

## V

### AN EXCAVATION IN THE CASTLE DITCH, NEWCASTLE UPON TYNE, 1974-6

*Barbara Harbottle and Margaret Ellison*

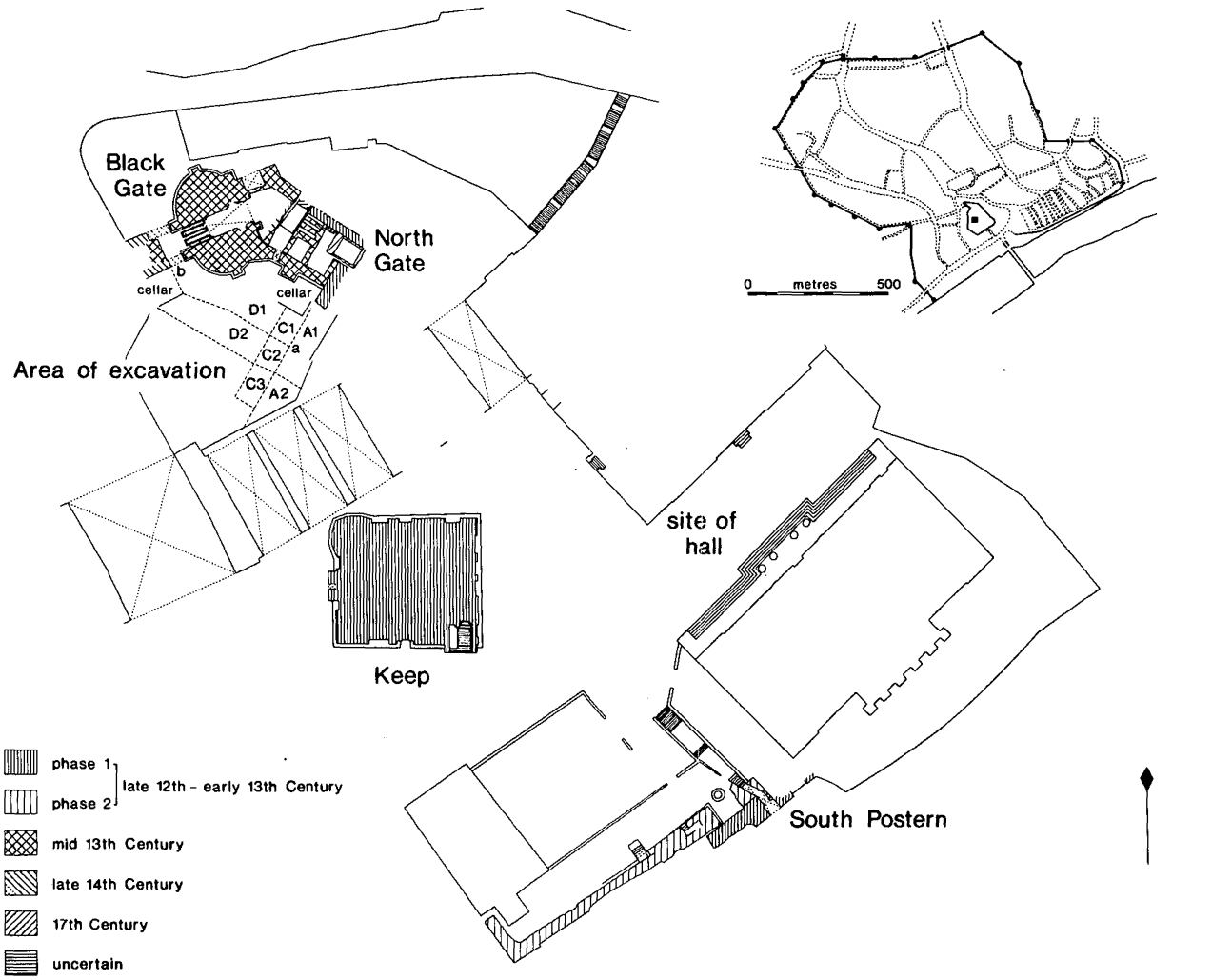
*With contributions by Alison M. Donaldson, G. D. Robson, James Rackham,  
Janet E. Vaughan and Penelope Walton*

THE PROGRAMME of excavation of the northern part of the castle, begun by the City of Newcastle in 1973,<sup>1</sup> was continued each summer, 1974-6.<sup>2</sup> The work was financed jointly by the City, the County of Tyne and Wear and the Department of the Environment, was administered by Mr. I. E. Stretton of the City Estate and Property Department, and was directed by the authors. The preparation of the pottery and glass reports by Margaret Ellison, and of the illustrations, was paid for by Tyne and Wear County Council. For the drawings we thank Miss M. Finch (the majority of the finds), Mrs. M. Daniels (most of the leather) and Mr. M. Shanks (the plans and sections). We are grateful to all who have written specialist reports and are named in the appropriate places, and to all who have commented on specific groups of finds: Messrs. T. Hoekstra, J. G. Hurst, H. Janssen, Mrs. H. E. J. Le Patourel, Messrs. C. Long, S. Moorhouse, F. Verharghe and the late L. Lipski (pottery); Mr. R. J. Charleston (glass); Messrs. J. Cherry and B. Spencer (other small finds); Miss J. M. Swann (leather); Miss S. Turner and Mr. A. M. Tynan (geological identifications). Finally we thank Mr. O. J. Weaver for contributing so much to our understanding of the structures, Mr. R. C. A. Cox for a new survey of the castle, and all the diggers, in particular Messrs. E. Cambridge, C. J. North and D. Wilson.

That part of the excavation with which this report is concerned was carried out in the garden outside the Black Gate (the main entrance to the castle), immediately in front of the Gate and in the gatehouse passage. The object of the work was to uncover more of the twelfth-century curtain, section the castle ditch and reveal such details of the gatehouse as were hidden beneath the modern road. The features thus discovered were to be put on permanent display by the relandscaping of the garden.

#### *Extent and method of the excavation (fig. 1)*

Work began in 1974 as a continuation of that in 1973, an area immediately next to the railway viaduct being stripped to reveal the curtain wall (A1-2). When no wall was found, and the clay bank of 1080 alone appeared, a second area parallel to the first was excavated to establish the outer edge of the bank (C1-3). Only when



THE CASTLE, NEWCASTLE UPON TYNE

MS 1981  
 Based on a survey by RCA Cox in 1975

Fig. 1.

the direction of the slope of the ditch was clear was a section across it begun. The space (D1) between the line marked a-b on fig. 1 and the south tower and rear wall of the Black Gate was then excavated (from 1974 to 1976) either to the brown clay of the clay bank, or, at the bottom, to the subsoil. The bank itself was not investigated in this part of the castle, and the clay slip from it was not removed. The upper part of this ditch filling did not stretch as far as the Black Gate since it had been removed by the later insertion of two cellars. A second strip (D2) was excavated in 1975-6 to remove some of the weight overhead and make it possible to reach the bottom of the first section.

Because the road had to be closed before there could be any digging immediately in front of and within the gatehouse, and time was therefore limited, a machine was used to remove soil outside the Black Gate, and the front half of the passage was cleared in a brisk manual operation. The finds here were thus recovered by area and not by deposit.

At the end of the 1976 season a machine was used to define the profile of the ditch to the west, and to extend the whole ditch south-westwards before new turf was laid and the garden re-opened to the public.

In accordance with a decision taken by the City Land and Property Committee on 8th May 1978, the excavation archive and the finds, with the exception of the bulk of the animal bones which have not been kept, have been deposited in the Museum of Antiquities in the University of Newcastle. This corrects the statement in the earlier report that the finds had been deposited in the Joicey Museum.

#### *The phasing of the deposits*

Because there were many small deposits in the ditch, and because the method of excavation sometimes led to the same deposit receiving two numbers, a grand and unwieldy total was reached of c. 500. Many of these were, by themselves, of little or no significance and so they have been grouped into seventeen phases, the phasing and the suggested dates for each phase being based partly on the pottery and partly on the documentary evidence for the structures. The phases are shown on the ditch section, fig. 5, and the only layers numbered individually are those referred to in the text. The archive will provide the details of the stratification and the provenance of the finds. The post-1600 activities on the site are treated separately as will be clear from the table below.

## THE EXCAVATION

### *The Norman Castle of 1080*

Robert Curthose founded his new castle on the north bank of the River Tyne in 1080.<sup>3</sup> No part of this castle had been excavated before 1973 when a fragment of clay bank was tentatively identified as Norman. During the next three seasons more earthworks were exposed, and were found to consist of a ditch outside the remains of a clay bank.

The building of the Norman Castle		1080	
Probable re-cutting of the ditch when the castle was rebuilt in stone		Second half twelfth C	
Ditch filling	silting	phase 1	
Building of the Black Gate		Early thirteenth C	
		1247-1250	
	construction: various occasions	{ 2	Mid thirteenth C
		{ 3	Late thirteenth-early fourteenth C
		{ 4	Mid fourteenth C
	rubbish tipping	{ 5	Late fourteenth-early fifteenth C
		{ 5a	
	silting	6	Fifteenth C (to sixteenth C)
Ditch filling	large-scale tipping	7	Late fifteenth
		8	Early sixteenth C
		9	Early sixteenth C
		10	Second quarter sixteenth C
		11	Second quarter-mid sixteenth C
		12	Mid sixteenth C
		13	Mid sixteenth C
		14	Second half sixteenth C
		15	Second half sixteenth C
		16	Second half sixteenth C
		17	Late sixteenth C
Sir John Marley removes dunghill, i.e. early seventeenth-C layers, to back the town wall		1643/4	
Building of houses, Two Bulls' Heads P.H. etc.		Seventeenth C-1855	
Partial clearance of site for High Level Bridge approach		1855	
Monumental masons' yard		from 1857	
Garden		from 1932	

The bottom of the ditch was formed by dark grey-brown, iron-hard pebbly sub-soil: it was flat for a width of *c.* 2 m, with an average height of 22.42 m O.D., and then rose *c.* 0.34 m northwards over a distance of 5 m to a point where the projecting footings of the Black Gate made further excavation impossible. There was, in other words, no outer bank to this part of the ditch. Since a bank was found during subsequent landscaping to the south-west it had either never continued along the north side of the castle, or a stretch of it had been removed, for reasons unknown, during the late twelfth-century reconstruction.

The inner bank consisted of upcast from the ditch which had been cut through the pre-Norman layers, and then a further 4.25 m into the subsoil. Most of the material in the bank was clay, and the light brown clay which formed the top also lay on the slope, probably as the result of erosion.<sup>4</sup> The top was covered by nothing earlier than floors of the nineteenth century, and since one small heap of clay stood rather higher at 30.27 m O.D. than the average 29.50 m, and no original features or early overlying deposits survived it was clear that some of the bank had been removed. Whether this happened in the seventeenth or the nineteenth century is unimportant, its Norman profile and height will remain forever unknown.

#### *Refortification by Henry II and John*

In 1168 Henry II began to rebuild the castle in stone, spending £1,144 during the next ten years, and after a pause during Richard's reign the work was completed by John.<sup>5</sup> Of their activity there survived part of the north gate and evidence that the ditch was cleaned out; no trace remained, however, of the presumed north curtain.

It is now clear that the substantial foundations excavated in 1973 were those of a wing wall on the west side of the original north gate of the castle. The suggestion made in the 1973 report that this wall formed the east side of a postern is therefore wrong. From the fact that the gate was attached only to a wing wall and was not connected to a curtain with footings of similar depth one can infer that it was inserted into the surviving clay rampart as a separate and free-standing unit.

What, then, has happened to the north curtain? Although no evidence of a construction trench was found in the clay bank it is inconceivable that the castle remained unenclosed. The only possible explanation seems to be that the curtain was founded on the Norman bank when it stood higher than it does today, and that subsequent levelling removed all traces of stone defences north and north-west of the keep.

The differences in construction between north gate and curtain suggest two phases of building in this period of refortification. In phase 1 the stone gate was inserted into an earth rampart, and in phase 2 a stone curtain was added on top of the rampart. For a parallel it is necessary to look no further than the south postern, butt-jointed to the south curtain which was built in a different style, on a different alignment and presumably at a later date.<sup>6</sup>

Though the ditch has been described under the heading of 1080 it is possible that the shape of at least its bottom may date from the late twelfth-century rebuilding of the castle. None of the layers in phase 1 of the ditch filling produced finds which have to be earlier than the building of the keep; even if the ditch were not re-cut it was certainly cleared of silt which had accumulated in the preceding one hundred years.

#### *Ditch filling: phase 1, first half of the thirteenth century*

A series of thin bands of clay and silt, which were comparatively free from stones, covered most of the bottom of the ditch, and were in turn overlaid by either the foundations of the Black Gate or by masons' chippings. The whole series had been cut away for a distance of over 2 m, and only 167 was discovered at the foot of the inner slope, beneath an eroded part of the clay bank.

The reason for the deposition of the clay is unknown: much of it was clean and presumably had been dumped here after excavation elsewhere, and on more than one occasion since the clay bands were both above and below the silts which formed a small part of the whole. Though not rich in botanical remains, the silts did yield some evidence of plants common in damp shady places (see Botanical Report). Finds were not plentiful either, and consisted of some animal bones, a few shells, pottery of the late twelfth and early thirteenth centuries, and the sole of a turnshoe (no. 506).

#### *The Building of the Black Gate*

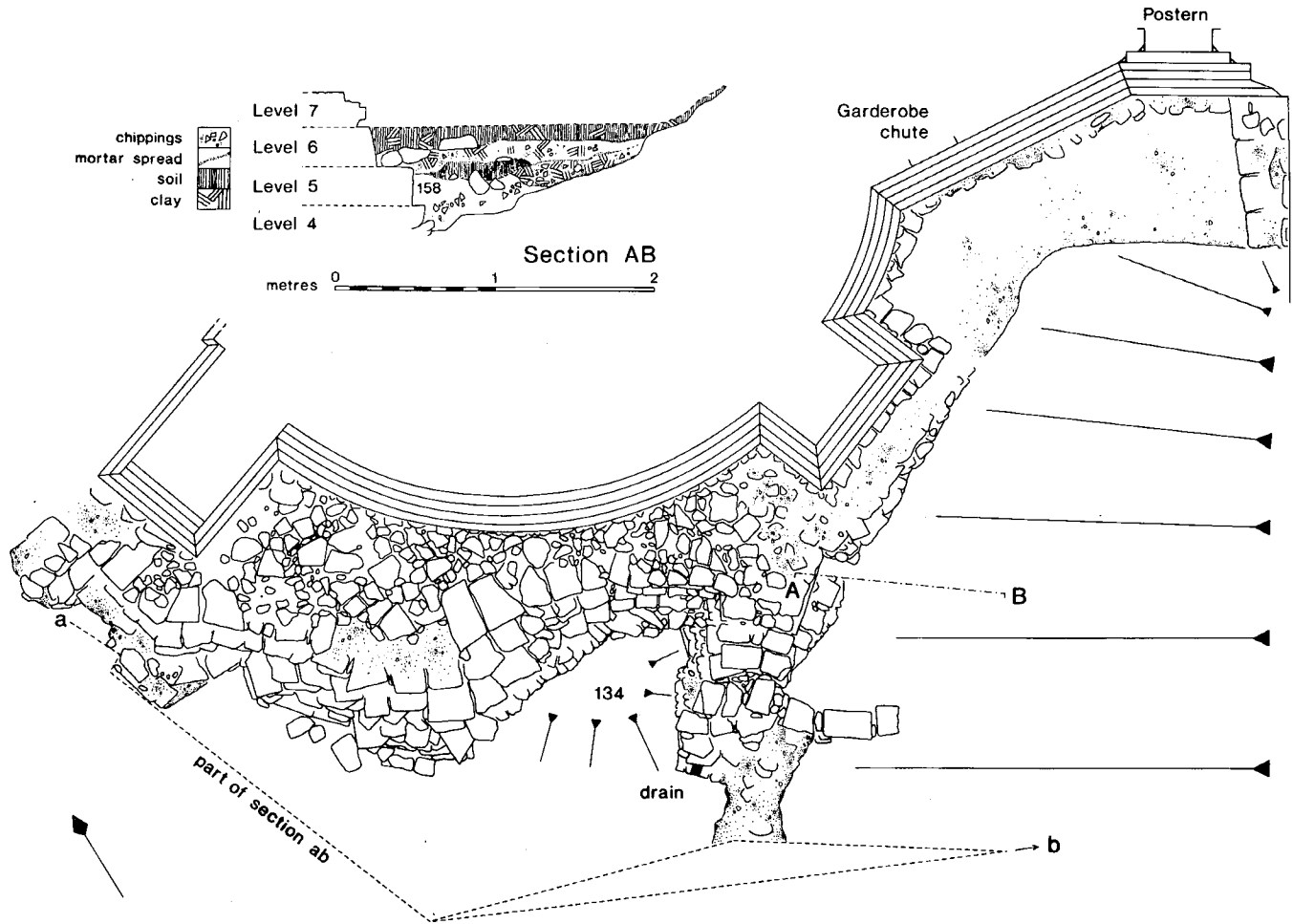
The Black Gate was added to the castle by Henry III between 1247 and 1250.<sup>7</sup> The new gatehouse was built at roughly the bottom of the earlier ditch and was connected to the twelfth-century north gate by a form of barbican. The excavation revealed constructional and architectural details of both the front of the gatehouse, and of the garderobe buttress on the south wall of the barbican.

It seems clear that building was begun by digging a hole of unknown area, though probably not very deep, through the lower part of the inner slope of the ditch and the existing ditch filling for the insertion of the footings of the Black Gate (fig. 2). In at least one place the excavated material (134) was heaped up on the edge of this hole and the foundations of rough sandstone blocks were laid against it: at other points the footings were built up in steps from the exposed subsoil to a height of some 2 m. In contrast to the firm curve of the wall of the gatetower, the outline of its base was erratic indeed though the projection westwards into the ditch was perhaps to prevent soilcreep from the bank, and was certainly designed to carry away water. A small square drain protruded at the very bottom and water was still slowly seeping through it. The top (seventh) course of the foundations was quite level (24.45 m O.D.) and in places was covered with a smooth hard mortared surface.

The lower part of the barbican wall stood on the same base as the Black Gate: the upper was stepped up the steep slope on little, if any, foundation, and between the two stretches was the garderobe buttress. This was founded on a projecting stone platform, of which the downhill side was built of six courses of ashlar, and the uphill end died into the bank.

The removal of layers against the walls and over the footings of the gatetower exposed four chamfered base courses but no hitherto unknown features. The door which opens into the ashlar-lined ditch behind the Black Gate had been entered by Longstaffe, thus confirming that its stone blocking was late nineteenth century,<sup>8</sup> and beyond the door is the chute from the garderobe in the gatetower itself.

