the sole, possibly to mend another shoe. PS(39). Three other fragments of flaps are not illustrated.
9. A further development of type B. This has a slit at the heel but has two flaps to cross over the instep. The slots for the missing latchets are visible. CL(12).
10. Part of a shoe similar to no. 9 showing the double latchet. CL(18). Two other examples with a double latchet are not illustrated.

REPORT ON THE SHOE LEATHER

By Miss B. M. Haynes, British Leather Manufacturers' Research Association

A selection was taken from each bag of samples, the pieces embedded in paraffin wax for sectioning at approximately 40°-60° and photomicrographs were taken. The thicker samples (soles) were probably from cattle hide; the grain layer was fairly shallow and the corium deep. The thinner samples (uppers) may have been deer-skin. The grain layer was relatively deep and in some samples, where the grain surface was still clear, the follicle pattern resembled that of deer. The thinnest pieces of leather consisted of grain layer only. In some of the samples the leather had broken into two or three layers. It broke at the junction of grain layer and the corium where there were two layers, and at the surface of a pale middle streak (possibly not completely tanned) where there were three layers. This splitting is an early stage of decay.

The leather had not been cut into layers. The surfaces of the layers were uneven and in some samples the layers terminated in areas where the full thickness was intact. The leather had been tanned with vegetable tannins, i.e., infusions of tannin-bearing barks, etc.

MEDIEVAL

THE POTTERY

By H. E. Jean Le Patourel

GROUPS 1-4

Examination of the following groups of medieval pottery showed that they did not, as appeared at first sight, constitute a simple stratified series.

GROUP 1

This series, from M.O.W. Trench CL, consists of glazed pitcher sherds. The ware and glaze are of a type common in the 14th century. The cooking pot sherds found with them belong, however, to a considerably earlier period. As the discrepancy in date is so marked, and as fragments of 12th to 14th-century pottery were found scattered along the top of the Anglo-Danish bank, there is no reason to doubt that the glazed sherds are intrusive in the earlier levels which were much disturbed by the digging of rubbish pits and the dumping of household refuse.

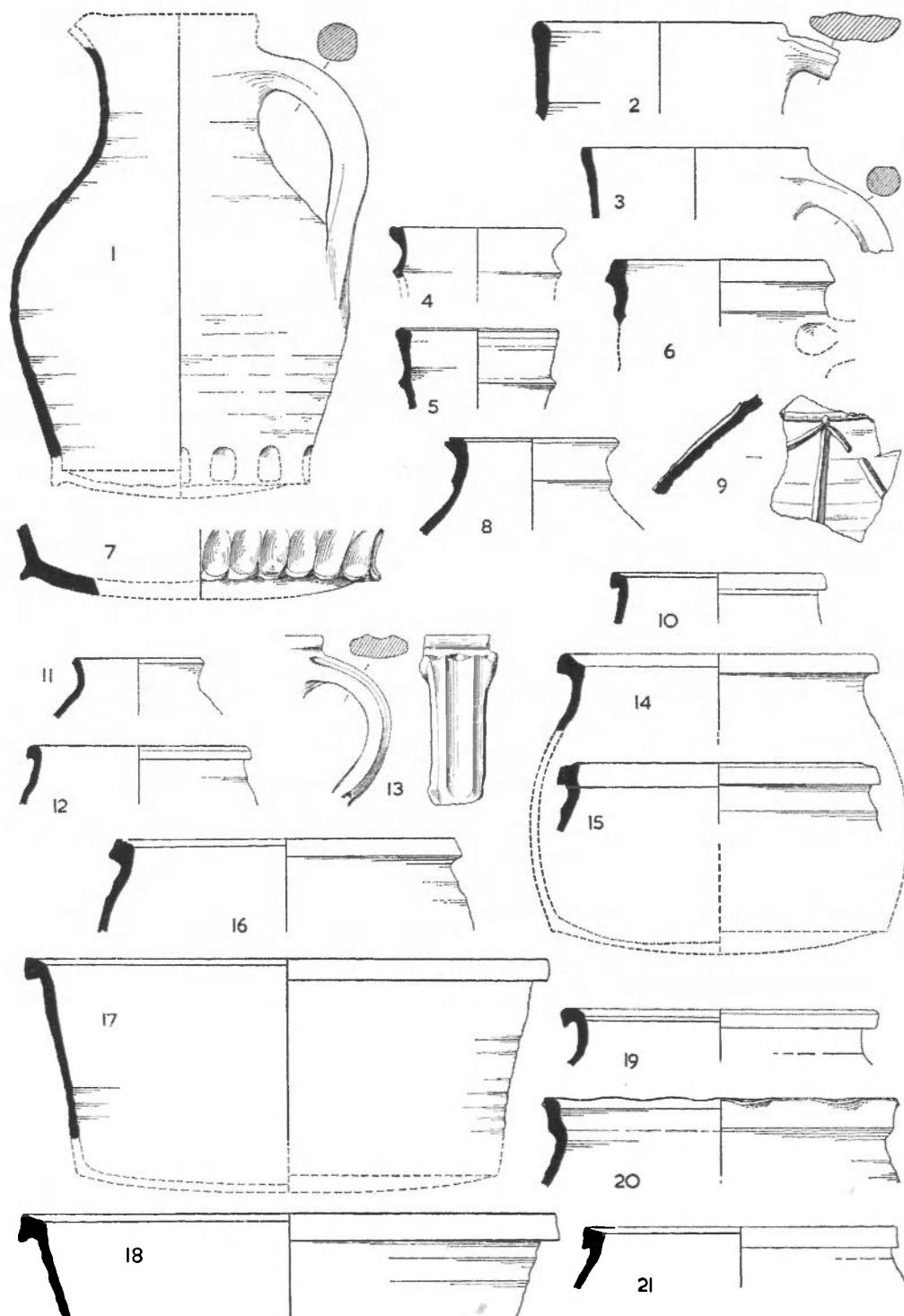
Fig. 23. Medieval pottery ($\frac{1}{2}$)

FIG. 23

1. Conjectural restoration; the body is greyish white, about two-thirds covered with dark green glaze. From CL(7).
2. Greyish white body, buff surface, with thick green glaze, partly chipped off. The strap handle is grooved. From CL(12).
3. Hard greyish white ware, with dark green glaze. Probably contemporary with 1. From CL(12).
4. Ware similar to 2. Partly glazed with thick, treacly dark green glaze. There is a strong neck cordon. From CL(9).
5. Hard grey sandy ware; green glaze. From CL(9).
6. Hard smooth grey ware, partly glazed in dark green. Surface oxydised where glaze is absent. There is a trace of foliation where the handle joins the neck. From CL(12).
7. Base in greyish white ware with a few spots of green glaze. The finger-printing is carelessly done and set at an angle to the body. From CL(7).
8. Similar to 4. From CL(12).

GROUP 2

Some difficulty exists with regard to the glazed pitcher sherds found in association with many fragments of late 12th-century cooking pots from the next group of pottery found in Trench PS. This type of gritty, angular-rimmed cooking pot is now well known in the north of England.¹ The earliest dated fragments known are those associated with the first building period at Kirkstall Abbey (c. 1152),² though there is good reason to suppose that a number found at Almondbury may be rather earlier. At Kirkstall the type gave place to a heavier, round-rimmed style early in the 13th century. In the City of York itself, there is no evidence yet to show how long these cooking-pots continued, but they must have gone out of production well before the bulk of the glazed fragments in this trench were made. Most of the glazed pitcher sherds associated with the 12th-century pottery in this trench were too small for illustration, but they included examples of strip and pellet work, applied medallions, and applied strips combined with decorative combing on slightly sandy green-glazed ware, all of a type common well into the 14th century. Part of a handle in Stamford ware was also found in this trench. It is probably an import from East Anglia (fig. 17, 55).

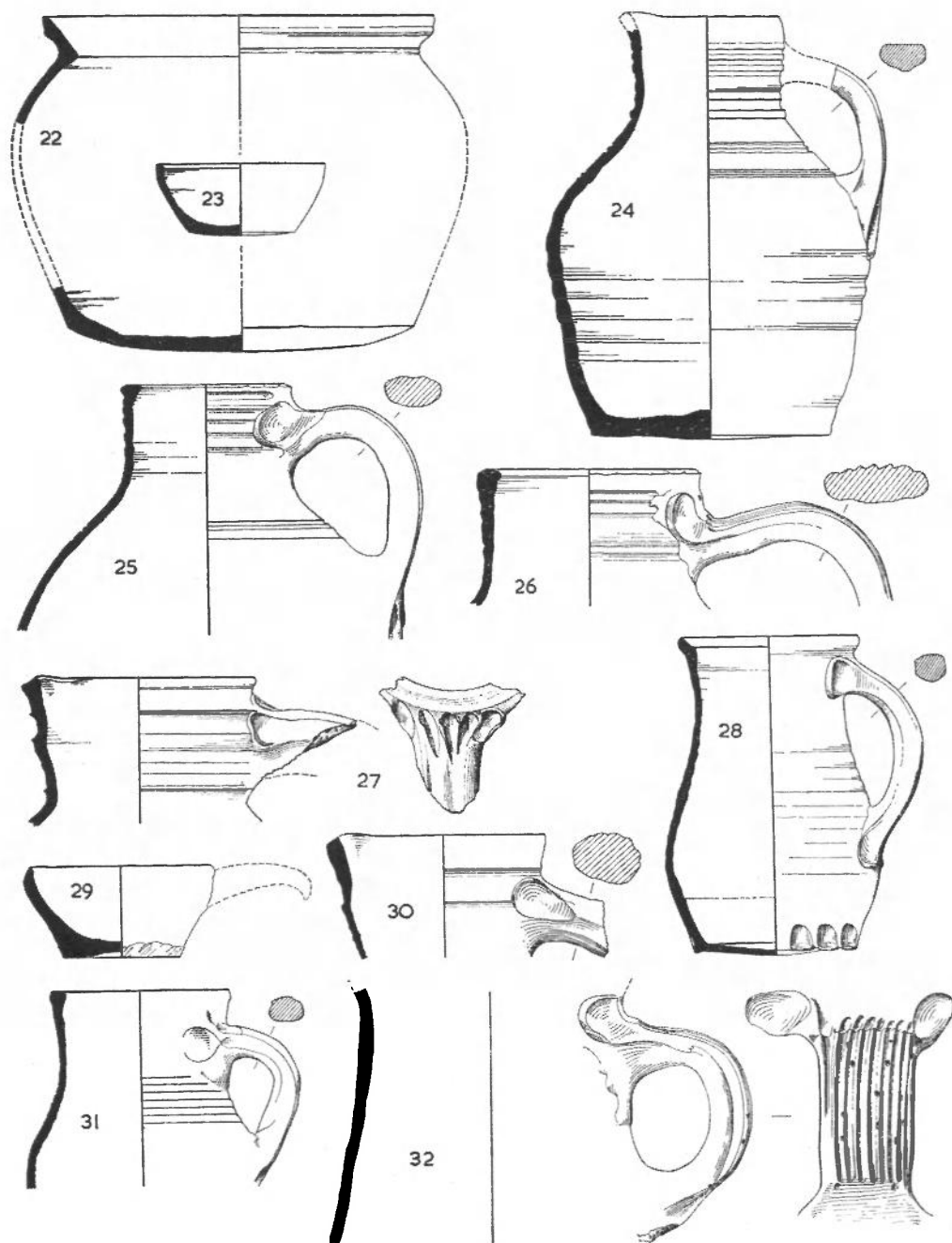
9. Piece of a large pitcher in gritty ware with rather crude applied strips in brown clay under a green glaze. From PS(32).
10. Small cooking pot in gritty grey 12th-century ware. From PS(31).
11. Small pot with thin hard light grey fabric. From PS(32).
12. Similar to 10 in buff ware. From PS(32).
13. Handle in hard grey ware, typical of northern pottery of the 13th-14th centuries. From PS(32).
14. Ware similar to 12. The reconstruction is based on pots from Kirkstall. From PS(32).
15. Ware as 14, pink. From PS(32).
16. Ware as 14, pinkish buff. From PS(32).
17. 12th century bowl with much blackened grey buff body. This shape has been found at Kirkstall and at Wetherby. From PS(31).
18. Similar, in buff ware. From PS(31).
19. A variant of 16 and 21, found also at Wetherby and Almondbury. From PS(32).
20. Rim of finger-printed pot in sandy ware. From PS(32).
21. Similar ware, grey core and pinkish surface. From PS(32).