The excavation of the gatehouse passage and the removal of the modern road immediately in front of it revealed four distinct spaces (figs 3 and 4)—the passage within the door jambs, the passage outside the door jambs, the void or ditch beyond the gatehouse, and the stone-revetted abutment which formed the outer edge of this ditch. The details which were discovered were parts of a unified design which was not significantly altered for the next one hundred and fifty years.



THE CASTLE, NEWCASTLE UPON TYNE  
THE BLACK GATE: SOUTH TOWER FOUNDATIONS

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Fig. 2.

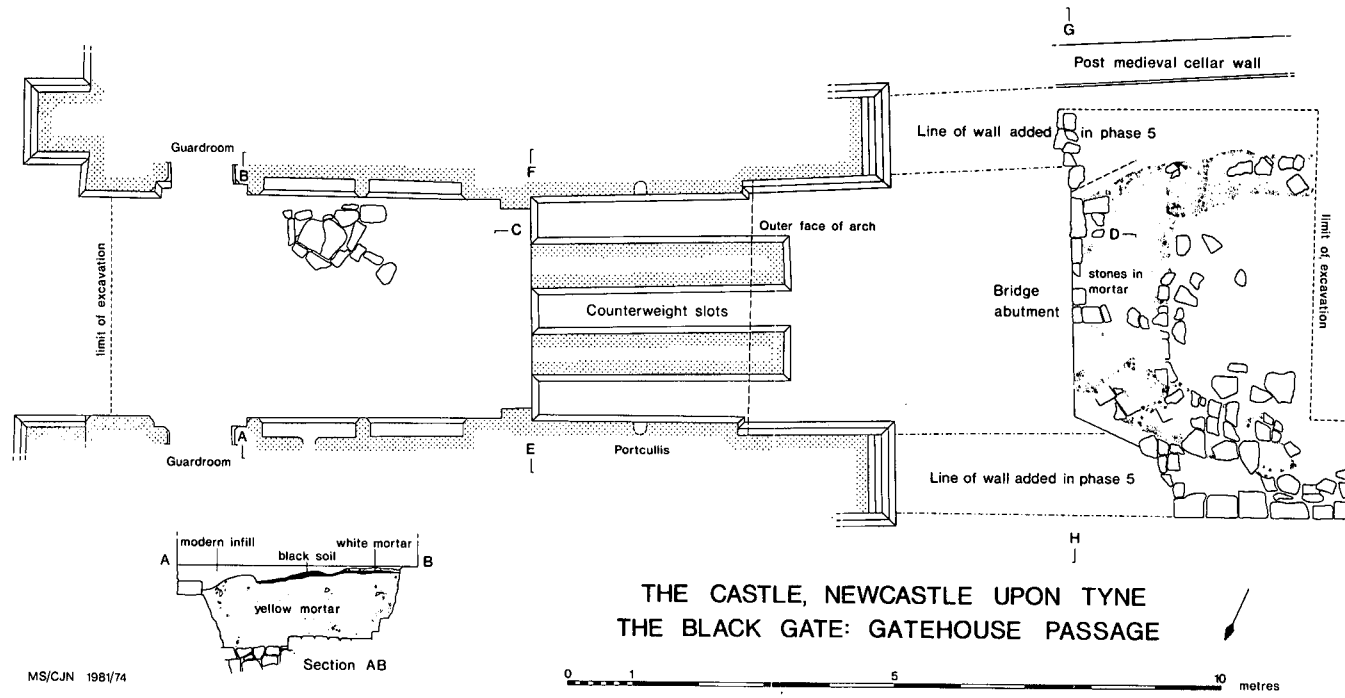


Fig. 3.

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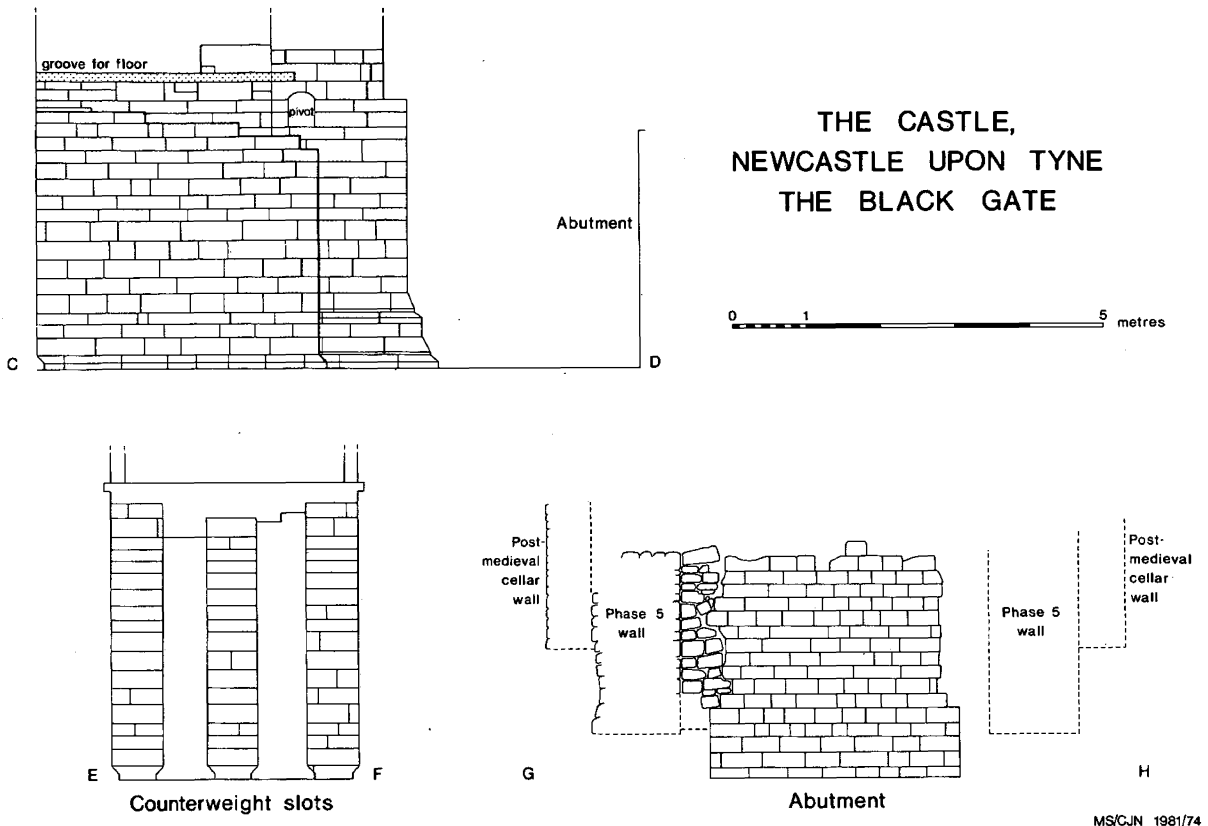


Fig. 4.

The passage, which is not a true rectangle, measures *c.* 6.40 m by 3.30 m within the jambs. Limited excavation showed that its side walls were based on splayed foundations, and the upper part of the space between them filled with solid rubble and mortar at the front, mortar and masons' chippings at the back. A door at the rear of each wall opens into a guardroom, and a twin-arched recess occupies the space between each guardroom door and the main door jamb. A small patch of random flagging set in clay had survived the insertion of modern gas and waterpipes, but was possibly a replacement of an earlier floor bedded on mortar.

The damaged sill beneath the main door jambs is also the top of the rear wall of a bridge pit which occupies the front half of the gatehouse passage. The pit is divided into three by two piers, *c.* 4 m long and originally 4 m high, built as one with the side walls. At sill level the northern side wall retains a horizontal chase, and the southern wall has a similar fragment: the south buttress has a square hole below the level of the chase, and in the opposite buttress a square stone filled an equivalent hole. These features, then, are the evidence which remains for a turning bridge, the working of which is discussed below.

The ends of the piers and the abutment are some 4.40 m apart. The original ground level between them was largely but not entirely formed by the mortared foundations serving the Black Gate as a whole. Although an attempt to bottom the front of the abutment had to be abandoned because of flooding, it did show that there were at least four more courses of ashlar below the medieval ground surface.

The abutment consisted of a mound of brown clay and stones revetted on three sides by walls of ashlar. The face of the front wall, opposite the gatehouse, was 3.40 m across to correspond with the width of the passage, *c.* 1.50 m thick, and stood eighteen courses high above the gatehouse footings to 27.86 m O.D. Much less of the splayed side walls survived for reasons to be made clear later, and nothing remained of the original floor surface on top of the abutment. Because of the lack of space next to the modern pavement excavation on top of the abutment was limited to the removal of recent intrusions.

All these various structures existed to support, and were united by, the turning bridge which gave access to the castle. It may be presumed that the bridge pivoted on a beam seated in the sockets in the faces of the buttresses, that it was closed (turned upwards) by tripping the counterweights which then fell between the piers, and that both counterweights and piers were decked over by a roadway of planks which rested in the chases in the passage walls. No evidence survived, however, to show how the bridge was bolted into either a horizontal or a vertical position, or just how it was reopened.

The position of the medieval bridge is now occupied by a fixed bridge, the construction of which highlighted the assumptions which must be made to enable a turning bridge to function in the way described. The moving roadway and counterweights have to be fixed to the pivot in the same plane so that they present either a horizontal surface for traffic (the counterweights remaining beneath the fixed roadway), or a vertical surface to mask the whole of the arch of the passage. To achieve a horizontal surface at the same level as the static floors it was necessary to fix the road and counterweights quite high on top of the pivot, and to replace 0.80 m of stonework on the abutment to bring it up to the required height. Even though the top of the south socket sloped down into the wall, it is not clear how—without a groove in the wall above—it was possible to slot the pivot into position, and it is uncertain how it related to or was supported by the ends of the piers whose upper courses were damaged or missing. It would, however, have been quite straightforward to slide the planks of the roadway into the outer ends of the chases where there is a rebate between the passage walls and the buttresses.

The time is not yet ripe for a reconsideration of the Black Gate as a whole since further excavation is needed in the barbican between the Black Gate and the old north gate. Nevertheless, the one-time existence in the barbican of a second turning bridge, contemporary with and similar to that in the Gate itself, has been known since its excavation by Knowles in 1905.<sup>9</sup> It was this bridge which Toy<sup>10</sup> grouped with the bridge at the Lion Gate of the Tower of London (a barbican, under construction in 1275–6),<sup>11</sup> and those of both the barbican (fourteenth-century) and the gatehouse (*c.* 1300) of Goodrich Castle.<sup>12</sup> The design of the bridge in the Black Gate

seems to represent an intermediate stage in the general development of turning bridges. There was no access to the back of the inner pit from inside the Gate, an arrangement Renn has noted in gatehouses of the late twelfth and early thirteenth centuries,<sup>13</sup> and, being of fixed planking, the inner end of the actual roadway did not turn. On the other hand, the front of the pit or, more properly, the front of the counterweight slots, was still open. It became normal later to separate the inner and outer bridge pits by an apron wall which was built as part of the gatehouse, as at the outer East Gate of Caerphilly Castle.<sup>14</sup>

#### *Phase 2, mid thirteenth century*

The second phase in the filling of the ditch was represented by a group of layers which could all have resulted from building works, and which all post-dated the footings of the Black Gate. In other words, they appear to have been deposited at the same time as the gatehouse was being built, presumably for two reasons—to fill the edges of holes or trenches dug for construction and so cover and protect the exposed foundations, and just to get rid of unwanted debris. It must be said that the division between phases 2 and 3 is not as clear-cut as that between 1 and 2. Phase 3 is taken to have started from a point just above the top of the footings since it seems unlikely that these would be immediately covered by any great depth of soil, and this division is supported by the nature of the finds, which were comparatively few, and by the type of pottery recovered.

The first deposits in this phase were masons' chippings which were tipped against the exposed faces of both the foundations, where they then piled up in the bottom of the ditch (138), and of the projecting buttress (158). Patches of soil and stones interspersed with thin mortary surfaces covered the chippings. Where these patches lay on the inner slope of the ditch they were in turn covered by a mixture of lumps of natural clay and dark soil, perhaps the upcast from the original construction trench, and apparently spread out to make a smooth join between the clay bank and the gatehouse footings. The top surface of the footings was in several places sealed with clay, over which was a final mortary surface (133, 144), and in the section this ran into what might be interpreted as a stone capping to the ditch filling.

#### *Phase 3, late thirteenth-early fourteenth century*

In 1296 war broke out between England and Scotland, and as a result the castle was suitably provisioned, and prepared to withstand attack.<sup>15</sup> Although little was spent on the fabric at this time, the jurors at an inquest in 1336 swore that the fortifications had been in a good state of repair in 1314, the year of the English defeat at Bannockburn.<sup>16</sup> They went on to describe the deterioration which had taken place since that date and the various illegal paths and intakes made by the townspeople *super motam*. Another cause for complaint was the local habit of grazing livestock in the vicinity of the castle, and casting "dung, offal and other refuse ... before the gate of the castle there, and in the ditches..." The mayor and bailiffs were peremptorily ordered by the king to clear away the rubbish and stop this practice.<sup>17</sup> It is unnecessary to say that the deposits which appear to constitute phase 3

cannot be made to tell such an odorous story. They are, nevertheless, linked together by a coherent group of pottery, the gritty wares fading out now, the buff-white wares reaching their peak, and a fragment of green-glazed jug from the Saintonge appearing for the first time.

Evidence for the refurbishment of the castle at the beginning of this phase is partly, but not wholly negative. A row of stones, like a small kerb, was set across the slope of the ditch near its top, as if to prevent erosion of the clay at this point, and it seems possible that the inner slope was scraped down and kept clean for a time since no layer of this or the preceding phases was found anywhere along its upper part. It is conceivable that the bottom was also cleared out though the quantity of water which poured out of the ditch filling at this height made it difficult to produce a proper record of the stratification. It is, however, certain that there was a considerable accumulation of deposits nearer the bridge, consisting of a few patches of masons' chippings (e.g. 125) and rather silty layers of clay which merged with stones and lumps of mortar at the bottom (121). These last layers produced about two and a half thousand sherds of pottery and a fair number of animal bones, but whether they represented the rubbish of a large garrison or of the townspeople is not clear. Either party might find it convenient to dump refuse just outside the castle gate. The uppermost layer (124) near the bridge was so black and sticky that it is tempting to see pigs trotting across it. Whether or not they did so, it seems improbable that there was any scouring by the mayor and bailiffs of this part of the ditch.

#### *Phase 4, mid fourteenth century*

Renewal of war with Scotland in 1334 resulted in two inquiries into the condition of the castle, and both found that extensive repairs were necessary. Some work was carried out immediately, from 1336 to 1338, and there were further repairs and alterations in the 1350s, the latest taking place behind the Black Gate.<sup>18</sup> Another period of quiet then ensued. The beginning of this phase is defined by the first appearance of Dutch, Siegburg and Langerwehe pottery, and its end by the destruction of the bridge in front of the Black Gate, a recognition of the castle's obsolescence.

The building works of this time seem to have left their trace in layer 78, a yellow mixture of masons' chippings and mortar, which lay evenly across the upper half of the inner slope and produced few finds. Lower down its place was taken by 114, the mortar here showing in smooth brown soil. The tipping of rubbish, largely ashy soil and particularly from the area of the bridge, increased and stones from both sides of the ditch ran down to the bottom. It was from this stony area that most of the finds were recovered—over two thousand sherds of pottery, together with animal bones, roof tiles and metal objects.

#### *Phase 5, late fourteenth to early fifteenth century*

Phase 5 opened with the building of two walls, one from each buttress on the front of the Black Gate across to the opposing corner of the bridge abutment, and over its demolished splayed sides for a minimum length of 6 m. The insertion of a nineteenth-century drain round the Gate had broken the connection of walls with

buttresses, and in 1974 excavation of this area by machine left very little of the northern wall to survey; the stub of the southern one survived this treatment and has been consolidated. Poorly bonded to the face of the abutment, it was *c.* 1.20 m thick, 2.50 m high, and was constructed of roughish stones set in clay. Whether it originally coincided in height with the top of the abutment is unknown (though this is likely), but it seems reasonably certain from the fifteenth- and sixteenth-century pottery in pockets of ash and mortar on the surviving top of its east end that it had been damaged before the close of the Middle Ages.

The outer bridge pit, now enclosed by these flank walls, together with the counter-weight slots of the inner pit, were apparently then filled in immediately with varicoloured bands of ash. While visual inspection of the mechanical excavation suggested this was so in front of the Gate, it was certainly true of the slots which were excavated by hand. The pottery (5a, see below) was recovered in large pieces, showing that it had been little handled between breakage and disposal, and all but half a dozen sherds could have been in use at the same time. Since there was no trace of a new hard surface to this filling it must be presumed that these few odd fragments had been trampled in from above.

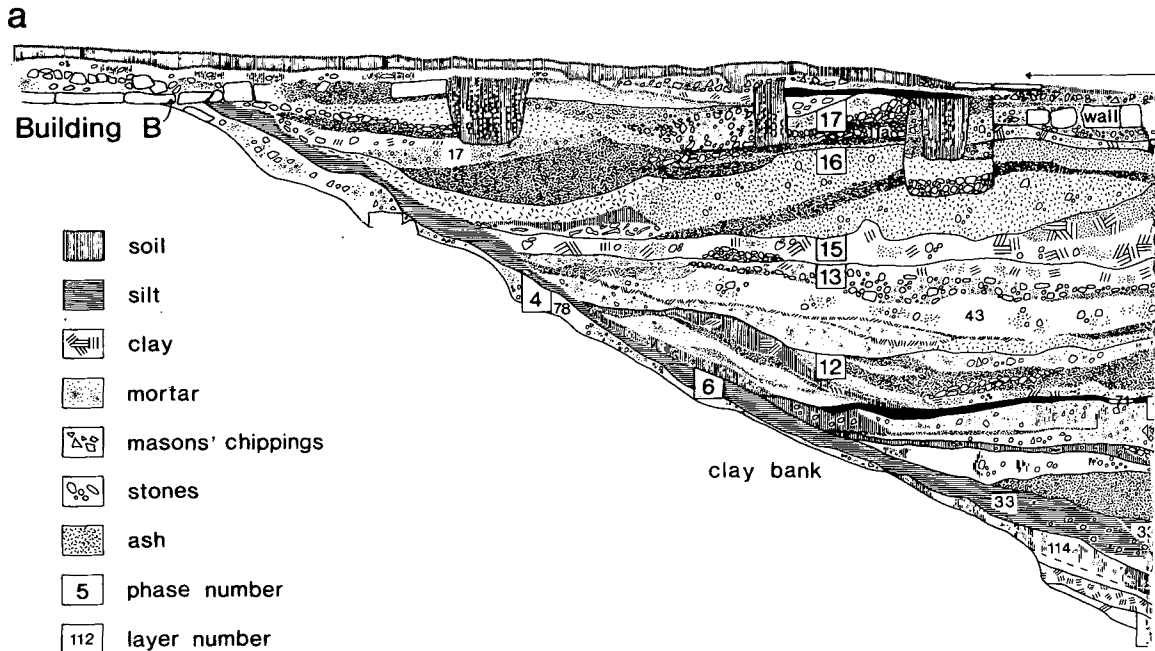
It can hardly be doubted that all this activity was designed to get rid of the need for a bridge, and hence to eliminate the regular maintenance which timberwork required. The obsolescence of the castle must have been apparent to all, and to many its ditch was now no more than a hole in the ground waiting to be filled.