GROUP 3

The series from Trench XYZ was disappointing. Two keys found in association with the pottery (fig. 28) combined with well defined stratification, gave promise that the Hungate pottery might help to elucidate the problems of the 13th and 14th century development. Unfortunately there were six pots, fragments of which occurred in different layers and linked

¹ *Cumb. & Westm. Antiq. & Arch. Soc. Trans.* N.S. LV (1956), 87-90.

² Kirkstall Abbey Excavations, 1950-54, *Publs. of the Thoresby Soc.* XLIII (1954), 20-24, 64.

Fig. 24. Medieval pottery ($\frac{1}{4}$)

all levels below the flood silt (13)-(22), and while the earliest fragments here are probably of late 13th-century pots, the latest may well belong to the 15th century. This gives too wide a time-range for the extraction of any useful additions to our knowledge of the chronology of York pottery. As might be expected over so long a period, this pottery provides a wide variety of decoration, including continuous rouletting over a large proportion of the body, strip-and-pellet work in both self and contrasting colours, applied medallions, rosettes and various combinations of incised lines. All these are types of decoration well known in the city during the 13th and 14th centuries, when the York potters were producing some of the finest wares in the north. These products, when they find their way into the country-side, stand out in marked contrast to the inferior local wares.

With one exception, all the glazes used are green; though there is a wide variety of shades and a still wider variation in quality. Good quality glaze is found on many 13th-century jugs from the city, and fig. 24, 26, which is almost certainly a late 14th or early 15th-century pot, has an olive-green glaze of almost modern thickness and gloss.

Wares

The main types of ware are already familiar in the north of England. First, there is a hard grey fabric, widely used over the whole region from at least the 14th until well into the 17th century.¹ Frequently the outer surface is oxidised where no glaze is present. Secondly there is a somewhat similar fabric backed with a small proportion of sand, which makes it rather harsher to the touch. This may be either grey or buff in colour. It is used for various kinds of pitcher, including one type which is tall and has an elaborately moulded neck, and it also appears in the small number of cooking-pot sherds found here. A few pots, usually of an inferior standard of workmanship, are in the coarse, gritty fabric found at Kirkstall; and some are in a smooth red ware, possibly the result of complete oxidisation of the grey fabric mentioned above. As to shapes, where sufficient remained of a pitcher for its form to be recognisable, or where it could be inferred from analogous material elsewhere, the types found are already known in the city, though without precise dating. Tall pitchers, several of which are to be found in the Yorkshire Museum, must have been a relatively common type, since the remains of no less than five were found on the site. The necks are elaborately moulded (e.g., 27), the lip is well defined, the handles finished with foliations sometimes developed into a decidedly decorative feature, the base steadied with spaced thumbing. This last was the most usual method of finishing off all pitcher bases found here, although examples of both flat and undecorated rounded bases occurred. The round-bellied jug (25) is of a shape that might be at any time in the period under consideration; a somewhat larger vessel (26) is heavier and thicker and has a strikingly glossy glaze, though its broad, striated handle is more reminiscent of late 15th century pottery. Two small jugs, very much alike (28, 31) have no known parallels in the vicinity. Two small bowls provide a striking contrast; (29) badly made, gritty, irregular and with a very poor patchy glaze, is more like the pottery of small villages such as Ilkley than the well-finished products of the York potters, of which the little bowl (23) found with it seems to be an example.

Cooking Pots

Earthenware cooking pots were used throughout the medieval period and beyond. Indeed many 15th-century recipes specify that an earthen pot should be used and that the lid should be put firmly in place. However, they normally form a decreasing proportion of the pottery found on any site, and in a comparatively wealthy community, such as medieval York, it may be supposed that metal vessels were commonly preferred. Certainly few cooking pots were found here. The most complete example is fig. 24, 22, and several fragmentary rim sherds show it to have been a common shape. Possibly there were lateral handles springing from the out-turned rim. Several such handles came from these levels and the form has been found at other places in Yorkshire. Glaze is confined to the rim and the interior of the base.

¹ Cf. G. C. Dunning, 'A Civil War hoard from Bingley, Yorkshire', *Num. Chron.* 6th ser. VII (1948), 181-2.

FIG. 24

22. Cooking pot in light grey rather gritty fabric, good green glaze. From XYZ(15).
23. Small bowl in light grey ware, well glazed with bright green. From XYZ (11).
24. An almost complete pitcher in sandy buff ware. Though itself unglazed, it has stood next to a glazed vessel in the kiln, since traces of glaze appear on the bulge at one side. Found during mechanical excavation in this area.
25. Jug in grey ware, with brownish-green glaze, decorated with incised lines round the shoulder and below the rim. Plain strap handle. From XYZ (13).
26. Large jug similar to 25 but with a very glossy brownish-green glaze. The grooved strap handle seems 15th century in type. From XYZ(11).
27. Neck and handle very similar to 30 below. Elaborate mouldings round the neck are a feature of this type of pitcher. Found during mechanical excavation.
28. Very similar to 31 below. Found during mechanical excavation.
29. Very roughly made small bowl in gritty ware, poorly glazed. The handle has broken off at the junction. From XYZ(11).
30. Hard grey ware, backed with a small amount of sand. Buff surface, green glaze. From XYZ (13).
31. Well-fired buff ware; greyish green glaze. From XYZ(14).

GROUP 4

The pottery from levels above the flood silt (level 10) seems to be of 16th-century type. There were three main fabrics; a light whitish ware with a bright green glaze, commonly found in Tudor pottery and here used for cups or small bowls of which only tiny pieces remain; the hard grey ware referred to above, at this time used for massive pitchers or cisterns (see 32), often with two or more handles (there are several complete specimens in the Yorkshire Museum); a hard red fabric like modern flower-pot ware, used for small jugs or bottles. Parts of the rim of two pitchers like 31 may also mean that these tall pitchers survived into this later period, though they are more likely to be strays.

FIG. 24.

32. Large pitcher with good brownish-green glaze. Hard grey ware. Pieces of several such vessels were found above the silt. Very similar pitchers have been found at Snaith near Selby. From XYZ(7).

LATE MEDIEVAL POTTERY

This last group is from Trench CL, derived from what was apparently domestic rubbish tipped over levels lying on the surface of the Late Saxon bank, and from pits dug into it. As the layers formed on the slope, pieces from the later deposits have become incorporated in the earlier. The pottery is therefore not a stratified series and can only be grouped by ware and general characteristics, with approximate dating by analogy with dated groups from other sites. The material was very fragmentary and choice of illustration has been made of substantial fragments of single vessels or of smaller types of which several examples were recovered (figs. 25 and 26).

The lowest levels, lying on the old bank surface, produced in the main very abraded 'survival' sherds of the 13th and 14th centuries, with some few fragments of imported 16th century Siegburg and Cologne stonewares and Netherlands majolica.¹

Levels CL(4) and (5) and Pits 1 and 2 offered the bulk of the wares illustrated, tripod cooking pots, large storage vessels, brown glazed tankards and mugs, and colander dishes.

Variants of the tripod pot or skillet (no. 5) appear to be fairly common in groups of domestic wares from London, a type ultimately derived from a metal form. Examples of strip handles are apparently not found before the second half of the 16th century and survive till about 1700. From the Guildhall collections is one of about 1580 (ER 191B) and another dated to the last two decades of the 16th century (ER 289B). The York vessels are perhaps later in date than two others also from London (ER 161 and ER 332G), the first referred to about 1500 with round-sectioned handles in the earlier medieval tradition, the second, almost identical,

¹ I am indebted to Mr. J. G. Hurst for identifying and dating these imported wares as well as English wares; and to Mr. I. Noel-Hume for showing me

unpublished material from the Guildhall Museum Collections.

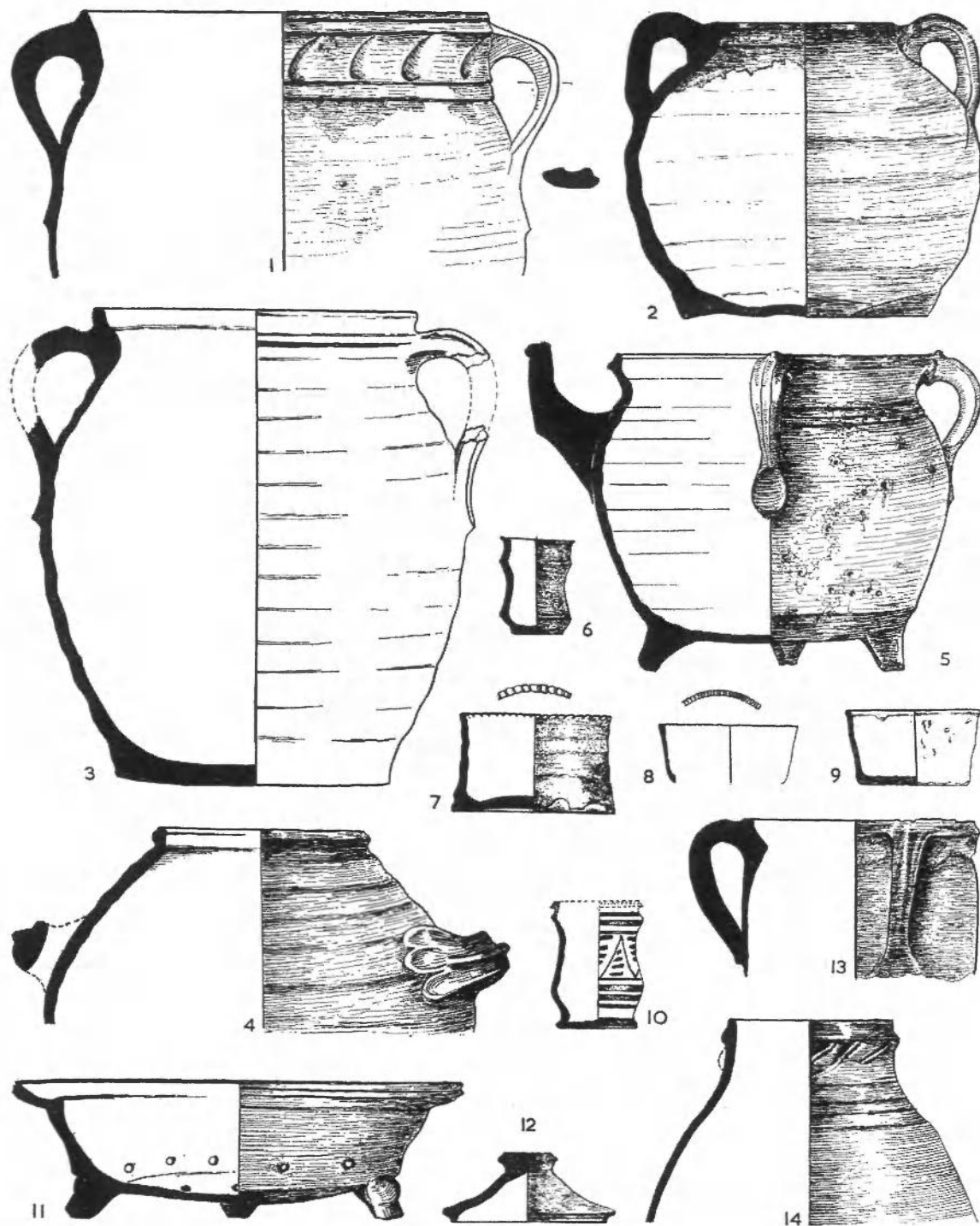


Fig. 25. Later medieval pottery (4)

found with material running up to 1540. A close parallel for the York examples occurred with a group of pottery from Westminster.

Related to the tripod cooking pots by their very similar green glaze, are a number of colander dishes, nos. 11, 15, 17 and 22; no parallels have been found for these two types.

The small pot no. 6, is interesting as a native copy of the imported drug pot, no. 10, and its clear, pale yellow glaze may be compared to that seen on a type of candlestick commonly found in deposits of the last twenty years or so of the 16th century in London. The whitish paste and crackled glaze of nos. 7-9 may be matched on what was apparently a flower pot, also from London, dated by associated German stonewares to between 1540 and 1560 (Guildhall Coll. ER 332F).

A considerable quantity of the dark brown glazed so-called 'Cistercian ware' mugs or tankards were recovered from these levels, some plain, others with applied decoration of crude flowers, blobs and parallel or intersecting bands in yellow. This ware is commonly found on abbey sites in Yorkshire such as Kirkstall, Fountains and Jervaulx.¹ A less common type and better glazed is a mug with rounded body and corrugated walls (nos. 26-30). Two examples of a costrel were recovered (no. 42), a comparable bottle is from the Minories in London (Brit. Mus. *Catalogue of Medieval Pottery*, 91, fig. 82a). Wares in this tradition were still being made in the 17th century though mugs with diametrically opposed handles are not found.

The majority of wares in this group could fall into the 2nd half of the 16th century, with the exception firstly of the brown glazed mug series, which could begin in the first half of the century, and secondly of the large jar, no. 1 which can be paralleled by vessels found in London and dated to the mid-17th century; but these may be a later version, having flatter strap handles, and more closely-set and smaller thumb decoration. The associated imported wares also tend to lower the dating somewhat; though mainly of the 16th, there is an overlap into the 17th century. Included are Cologne, Siegburg and Bellarmine stonewares (fine naturalistic mask of Holmes Type II, 16th-17th century), blue and white Delft and Netherlands majolica.

CL levels (3) and (2) cover the period 1600-1750. The green glazed domestic pottery and 'Cistercian ware' mugs of our group occur now in very small quantities and do not survive into level (2). Native pottery is represented by Wrotham, Wieldon and Stafford combed wares, tankards with dark brown mottled glaze of the Queen Anne period, and Nottingham stone wares; clay pipes appear and are of the second half of the 17th to mid-18th century. The noteworthy absence of real china confirms that material from level (2) can hardly be later than the first half of the 18th century.

FIGS. 25 AND 26

1. Part of a large two-handled crock decorated round the neck with deep thumb prints. The ware has a plum-coloured outer surface, and the glaze is brown inside and spattered green and orange on the outer surface.
2. Roughly made two-handled jar glazed dark brown for an inch or so on the inside. CL(5).
3. Large two-handled crock in grey ware with dark green glaze, the body faintly corrugated. CL(4).
4. Two-handled vessel in buff ware, glazed brown as no. 1 on the outside and for 2 ins. down the inside. The handles have three thumb marks on one side and two on the other. CL(5).
5. Three-legged skillet with three loop handles and one strip handle; the feet are thumbed onto the base. The ware has a grey core with buff to orange surface. The transparent glaze is light yellow-green or orange, pitted, covering the inside and rim but patchy on the outer surface, which is sooted. Fragments of 18 different pots were recovered having the same characteristics of ware and glaze, from levels (3), (4), (5) and Pits 1 and 2.
6. Small drug pot, roughly made with transparent pale yellow to green glaze. CL(4).

¹ P.S.A. 15 (1893), 5. Since controlled excavations have been made at Kirkstall Abbey, pottery of this type has been found under the floor of a building erected possibly in the early 16th century. (Kirkstall

Abbey, 3rd Report, 1952, *Pub. Thoresby Soc.* (1953) 43, Pl. V and fig. 13, 16). It is interesting to find one example of a porringer as far north as Melrose Abbey, P.S.A. Scot. 87 (1952-3), 170, no. 33, Pl. XXIX, 2).

- 7, 8, 9. Three small jars in soft, white ware, covered with a thin pale yellow glaze which scales off and is cracked; no. 7 is slightly mottled with green spots and the rim is slashed; no. 8 has an impressed pattern on the rim. Fragments of five similar pots were recovered, probably of local make. From CL(4) and (5).
10. Small drug pot in Netherlands majolica ware with pattern in orange and blue, comparable to an Albarello example from Namur in the Victoria and Albert Museum, dated not later than 1570 (B. Rackham, *Early Netherlands Majolica*, 1926, 111, pl. 38a). CL(4).

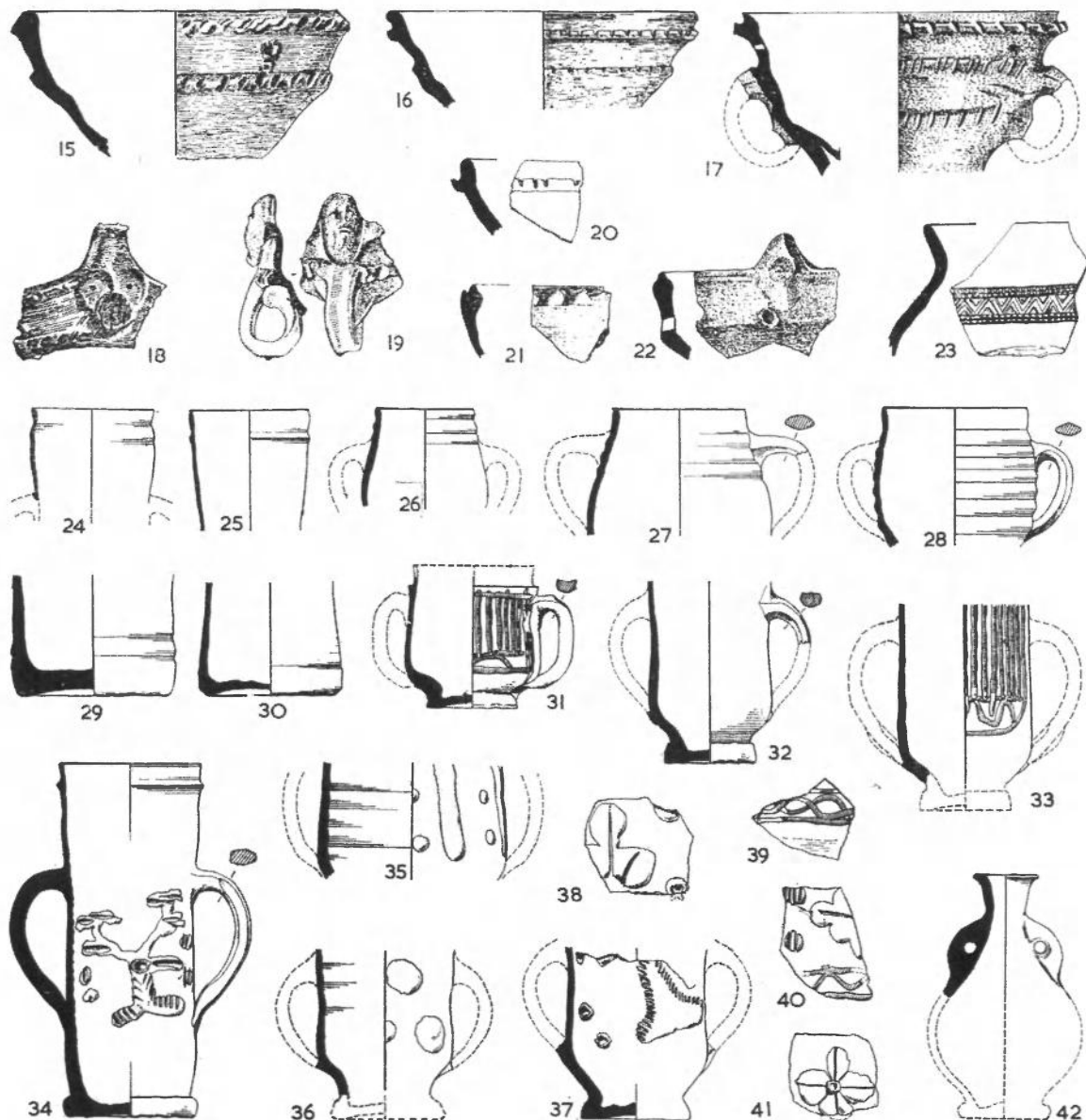


Fig. 26. Late medieval pottery (1)