A fair depth of deposits indeed accumulated in the latter part of this phase—layers of stony ash (117, 116) nearer the bridge, with smoother, more silty layers (33a, 112) above them. A large quantity of pottery, predominantly reduced greenware type 4, was recovered, together with clay plain roof tiles, glazed ridge tiles and two fragments of yellow bricks, one with a smooth pale green surface.

#### *Phase 6*

Phase 6 presents problems, and is in some ways a concept rather than a label for specific tangible remains. No clearly defined layer containing pottery which demonstrably dated from *c.* 1425-75 separated the suggested top of phase 5 from the certain bottom of phase 7. On the other hand, a distinct very smooth layer like firm mud (33) covered much of the inner side of the ditch and merged with the upper part of phase 5. Because the finds from it spanned quite a long period, and it was covered only gradually by much later deposits it itself appears to have accumulated slowly as a form of silt, and as the lower part of it produced more certain fifteenth-century finds than phase 5 it has been labelled phase 6 on fig. 5 and on the pottery histograms. While this explanation will serve for layer 33 it does not fill the apparent gap between phases 5 and 7 on the ditch bottom. One can but suggest that there was no mid fifteenth-century pottery here because there was a pause in the tipping of refuse, and that no identifiable silt collected at this point.

The closing years of the fifteenth century marked a change in the character of the deposits in the ditch filling. From this time onwards tipping not only speeded



## THE BLACK GATE: DITCH SECTION ab

up but was all from outside the castle. The nature of the layers altered, and there was a vast increase in both the types and the quantity of objects found.

During the next one hundred years then (phases 7–17), some 4 m depth of debris accumulated in this part of the castle ditch, and there was little time for silting except at the top of the inner slope. Dumping tended to be from north to south, or towards the castle, and little or nothing reached the ever-growing heap from within the defences. By itself, this last fact should not be seen as a direct result of the decline of the castle since although the hall and keep were by this time probably used by few people other than the judges of and prisoners for the assizes, only limited deposits had ever accumulated in the ditch as a result of internal activities. The ditch's outer edge was the more accessible, and it was the townspeople who would find it so.

In general, the layers of these phases were either building rubble or ash; clay and soil deposits were less common. Both coal and wood ash was found, and most was presumably from domestic hearths though it seems probable that much of it came to the tip as nightsoil. Some of the ash, to judge from the unusually high propor-

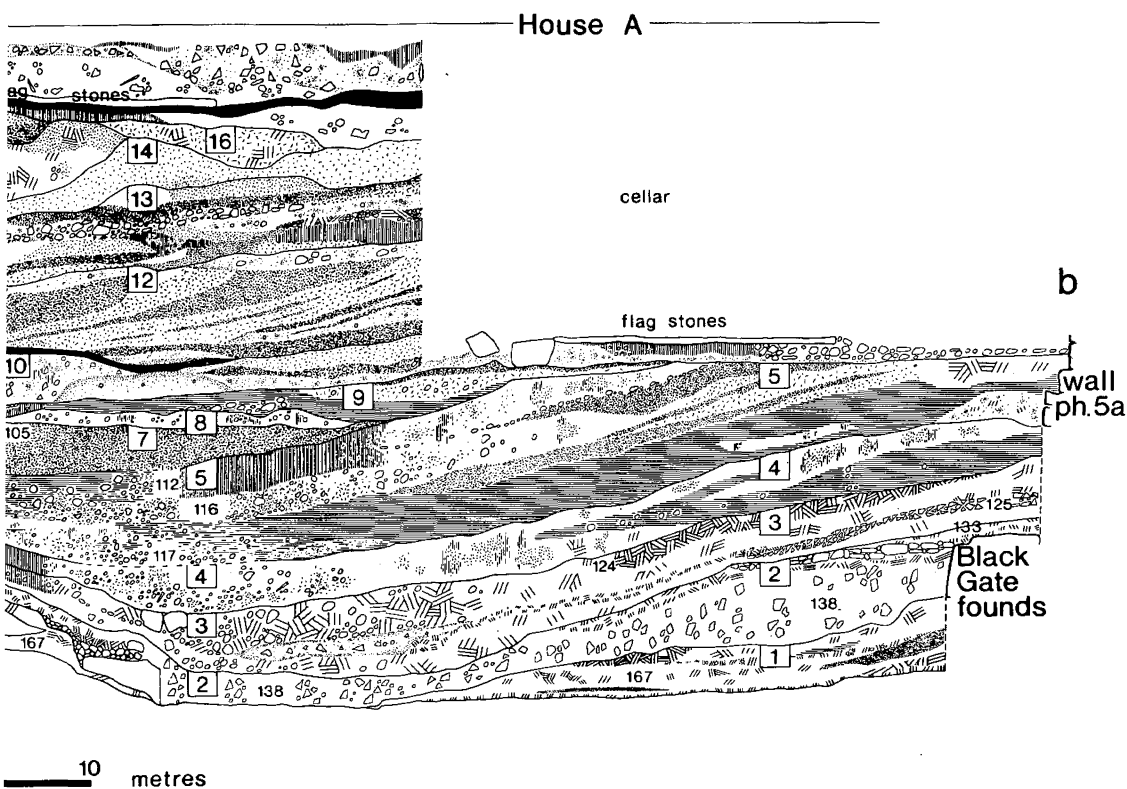


Fig. 5.

tion of burnt nails, was perhaps the product of burning structural timbers. In addition to building and domestic debris there was some minor industrial rubbish—patches of horn cores and scatters of cobblers' waste.

The increase in the quantity of pottery showed in relation to the volume of the layer from which it was recovered, and this increase was matched by the numbers of bones of domestic animals. Although imported floor and roof tiles had been found in the earlier phases, very few bricks were apparently discarded before the beginning of the sixteenth century, and it became much commoner to find small bronze and bone objects. The later phases, however, were most clearly distinguished by the discovery of considerable quantities of both leather and textiles.

All phases from 8 upwards include the strata in the second, partly excavated area (D2). The absolute quantities of objects should therefore not be compared with those from earlier phases. Indeed there were sometimes startling contrasts between the two areas even though they were adjacent, and this emphasised the localized nature of the tipping, and the quite distinct sources of the rubbish.

*Phase 7, late fifteenth century*

The layers of this phase consisted of black ash, brown ash, and smallish stones in either grey clay or a sticky black soil, and they filled a depression in the top of the earlier deposits. Sticking out of one of the spreads of ash (105) were the bases of a line of three small stakes. Their purpose was obscure but it did suggest an activity other than mere scavenging. Waterlogged like other layers in the middle above and below them, those of phase 7 produced the first textiles, and the first scraps of leather apart from the random finds noted earlier. Over four thousand sherds of pottery were found in this group of layers, and among them were the earliest examples of Raeren and Cistercian wares.

*Phase 8, early sixteenth century*

Spreads of many small stones in soil, and patches of mortar made up phase 8. Though not more than 0.40 m deep at its deepest point it produced over one thousand sherds of pottery, among them the first examples of Beauvais mugs, almost three thousand bones, textile fragments and a large dump of leather. In the form of new offcuts and little scraps, and containing re-used material, the leather was clearly cobblers' waste. Two fifteenth-century French jetons from Tournai were among very few coins to be found anywhere in the ditch filling, there were several fragments of window glass, and a unique fragment of a Purbeck marble mortar.

*Phase 9, early sixteenth century*

Though there was more ash and less rubble in this phase, pottery (which included the first Martincamp flasks), bones, leather and textiles continued to be present in large amounts. A notable find among the leather was an early example of a wedge-heeled corksided mule. There was the usual scatter of broken bricks, floor and roof tiles, and a piece of window came, rarely found on this site.

*Phase 10, second quarter of the sixteenth century*

The dumping during phase 10 was almost all of rubble, mortar and broken stone roof flags; patches of ash were few. The predominant finds were bones, almost 1,500, and leather, which included three fragments of probable clothing, two sheaths and the eared sole of a type of shoe in fashion in *c.* 1530. There was much less pottery than in the phases immediately before and after, and the group is distinguished by the first appearance of decorated Cistercian ware, and by Raeren stoneware reaching its peak of popularity.

*Phase 11, second quarter to mid sixteenth century*

In contrast with the heaps of rubble in phase 10, the deposits immediately above were thin, and often patchy and dark-coloured. Though there was some rubble and some ash, this group is characterized by hard, black, perhaps trampled surfaces, e.g. 71. Together with over twelve hundred bones, they yielded the usual artifacts—a thousand sherds of pottery, among which were the first pieces of Surrey ware, and the earliest fragments of the local reduced greenware type 6, leather, including four



nearly complete shoes, and textiles. Someone had thrown away a set of bone toilet implements, of which the earscoop and probable nail-scraper were unbroken, and there were fragments of broad, crown and flashed window glass.

*Phase 12, mid sixteenth century*

About half the layers tipped during phase 12 were ash, and the remainder mortar, or rubble and mortar. At the bottom of this group, and cut through earlier layers into the Norman clay was a wide, shallow pit of unknown purpose. In its filling was found a fragment of slate, almost certainly for roofing and probably from the Lake District. Two other pieces were recovered from a later phase. These are thought to be the earliest finds of a roofing material which was not in common use in the north-east of England until the eighteenth century. The plentiful pottery included the first certain fragments of Cologne/Frechen stoneware, and the earliest sherds of a Saintonge chafing dish. There was an abundance of bones, but the finds of leather and textiles were beginning to diminish. Among comparatively little glass there were fragments of a bi-conical goblet in crystal glass.

*Phase 13, mid sixteenth century*

Almost sixty separate deposits have been grouped together in phase 13. Some were thick layers of ashy rubble (43), many were little more than bucketfuls of ash or mortar. While a quarter or more of the deposits were pure ash, and about the same number were clean rubble, masons' chippings or mortar, most of the remainder were a mixture, some also including clay and soil. These mixed patches suggest that much of the rubbish had been shovelled up from different sources and moved more than once before it reached the castle. This view receives additional support from the fact that the sherds found throughout the ditch filling tended to be small and from many different pots. One of the few exceptions occurred in this phase with the discovery, in fifty-seven pieces, of an almost complete two-handled cistern. In general and as usual, however, the pottery was scrappy and plentiful, and among it were the first fragments of Rhenish yellow-ware and part of a pre-Bellarmino face jug. The dumping of bones on a large scale (almost four thousand) continued, but finds of leather and textiles virtually ceased. More iron objects either were thrown away or survived, and a number of fragments of smashed bronze cauldrons were recovered. One of the most unexpected finds was the upper part of a sandstone wrestler, a type of knotted ridge piece still found on a few seventeenth- and eighteenth-century buildings in Northumberland.

*Phase 14, second half of the sixteenth century*

A much smaller group of layers, largely ash but with some stone rubble, separated phases 13 and 15. Phase 14 could be distinguished by the first appearance of sgraffito plates from Beauvais, a Malling jug and Cistercian ware in its typically late forms.

*Phase 15, second half of the sixteenth century*

The mound of ashy and stony clay deposits which were next thrown into the ditch

produced an unusually high proportion of residual pottery as well as two coins of the first half of the fourteenth century, and two jetons of the fourteenth or fifteenth century. Sixteenth-century fragments of pottery and glass were found as well, however, together with less easily dated artifacts such as roof and ridge tiles, and rather more than the average number of corroded, broken and often unidentifiable objects of iron and copper alloy.

Although residual pottery, as well as other residual material, was present in all the phases of the ditch filling, phase 15 was, in this respect, in a class by itself. Much of this mound of refuse had clearly been extracted from earlier dumps, and did not represent the regular clearance suggested by the other phases of the sixteenth century. Whether it had resulted from an extra vigorous emptying of cesspits or a general site clearance somewhere will never be known, but the coupling of so much Roman with late medieval pottery, plus the absence of any early medieval sherds, together suggest a provenance outside the castle since here twelfth and thirteenth-century material is quite commonly found. An area near at hand, from which such a deposit could have originated, lies to the west of the castle. Roman finds have been made here, notably on the site of the Carmelite friary, where Roman pottery was recovered from the ploughsoil below the early fourteenth-century conventual buildings.<sup>19</sup> There is, of course, no way of proving this theory.

#### *Phase 16, second half of the sixteenth century*

Phase 16 consisted of some forty separate deposits of which almost half were pure ash, nearly a quarter were combinations of stones, mortar and clay, and the rest familiar clay/ash mixtures. The fourteen hundred sherds of pottery included the first type 1 Bellarmine. Bones were present in similar numbers, together with a fair amount of glass, occasional pieces of textiles and some identifiable bronze objects—a pin, thimble, buckles and a belt fitting. Less familiar were the remnants of grindstones, and the earliest known example in Newcastle of a pantile.

#### *Phase 17, late sixteenth century*

The make-up of phase 17 resembled that of 16 but with different proportions, there being less ash in relation to the mixed ashy clay or ash and stone layers. The deposits of rubble were fewer, but one or two were quite thick such as 11a, and 25, which produced a number of broken roofing flags. Bricks were found in greater numbers than previously, and there were several large dumps of bones, layer 17 being largely horn-cores. The pottery has been distinguished from that of phase 16 by the first appearance of the black and other wares which continue into the seventeenth century.

Since the unbroken sequence of deposits in the ditch ends in phase 17 this is a suitable moment to consider the rubbish dump at the castle in the context of the whole town. When was the tip made official, was it the only one, how big an area did it serve, how typical were the excavated deposits, and what conclusions can be drawn from the imported objects? These are at least some of the questions one would

like to answer, but the paucity of documentary evidence before the mid seventeenth century makes it impossible to do so at all adequately.<sup>20</sup>

Dumping regularly and on a large scale did not occur much earlier than 1500, and it therefore seems unlikely that this was a site approved by the town authorities before that date. It could have been approved much later for, although the chamberlains' accounts only survive from 1561, the first few references in them to the "castell moot" are both obscure and intermittent. From the summer of 1563, however, it seems that there was more regular and effective control—in June two men were paid 3s for keeping the castle moat midden and for setting the wains for four days, and by July Roger Huntley, a poor cripple, was receiving 4d per week to keep the midden.<sup>21</sup> Whether the mayor and bailiffs initiated this use of the site, or—as is perhaps more likely—they attempted to regulate matters after tipping had begun is uncertain, nor is it known whether they had given official approval to other such sites in the past. It seems that a London committee had discussed suitable places for refuse as early as 1378, and some Midland towns had followed suit in the fifteenth century.<sup>22</sup>

It is certain that the castle ditch was not the only rubbish dump in use in the 1560s when documentary evidence is available. There were middens at the West Gate ("West yaitte"), Close Gate ("Close yaitt") and at "Sandgaytt", the spelling of the latter suggesting the street rather than the gate in the town wall. It is possible that these were not in such constant use and hence needed less supervision since the payments of 3s 4d to 4s for keeping them seem to have been for a year.<sup>23</sup> Salusbury-Jones has pointed out that "the indiscriminate showering of garbage over the walls and just outside the gates" had become intolerable by the fifteenth century in some towns,<sup>24</sup> so Newcastle was lagging behind in this respect.

The area served by the castle tip must be a matter for speculation though it is more likely that refuse would be brought from the upper part of the town, and highly unlikely that it would come from the streets on the riverside below the castle. The market area must be a probable source of much of the garbage, both because it was near at hand, and because the quality of the imported pottery and glass suggests fairly well-to-do residents.

There is no way of knowing whether such a small section through the filling of the ditch revealed a typical series of deposits or not. There were, for example, very few layers (excluding the ash) which might have been organic in origin, and yet there must have been a constant need to dispose of all kinds of animal and vegetable refuse. Presumably little which was either of value or which could be re-used would be thrown away; is this the explanation for the almost total absence of coins and fragments of silk, or of iron tools, door furniture and horse shoes, lead comes and roof clips? And it seems likely that the concentration of leather and textiles in certain places was largely determined by the water-logged nature of the deposits.

Finally, the significance of the imported goods is limited in some ways, important in others. There is no need to use artifacts to establish the countries with which Newcastle merchants traded, and taken by themselves these archaeological finds give a very imperfect picture of incoming products. On the other hand, the imported pottery

implies changes in local production and social habits, topics dealt with more fully below, and is more useful than the local wares in trying to create a dated sequence of deposits. To what extent the imported building materials, i.e. glazed floor tiles, clay plain tiles for roofing and bricks, all of which could well have come from the Netherlands, were bulk cargoes in coal ships returning to the Tyne is uncertain. They were potentially more profitable than the stones, gravel and sand commonly brought back as ballast and dumped on the river banks. Moreover, the roofing tiles and bricks hint at an earlier change in the vernacular style than had hitherto been suspected.

The highest layers of phase 17 were roughly equivalent in level to the surviving top of the Norman bank. This approximately horizontal line was artificial, and though much of it was, immediately, the result of nineteenth-century levelling there can be little doubt that there was a major clearance in this part of the castle at the time of the Civil War. The dumping of rubbish had continued during the early years of the seventeenth century since, in 1620, complaint was made of an enormous dunghill 98 yards (89.67 m) long, 32 (29.28 m) wide and 10 yards (9.15 m) high. "And by reason of the weight of the dunghill in and against the wall [the west curtain] of the said castle . . . a great part of the said wall, containing in length 40 yards (36.6 m), in height 10 yards and in breadth 2 yards (1.83 m), was and still is totally subverted and prostrated, to the very great diminution of the state and strength of the said castle . . ." <sup>25</sup> A dunghill of this size would have occupied the ditch from the Black Gate at least as far south as the one-time Bailey Gate near the south-west corner of the keep, and it is therefore unnecessary to look further for the cause of the disappearance of the curtain in the area of the excavation. The removal of the heap, and possibly the ruins of the wall also, was the work of Sir John Marley, the mayor, who in 1643/4 piled up the debris to make a rampart behind the town wall. <sup>26</sup> In doing so he gained not only a strengthened perimeter for the town, but also flat ground outside the castle that could be controlled by his new bastion <sup>27</sup> built, presumably, to replace the demolished curtain.