11. Three-legged colander dish in orange ware covered inside and out in much the same yellowish green glaze as the skillet no. 5, but less transparent. The feet are 'thumbed' on. The holes have been very roughly pierced before firing. CL(4).
12. Lid, ware and glaze as no. 4.
13. Four-handled jug, decorated below the rim with thumb impressions, in relatively fine grey ware; outer surface covered with translucent light green glaze, inner surface more thinly glazed. Handles unevenly disposed, and mouth slightly oval. A fragment of a second jug had a knobbed raised decoration round the neck. CL(4).
14. Part of a jug, possibly handled as no. 13. Ware similar to that of no. 13 and it is decorated with a cable pattern round the neck. CL(4).
15. Colander dish glazed as no. 11, with slashed decoration roughly executed on two raised bands. Two holes have been jabbed from the inside out before baking. CL(4).
16. Part of a dish in same ware as no. 15. CL(4).
17. Part of a two-handled colander dish comparable to no. 15. CL(4).
18. Rim of a dish with lug handle probably of similar type to no. 22 but modelled and incised to represent a human bearded face the right way up and the head of a bovine when reversed. Glaze and colour is similar to no. 11. One other lug which shows the upper part with eyes and nose was made separately and pressed onto the rim. CL(4). Pl. VIb.
19. Ring handle, possibly from a colander dish, decorated with a bearded face mask, in unusual light yellow glazed ware. A raised cordon with slashed ornament runs round the vessel at handle level as on no. 18. CL(4). Pl. VIc.
20. Part of a dish with slashed decoration on a raised band. Ware, red, and glaze (on the inside only) as on no. 5. CL(4).
21. Part of a dish similar to no. 20 with pie-crust decoration. The glaze (on the inside only) is deeper green than is usual in this group. CL(4).
22. Part of a colander dish glazed a yellow green, the upright lug on the rim has been 'thumbed' on; two holes have been roughly bored through the vessel from the inside out. CL(5).
23. Vessel in orange ware similar to no. 5 glazed on inside only, the shoulder decorated with a rouletted pattern. Fragments of three similar pots were found. CL(4).
- 24-42. Two-handled mugs and tankards and one costrel, very roughly made, especially round the base which is left uneven with lumps of clay adhering. The paste, brown or red, is very hard and brittle, often over-fired. The glaze is a treacly, dark purple-brown, often with a silvery metallic sheen. The applied decoration is glazed yellow and deeply slashed. Nos. 26-30 with corrugated sides are slightly better made. Pl. VIa.

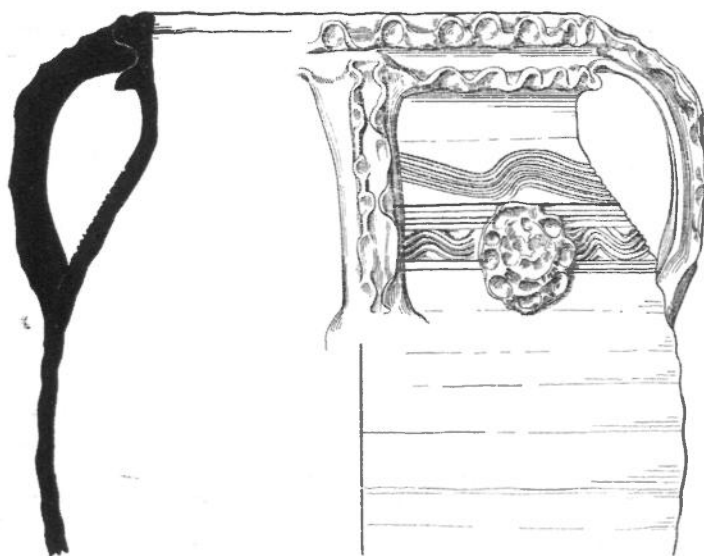


Fig. 27. No. 43, Later medieval pottery ($\frac{1}{4}$)

FIG. 27.

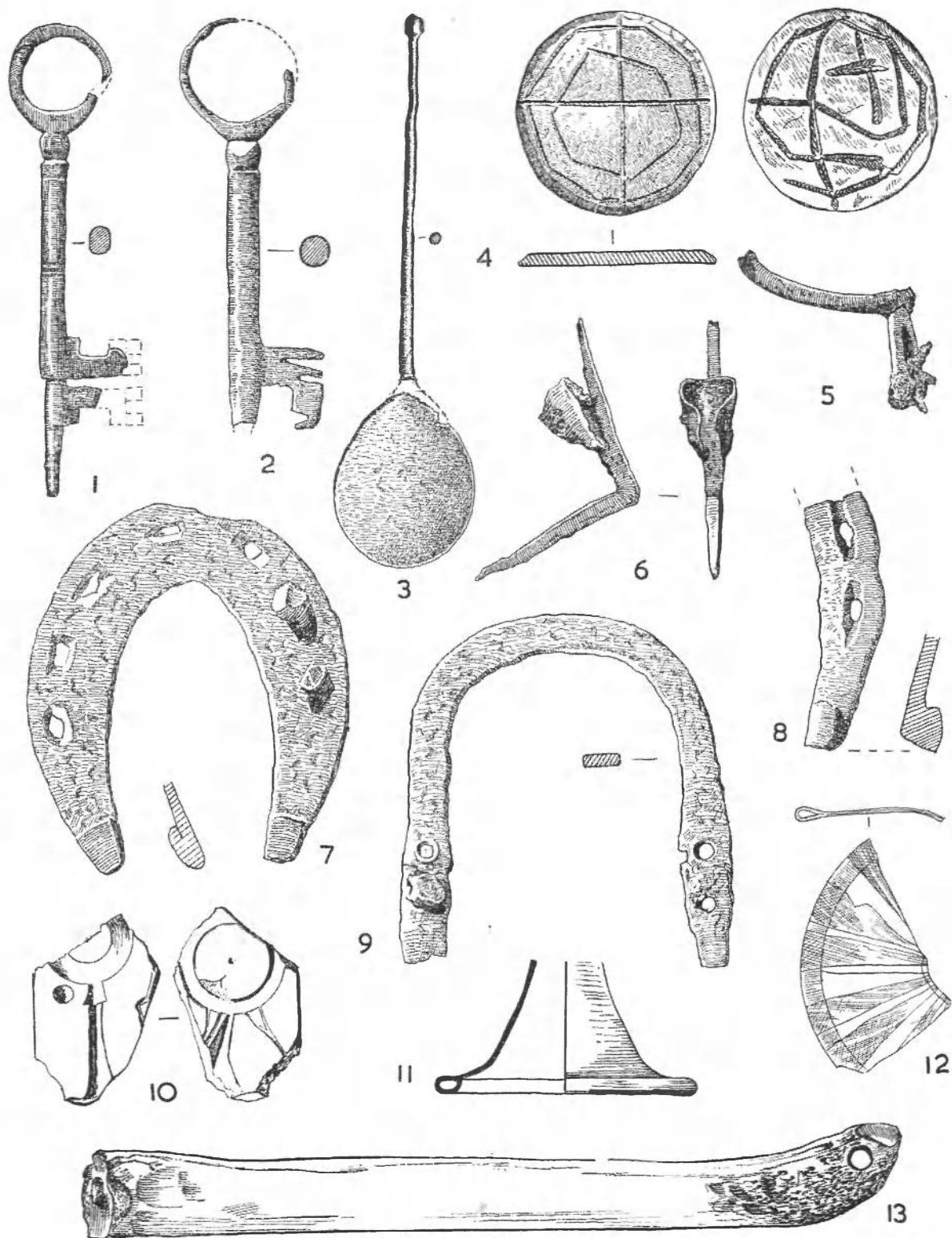
43. Large four-handled vessel in hard grey ware covered in a thick bright green glaze; decorated with applied frilled ornament round the rim and on the handles, incised wavy lines combed round the body on the shoulder, and applied rosettes. Glaze and decoration are in Tudor style. Fragments were fitted from levels (3), (4) and (5).

MEDIEVAL SMALL FINDS

FIG. 28.

1. Solid iron key with circular bow and point projecting below the bit which was probably symmetrical. About half the bow was found separate. One end suggests a break; the other flattened, appears to overlap and match the corresponding end of the key, suggesting an ancient line of weakness. But no evidence of brazing or 'welding' repair could be seen.¹ The circular bow is a relatively early feature of a series which runs on from the mid 13th to the 15th century and this example may probably be assigned to the 14th century (see *Lon. Mus., Medieval Cat.*, no. 7 (1940) 141, pl. XXXI, Type VIIA). From XYZ(15) with pottery of 13th-15th centuries.¹
2. Iron key with circular bow, hollow for half the length, and forged from a single piece of metal (cf. fig. 18, nos. 13 and 14).¹ The stem is broken and the type is therefore not certain but is probably of the 14th century. (cf. *ibid.*, Pl. XXXI, 45, type IV). XYZ(15).¹
3. Latten spoon with ball knob and pear-shaped bowl, probably of 15th century date (cf. *ibid.*, 128, fig. 41, type C). XYZ(13).
4. Lead disc engraved on both sides with a meaningless feathered design. Possibly used as a counter. XYZ(14).
5. Iron spur with six-pointed rowel and short shank, which can be dated to the first half of the 14th century, but associated pottery includes 13th-15th century wares. (*ibid.*, fig. 34, 1, p. 103). XYZ(11).
6. Iron pricket candlestick. The horizontal spike was driven into the wall or table, the candle could be inserted in the socket or, if too large, could be impaled on the upright spike. Cf. Cuming, *Journ. Brit. Arch. Assoc.* 25 (1869), 54, Pl. 1, 3, a 16th century example and *Lon. Mus. Cat.* no. 7, fig. 50, 2. In common use in the later middle ages but not closely dated. Not stratified.
7. Iron horseshoe with small, slightly countersunk nail-holes and small turn-over calkins. Mid-13th century. Cf. shoe from Dysert's Castle dated 1241-63. (*Arch. Camb.* 70 (1915), 65, fig. 10.) Not stratified.
8. Part of an iron horseshoe with narrow countersunk nail-holes, sinuous in outline and small turn-over calkins. Mid-12th century. Not stratified.
9. Small iron bucket handle. Not stratified.
10. Mould of fine-grained calcite mudstone, with a matrix on both sides probably for casting plain circular brooches of bronze or pewter, one of which would have been flat and the other triangular in section. A keying hole for the upper half of the mould is seen on one side. Circular utilitarian brooches were in common use over the medieval period (see *Lon. Mus. Cat.* No. 7, Pl. LXXVII, 1-7 and p. 273). A mould with matrices on one side for two similar brooches and on the other for casting two pilgrim's badges figuring St. Andrew and a crucifix was recovered from St. Andrew's churchyard, North Berwick (*Proc. Soc. Ant. Scot.* 41 (1906-7), 431, figs. 5 and 6); such badges belong chiefly to the 14th and 15th centuries. The Hungate mould is from the levels that produced 13th-15th century pottery. From XYZ(13).
11. Base of a drinking glass. Dr. D. B. Harden describes this as of Woodchester type (J. S. Daniels, *Woodchester Glass House*, 1950, Pls. vii and viii, and S. E. Wimbolt, *Wealden Glass* 1933, fig. on p. 39) of late 16th to early 17th century, having a pushed-in base with the glass double right up to the top of the extant fragment and a tubular ring on which the vessel stands. From CL(6).
12. Fragment of the base of a wine glass of a similar stemmed vessel, described by Dr. Harden as of 'Venetian' type (though not necessarily of Venetian fabric) with opaque white network (laticinio) pattern, and probably of 16th-17th century date (see E. B. Haynes, *Glass through the Ages*, Pelican Books, 1948, Pls. 13b, 16d, and 17c). From CL (2).
13. Skate made from an ox bone, planed off flat on the underside and roughly trimmed to a point at the toe, which is perforated. There is a hole drilled in the other end, to take a wooden peg, which is still in place. Thongs would be used to bind the foot to the skate. Two such were found during mechanical excavation. To judge from a passage in Fitz Stephen's *Description of the Noble City of London* where London youths are described as binding bones on their feet and propelling themselves with iron shod poles over the frozen Moorfields, such skates were in use in the 12th century. (*Chron. and Mem. of Great Britain and Ireland* 67, vol. III (1877) 11.) Bone skates were in use before the Conquest, but the

¹ Kindly examined by Mr. L. Biek,

Fig. 28. Medieval Small Finds ($\frac{1}{2}$)

type illustrated from Scandinavian sites differs in shape (Arbman, *Birka, Die Gräber* (1940). Pl. 157, 6 and 7 and P. Norland, *Nordiske Fortidsminder* IV (1948), Pl. liii, 9).

Not illustrated: A bronze bodkin XYZ(13); a rectangular bone knife handle with carefully worked grooved decoration, XYZ(12); knotted wooden tally stick, XYZ(11); two whetstones, one of banded calcareous grit from XYZ(10), and the other of banded schist, from CL(4).

A jetton or casting counter issued by Hans Krau Winckel of Nuremburg (1580-1610), the most prolific of the German makers, whose products were very commonly used in this country in the 16th and early 17th century. The present example is typical of the late German series.

Obv. Three open crowns and three lys arranged alternately round a rose within an inner circle of rope pattern. *Leg.* HANNIS KRAVWINCKEL IN NVRENBE.

Rev. The Reichapfel within a double tressure of three curves and three angles set alternately, all within an inner circle of rope pattern. *Leg.* VERBVM DOMINI MANET IN ETERN. From CL(2). (see F. P. Barnard, *The Casting Counter and Counting Board* (1916), pp. 36, and 222 and Pl. XXXIII, 84-6).

LEATHER SHEATHS

The four leather sheaths illustrated were recovered during mechanical excavation.¹

No decoration survives on the military dagger and sword-sheaths seen on medieval monumental effigies, though they may have elaborate metal mountings. The relatively small decorated sheaths of the type to be described below, which lack metal fittings, appear to have been worn in the Middle Ages by civilians to hold a general purpose dagger-knife in the nature of the Saxon scramasax, which, as a type, survived well into that period.

FIG. 29. and Pl. VII.

1. Of the Hungate sheaths, this, with the seam up the longer side, has an oblique point and was apparently shaped to accommodate a knife of this type. The position of the knife handle is outlined by a division of the design forming a panel. There are four slits in the back near the top through which passed a thong to attach it to the belt of the owner. These holes are roughly jabbed through the leather. The decoration is in very slight relief, the outline engraved with a blunt tool. The design on the front consists of winged monsters within what appears to be a degenerate acanthus scroll. These beasts have curious domed heads with prominent round ears; the eyes are indicated by pricked dots, which also appear elsewhere in the design. Two trilobate arcades are engraved on the back below the handle panel. A leather object of unknown use in the Guildhall Museum (no. 14, 6827, provenance unknown) has identical beasts with domed heads and pricked dots here and there. Closely comparable in shape and decoration is a sheath from Westminster, (*Lon. Mus. Cat.* 7 (1940), Pl. XL, 3). At least five others decorated in the same style are from the Roach Smith Collection (Brit. Mus. provenance unknown). The Skelton collection of leather work in the Coventry Museum includes a number of fine sheaths, four of which are comparable to the York examples (*Tr. Birmingham Arch. Soc.* 58 (1934), 55, nos. 9 and 10 and two others not illustrated). All the sheaths of this group have in common their shape, the position of the knife handle indicated by a panel, and, when the design is recognisable, winged monsters set in acanthus scrolls and plain or trilobate arcading. There is sufficient variety in the design to suggest that the sheaths, though closely related in style, are not necessarily the product of one workshop. The mode of decoration is typical of the late 12th century (*Lon. Mus. Cat.* 7, p. 186). Whence the subject matter of the designs is immediately derived is not clear, though in character it is akin to the 'Romanesque' style of ornament on leather book bindings of the 12th century (G. D. Hobson, *English Bindings before 1500*, 1938). Certain elements found in illuminated MSS. are, however, of interest in this context.

In the first place fabulous monsters, usually enmeshed in branching foliage or interlace, occur frequently in MSS. as early as the 9th and right down to the 14th century. But a type with or without wings, having a bald, domed head and large round ears, comparable to the beasts on the sheaths is a feature in late 12th and 13th century illuminations.² Again, twining acanthus tendrils which appear at an early date in the decoration of MSS. are frequently painted as border scrolls in the 13th century,³ but are entirely superseded in the 14th century by ivy leaves and other pointed vegetation, acorns and buds.⁴

¹ I should like to thank the Department of British and Medieval Antiquities of the British Museum, the London Museum, the Guildhall Museum and the Coventry Museum for facilities enabling me to examine their collections of dagger sheaths.

² *Westminster Psalter*, Brit. Mus. Royal MS. 2A XXII, f. 15, late 12th c.; *Arundel Psalter*, Brit. Mus.

Arundel MS. 157, f. 19, early 13th c.; *Rutland Psalter*, f. 85, mid 13th c.; *Psalter*, Brit. Mus. Royal MS. 2B II, mid-13th c.; *Latin Lectionary*, Brit. Mus. Add. MS. 24, 686, late 13th c.; Vegetius, *Art of War*, Brit. Mus. Add. MS. 11, 698. Late 13th c.

³ Brit. Mus. Add. MS. 15, 452; Add. MS. 11, 698; Add. MS. 24, 686, Late 13th c.

⁴ Brit. Mus. Add. MS. 28, 162. Early 14th c.

Lastly, the simple trefoil arches first used by the Romanesque builders are found framing biblical scenes in 13th century illuminations.¹ In the 14th century arcading is still used, but no longer of the simple trilobate kind. From this it appears that all three decorative elements are representative of 13th century MSS.

A second related group of sheaths still shows fabulous beasts set in acanthus scrolls or trilobate arcading on the one side and shields of arms on the reverse, as may be seen on a fragmentary sheath in the London Museum which figures the leopards of England (*Lon. Mus. Cat.* Pl. XLIII). Sheaths with armorial bearings are thought to date from the 13th century.

It seems likely that the Hungate sheath is of a group first made in the late 12th century but which continued to be produced well into the 13th.

2. This small sheath has the seam up the side and is roughly pierced with two holes front and back for suspension. The engraved pattern is quite meaningless but is of the same character as no. 1. The panel division for the knife handle is about half way down the sheath. It is presumably of the same date as no. 1.
3. This has the seam running up the centre of the back and two carefully made slits for the suspension thong. The panel division for the handle is again about halfway down. The point of the sheath has three parallel lines engraved round it, perhaps in crude imitation of a type of small sheath, well represented in the British Museum, which has a knobbed end formed by raised bands in the leather. These are for the most part undecorated, save for lines engraved vertically, ending in pricked dots and two raised bands halfway down, the bands and knobbed ends simulating, it would appear, tips and reinforcing girths of metal. The upper zone on no. 3 is unevenly decorated in slight relief with two birdlike creatures and what might be degenerate acanthus or fleur-de-lys, each within the triangles formed by two dotted intersecting bands. Below this a long-tailed bird is depicted. The background and the birds are lightly hatched, and the back of the sheath is covered with diagonal hatching. The arrangement of the creatures in triangular or lozenge-shaped frames and the use of degenerate fleur-de-lys appear to be features of the later medieval period. The Hungate sheath may be compared to a fragmentary example from Thames Street now in the London Museum (*Med. Cat.* Pl. XLIV, 3) dated to the 13th-14th century, which has a similar bird, also running vertically up from the sheath tip. Animals in this style, pursuing each other up the sheath, a hare, a hound and a pheasant-like bird, framed in an acanthus scroll, are to be seen on a sheath from the site of the Bank of England (Guildhall Mus. Coll. no. 14 (615, 1937). The back has diagonal hatching and a trilobate plant design in a triangular framework. The hound coursing the hare is reminiscent of the hunting scenes frequently seen as marginal decoration on the illuminated MSS. of the later 13th century.²

A number of sheaths appear to combine several elements of earlier and later date, weird beasts reminiscent of Hungate sheath no. 1, but set in trellis frameworks, arcading, shields of arms and cross-hatching. Such are from Coventry (*Tr. Birmingham Arch. Soc.* 58 (1934) 55, no. 2), London (*Lon. Mus. Cat.* 7, Pl. XLIV, 2, in Guildhall Mus.) and from Bergen and Lund in Sweden (*Kulturen* (1937) p. 156, figs. 31 and 26), the latter dated there to the 14th-15th century. These illustrate the persistence of earlier decorative motifs.

4. This sheath, with the seam up the side, has the upper part widened to accommodate the knife handle. There are four slits in the back for suspension thongs. On the front the sheath is decorated with a stamped design composed of a double row of eagles displayed enclosed in linked oval frames, at the tip is one lion passant and on the back a single row of similar lions set in oval frames. The handle panel is defined by hatching. The Hungate sheath can be paralleled in shape and ornament by another from Thames Street, now in the London Museum, which is referred to the 15th century (*Lon. Mus. Cat.* 7, Pl. L, 3), while a curiously shaped sheath, widening towards the lower end, from the site of the Royal Aquarium, Westminster, has stamped eagles displayed in lozenge frames (*ibid.*, Pl. L, 2). The Guildhall collections have a sheath, triangular in shape, with stamped eagles displayed and lions (no. 4662), the latter very similar to those on the York sheath. A second (no. 4663) from London Wall, with lions on both front and back, could have been impressed with the same stamp. The Coventry group includes an example from Broadgate with, on the one side, lions set in trellis at the lower end and in oval frames at the upper end; the reverse has pairs of engraved diagonal lines. The same heraldic motifs appear again on sword and dagger sheaths from Lund in Sweden assigned to the 14th-15th century (*Kulturen* (1937) pp. 158-60, figs. 32-4). The vogue for stamped decoration on leather appears at an earlier date on leather book bindings, and by the mid-15th century there is a monotonous lack of variety in the stamps used in that craft, attributed by Hobson to the commercialisation of the art, which had by now passed into the hands of lay craftsmen, who had to provide their own stamps. The subject matter of stamps used by the sheath makers is equally restricted.

¹ Brit. Mus. Add. MS. 17, 868, f.14b and f.21. 13th c.; *ibid.*, Psalter, Royal MS. I D I. Mid 13th c.; *ibid.*, Latin Lectionary, Add. MS. 17, 341. Late 13th c.

² *Somme le Roi*, Brit. Mus. Add. MS. 28, 162, c. 1279.