Although no buildings were shown near the Black Gate on early eighteenth-century maps of Newcastle, there was nevertheless archaeological, and even pictorial, <sup>28</sup> evidence for the existence next to the south gatetower of a house of perhaps the third quarter of the seventeenth century. The walls and cellar of this House A are shown in section on fig. 5, and its construction can be dated by various finds (see in particular no. 415). Layer 16 was of similar date (nos. 410, 414), and was possibly associated with the building. The illustrations of House A suggest that it was rebuilt, perhaps in the eighteenth century, and it was certainly refloored, the cellar probably in the mid eighteenth century and again later (see nos. 215, 412, 416, 417, 437), the ground floor room in the mid nineteenth. In the soot under its flagged floor was found part of a blue transfer-printed plate of Albion pattern, probably made by Pattersons of Newcastle c. 1850.

The foundations of another building (B), of unknown date and purpose, were found further south cut into the top layers of phase 17, and the Two Bulls' Heads Public House, which may date from the eighteenth century, was built against the south wall of the barbican.

While it is doubtful whether the building of the railway viaduct in the 1840s resulted in the demolition of buildings in the area of the excavation,<sup>29</sup> the western half of this area was certainly cleared in 1855 for the laying-out of the approach to the High Level Bridge. In 1857 the space which was left became the premises of a firm of monumental masons, who later probably lost some ground during the widening of the viaduct in the 1880s,<sup>30</sup> and it was their brick floors which covered the top of the Norman bank. It is, however, likely that the bulk of the sandstone chippings shown at the north end of the section was not theirs, but the product of the restoration of the Black Gate in 1883. It was during this work that a trench was dug round the face of the south gatetower as deep as the top of the foundations, and a new drain-pipe subsequently laid in it. After the completion of the garden in 1932 nothing was to change until excavation began in 1973.

## THE FINDS

An asterisk indicates the object is not illustrated

### THE POTTERY

*Margaret Ellison*

The filling of the castle ditch is marked by a continuous and accelerating increase in the proportion of imported wares being discarded (see fig. 6). While it is probably true that this coincides with a general increase in trade and that the predominance of the Low Countries and Rhenish wares reflects the known importance of the North Sea trade to Newcastle, these are not the only factors involved. The small quantity of pottery from France and the London area probably does not accurately reflect the extent of trade with those areas.

The quantity of pottery of Low Countries and Rhenish origin must represent a regular trade in pottery from these areas rather than occasional imports incidental to other trade, as is probably the case with imports from France and London.

The marked increase in imports in phase 5 (see fig. 6) parallels a similar increase in the range of vessel forms in domestic use, (see fig. 7), a process which continued throughout the fifteenth and sixteenth centuries. In other words social or economic changes appear to have prompted a new demand. Most of this new market was supplied by imported wares and the local industry did not copy the new forms to any significant extent. The increase in the proportion of imported wares is therefore partly accounted for by an increase in the total quantity of pottery in use by the addition of these wares to the local products.

However, it can be demonstrated in one case that the imported wares actually replaced one of the local products. Local cooking pots give way to redware cooking pots by phase 5 (see fig. 7). The small number of jugs produced locally in the sixteenth century may also mean that their function had been taken over by the Rhenish stonewares.

By the end of the sixteenth century local pottery accounts for less than 40% of the total pottery discarded and this figure includes a large quantity of residual material. This probably therefore represents an actual decline in local production as well as an increase in imports.

FABRIC TYPES	nos. = maximum vessels ■ = %	Roman	Oxidised gritty	Buff/white	Reduced green	Scar- borough	French wares	Redwares	Langer- wehe	Siegburg
17 Late 16th century Ash with clay and rubble		6		66	501	2	13	250	11	3
16 Second half 16th century Ash, clay, rubble and mortar		6		86	586	5	19	257	3	3
15 Second half 16th century Ash, clay, and stones		30	7	450	1334	17	15	124	25	8
14 Second half 16th century Ash with clay				1	143		5	94		1
13 Mid 16th century Ash, clay, rubble and mortar		1		6	808	1	9	339	2	2
12 Mid 16th century Ash with mortar, soil and rubble		1	1	14	617		12	224	4	
11 Second quarter-mid 16th century Silt with stones		1		76	570	2	11	129	3	
10 Second quarter 16th century Rubble and mortar				6	312	3	2	38	1	3
9 Early 16th century Ash and rubble		1		15	985	2	7	185	15	3
8 Early 16th century Clay and rubble				1	720		8	105	18	4
7 Late 15th century Ash		2	4	394	3030	5	4	270	86	23
6 15th century Silt		11	3	378	1019	6	8	175	41	8
5a Late 14th-early 15th century Ash filling counter-weight slots				18	606			38	17	2
5 Late 14th-early 15th century Silt with ash		3		504	3088	17	8	169	46	1
4 Mid 14th century Silt with stones and sandstone chippings		53	10	1771	596	33	8	21	2	1
3 Early 14th century Mortar, clay lumps in soil and ash patches		6	29	1702	179	62	2	18		
2 Mid 13th century Sandstone chippings and clay		9	11	58	39	9	1			
1 First half 13th century Silt with sand and clay patches		4	4	8	19	2				

Fig. 6. Comparison of quantities of pottery types.

Raeren	Cologne-Frechen	Cistercian	Martincamp flasks	Rhenish yellow	Occasional English	Occasional Foreign	Unknown	Maximum vessels	COMMENTS
18	98	228	8	6	15	4	66	1295	First:- Black ware, London? tin glazed ware, Merida type. Residual:- Reduced green type 4 (indicated: [stippled]), Low Countries greyware.
25	107	216	13	12	15	3	94	1450	First:- Bellarmine, Italian maiolica. Residual:- Reduced green type 4 (indicated: [stippled]).
47	7	46	10	3	8	5	175	2308	First:- Midlands? yellow ware, Spanish lustre ware. Residual:- Reduced green type 4 (indicated: [stippled]).
30	22	60	1	1	1	4	31	394	First:- North Netherlands tin glazed ware, Malling. Beauvais sgraffito plates, Low Countries whiteware.
99	14	198	20	2	4	1	60	1566	First:- Midlands purple ware, Pre-Bellarmino face jug.
125	10	274	18		1	5	37	1343	First:- Saintonge chafing dish, South Netherlands maiolica. Residual:- Low Countries greyware
90		102	12		1		44	1041	First:- Reduced green type 6, Surrey ware.
50		57	2				20	494	First:- Decorated Cistercian ware.
69	1	125	3			1	67	1479	Intrusive:- Cologne/Frechen (17th century red ware & 19th century wares from the same context, disturbed by cellar)
42		60					51	1009	First:- Beauvais mugs, French chafing dish.
23		19					191	4311	First:- Reduced green type 5, reliable Cistercian ware & Raeren.
14	9	21					171	2391	Intrusive:- Cistercian ware, Cologne/Frechen, Beauvais?
1		5					16	488	Intrusive:- Cistercian ware, Raeren.
						1	192	4499	First:- Spanish maiolica.
						1	199	2648	First:- Reduced green type 4, Saintonge polychrome jugs.
					1	1	111	1695	First:- Saintonge green glazed jugs, Mediterranean costrel. Residual:- Stamford? ware
					1		10	138	First:- Rouen, Yorkshire? wares. Residual:- Saxo-Norman.
								37	First:- Reduced green types 1, 2 & 3.

Fig. 6. (Cont.)

VESSEL FORMS ■ = nos.	Cooking pots			Jugs			Storage vessels			Cisterns			Dripping pans			Frying pans			Flasks, Costrels		
	Loc.	For.	Eng.	Loc.	For.	Eng.	Loc.	For.	Eng.	Loc.	For.	Eng.	Loc.	For.	Eng.	Loc.	For.	Eng.	Loc.	For.	Eng.
17 Late 16th century	2	55	1	9	3	2	2	1		8			1	1			7				6
16 Second half 16th century	2	59		8	4	2	1			18				2			8				11
15 Second half 16th century	11	26		60	6	7	6	1		13			3				7				7
14 Second half 16th century		14		2	2					6				2			5				1
13 Mid 16th century	1	54	1	6	7	1	3	1	2	37				3			8				18
12 Mid 16th century	1	47		4	9	1	1	2	1	38				1			10				16
11 Second quarter- mid 16th century		18		6	5		2			12			1	7			8				8
10 Second quarter 16th century	1	7	2	1	1	2	1			11				2			3				2
9 Early 16th century		17	1	5	1		1			21				2			4				4
8 Early 16th century		22		6	6					16				1			8				
7 Late 15th century	3	18		41	5	1	17			36				2			10				3
6 15th century	5	15		24	3		2			5			1	2			3				
5a Late 14th - early 15th century		9		14	3		1			11				1			5				1
5 Late 14th- early 15th century	3	28	2	88	6	1	12			34				1			22				
4 Mid 14th century	39	3	2	75			3														
3 Early 14th century	32	1	1	44		7	12						1								1
2 Mid 13th century	6		1	5																	
1 First half 13th century	2			4																	
Fabrics in order of occurrence: COMMON occasional	BUFF/WHITE oxidised gritty reduced green REDWARE rhenish yellow surrey			BUFF/WHITE REDUCED GREEN most fabrics			BUFF/WHITE REDUCED GREEN redware midlands purple			REDUCED GREEN			reduced green REDWARE			REDWARE			mediterranean langerwehe siegburg beauvais? MARTINCAMP saitonge		

Fig. 7. Comparison of the incidence of vessel forms.



Plates,Dishes			Bowls			Porringers			Mugs,Beakers, Tankards			Cups,drinking bowls			Chafing dishes			Urinals(ph.3-8) Chamberpots			Lids				
Loc.	For.	Eng.	Loc.	For.	Eng.	Loc.	For.	Eng.	Loc.	For.	Eng.	Loc.	For.	Eng.	Loc.	For.	Eng.	Loc.	For.	Eng.	Loc.	For.	Eng.		
		13			11			3			47	1		2	2	4	2			4				2	
		16		2	6			3	1		41	3		1		5	5			3					
		6			4			1			12					2	1			2					
		6			3			2			16				1	1	2			1					
		15			5			2			23		1	1	10	4	4			1	1			1	
		10		1	5			2			28		1	1	9	4	3			2					
		5		2				1			22		1	1	5	2								1	
		2			2						7			2	3	1									
		5			1			1			14			2	4	4				1				1	
		2			1						7			1	2	1				1					
				2							6		1	1	1	2				2				1	
		2		1	4			1			9									1					
					1						1									1					
		3		2							3									2				1	
				2																					
																				2					
																								1	
REDWARE spanish BEAUVAIS rhenish yellow italian	reduced green REDWARE beauvais		beauvais REDWARE low countries whiteware surrey	RHENISH STONEWARES beauvais malling	CISTERCIAN reduced green beauvais surrey siegburg blackware	REDUCED GREEN so. west french redware SAINTONGE CISTERCIAN	buff/white reduced green REDWARE rhenish yellow	scarborough reduced green redware																	

Fig. 7. (Cont.)

*Pottery Types (fig. 6)*

The pottery has been divided into types on the basis of general observable characteristics of fabric, vessel form and potting technique. That is, the wares in each type are products of the same town or area sharing a common tradition and using the same clay, but not necessarily of the same kiln.

For the purposes of the histogram types occurring in small numbers have been grouped together as "French wares", "Occasional English" wares and "Occasional Foreign" wares. The local reduced greenwares have also been grouped together. The first occurrence of each of these types is noted in the comments column to the right of the histogram, although the actual first occurrences of these occasional types are not necessarily significant, as many occur residually.

The unknown category includes both unidentifiable and unprovenanced sherds.

*The basis for the comparison of quantities*

As described above the phasing of the ditch fill is partly arrived at on the basis of evidence provided by the site itself and partly on the basis of changes observed in the pottery being deposited, changes in the proportions of the main types as well as the first occurrence of types were regarded as significant.

The histogram (fig. 6) represents the comparison of maximum vessel counts (see below), for each pottery type represented as percentages (to the nearest 0.5%) of the total numbers for each phase. Quantities of less than 0.5% are represented by ticks. Actual numbers of fragments are given in the corner of each square, the total number for each phase is given in the column to the right of the histogram.

I decided eventually to compare the different types of pottery on the basis of a maximum vessel count, that is a fragment count after all the possible joins had been made, and in some cases where joins could not actually be made but sherds were without doubt from the same vessel, these were counted as one unit. This was the only method that could be applied consistently to all groups and all types of pottery. I think it has proved to have some validity for a sample of this size in monitoring trends.

Minimum vessel counts proved to be unsatisfactory. For example the earlier local wares (buff/white) could be separated fairly easily into what appeared to be fragments representing different vessels. On this basis about half the sherds represented one vessel each, the rest could be grouped in twos and threes probably representing the same vessels. Rims and bases of the same vessel were rarely present and joins were infrequent. Some doubts were cast on the proceedings by the discovery that the body and handle of at least two vessels were made of different fabrics. When dealing with groups of fragments of large vessels in a very homogeneous fabric, for example, the reduced greenwares of phases 4 and 5, it was impossible even to suggest, except in a few cases, that any one sherd did or did not belong to the same vessel as any other. In these groups too there was no reason to suppose that rims and bases necessarily belonged to the same vessels.

A rim percentage count or a simple rim count could not be used, since not all types were represented by rims in every phase and not all the rims were circular.

The vessels had usually been broken into fairly small fragments, presumably as a result of being shovelled from domestic tips into carts, tipped in the ditch and then trampled and spread to keep the tip reasonably even and accessible. This process would also have resulted in sherds of the same vessel being widely separated, left behind or dropped on the way to the tip. This may go some way to explaining the large number of apparently unrelated sherds in the group.

It also meant that the average sherd size was much the same throughout the sample which increased the validity of the comparison. Nevertheless if facilities for weighing had been available this would have provided a valuable check of the results.

It is important also to bear in mind the types of vessels produced in each fabric because there was a considerable degree of specialization (see fig. 7). Larger vessels obviously produce more sherds, but the average household may, for example, have only needed one cistern but had a number of drinking vessels.

#### *Residual and Intrusive Material*

Some problems arise in assessing the significance of the quantities as a result of residual and, to a lesser extent, intrusive material.

A high proportion of residual material is to be expected in a secondary deposit such as a rubbish tip and this is apparent in the castle ditch fill. In the large groups of imported and local wares occurring over a long period it is fairly easy to isolate the residual types, but wares which occur in small quantities or only occasionally can be misleading unless related to dated examples elsewhere.

Phase 15 presents a special difficulty in that the majority of the pottery in that phase is residual. The date range of this residual material is suggested by coins of the fourteenth and fifteenth centuries occurring in it. The majority of the forms and the fabric of the local wares are similar to those in phases 4 and 5. The proportion of reduced greenware (types 1-4) to buff/white ware and of strap handles to rod handles (see fig. 9), are most similar to phase 4. The reappearance of imports such as Langerwehe, Siegburg and Scarborough wares in some quantity also suggests a parallel with phase 4 or 5 and some redwares appear to be residual types. The reappearance of cisterns nos. 48 and 49 and early Raeren wares suggest a small amount of late fifteenth century material, as phase 7.

Although, in general all the unrelated contexts were excluded from the phasing, it was decided to include the large group from the fill of the counterweight slots as phase 5a because of the marked similarity of the pottery sample to phase 5 in the ditch, especially layer 117 in that phase. Because the fill of the slots was not sealed except by the modern roadway, a few examples of obviously intrusive material have been identified from the top of this fill. The pottery from phase 5a differs from the ditch fill in one other respect. The pottery was all recovered in large fragments, though as in the ditch fill few were from the same vessels. This and the smaller quantity of residual local wares suggests that the pottery was recently broken and was discarded with little handling, possibly from the immediate vicinity of the castle.

The period of silting in the fifteenth century, phase 6, has been discussed above. Although in general the late wares only occur on the upper slope which remained exposed throughout much of the sixteenth century, and could therefore be easily extracted, the nature of silt is such that pottery would tend to slip to the bottom and apparently intrusive fragments did occur in this predominantly fifteenth century group, which should be regarded with some caution.

The two joining sherds of Rouen ware (see French wares), from phase 2 and phase 12 present another anomaly. This was clearly not a case of contiguous contexts of different date nor, since the sherds were excavated in different years, of mis-labelling on the site. It can perhaps only be explained by suggesting that the sixteenth-century context represents a re-clearance of the same location as the first or a disturbance of some other part of the tip. This serves as another reminder of the extent to which rubbish discarded from an individual domestic site was scattered in time as well as location by the process of disposal.

*Comparison of the incidence of vessel forms (fig. 7)*

This and all the subsequent histograms are based on a comparison of actual numbers of identifiable vessels. Two cautions must therefore be made: the total number of vessels could not be known so these numbers are not valid to the same extent as the percentage histogram (fig. 6); it should also be remembered that the sample from phase 8 onwards was taken from a larger area than the preceding phases (see above).

## ROMAN POTTERY

The residual Roman pottery from the ditch fill will be published in detail in a future report on all the Roman pottery from the castle and fort area. Its significance for the purposes of this report is as an indicator of earth moving, disturbance and weathering.

The clay bank, where excavated, has been found to contain considerable quantities of Roman pottery indicating the disturbance of Roman levels by the castle builders. In the ditch fill, phases of silting and soil slip (1 and 6) which lay against the bank, and phases marking the construction, landscaping and repair of the castle (2, 3 and 4), were found to contain significant amounts of Roman pottery.

The presence of similar quantities of Roman pottery in the top levels (phases 15, 16 and 17), which also contained substantial quantities of residual fourteenth- and fifteenth-century pottery, suggests that this material represents large scale clearance within the area of the Roman occupation of Newcastle.

## RESIDUAL SAXO-NORMAN

1. Cooking pot rim in dull red, abundantly gritted, fabric with external sooting. Vessels of this type are known from the monastic site at Jarrow in Saxo-Norman contexts.<sup>31</sup>

## THE LOCAL WARES

Two types of local clay appear to have been used in the manufacture of the local pottery recovered from the castle ditch: clays with a low iron content, possibly from the coal measures, which were used for the production of buff/white wares and clays with high iron content, probably boulder clays used in the production of reduced greenwares and oxidised gritty wares.

The earlier examples of each type (phases 1 and 2) contain added quartz grit. The buff/white wares which dominate phases 3 and 4 were apparently made from clay which was little refined but without deliberate inclusions and rather erratically fired. The later types (reduced greenware 4 and 5) used local boulder clay refined to produce a smooth uniform fabric and were consistently fired, in the case of type 4, at a higher temperature than most of the buff/white wares.

The distinctions made between these local pottery types are based partly on changes observed in techniques and vessel form and partly on what appear to be changes in clay source. However these distinctions are not always easy to make. It is easy to identify the typical product but there are always borderline cases where one type is superseding another or residual material is present. Many of the small badly abraded sherds in the unknown group are certainly local wares of some kind.