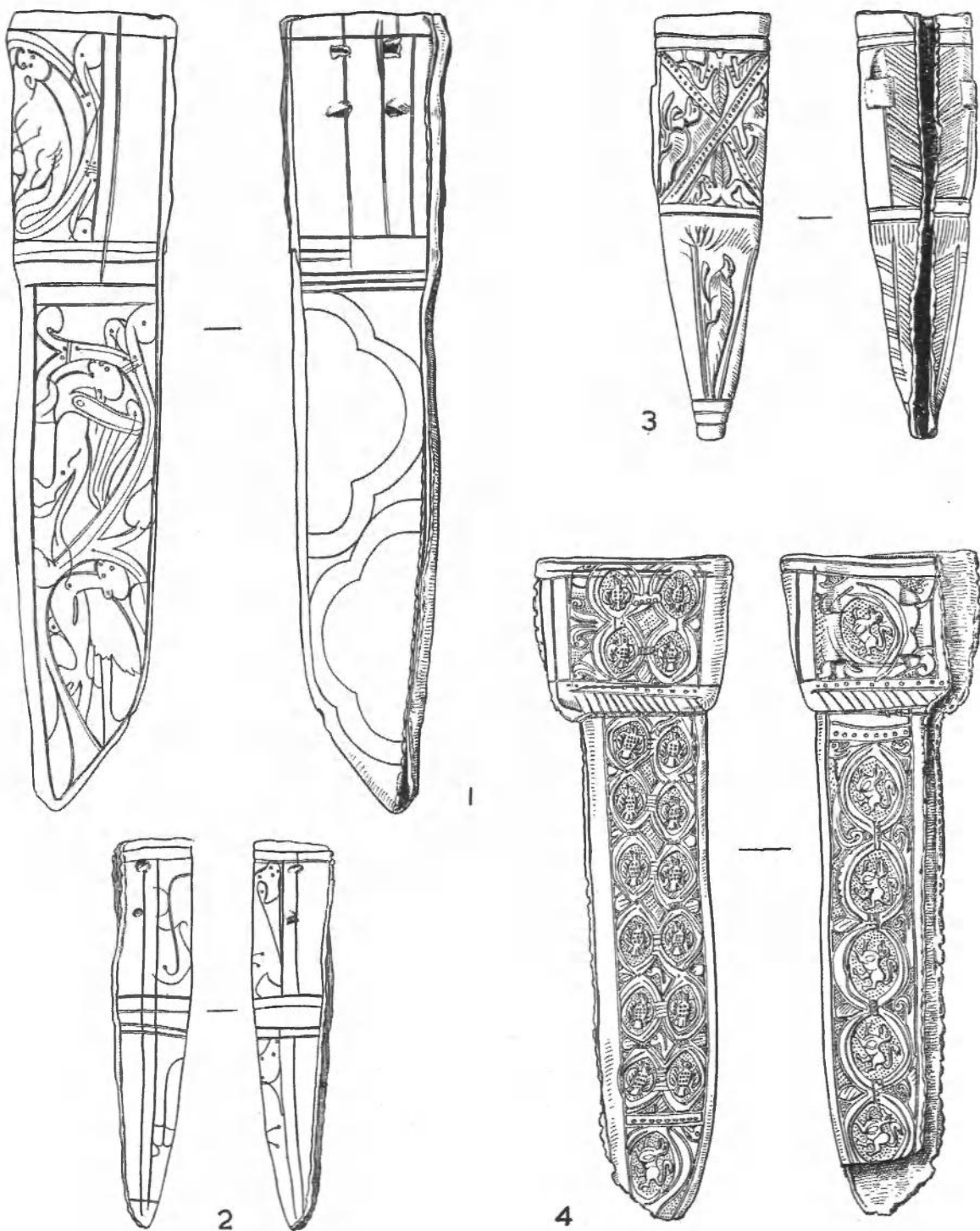


Fig. 29. Medieval leather sheaths ($\frac{1}{2}$)

Although some of the earlier sheaths ornamented with engraved shields of arms may carry the bearings of the owner or his overlord,¹ those with all-over stamped heraldic motifs were not necessarily worn by those entitled to use such a badge. The motifs are few in number, and almost identical designs of lions, eagles and fleur-de-lys may be seen on sheaths from London, Coventry, York and from Sweden whither they are held to have been imported. It is to be inferred from the relatively poor quality of much of the work and the paucity of stamps used, that the majority of these sheaths, which were being turned out in large numbers, were the work of craftsmen catering for the requirements of a clientele anxious to ape the nobility and gentry by sporting a utility knife housed in a sheath stamped with conventionalised heraldic devices.

The four sheaths from Hungate thus represent three types commonly in use among the civilian population of this country from the late 12th or early 13th-century down to the 15th century.

BOOTS AND SHOES

FIG. 30.

1. Boot made of one piece of leather with a seam up the side and open in front above the instep. 'Blind' stitch holes along the edge of the upper part indicate that material may have been sewn on to wrap round the leg or as a lining, while slits at the sides are for thongs to bind round the leg. The boot was recovered during mechanical excavation and cannot therefore be dated by associated material, but a similar type of boot from Lund in Sweden derives from a level dated to approximately the early 14th century, (*Kulturen* (1938), Pl. 205-8, fig. 35).

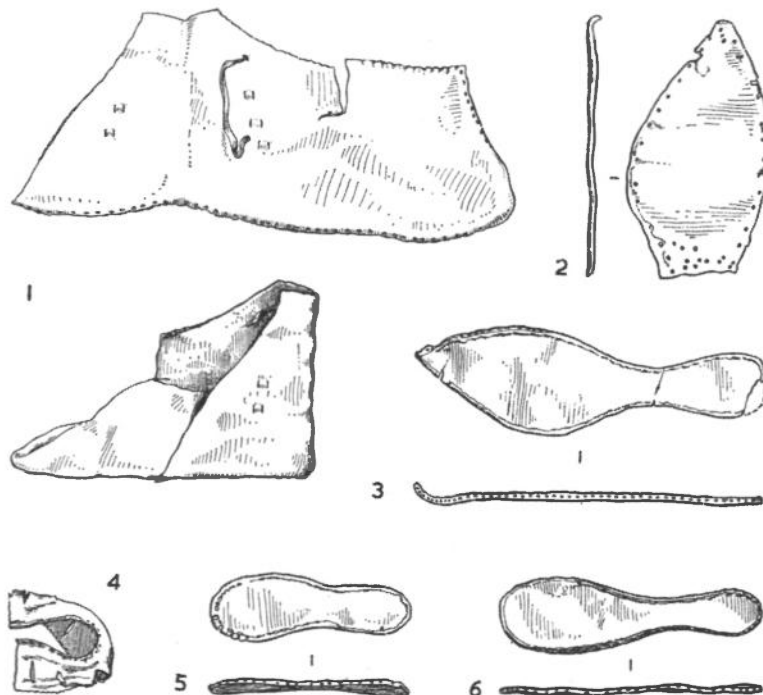


Fig. 30. Medieval boot and shoes (1)

¹ Certain of the Coventry sheaths would appear to be ornamented with real blazons, e.g., *Trans. Birmingham Arch. Soc.* 58 (1934), 55, no. 4, the

Byrmingham arms, no. 11, the Goodycar and Clare arms.

FIG. 30.

Not illustrated. Another fragment, also unstratified, appears to be part of a second type of boot, also found in Lund and from the same early 14th-century level quoted above (*ibid.*, figs. 36, 37). This has the upper part meeting in front, and has five incisions on the sides for thongs to tie round the ankle and leg. The thongs widen to 1.2 cm. at the ends and have slits like button holes. Comparable boots with two and three rows of thonging are to be seen in illuminated MSS. of the late 13th and early 14th centuries which appear to illustrate boots and shoes in use by the commonalty of the period. (*La Somme le Roi*, Brit. Mus. Add. MS. 28, 162, dated c. 1279 and the Holkham Bible, dated c. 1325-30.)

- 2 and 3. Two shoe soles. Shoes with pointed toes were already being worn in the 14th century but this fashion did not reach its extremes till the mid-15th century (see Camille Piton, *Le Costume en France du XIII-XIX Siècle*, showing scenes at the courts of Philip the Good (1464) and Charles the Bold (1468) taken from MSS.) These soles are from a late level and must belong to the end of the period. That the fashion is unlikely to have been followed by the ordinary citizen is seen from the Lund collections which produced only three shoes with pointed soles (Kulturen (1938) p. 216, figs. 47, 57, and 60; no. 47 is thought to be of 14th-century date). Shoe soles of comparable shape were found deep in the silt of the Norwich Town Ditch in levels which contained fragments of 15th-century leather sheaths and pottery mainly of that date. (*Norfolk Arch.* XXXI (1955), 101, fig. 25, 2 and 3.) From XYZ in level immediately below (7).
4. Heel end of an upper with slashes, presumably part of a shoe of 16th-century date. The level from which it is derived included pottery of the period. From CL(6).
- 5 and 6. Soles derived from the same levels as no. 4 and probably belonging to the same type of shoe; the rounded ends contrast with nos. 2 and 3.

APPENDIX I

NOTE ON THE USE OF GRITSTONE IN YORK

By H. G. Ramm

Roman Period

The main building material used in York during this period is usually limestone rubble for the core with a facing of magnesian limestone in small dressed blocks. Gritstone was, however, brought to York in large quantities as is evidenced by its use for coffins, the larger tombstones, sepulchral monuments of all kinds and for architectural features in which mortar joints would detract from the appearance, e.g., columns and friezes. It has been suggested that the use of gritstone as a building feature was late, on the basis of its occurrence in the 4th century N.W. Gate and in the baths. The S.E. Trajanic Gate to the Fortress had its building inscription on a slab of magnesian limestone; it can be assumed that the gate was of limestone. But gritstone was used in monumental stones at least by the mid 2nd-century and it would be difficult to prove that the columns found in the Fortress and colonia were all of the late date. It was used in the NW. Gate to give monumental effect because the gritstone could be more readily cut in large blocks than the limestone, and in the late baths in the Fortress for structural reasons because of the heat it would have to withstand. Large slabs were placed axially down the centre of the main street of the Fortress (Via Praetoria) and of a subsidiary street in the colonia. It is therefore clear that although not the ordinary building material, gritstone was used in Roman York in substantial quantities.

Post Roman Period

Firstly, Roman stones were definitely re-used. Secondly, after the Norman Conquest, no surviving building was built wholly or largely in gritstone, and where it occurs it is just the occasional block in a wall of other material. Thirdly, it is much commoner in the early Norman and pre-Conquest periods than in the later. Where it is found in these earlier buildings it occurs re-used in walls of miscellaneous stones. The smaller material, often containing other suspected or known Roman stone, is used for walling, whilst the larger blocks of gritstone have been selected for coigns and footings. It is significant that the two nearest medieval suburban churches outside the Roman area, both early Norman, do not contain any gritstone. The only post-Roman use of gritstone consistently in an architectural feature where re-use does not suggest itself at once as the obvious explanation, is in the early 11th-century tower arch of St. Mary Bishopshill Junior. Here, however, re-use cannot be disproved.

The evidence suggests therefore firstly, that newly quarried gritstone was not brought to York by medieval builders who had at hand a source of stone in the magnesian limestone of the Tadcaster area, which was sent all over the country; and secondly, that having been used in fair quantities by the Romans in large blocks, there was a considerable supply of this stone in York for later builders to draw on. The places where it occurs, and the dates at which it is mostly used confirm the suspicion that, where found, it is re-used. When a building is entirely of gritstone, with no evidence of the stones' re-use, we can state confidently that it is not post-Norman conquest, and, with a fair degree of probability that is not Danish or Anglian but Roman.

APPENDIX II

NOTE ON THE SOIL CONDITIONS CONDUCTIVE TO THE PRESERVATION OF THE IRONWORK

By L. Biek, Ancient Monuments Laboratory

Soil conditions similar to those found at Hungate have been observed quite frequently¹ but this appears to be the first time that an attempt has been made to examine systematically the factors responsible for the preservation of ironwork.²

The basic process underlying the corrosion of iron in the presence of water is electrolytic. Like a battery, it depends for its continuation on efficient depolarisation. In the ordinary way, this is provided by oxygen, either from the air or from aerated soil water.

In waterlogged clay, where the normal oxygen supply is virtually and permanently cut off, depolarisation may, under suitable conditions, be effected by bacteria. Severe localised pitting, and even perforation of thick-walled iron pipes, accompanied by the formation of a thick, hard, brownish-black crust of iron sulphide, can and does as a rule occur very rapidly (in five to ten years). Iron objects will therefore not be preserved simply as a result of being buried in waterlogged soil. When under such conditions well-preserved iron objects are found in a closely datable archaeological context, the evidence is of great value to corrosion research.

Such ironwork, found in waterlogged ditches, wells, rubbish pits, bogs, river mud, etc., is associated with the following general characteristics:

- (1) The virtual absence of any rusty colour on the surface of ironwork, and of any similar colour from the surrounding soil.
- (2) Patches of intense blue colour, varying from royal blue when wet to bright powder blue when dry. These occur on all the materials present, especially on wood and even on pottery which would not normally be expected to contribute to their formation.
- (3) A smooth, hard, glossy black coating on ironwork (fig. 18, 14).
- (4) A rough, matt, cement-grey and somewhat irregular covering on iron objects, similar to the surrounding soil (fig. 18, 13).
- (5) The remarkable preservation of the shape of iron objects, usually in considerable detail (fig. 18, 5 and 9). For similar but different reasons, copper and lead and their alloys (figs. 13, 2, and 28, 4) are also well preserved.

Conditions may be variable, both from one place to another (even on the same object) and from one period to another in the life of the deposit. Thus it is possible to find small

¹ E.g., J. Curle, Newstead, *A Roman Frontier post and its People* (1911), pp. 108, 149, 277, 310, 353 and Sir Cyril Fox, *A Find of the Early Iron Age from Llyn Cerrig Bach, Anglesey* (1946) 3, 4.

² T. W. Farrer, L. Biek, and F. Wormwell, *Journ. of Applied Chemistry*, Vol. 3 (1953), 80-84. 'The role of tannates and phosphates in the preservation of ancient buried iron objects'.

patches of rusty deterioration, especially in the upper layers or where soil structure is manifestly not uniform, and also rust coatings between the metallic core and the protective covering on the surface of an iron object. Even within the general framework of the conditions described above, a variation in, e.g., the acidity of the soil may cause considerable difference in significant detail. (Cf. fig. 28, 5; also *Yorks. Arch. J.*, XXXIX (1956-8), 533-35).

Perhaps the most important feature of such deposits is the large amount of organic material, particularly wood and leather, which is found in association with the ironwork and also its remarkably well-preserved shape, although the wood is extremely soft and much decayed at the microscopic level. Modern corrosion research has recently discovered conditions under which iron seems to be preserved in the absence of recognisable objects made from wood or leather, but the periods of burial are much shorter and there is little doubt that at Hungate the preservation of ironwork was mainly due to the presence of large quantities of organic material.

Briefly, given an anaerobic environment shortly after burial, organic material seems able to stabilise itself effectively and for very long periods, provided there is little change in external conditions. Indeed the change in colour from reddish or yellowish brown to bluish grey which is observed in clayey soils that have been buried in archaeological time is thought to require a minimum of organic matter. Feature (1) above is explained in this way. Feature (2) is due to the mineral vivianite, a hydrated ferrous phosphate, $(\text{Fe}_3(\text{PO}_4)_2 \cdot 8\text{H}_2\text{O})$, although the blue colour is caused by traces of the ferric compound contained in it. In the circumstances iron from metal objects and from the soil is partially mobilised and becomes available to reaction with phosphate similarly present from bones, wood and excreta. The protective function of phosphate is well known and utilised in modern practice but phosphate alone seems to be insufficient to preserve buried ironwork. Feature (3) is probably mainly an iron oxide, formed slowly and hence smoothly and not to any great extent, but it appears to contain a small amount of compounds of iron and tannin-like materials which are derived from wood and leather. Feature (4) is due to the surrounding soil which is built into the corrosion products during their formation. Feature (5) is the result of some or all of the above factors acting in conjunction, provided tannin-like materials or similar organic substances are present in sufficient quantity, and in an active form, to inhibit the bacteria which can promote the corrosion of iron under these conditions.

This effect of tannins on bacteria was discovered as a direct result of the examination of iron finds from Hungate, where the bacteria were present in the soil but inactive. Tannic acid itself is effective at concentrations as low as 0.01%; this fact is now being used successfully for the protection of buried pipelines and the work has had important repercussions in many other fields. Its archaeological implications are being clarified, using similar material from excavations at Wolsey's Palace, Moor Park¹; Chew Valley Lake, Somerset; the Tower of London, and the Walbrook and other sites in the City. It seems as if vivianite in archaeological deposits might be taken as a sign of occupation, in the absence of other indications, but this is complicated in built-up areas by waste products from later periods without adequate sanitation. A well-defined bluish-grey and coherent layer might indicate the position of a wooden beam, plank or hurdle, where the wood itself might have been removed at a later date.

Of the many points arising from the state of the Hungate ironwork, three deserve special mention. First, the presence of small amounts of ferric compound and of oxide, as discussed above in connection with (2) and (3), indicate that air was not completely excluded, or at least not all the time. This may be important where time intervals are involved. It is difficult to study these deposits precisely because they begin to change immediately they are opened up. But already it is possible to say that the wooden bowl (fig. 20) repaired with iron rivets had been buried *before* the iron had rusted, because the rivets were found in good condition; by contrast, a similar object from a similar deposit at Wolsey's Palace had only rusty remains of rivets, and was therefore almost certainly buried *after* the iron had decayed (see below, p. 182, fig. 18, 24).

¹ See *The Excavation of the Manor of the More, Rickmansworth*, in this volume, pp. 136-199.

Secondly, the true state of preservation is not apparent from the surface, and X-rays have in many cases revealed objects to be in a poorer condition than might have been supposed. It remains to be seen whether such an interpretation of this feature is permissible in general, but it has been attempted for the Hungate material.

Finally, the Roman ironwork must, from its condition, have been protected from the air since very shortly after burial. Leather and wood were actually found buried with it; animal refuse may also have been available, but this is secondary. The Roman surface was on silt, about a foot or so above the natural sand and probably already waterlogged. The objects were thrown into a crude pit, going down into the sand below, and silted up very rapidly. Thus suitable conditions were established for the Roman objects to survive, long before the medieval activities produced the environment which preserved the later ironwork.

APPENDIX III

PLANT MATERIAL

Report by H. Godwin and K. Bachem, Univ. Sub-dept. of Quaternary Research, Cambridge.

A number of samples from various depths in the excavation Trench CL were received for examination and after digestion with dilute nitric acid, washing and sorting, they yielded abundant fruits and seeds, the identifications of which are presented in the following table. It was thought unprofitable to examine the pollen content, and the rather abundant grass-like material proved unrecognisable¹.

44 samples of stakes from the late Anglo-Danish bank were identified as follows:

4 as *Corylus*, 7 as *Alnus*, 8 as *Fraxinus*, 19 as *Quercus* and 5 as *Betula*².

- (1) State of preservation is indicated by the scale of symbols: vg=very good, g=good, fg=fairly good, p=poor.
- (2) Identification. S indicates satisfactory identification, otherwise there is some doubt as to identification at the species level. Identifications are of seeds and fruits unless otherwise stated.
- (3) Figures in the three last columns give the excavators' sample number, and in brackets the index of frequency of the remains in the sample: ab=abundant, c=common, +=occasional.

¹ It should be noted that one example only was examined from the Roman and medieval horizons as against nine from the Late Anglo-Saxon. It was not expected that the Roman levels, which were silt-like, would yield much plant material, while equally, the later medieval layers, largely the result of dumping rubbish, were not thought likely to harbour much vegetation. Roman sample no. 44 is from a reedy and grass-like deposit in Pit 6 (see section CL fig. 3); the medieval sample, no. 14, is from a layer of grassy material immediately over-

lying the silt which accumulated at the foot of the Late Anglo-Saxon bank (see section GN, fig. 3, levels (6A) and (7)). The Late Anglo-Saxon samples are derived as follows: (see sections CL and PSM) Sample no. 8 from Pit 5, no. 9 from level (17), nos. 10 and 20 from level (16), no 23 from level (47), no 31 from level (13), nos. 32, 36, from level (12), no 49, from level (37). K.M.R.

² 13 of these specimens were identified by Mrs. Balfour Browne, British Museum (Nat. Hist.).