Some vessel forms occur in more than one local fabric which also suggests a common tradition. Also (see fig. 9), changes in handle style seem to take place at the same time in all

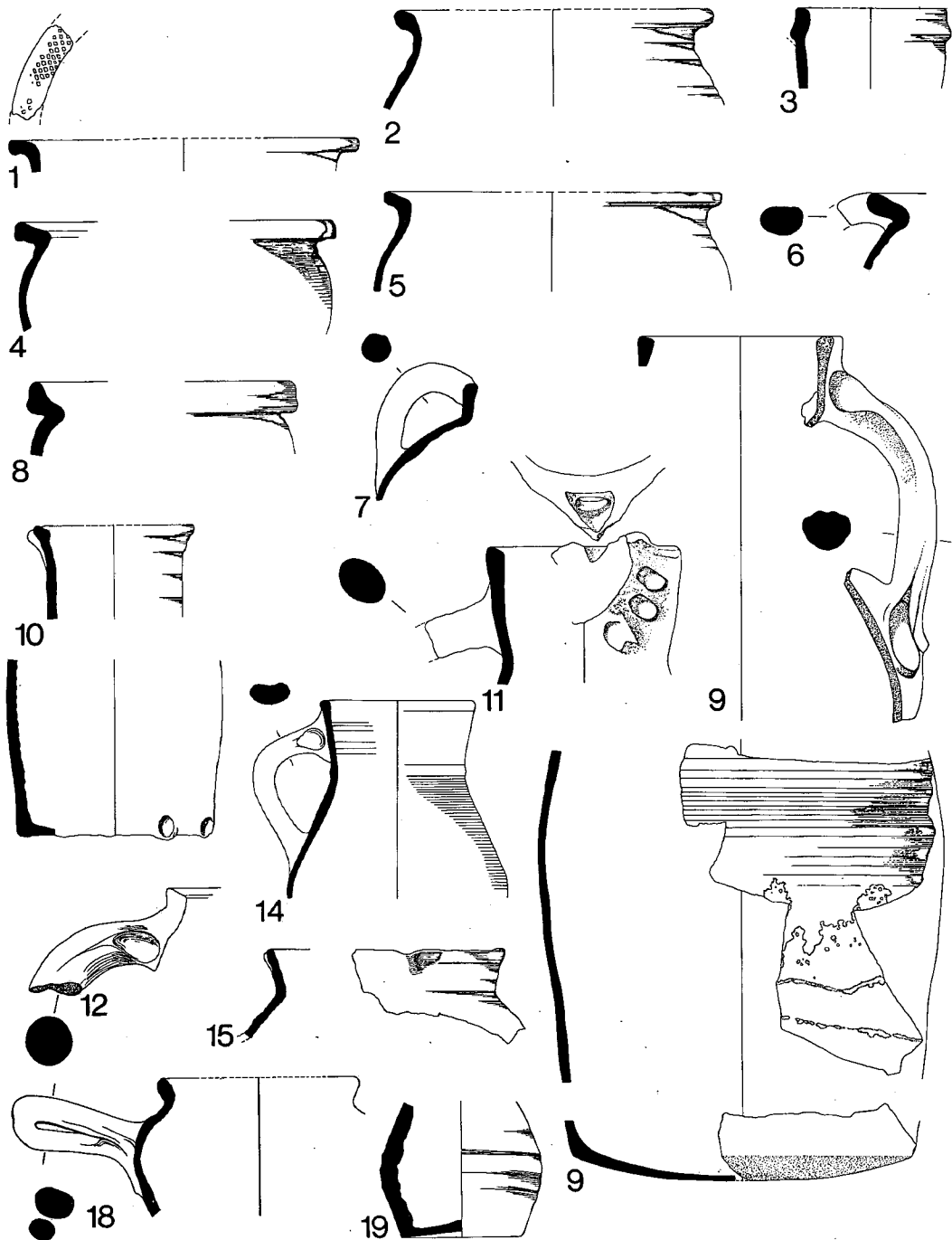


Fig. 8. (¼) Local Wares.

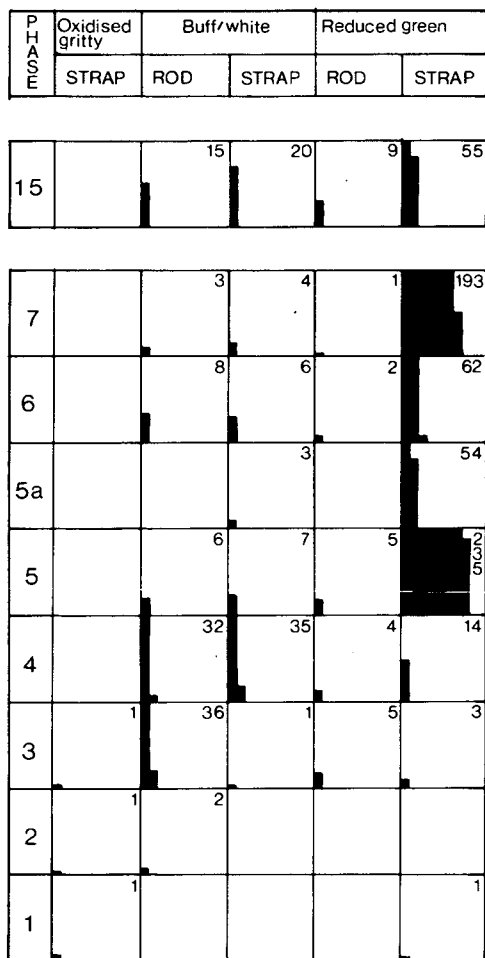


Fig. 9. Handle forms on local vessels.

the local wares, that is a change from a majority of rod handles to a majority of strap handles in phase 4, rod handles being residual after phase 4. The large number of rod handles in residual fabrics in phase 15 is another indication of the considerable quantity of residual material in that phase.

The oxidized gritty wares, insofar as the small sample can be relied upon, produced only strap handles and as the earliest reduced greenware handle is also a strap handle it is possible that rod handles were a fashion confined to phases 3 and 4, but the sample from the earliest phases is too small to give any weight to this hypothesis.

In the absence of known kiln sites in or near Newcastle it is impossible to suggest whether each local type is the produce of a different single kiln site or the result of changes taking place simultaneously at a number of sites, some of which could have remained in production

for much of the period of the ditch filling. The fact that the clay used by one kiln in the production of one vessel could vary considerably (see below buff/white wares) shows that the only solution to the problem is the location and excavation of kiln sites, which may never be found in an urban and industrial area such as Tyneside.

#### *Oxidized Gritty Wares*

Oxidized quartz-gritted fabrics, orange/buff in colour and usually with a dark grey reduced core. This is a common northern type up to the middle of the thirteenth century. It can be regarded as residual from phase 3 onwards. The earliest reduced greenwares (types 1 and 2) are made in very similar fabrics and also decline in numbers by phase 3. The two types should be regarded as part of the same Northern Gritty tradition. There is no indication of a continuous development from these oxidized wares to the later oxidized wares in the same fabric as reduced greenware 4 (see below). Only a few of the small number of sherds of this type gave any indication of vessel forms.

#### *Cooking Pots*

One considerably encrusted cooking pot rim occurred in phase 3 with an everted rim form and narrow lid-seating groove on the inner rim. Small rim fragments of cooking pots occurred in later phases, 4, 6, 7 and 10, where they can be regarded as residual, and appeared to be of a similar form to no. 4 (buff/white ware), except for one similar to no. 8. The cooking pots were unglazed except for occasional splashes.

2. Cooking pot rim in slightly gritted, oxidized fabric with reduced core and buff surfaces. Probably local, the fabric shows some similarity to the oxidized gritty wares and to reduced greenware type 2, but the form does not occur elsewhere on the site. From an unstratified group equivalent to phase 2 or 3.

#### *Jugs*

In phases 1 and 2 two jug rims were present (see no. 3) and one other jug was represented by a number of body sherds, a base fragment and a strap handle. There were three other strap handles, (see fig. 9).

3. Jug rim fragment in oxidized gritty ware with splashed green glaze externally. Phase 2. One example phase 1.

#### *Buff/white wares*

These are the dominant local type in phases 3 and 4. Residual after phase 5. Commonly, off-white or pale grey (reduced) fabrics, often with pink or buff (oxidized) surfaces when unglazed. Fully oxidized (pink) fabrics also occur. When fired to higher temperatures the colour ranges from buff to dark brown when oxidized and mid to dark grey when reduced. The hardness also ranges from fairly soft to completely vitrified fabrics. The characteristic inclusions are black flecks, (which occur on the surface as blisters on the harder fired fabrics), probably iron, occasional large fragments of aggregate of quartz grains and irregularly shaped opaque white chips which are probably finer-grained quartz aggregate. Some pink wares have red iron oxide inclusions. The occurrence of frequent quartz grits in examples in the early phases probably represent deliberate gritting. There is considerable variation in the frequency and proportions of these inclusions and there are colour variations possibly due to different iron content in addition to those attributable to firing conditions. The later wares appear to have had some of the larger inclusions removed and to be generally in the harder darker range of firing.

Some of the vessels in vitrified fabrics are distorted but still serviceable and can be regarded as kiln seconds. One or two examples could perhaps be classed as kiln wasters. A kiln waster in this type of fabric was recovered from the Cloth Market,<sup>32</sup> consisting of two fragments fused together which were made of different but similar clays, demonstrating that different clays were used at the same kiln. This may mean that all these wares are the product of one kiln in the immediate vicinity of Newcastle. Two examples occur at the Black Gate of jugs (not wasters) with the handles and body made of different clays: one in phase 4 of the ditch and one from an unstratified context. A clay with a higher iron content, possibly a boulder clay, was used for the red slipping which occurs on some of the vessels.

#### *Cooking pots*

These are either unglazed or have a thin cover or splashes of greenish yellow glaze on the inner rim and externally on the shoulder. External soot blackening is evident on some but not all of the vessels, so cooking was probably not the only function of these vessels.

4. Cooking pot. Phase 3. This is the common cooking pot rim form with a square section. Examples occur in oxidized gritty ware and reduced greenwares. There are five examples in buff/white ware in phase 2, twenty-seven in phase 3 and twenty in phase 4. Occasional residual examples occur in subsequent phases, there are seven in phase 15.
5. Cooking pot. Phase 2. In the same tradition as no. 3 but more thinly thrown than the majority of examples.
6. Cooking pot. Phase 3. The rim form is similar to nos. 4 and 5, so it is possible that more of these vessels had handles. There is one example of this form in reduced greenware fabric 4.
7. Cooking pot. Phase 6. One example and one possible example phase 3, eight phase 4 and occasional residual examples subsequently. This form is very similar to and possibly derived from Low Countries redware cooking pots, although there is no evidence that these local vessels had tripod feet. The form does not occur before the first redware cooking pots.
8. Cooking pot. Phase 3. This is the only example of this form in buff/white ware, there is one example in oxidized gritty ware.

#### *Jugs*

There are some unglazed vessels but most have patches of external glaze, (green, greenish or brownish yellow and metallic purple on vitrified wares). Some vessels have a light red external slip-coating.

9. Jug. Phase 3.  
The most common buff/white ware jug form with a slightly lid-seated rim. One phase 1, one phase 2, six phase 3, thirty seven phase 4, ten phase 5, six phase 6, seven phase 7 and occasional residual examples subsequently, five in phase 15.
10. Fragments of a jug. Phase 3. Two other examples of bases in phase 3. Only the base differs from the common jug form.
11. Side-handled jug. Phase 3. Very crudely made. Probably a kiln second, as the spout was partly chipped before red slip was applied. Phase 3. Two other examples phase 15. A very similar vessel (no. 26) occurs in a reduced greenware fabric with a strap handle.
12. Jug. Phase 3. Three other examples phase 3, one in phase 5. Examples of the same rim form with strap handles: two phase 4, one phase 5, occasional residual examples subsequently.
- \*13. Lid-seated jug rim with pulled spout and external ribbing on the neck. One phase 3, two phase 5, one phase 15. All small fragments.



14. Jug. Phase 15. Twelve in phase 4, eight in phase 5, five in phase 6, six in phase 7, occasional residual examples subsequently and another seventeen in phase 15. Several examples have pulled spouts, eight have strap handles and four have rod handles.
15. Jug, with internal and external sooting. Phase 4. One phase 5, one phase 15. Four lid-seated jug rims occur, similar to nos. 23 and 24 in reduced greenware.

#### *Other Vessels*

- \*16. Fragments of twelve bases in phase 3, three in phase 4 and occasional residual examples later are glazed internally. These are probably from large storage vessels like a complete vessel recovered from the Black Friars site.<sup>33</sup> This is a large globular-bodied vessel about 29 cm high, with a sagged base and lid-seated rim (diam. 21.5 cm.) with two small handles from rim to shoulder. It is unglazed except for the inside of the base.
- \*17. Two rim fragments similar to a urinal (no. 85) in reduced greenware type 4. One glazed externally and one unglazed. Phase 3.

#### *Possible Local Wares*

18. Ladle in pink, oxidized fabric with darker pink external surface. Patchy amber and green glaze externally on the rim and shoulder. Phase 6.
19. Possibly a money box, in pink fabric with reduced core and external red slip. A decorative groove runs round the body filled with light green glaze. Splashed glaze elsewhere. Phase 15.

Nos. 18 and 19 both occur late and are the only examples of these forms from the site. The fabrics are very similar to the local buff/white wares but they may not be from the same source or of the same date.

Two fragments of fired clay of the same type as that used for buff/white ware vessels occurred in phase 3 and 13: with the imprint of a sharp right-angled edge, possibly the rim of a vessel, and one pierced by round holes of regular size. They may represent lid sealing and clay packing of vessels in industrial processes.<sup>34</sup>

#### *Reduced Greenwares*

Green (galina) glazed, reduced pottery is the most persistent and in all phases except 3 and 4, the dominant local ware. Six fabric types have been grouped together under this title because they all appear to be part of the same tradition and the development from one type to another is quite gradual and there are many transitional variations. They are probably all produced from local boulder clay. Experimental firing of samples of clay from the castle site produced fabrics very similar to oxidized examples of reduced greenware type 4. It was not possible to attempt a reduced firing.<sup>35</sup>

In phases 1-3 there is little uniformity of fabric even within the three types present though all the wares are gritted and with few exceptions, glazed externally. The only vessel forms identified in these types are jugs. One fragment in a type 1 fabric with external sooting may indicate a cooking pot and there is one example of a bunghole (no. 55).

Type 1: phases 1-3, residual phase 4 and later.

A black or dark grey ware abundantly quartz-gritted with large grits. Occurring in rather thick walled sherds.

Type 2: phases 1-3, residual phase 4 and later.

A ware similar to 1 with whitish or buff surfaces often thinly thrown.

Type 3: phases 1–3, becoming residual phase 4.

Mid to light grey wares moderately or sparsely quartz-gritted with fine grits, sometimes with whitish or buff surfaces, always thinly thrown. Less grit in the later phases when it is increasingly similar to the earliest examples of type 4.

Type 4: phase 4 onwards, dominant in phases 5–8, residual after phase 9.

A mid to dark grey ware often with black surfaces, also with buff and light red oxidized surfaces. In phase 5 completely or largely oxidized examples are common but these decrease in numbers subsequently. Rims are commonly oxidized in all phases. Initially the fabric contains some quartz grit (probably not deliberately gritted) but by phase 5 it is refined to a smooth hard, extremely uniform fabric without visible inclusions and with a full cover of glaze externally. The commonest vessel forms are jugs (nos. 23, 24), cisterns (nos. 45–7) and storage vessels (no. 36). The vessels are all carefully potted and the cisterns and storage vessels are highly decorated with applied and scratched motifs.

Type 5: phases 7–17, equal quantities with 4 in phases 8 and 9, dominant subsequently. Typically a softer lighter coloured fabric than 4 with whitish margins and occasional quartz grits, probably using a different clay source and firing at a lower temperature. Oxidized and partly oxidized examples also occur in this ware. Internal as well as external glazing is common on cisterns. The cistern and jug forms in type 4 are considerably simplified in type 5 (nos. 29, 52, 53), and decoration and the treatment of features such as bungholes (no. 62) is perfunctory. The cistern is the only common vessel in this ware though jugs and chafing dishes occur fairly frequently.

In phases 7–9 many fragments are not clearly either type 4 or 5 but share characteristics of each. Jug no. 28 and cisterns nos. 48 and 49 which are most common in this transitional period often occur in this kind of fabric which may result from firing the clay from the new source at the same high temperature as type 4.

Type 6: phase 11 onwards.

A sandy buff fabric often partly reduced with olive green or occasionally, when oxidized, pale orange glaze. Only occurring in small quantities. The cistern form in this fabric (no. 54) is the same as nos. 52 and 53 in type 5. Glazing and decoration are also treated in the same way as type 5 which suggests that this ware is part of the local tradition but probably from a different kiln and certainly using a different clay source.

### *Cooking Pots*

There is one example in phase 4 of a rim similar to no. 4 (buff/white ware), and one example similar to no. 6. A further three examples like no. 4 occur residually in phases 15 and 16. All examples are in type 4 fabric.

### *Jugs*

See fig. 10 for a histogram of the common forms.

20. Balluster-shaped jug, with yellowish-green glaze externally with vertical stripes of brown iron-stained glaze. Type 2. Phase 1. A base fragment of a similar vessel but with a flat base occurs in phase 4 and a third example in phase 5. Both these are in partly oxidized type 4 fabric.
21. Balluster-shaped jug, glazed externally. Type 5. Phase 13. Another example in phase 13 in type 4 fabric, one example in phase 12, a smaller vessel in over-fired type 5 fabric oxidized internally.

P H A S E	JUGS				Storage	CISTERNS		
	23 & 24	25	28	29	36	45-47	48 & 49	52-54
17	1	3	1	1	1			8
16		3		3			3	11
15	4	13	1	2	2	4	3	6
14				2				6
13	1		2	2	1			31
12	1			1			2	32
11			1	2	2	1	2	8
10					1		1	6
9	1		3	1	1	1	2	12
8	5		1	1		1	8	5
7	19	2	4		19	34	1	1
6					3	3		1?
5a	12				1	9		
5	38	8			9	27		
4	2							

Fig. 10. Common vessel forms in Reduced Greenware.

22. Probably a balluster-shaped jug with a frilled base, glazed externally. Type 5. Phase 12.
23. Jug with lid-seated rim and pulled spout, glazed externally. Type 4. Phase 5a.
- \*24. Jug. The form is identical to no. 23, but the dimensions of the body are larger. Rim diam. 96 mm. Base diam. 135 mm. Diam. at widest point of body 210 mm. Probable height 340 mm. The fabric and glaze are also very similar to no. 23. Phase 5a.
- Nos. 23 and 24 represent the commonest form of jug occurring in type 4 fabric, and it does not occur in any other fabric. It appears to be a late fourteenth- and fifteenth-century type with a lot of residual occurrences in phases 15–17. See fig. 10 col. 1. The similarity of nos. 23 and 24 and their different size suggest that these jugs were possibly made in sets of different sizes or in a range of standard sizes, but most of the vessels were not represented by large enough fragments to provide any further evidence of this.
25. Globular-bodied jug with a plain rounded rim and pulled spout, glazed on the external shoulder only. Type 4. Phase 5. A number of rim fragments in type 4 fabric probably represent jugs such as this or similar to no. 14 (buff/white ware), see fig. 10 col. 2. The greater proportion of these vessels to nos. 23 and 24 in the residual groups does not have any obvious explanation.
26. Side-handled jug, glazed externally. The form is similar to no. 11 (buff/white ware) and there are occasional large inclusions in the fabric which is otherwise like type 4. Phase 5.
27. Bridge spout probably from a vessel similar to nos. 11 and 26, glazed externally. Type 4. Phase 5. Two other bridge spouts without finger-pressed decoration phase 5, one phase 12. All in type 4 fabric.
28. Jug, glazed externally. A scar indicates where the handle has broken off opposite the spout. Overfired type 4/5. Phase 9. Mostly a late fifteenth- and early sixteenth-century form, see fig. 10 col. 3. All examples are in type 4 fabric or more commonly a type between type 4 and type 5 (see above).
29. Jug, glazed externally. Type 5. Phase 16.  
The most common jug form in type 5, not occurring in any other fabric. No examples of spouts were found, but there were no complete rims. A sixteenth-century type, see fig. 10 col. 4.
30. Fragment, probably a jug, fully glazed. Type 6. Not reliably stratified, probably phase 17.
31. Possibly a jug similar to no. 29, glazed externally and on inner rim. Type 5. Not reliably stratified, probably phase 17.
32. Rim fragment, possibly a jug, glazed externally. Type 5. Unstratified.  
A base fragment in phase 3 with thumbing on the underside and another fragment in phase 4 with thumbing on the side of the base are probably jugs similar to no. 9. Both are in type 3 fabric.

#### *Spouted Vessels*

33. Base of a spout with patchy external glaze. Type 3. Phase 1.
34. Fragment of the base of a spout, glazed internally and externally. Type 4. Phase 5a. This probably indicates the presence of a form of spouted pitcher. Since it is the only example recovered it was obviously not common. No. 36, which has the same type of decoration and is glazed internally, could also be part of such a vessel but it is also very similar to no. 35 which seems more likely to be a storage vessel or even a cistern.

#### *Storage Vessels*

35. Four handled globular-bodied vessel, probably for storage. Type 4. Phase 7. Rim and

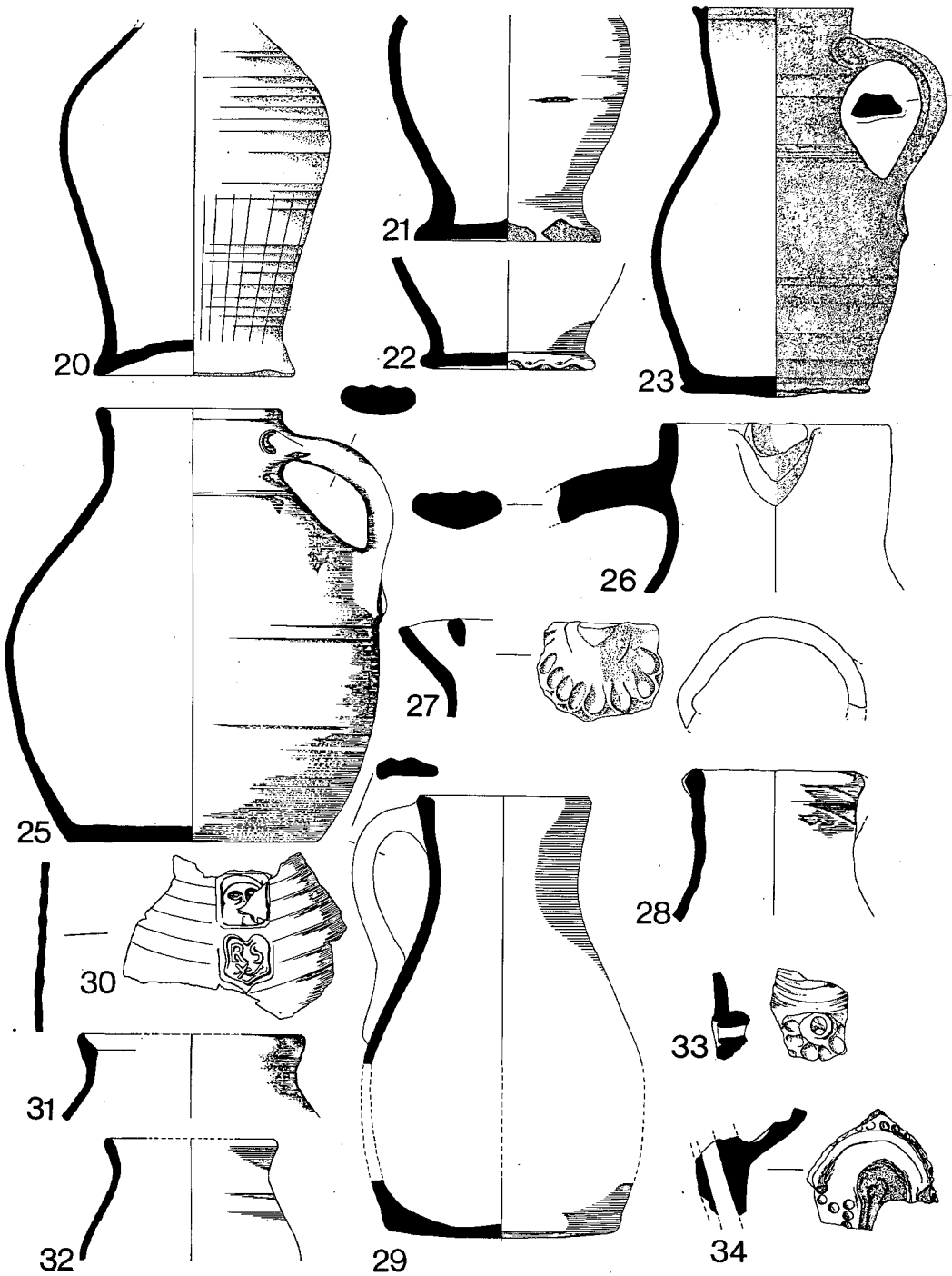


Fig. 11. (4) Reduced Greenware.

- shoulder fragments of these vessels are easily recognized but the form of the base and lower body has not been established, which probably means that the base fragments are not distinguishable from jug or cistern bases in the same fabric. A late fourteenth- and fifteenth-century type, see fig. 10 col. 5. All examples are in type 4 fabric and glazed externally only.
36. Globular-bodied vessel, probably for storage, originally with full external and almost full internal glazing, now mostly flaked off. Type 4. Not reliably stratified but no later than phase 7.
  37. Globular-bodied vessel, possibly a small storage vessel, the rim thickening to a handle at one point. It could have a profile similar to no. 40. Glazed externally, thinner cover internally. Type 4. Phase 5.
  38. Possibly a storage vessel, glazed externally. Scars on the rim and neck suggest a decorative cordon and a handle broken off. Type 4. Phase 12.
  39. Globular-bodied vessel probably for storage, with patchy glaze internally. Type 4. Phase 5. A base fragment in the same fabric with internal glaze may be part of this vessel, it is no different in form to jug or cistern bases.
  40. Globular-bodied vessel probably for storage. Very similar to no. 39 but with one or two handles, and splashed glaze externally. Type 4. Phase 15 (probably residual).
  41. Possibly a storage vessel, glazed internally but flaking, remains of glaze on both sides of the rim and splashed on the shoulder externally. Lower body tool-trimmed externally. Fabric similar to type 4, and probably local. Phase 17.
  42. Possibly a storage vessel, fully glazed. Type 5. Phase 13.
  43. Globular-bodied vessel, possibly for storage, internal and external glaze. Type 5. Phase 13. A second example in phase 17 has a thickening at one point below the rim which may suggest the start of a handle.
  44. Probably a storage vessel similar to no. 41, glazed externally. The scar of the base of the handle and a second handle fragment indicate the form of the handle. Type 5. Phase 16.

### *Cisterns*

See fig. 10 for a histogram of the common forms.

45. Three-handled cistern. Type 4. Phase 5a.
46. Two-handled cistern. Type 4. Phase 5a.
47. Two-handled cistern. Type 4. Phase 7. This is the only example of a cistern in type 4 fabric, glazed internally as well as externally.

Nos. 45–7 represent the most common form of cistern in fabric type 4. The majority were probably two-handled. They are normally fully glazed externally. The most common form of bunghole in this fabric occurs on no. 45, and is illustrated on no. 56. Most of the cisterns like nos. 45–7 probably had these bungholes, with no. 58 as a less common alternative. No. 59 is the only bung in this fabric and probably belongs with these vessels, though the majority of bungs must have been made of some other material. Fragments of wood were found in one bunghole which may have been the remains of a bung or spigot. The lid-seated rim form suggests the use of lids which must also have been of wood or some other material. Examples of this form occur mainly from the late fourteenth to the late fifteenth centuries, see fig. 10 col. 6.

48. Two-handled cistern. Type 4/5. Phase 12.
49. Probably a cistern, the start of a “pie crust” cordon visible on either side of the handle. Type 4/5. Phase 7.

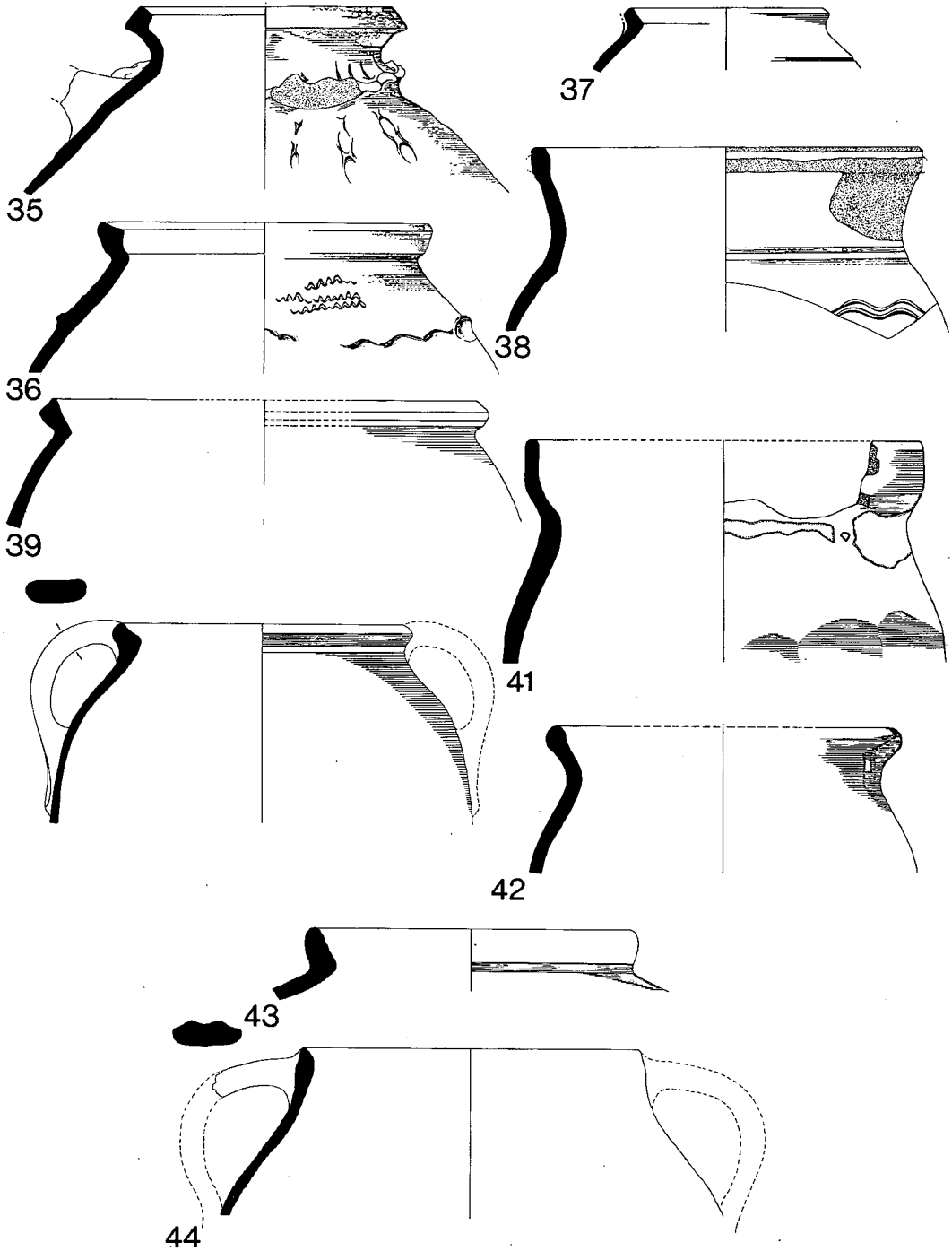


Fig. 12. ( $\frac{1}{4}$ ) Reduced Greenware.

Nos. 48 and 49 illustrate a cistern form without lid seating, with a flat or rounded rim, and two strap handles placed below the rim joined by a "pie crust" cordon. All examples are fully glazed externally. These vessels are common in the period of transition from type 4 to type 5 in the early sixteenth century (see fig. 10 col. 7), and occur in both fabrics, or more commonly in a fabric between type 4 and type 5 (see above).

50. Possibly a cistern similar to nos. 48 and 49. Type 4/5. Phase 6.
51. Fragments of a cistern, with internal sediment. Type 4/5. Phase 8.
52. Two-handled cistern. Type 5. Phase 13.
53. Four-handled cistern. Type 5. Phase 13.
54. Three-handled cistern. Type 6. Phase 16.

Nos. 52-4 illustrate the cistern form occurring most commonly from phase 9 onwards usually in type 5 fabric and occasionally in type 4/5 or type 6, and commonly glazed both internally and externally. See fig. 10 col. 8. No. 52 has a bunghole like no. 62, which is probably the usual bunghole form for these vessels. No. 65 is the only form of bung associated with these cisterns.

#### *Bungholes and Bungs*

55. Bunghole (not from a cistern), with patchy external glaze. Type 2. Phase 2.
56. Bunghole from a cistern, glazed externally. Type 4. Phase 5. This form only occurs in type 4 fabric. Five other examples in phase 5, three in 5a, three in 6, seven in 7, three unstratified. Commonly associated with cistern nos. 45-7 (see above).
57. Bunghole from a cistern similar to above with finger-pressed decoration and glazed externally. Type 4. Phase 5.
58. Bunghole from a cistern, glazed externally. Type 4. Phase 5. Two other examples phase 5, three in 5a, probably two in 7, one in 8, three in 9, one in 10, one in 13. Usually in type 4 fabric, two examples in type 5, one in type 4/5. Probably occurring on cisterns like nos. 45-7 (see above).
59. Bung for a cistern possibly belonging to the same vessel as no. 56. The top of the knob is glazed. Type 4. Phase 5. In use the stem would probably be bound with leather, waxed thread or cloth.
60. Bunghole from a cistern, glazed externally. Type 4. Phase 7.
61. Bunghole from a cistern, glazed externally. Type 4. Phase 9.

Nos. 60 and 61 illustrate a form which occurs in type 4 and type 4/5 fabrics. One other example in phase 7, two in 8, one in 9, one in 10.

62. Bunghole and part of the base of a cistern, fully glazed with internal sediment. Type 5. From a disturbed context, probably phase 17. Three examples in phase 8, six in 9, three in 10, five in 12, five in 13, three in 14, probably two in 15, three in 16, probably four in 17. One example in type 4 fabric and one in type 4/5, the rest in type 5. Commonly associated with cisterns nos. 52-4 (see above).
63. Bunghole from a cistern with finger-pressed decoration, glazed externally. Type 5. Phase 10. One other example in phase 11.
64. Fragment of a bunghole of a cistern, glazed externally. Type 5. Phase 13.

There are also three fragments of bungholes (one type 4 phase 8, two type 5 phase 16) with no collar projecting from the wall of the pot.

65. Bung in dark grey fabric glazed at the flat end. Type 5. Phase 8. One other example in phase 8. Associated with cisterns nos. 52-4 (see above).



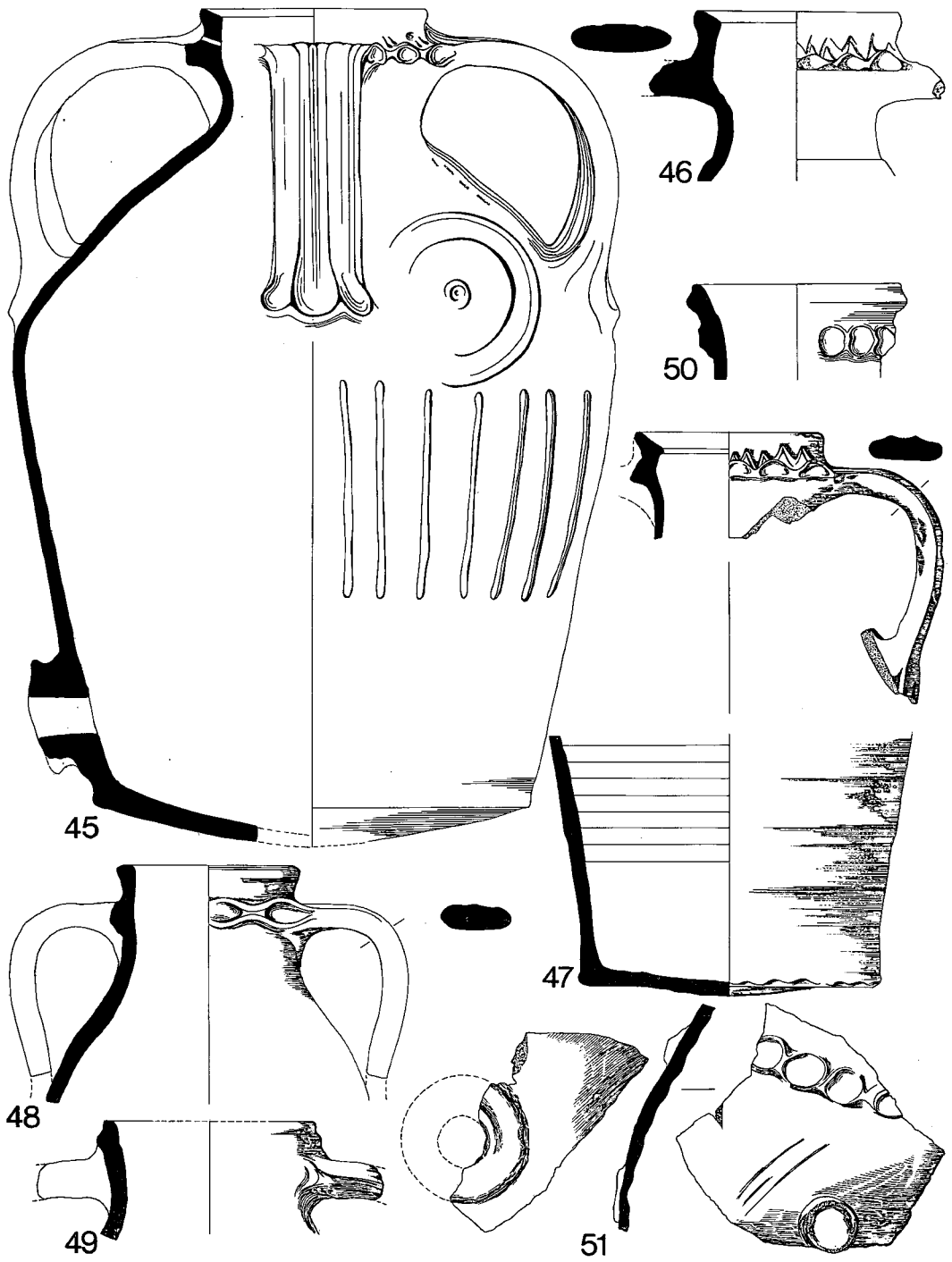


Fig. 13. (¼) Reduced Greenware.