	(1)	(2)	(3)		
			I	II	III
			Romano-British	Late Anglo-Saxon	Medieval
<i>Angelica sylvestris</i>	g	S		9(+)	
<i>Anthemis arvensis</i>	fg			49(+)	
<i>Anthemis</i> sp.	p			9(c)	14(+)
<i>Apium graveolens</i>	g		44		
<i>Atriplex</i> sp.	g			49(+)	
<i>A. cf. hortensis</i>	g			10(+), 32(c)	
<i>Batrachium</i> sp.	p			32(+)	
<i>Bidens cernua</i>	fg	S		49(+)	
<i>Brassica cf. oleracea</i>	g			9(+)	
<i>Brassica cf. napus</i>	g			9(+)	
<i>Brassica</i> sp.	g			32(+), 36(+)	
<i>Caltha palustris</i>	g	S		49(+), 36(+)	
<i>Carex</i> sp.	fg			8(ab), 31(ab), 9(+) 49(ab), 10(c), 36(ab)	
<i>Centaurea nigra</i>	fg		44(+)	49(+)	
<i>C. scabiosa</i>	fg			36(c)	
<i>C. sp.</i>	fg		44(+)		
<i>Chelidonium majus</i>	fg	S		49(+)	
<i>Chenopodium album</i>	vg	S		8(+), 31(+), 10(+) 49(c), 36(c), 32(ab)	
<i>C. botryodes</i>	vg			32(c)	
<i>C. cf. opulifolium</i>	vg			9(ab)	
<i>C. rubrum</i> (s.l.)	vg	S		8(+), 31(c), 36(+)	
<i>C. sp.</i>	vg			9(c), 32(c)	
<i>Corylus avellana</i>	vg	S		23(ab), 20(c), 36(+)	
<i>Crataegus</i> sp. (thorns)	vg			8(c)	
<i>Chrysanthemum segetum</i>	fg			49(c), 36(ab)	
<i>Dianthus</i> sp.	p			49(+)	
<i>Eleocharis</i> sp.	p			36(+)	
<i>Filipendula ulmaria</i>	vg	S	44(c)		
<i>Heracleum sphondylium</i>	fg	S		49(+)	
<i>Hieracium</i> sp.	fg				14(+)

	(1)	(2)	(3)		
			I	II	III
<i>Humulus lupulus</i>	fg	S		32(+)	
<i>Hyocyamus niger</i>	fg			36(+)	
<i>Hypochaeris radicata</i>	g	S			14(+)
<i>Juncus</i> sp.	g			36(+)	
<i>Lapsana communis</i>	g	S		32(+)	
<i>Leontodon</i> cf. <i>autumnale</i>	fg				14(+)
<i>L.</i> cf. <i>hispidum</i>	fg				14(+)
<i>Linum catharticum</i>	g	S		32(+)	
<i>L.</i> cf. <i>usitatissimum</i>	fg			32(+)	
<i>Lychnis gitbago</i>	g	S		9(+), 36(ab)	
<i>L. flos-cuculi</i>	g	S		36(c)	
<i>Lycopus europaeus</i>	vg	S		36(+)	
<i>Nasturtium palustre</i>	g	S		32(+)	
<i>Oenanthe pimpinelloides</i>	g			32(+)	
<i>O.</i> cf. <i>silaiifolia</i>	g		44(c)		
<i>Papaver rhoeas</i>	g	S		49(+), 36(+)	
<i>Peucedanum</i> sp.	p		44(+)		
<i>Polygonum aviculare</i>	vg	S		9(+), 36(+)	14(+)
<i>P. convolvulus</i>	vg	S		36(+), 32(+)	
<i>P. hydropiper</i>	vg	S		10(+), 36(c)	
<i>P. lapathifolium</i>	vg	S		8(+), 49(c), 36(ab), 32(c)	14(+)
<i>P. persicaria</i>	vg	S		49(c), 32(+), 9(+)	
<i>P.</i> sp.	p			32(+)	
<i>Potentilla procumbens</i>	g	S	44(+)	8(+)	
<i>Prunella vulgaris</i>	vg	S	44(c)	32(+)	14(c)
<i>Prunus domestica</i> (cf. <i>damson</i>)	vg	S		21(c)	
<i>Prunus domestica</i>	vg	S		21(+), 20(+)	
<i>P. spinosa</i>	vg	S		21(+), 20(ab)	
<i>Ranunculus</i> cf. <i>acris</i>	p		44(c)		
<i>R. circinatus</i>	g			10(+)	
<i>R. flammula</i>	g	S	44(ab)		

	(1)	(2)	(3)		
			I	II	III
<i>R. repens</i>	g	S		9(+), 10(?), 32(+), 36(ab)	14(ab)
<i>R. sceleratus</i>	fg	S		31(ab), 49(+)	
<i>R. sp.</i>	p			31(+), 36(+)	
<i>Reseda luteola</i>	fg	S		49(+), 36(+),	
<i>Rumex acetosa</i> (seed)	g			36(+)	
<i>R. acetosella</i> (seed)	g			36(+)	
<i>R. condyloides</i> (fruit)	g	S		9(+)	
<i>R. obtusifolius</i> (fruit)	g	S		31(+)	
<i>R. sp.</i> (seed)	g			9(+), 10(+), 36(c), 32(c)	
<i>Sambucus nigra</i>	vg	S		8(+), 31(+), 32(+)	(14+)
<i>cf. Sisymbrium sophia</i>	p			32(ab)	
<i>Solanum nigrum</i>	fg	S		49(+)	
<i>Spergularia sp.</i>	g			49(ab), 36(ab), 32(c)	
<i>Stachys sylvatica</i>	p			32(+)	
<i>cf. Stellaria</i>	fg			9(+), 10(+)	
<i>S. graminea</i>	fg		44(c)		
<i>S. media</i>	g	S		31(+), 49(+), 36(ab), 32(+)	
<i>S. cf. uliginosa</i>	fg				14(c)
<i>S. sp.</i>	p				14(+)
<i>Taraxacum officinale</i>	g			10(c)	14(c)
<i>Urtica dioica</i>	g	S	44(+)	9(c), 32(c), 36(+),	
<i>U. urens</i>	g	S		36(+)	

The above results do in some degree realise the initial hope that they might throw light upon post-Roman botanical history near York, and upon the local conditions of the human settlements there.

At all levels aquatic and marsh plants are strongly represented, both in number of species and of individuals, but the 20 species or genera identified contain nothing unusual.

The most striking feature of the lists is the preponderance of weeds of cultivation, often present in abundance. Within the genera *Atriplex*, *Brassica*, and *Chenopodium* it has proved difficult to identify species satisfactorily, but there can be no doubt that they represent weeds very largely. It is of interest to note that the weed species present in special abundance in the Late Anglo-Saxon deposits were *Chenopodium album* (goosefoot), *Cbrysanthemum segetum* (corn marigold), *Lychnis githago* (corn cockle), *Polygonum aviculare* (knot-grass), *P. lapathifolium* (pale persicaria), *P. persicaria* (persicaria), *Ranunculus repens* (creepg inbuttercup), *Rumex acetosella*

(sheep-sorrel), *Sisymbrium sophia* (flixweed), *Spergularia* (spurry), *Stellaria media* (chickweed) and *Urtica dioica* (common nettle). The lists give a clear indication of high nitrification power in the soil, as would no doubt be expected in such a situation as this. The abundant seeds of corn-cockle (*Lychnis githago*) in the Late Anglo-Saxon levels is of special interest in view of the very great decrease of this species in recent years with improved seed-cleaning methods, and of the hypothesis which connects the high medieval frequency of leprosy with susceptibility induced by seeds of this plant contaminating the corn flour. It is interesting, and it is regrettable that the abundant *Sisymbrium sophia* for the same period is only tentatively identified. Of plants utilised by man, aside from the woody plants already referred to and the hazel (*Corylus*) whose nuts are abundant in the Late Anglo-Saxon layers, attention may be drawn to the tentative identification of flax (*Linum usitatissimum*) and of hop (*Humulus lupulus*) from the same levels. The various plum stones common to abundant in the pre-Conquest layers suggest that not only was fruit of blackthorn (*Prunus spinosa*)¹ collected, but that cultivated plums, including a form with a stone very like that of the damson, were then being grown. It is a pity that only tentative indentifications are possible for *Atriplex hortensis* (spinach), *Brassica oleracea* (cabbage) and *B. napus* (rape).

There is a very small remaining category of species not referable to the categories described above and it includes *Hypochoeris radicata*, *Rumex condylodes*, *Linum catharticum* and the more tentatively identified *Leontodon hispidum*, *L. autumnale*, *Stachys sylvatica*, *Hieracium*, *Centaurea*, and *Dianthus*. Some of these come from the latest deposit and suggest local recovery from weed ridden conditions.

APPENDIX IV

REPORT ON THE MEDIEVAL SHIP-TIMBERS

By G. P. B. Naish, National Maritime Museum, Greenwich

The portion of the Hungate ship sent for examination is about 32 ins. by 14 ins. and shows two lengths of planking overlapping clinker built fashion. The planks are about 1 in. thick and 9 ins. broad. Iron rivets fasten the overlapping planks together from 4½ to 6 ins. apart. The overlap is about 3 ins. The rivets have round heads and are clenched over square roves. The space between the overlap is caulked.

In modern times, clinker built boats are not caulked between the overlapping strakes, otherwise the type of construction described can date from between say, A.D. 700 and the present day.

Adjacent holes 1 in. in diameter, towards the centre of each plank, mark where wooden pins or tree nails fastened the planking to ribs of timber, the skeleton of the ship from which the planks have been ripped.

It is possible to point out a number of similarities between the Hungate ship-timbers and the remains of Henry V's GRACE DIEU found near Bursledon in the Hamble river and described in *The Mariner's Mirror* for April, 1934. The Hungate ship-timbers show the lower plank, or strake, scarfed and the upper plank doubled, in a manner which suggests the build-up of the GRACE DIEU'S planks. The Hungate iron fastenings are similar to the GRACE DIEU'S, and so is the caulking. The GRACE DIEU was built in 1418 and burnt in 1439. She was 1400 tons. Her planks were 1 foot broad and built up in three layers to a thickness of about 4 in. The similarity, allowing for a much smaller vessel appearing at Hungate, allows a reasonable guess at the first half of the 15th century for the Hungate ship-timbers. But from constructional details a very wide latitude in dates is possible.

¹ Our thanks are due to Dr. R. Hill, F.R.S., for assistance in identification of the *Prunus* stones.

APPENDIX V

REPORT ON THE CAULKING MATERIAL

By T. Barr, Director of Research, The British Hat and Allied Feltmakers' Research Association, Manchester

Removal of the pitch by solvent extraction left fibrous material which appeared to be loaded with iron oxide. Qualitative analysis confirmed the presence of iron and silica, possibly a thickener for the tar, as the quantity would appear to exclude the possibility of contamination.

The fibrous material is not felt, as such, but is a mass of animal fibres. Analysis of these would indicate them to be wool of about 62's quality, which is of merino type and is finer in quality than average British breeds.

APPENDIX VI

NOTE ON THE WOOL FIBRES

By R. Patterson, Curator, Castle Museum, York

It is difficult enough to identify wool fibres with any degree of certainty with present day breeds of sheep, but quite impossible to identify them with the breeds of five hundred years ago. In fact there were no true breeds of sheep in the Middle Ages, and wools were graded according to their county or even town of origin. English wools were considered the finest in Europe, and in 1454 some 51 grades are enumerated, the highest priced coming from Shropshire, Hereford and the Cotswolds, and the medium priced from Lincolnshire, Hampshire, Kent, etc. Towards the end of the 15th century the continental wools were improving in quality, especially in Spain where fine wool was being exported to Flanders. This improvement is said to have been due to the introduction of English rams for breeding, and for that reason the export of live sheep from Britain was prohibited in 1338 and again in 1425.

The identification of the wool fibre from the caulking of the Hungate ship-timbers as of 'merino type' indicates it is a fine fibre, which in the early 15th century is more likely to have been of English origin than from elsewhere. York was at this time a large wool exporting centre, and also a considerable wool textile manufactory. The textiles produced in York were mainly worsted, necessitating combed wool of good quality. This combing separated the shorter (and finer) hairs as 'noils', which were a waste product of the worsted industry, and would be available in considerable quantity, at a low price.