*Dripping Pans*

These vessels all appear to have been rather crudely made from clay which was less refined than the usual type 4 and 5 fabrics, that is the fabric contains occasional large quartz grits. They are normally glazed internally and some fragments are sooted externally, (see discussion of redware dripping pans).

66. Fragment of the side of a dripping pan. Type 4. A fragment from the corner of a base is probably of the same vessel. Phase 15. One other example in phase 15, type 5?
67. Rim fragment probably of a dripping pan. Type 5. Phase 17. One other example phase 6.
68. Rim fragment of a straight-sided vessel, probably a dripping pan. Type 5. Phase 11. A burnt rim fragment in phase 3 has a similar profile.
69. A dripping pan with a full cover of glaze internally, now largely flaked off, and on the base externally. Type 5. Phase 15.

*Bowls*

70. Bowl. Part of the rim is misshapen and the base has been trimmed externally with a tool. Type 4. Phase 4. One other example in phase 4, one in 6. All are glazed internally.
71. Bowl, fully glazed and slightly blackened externally. Type 5. Phase 7.
72. Bowl. Type 5. Unstratified, not earlier than phase 7. One other example phase 11. Both glazed internally.

Nos. 70–72 illustrate a type of vessel which is not common but occurs with some regularity over a long time span. It seems likely that they were produced for a specific purpose. Stephen Moorhouse has suggested that they may be part of a chemical apparatus.

73. Bowl rim, fully glazed. Type 5. Phase 11. Larger than but possibly similar to nos. 70–72.
74. Rim fragment probably of a bowl, glazed internally and below the rim externally. The rim was made in a lid-seated form but the inner edge was then pressed down in a “pie crust” which would have prevented the fitting of a lid. Another similar rim fragment but without the pressed edge occurs in phase 5.
75. Rim fragment, probably of a bowl, with full cover of glaze, rather lustrous and iron-stained externally, and thin internally. Type 5 but harder fired than usual. Phase 7.
76. Bowl, fully glazed. Type 5. Phase 16. One example of a similar rim form and diameter in phase 12.

*Cups*

77. Probably a cup, originally fully glazed, the glaze is now largely stripped off. Type 5. Phase 13. A body sherd with a base of a small handle also fully glazed internally and externally (type 4) may represent a similar vessel in phase 7.
78. Rim fragment of a lobed cup, fully glazed; the angle decorated externally by pressing, probably with the end of a stick. Type 5. Phase 11. One other example in phase 13.

*Chafing Dishes*

Nos. 79–82 probably burnt spirit. No. 83 with a hollow stem probably burnt charcoal.<sup>36</sup> All examples are fully glazed except for the internal surface of no. 83.

79. Chafing dish. Type 5. Phase 12. Three similar examples in phase 12, one in 8, four in 9, two in 13, one in 14. Some rims are lid-seated.
80. Rim fragment of a chafing dish very similar to no. 79 but with a shaped hole. Type 5. Phase 10.
81. Rim fragment of a chafing dish. Type 4. Phase 17.

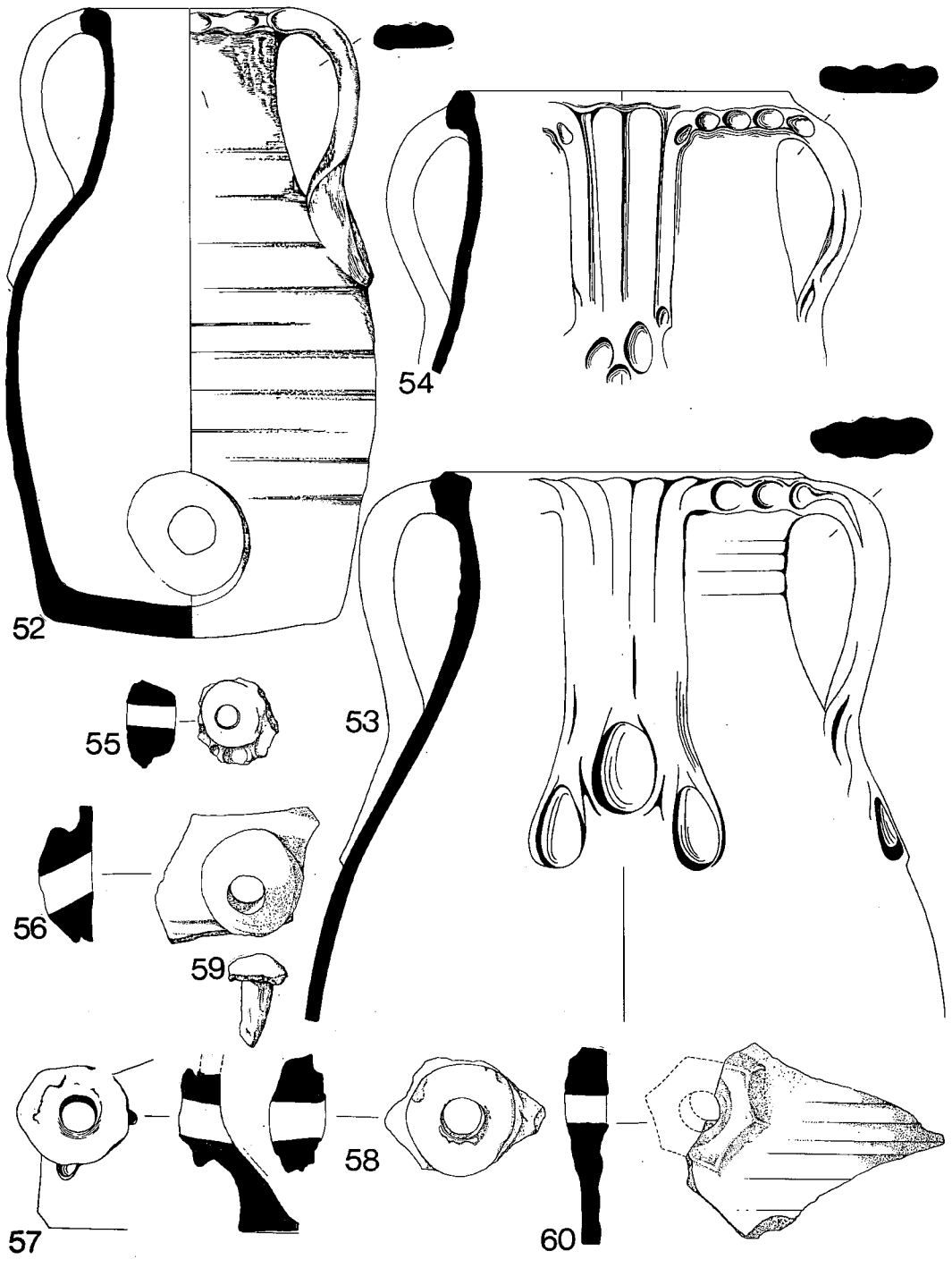


Fig. 14. (1/4) Reduced Greenware.

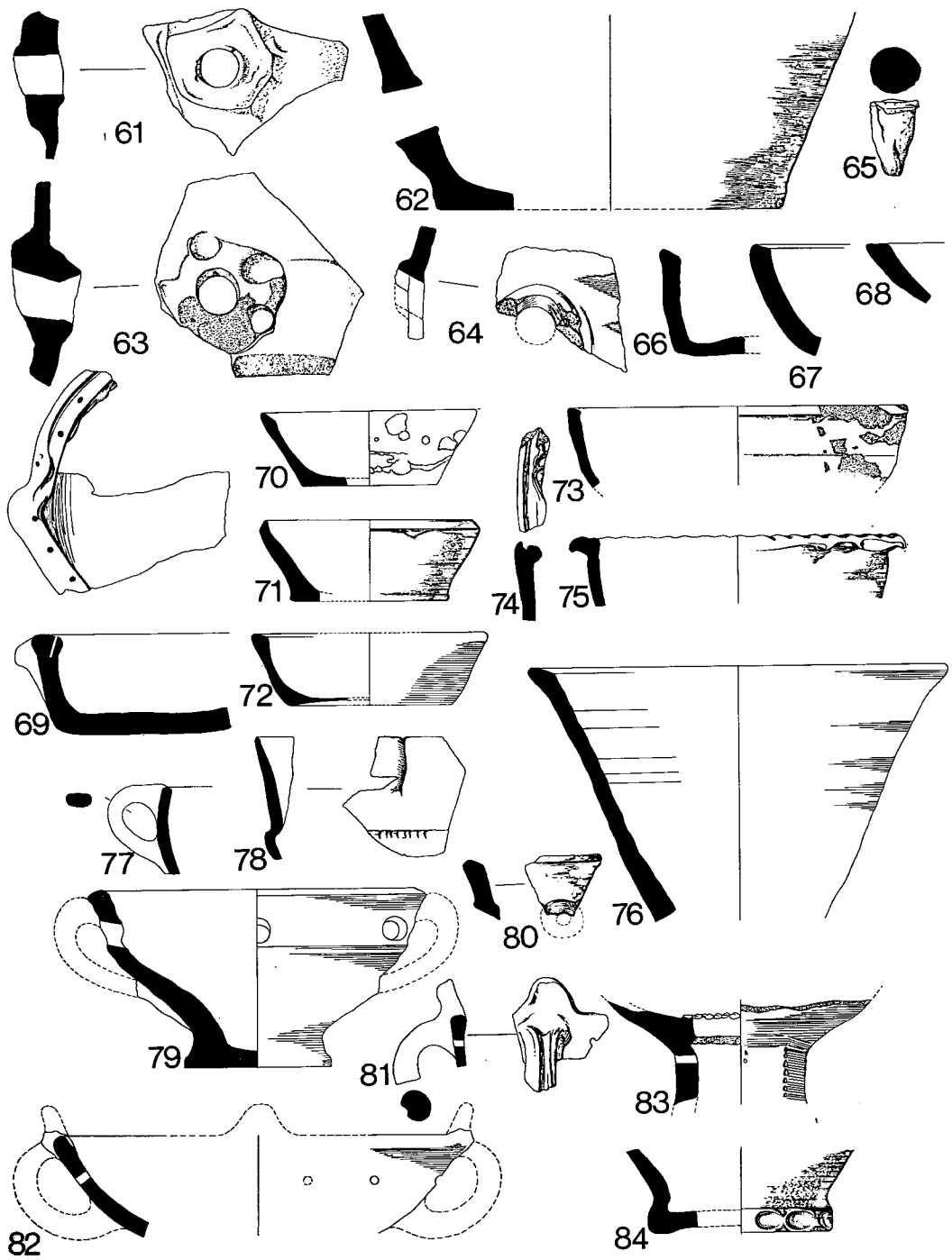


Fig. 15. (1/4) Reduced Greenware.

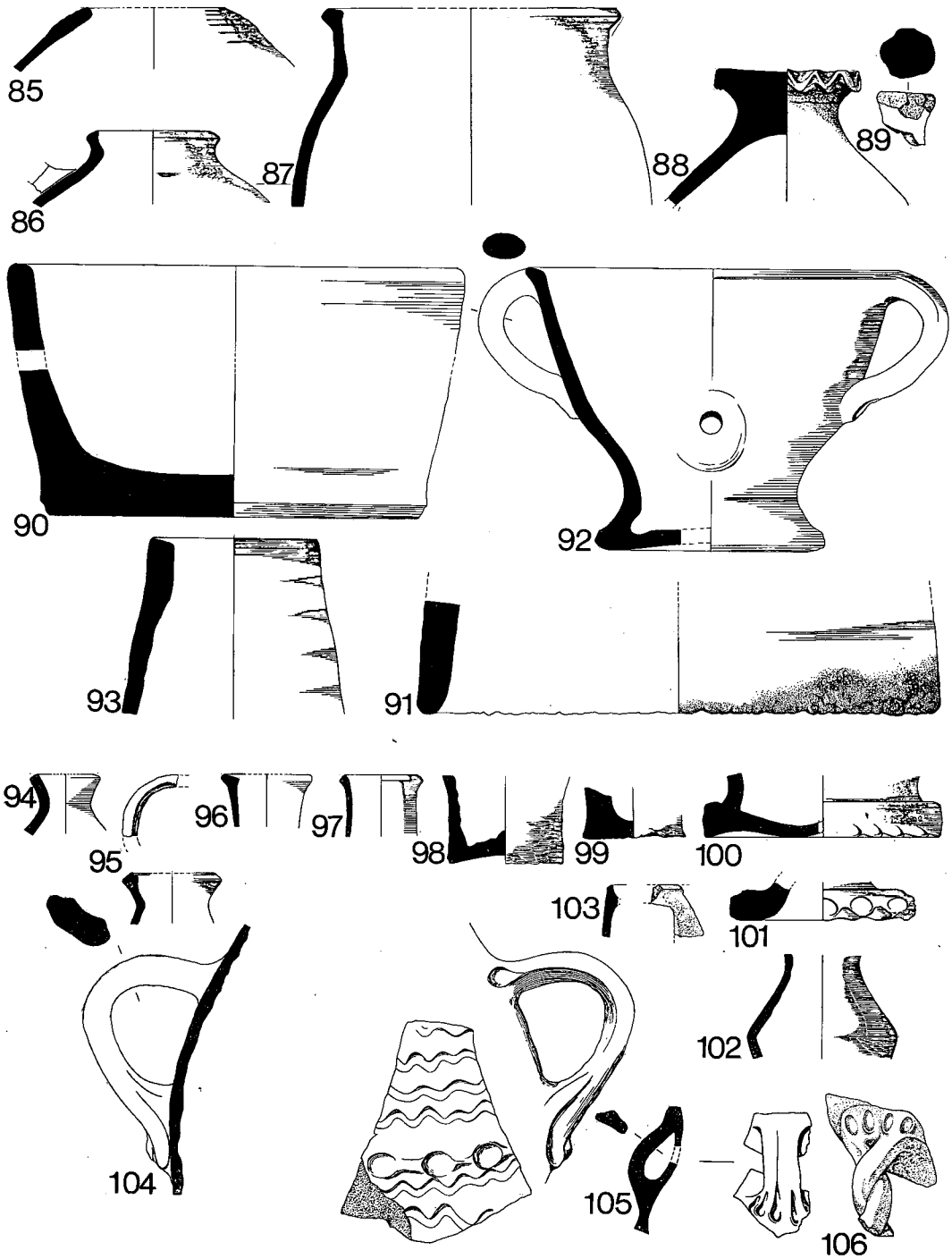


Fig. 16. ( $\frac{1}{4}$ ) Reduced Greenware.

82. Chafing dish very similar to no. 81. Knob and handle broken off. Type 5. Context not related to the main sequence, probably phase 17.
83. Pierced hollow stem and lower bowl of a chafing dish, decorated by pressing, probably with a stick. Type 5. Phase 17.
84. Base possibly of a chafing dish similar to no. 79, with finger-pressed decoration. Type 5. Phase 7.

#### *Urinals*

85. Rim fragment of a urinal, fully glazed externally with internal sediment. Type 4. Phase 5.
86. Urinal. Type 4. Phase 7. One example in phase 8.

#### *Chamber Pot*

87. Fully glazed with internal sediment. Type 5. Phase 13.

#### *Lids*

88. Lid, fully glazed and with external sooting on the top of the knob and on one side externally. Type 4. Phase 11. One fragment of a similar vessel probably of larger diameter, phase 5.
89. Knob of a lid? Originally fully glazed but badly chipped. Type 4. Phase 9.

#### *Vessels possibly used for industrial purposes<sup>37</sup>*

90. Mortar, full cover of glaze externally (largely flaked off), patchy internally, some blackened areas internally and some wear. Type 5. Phase 13.
91. Rim of a curfew or fish curer, full glaze externally, patchy internally and heat blistered and encrusted on the rim, the fabric itself burnt at one point. Type 5. Phase 12. It is likely, as this is the only example from the site, that curfews were not in common domestic use. The more specialized use as a fish curer is therefore more probable.
92. Vessel of unknown function obviously capable of being used to draw off a liquid leaving a solid residue in the base. Fully glazed (flaking). Type 5. Phase 12.
93. Rim and neck, possibly of a cucurbit, fully glazed externally and over the rim, the rim shaped by a cutting tool. Type 5. Phase 12.
94. Possibly the neck of a receiver in oxidized fabric and fully glazed. Probably type 4 but with occasional quartz grits and softer firing. Phase 6.
95. Rim fragment of a vessel similar to no. 94 but the lid-seating suggests a different function. Oxidized. The rim is slightly misshapen, possibly turning to a spout. Fully glazed. Type 4. Phase 7.
96. Rim fragment of a similar but longer necked vessel than no. 95, with flaking external glaze. Oxidized fabric similar to no. 94 with quartzite and iron oxide inclusions, but probably of local boulder clay. Phase 6.
97. Rim of a bottle-shaped vessel? Possibly similar to ones from London.<sup>38</sup> Unglazed except for a splash on the rim. Oxidized. Type 4. Phase 15. One other example in phase 15.

#### *Fragments of vessels of unknown or doubtful function*

98. Base of a jar? with splashed glaze externally, very roughly finished and somewhat over fired. Oxidized. Type 4. Phase 5a.

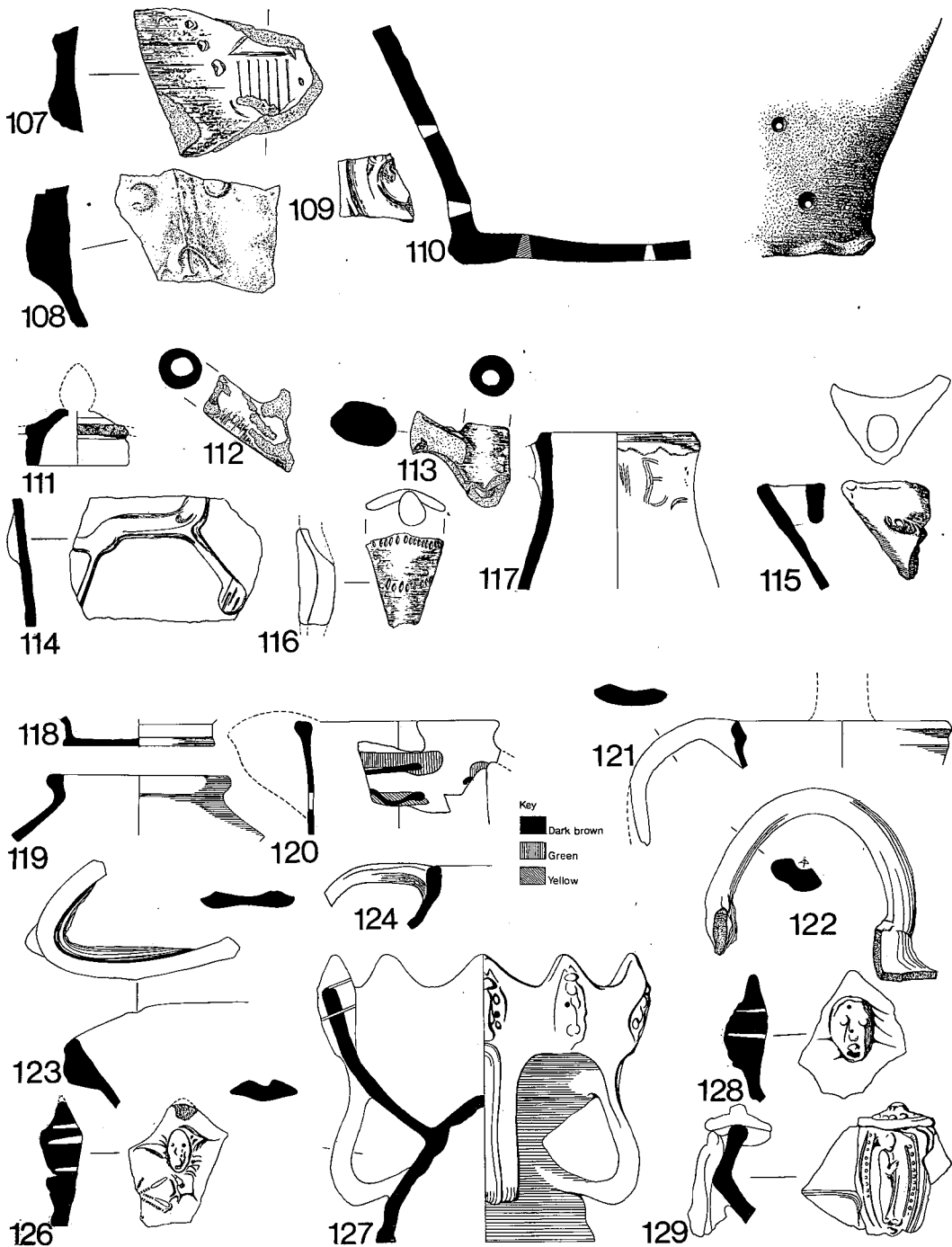


Fig. 17. (¼) Reduced Greenware nos 107-110; Scarborough Ware nos 111-117; French Wares nos 118-129.

99. A similar base to no. 98 but very thick walled, unglazed except for a splash on the underside of the base. Partly oxidized. Type 4. Phase 5.

Fragments of bases similar to nos. 98 and 99 occur as follows: two in phase 5, one in 5a, and one in 15 all in oxidized type 4 fabric. Two sherds of apparently cylindrical vessels in phase 5 may also be from vessels of this type.

100. Base, glazed externally and burnt on the upper foot and lower body. Type 4. Phase 7.

101. Fragment of pedestal base or, since the bottom is not flat, possibly a small lid. Almost fully glazed. Type 4. Phase 7.

102. Fragment of a money box? Glazed externally. Oxidized fabric with some quartzite inclusions, otherwise like type 4. Phase 5a.

103. Fragment with lid-seated rim and "window" cut in the body. Possibly a pomander,<sup>39</sup> fully glazed externally and on inner rim. Type 4. Phase 7.

104. Fragments of a two-handled vessel possibly similar to a vessel from Cuckoo Lane, Southampton,<sup>40</sup> or possibly a urinal, fully glazed externally with thumb-pressed and scratched decoration, the internal surface encrusted with a thick buff sediment and parts of the external surface blistered and encrusted. Type 4. Phase 5. One other example of this form of handle in phase 5a.

105. Body sherd and small handle, fully glazed. Type 4. Phase 5. The base of a similar handle occurs in partly oxidized type 4 fabric glazed externally only, also in phase 5.

106. Handle, fully glazed externally except on the underside. Type 5. Phase 6. A similar example where each twisted rod ends in a single thumb press occurs in phase 12.

#### *Decoration*

107. Body sherd with the lower part of a bearded face moulded and scratched, fully glazed externally. Type 4. Phase 5.

108. Body sherd with part of a moulded face, fully glazed externally. Type 4. Phase 7.

One other fragment in phase 7 possibly has part of a bearded face on it.

#### *Re-use and Mending*

109. Three sherds in type 4 fabric, two with applied decoration and all fully glazed, appeared to have been cut up before firing. Phases 7, 8 and 13. Two of the edges of this illustrated sherd are fully glazed.

One sherd of type 4/5 fabric glazed on one side has been rounded after breaking probably for use as a counter. Phase 10.

110. Fragment of a mended base, probably of a cistern, glazed externally. Type 4. Phase 5a.

Lead was still adhering to some of the holes bored to make the mend.

#### SCARBOROUGH WARE

Scarborough ware occurs in significant quantities from phase 1–4 with a peak in phase 2 (see fig. 6). Occasional occurrences after phase 4 can be regarded as residual, as the industry is thought to have come to an end *c.* 1350.<sup>41</sup> Both types of fabric occur from phase 1 onwards. This is consistent with Farmer's dating of the new clay source from *c.* 1225.<sup>42</sup> However phase I fabric is more common in all phases than phase II fabric. Both copper green glazed vessels and, less commonly, yellow glazed vessels with applied brown pellets occur. Probably all the fragments represent jugs. Jug rim fragments are either of type B or C,<sup>43</sup> plain and twisted rod handles occur and one example of a thumbled base.



111. Jug lid. Phase II fabric, glazed on the top surface. Phase 1.
112. Fragment of a tubular spout. Phase I fabric, glazed externally. Phase 3.
113. Fragment of a tubular spout and bridge. Phase I fabric apparently adhering to part of the wall of the jug which is in phase II fabric. Glazed externally. Phase 3.
114. Body sherd with moulded figure of a running horse? Probably a jug. Phase I fabric, glazed externally. Context probably equivalent to phase 3.
115. Bridge spout. Phase I fabric, glazed externally and badly abraded. Phase 16.
116. Shield of a knight figure. Phase I fabric, glazed externally. Phase 7.
117. Jug rim. Probably phase II Scarborough ware with reduced core and pinkish buff surfaces. Rather over-fired, with external copper green glaze, not covering the rim, and scratched markings. Phase 8.

#### FRENCH WARES<sup>44</sup>

French imports, initially mostly from the Saintonge, are constant but never very numerous from phase 2 onwards (see fig. 6). There is some increase in the sixteenth century with the addition of wares from Beauvais and Martincamp, but never on the scale of the imports from Germany and the Low Countries. The small size of the sample means that it should not be regarded as a reliable means of dating the production and distribution of these wares without reference to other sites where they are more numerous.

#### *Rouen Ware*<sup>45</sup>

One sherd in white fabric with external yellow glaze over a band of red slip and rouletted applied strip. Phase 2 and a joining sherd from phase 12, (see discussion above *Residual and Intrusive Material*).

#### *Saintonge Wares*

These occur from phase 3 to phase 17. The fabric is, typically, hard, smooth and cream/buff in colour.

#### *Mottled Green-glazed Jugs*

One fragment occurs in phase 3, four in phase 4, one in phase 6, three occur in phase 15 where they are probably, but not necessarily, residual, two fragments of the same vessel in phase 12 have applied strip decoration which is either stamped or rouletted, one fragment occurs in phase 17. These last two may represent a sixteenth-century ware similar to the earlier vessels. The absence of these vessels before phase 3 is probably simply due to the small size of the pottery sample from earlier contexts.

#### *Even Green-glazed Jugs*

One strap handle fragment occurs in phase 5, probably from a vessel similar to one from Southampton.<sup>46</sup> One sherd in phase 8 and one in phase 13 are also probably from jugs.

118. Base of a jug, glazed internally. Phase 15.
119. Rim fragment, probably of a jug, in a slightly gritty fabric with external glaze, spilling from the rim internally. Phase 15. Probably from the Saintonge or elsewhere in South West France. The form is typically sixteenth-century rather than medieval.

Two fragments, one probably the base of a large jug, occur in phase 17. Of the fragments recovered from the sixteenth century contexts, only no. 118 might be residual.

*Early Polychrome Jugs*

Fifteen fragments occur from phase 4 to 7, the majority in phases 5 and 6, by which time they must be regarded as residual. This is perhaps an instance of luxury wares surviving longer than wares used for everyday purposes.

120. Jug rim fragments. Phase 6. A more complete example is illustrated from Southampton.<sup>47</sup>

*Unglazed Jugs*

These occur from phase 6 onwards. The cream/buff fabric often has a grey reduced core and a pinkish bloom externally.

121. Jug rim and handle. Phase 13.

122. Jug rim fragments with bucket handle. Phase 16. One other example phase 16.

Nos. 121 and 122 are fragments of bucket-handled jugs as described by J. G. Hurst.<sup>48</sup>

123. Spout of a pegau. Phase 16. Probably from a vessel similar to one from Southampton.<sup>49</sup>

A fragment of another rim turning to the spout occurs in phase 16.

124. A rim and wide strap handle fragment. Phase 17. Probably also from a vessel like the one at Southampton, (see above).

Single unglazed sherds in phases 6, 9, 17, a sherd with splashes of yellow glaze in phase 11 and a handle fragment from a poorly stratified context probably equivalent to phase 17, represent further examples of unglazed jugs.

*Costrel*

\*125. A body sherd in phase 16 with external ribbing and splashes of green glaze, probably represents a mamiform costrel similar to one from Conway.<sup>50</sup>

*Chafing Dishes*

These occur from phase 12 onwards. The majority are Hurst's type CI,<sup>51</sup> with alternating green and yellow glaze. Later types occur in phase 16. Most show traces of sooting internally.

126. Knob of a chafing dish, green glazed with the yellow glaze starting on one edge, with stabbed combing to the left of the face. Type CI. Phase 12. A body sherd with the base of a handle and another sherd, both in phase 12 and a sherd in phase 13 also have this decoration, which only occurs in these two earliest phases.

127. Chafing dish with eight knobs and alternating green and yellow glaze on the heads, Type CI, but with considerably debased faces. Phase 15.

128. Knob of a chafing dish in a slightly gritty fabric with a rather darker than usual yellow glaze, visibly iron stained, green glaze starting on the left. Type CI, probably from the Saintonge but could be from elsewhere in South West France. Phase 17.

A rather underfired fragment in phase 13 has a face very similar to Hurst's fig. 7 no. 28, three handle fragments and three body sherds in phases 12-15 are all green and/or yellow glazed and probably represent further examples of CI dishes. A rim fragment in phase 16, two handle fragments and a rim fragment in phase 17 and an unstratified fragment are all of this type. An unglazed base fragment with the base of a handle (phase 17) could be from an early or late type of dish.

129. Knob and body sherd of a chafing dish. The knob and figure are yellow glazed but a splash of green glaze internally suggests the alternating yellow and green pattern as on the form CI dishes. The figure is like those on type CII vessels but the horizontal rosette and the profile of the vessel is more like CIII.<sup>52</sup> Phase 16.

130. Fragment of a medallion from a type CV chafing dish.<sup>53</sup> Phase 16.

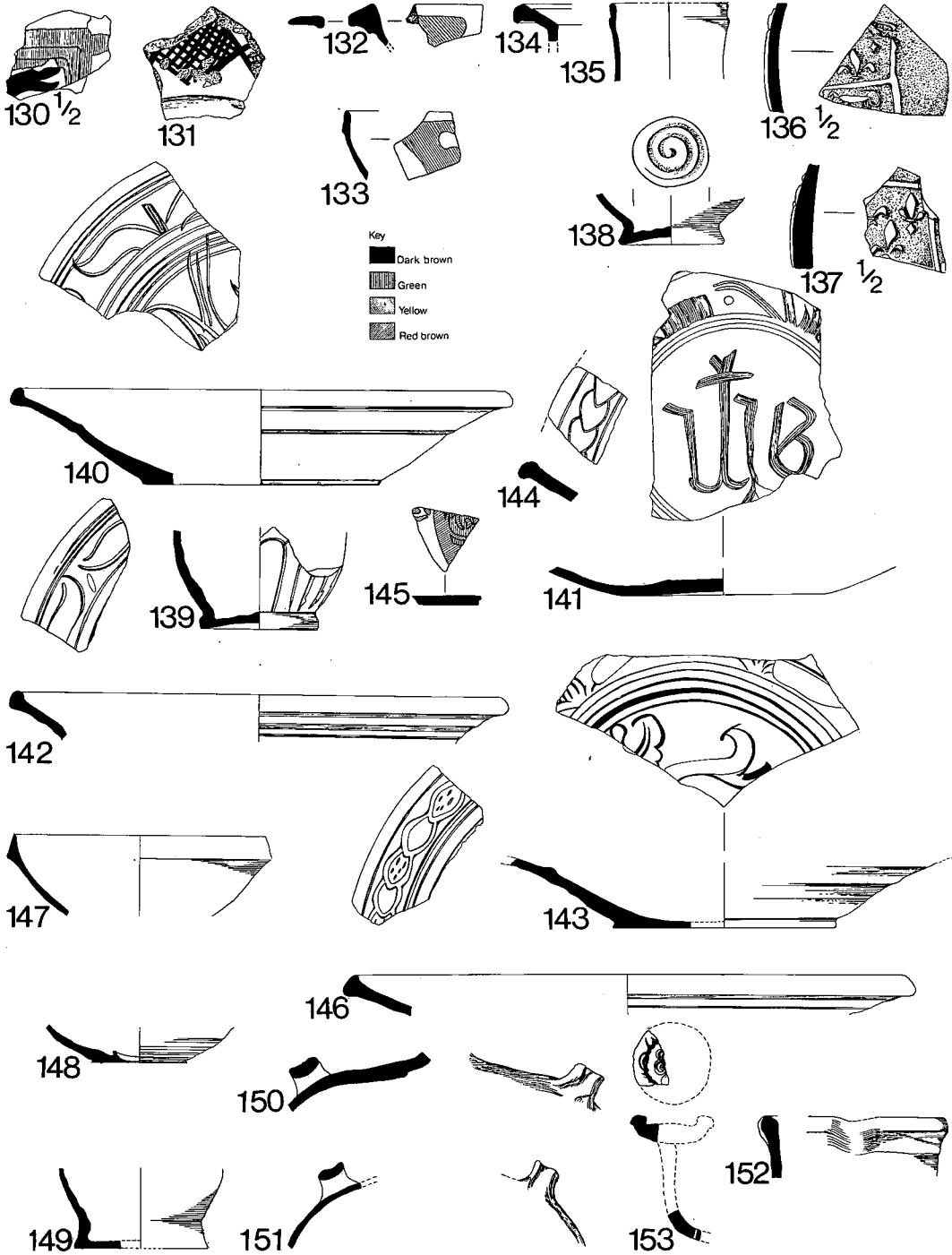


Fig. 18. (1/4) French Wares.

*Late Polychrome*

131. Fragment of a dish or plate in off-white fabric with internal manganese brown and copper green lattice pattern under pale yellow glaze. Phase 17. A more complete example occurred at Chester.<sup>54</sup>

*Beauvais Wares*

Earthenwares and stonewares from Beauvais occur from phase 8 onwards. The nature of the silt deposit of phase 6 (see above) makes it likely that the one fragment from that context (no. 132) is intrusive, especially as no Beauvais wares occur in the later fifteenth-century phase 7. Beauvais *grès* (see below) was distributed to other regions of France by the end of the fourteenth century<sup>55</sup> but is rarely found in Britain before the sixteenth century.

*Earthenwares*

The typical Beauvais earthenware fabric is hard, smooth and cream/buff in colour.

*Bowls*

132. Rim fragment with a lug handle, possibly a small bowl or porringer, in a hard cream/buff fabric with red slip decoration under yellow glaze internally. Phase 6, but from the upper slope of the silt where intrusive sixteenth-century material was apparent.
133. Rim fragment of a similar vessel to 132. Phase 13. A rim fragment of a third similar vessel occurred in phase 11. The fabric, slip and glaze of these vessels is apparently the same as the commonly known Beauvais earthenwares but slipwares other than sgraffito are almost unknown at Beauvais, so these may be early Martincamp.<sup>56</sup>
134. Rim fragment of a bowl with internal copper green glaze. Disturbed late sixteenth- or seventeenth-century context. Similar wares are now known from Cologne but the fabric is characteristically whiter than at Beauvais.<sup>57</sup> A chip of a yellow glazed rim in phase 9 probably represents a similar vessel.

*Mugs*

Yellow and green glazed mugs occur principally from phase 8 to phase 13, which concurs with the early sixteenth-century date ascribed to these vessels.<sup>58</sup> The number occurring at the Black Gate is unusually large. In addition to the illustrated examples there are two yellow and two green glazed vessels in phase 8, two yellow in phase 9, one yellow and four green in phase 11, two yellow phase 12, one yellow phase 13 and one sherd in a late sixteenth-century context with yellow glaze rather more iron-stained than the rest.

135. Rim fragment of a mug with external yellow glaze. Phase 9.
136. Body sherd of a green-glazed mug with part of a medallion bearing the English royal coat of arms. Phase 11.
137. A similar fragment to 136, yellow-glazed. Phase 11.
138. Base of a mug in hard off-white fabric with external yellow iron-stained glaze, flaking. Phase 13.

*Jug*

139. Base, probably of a jug with external brown slip-coating and sgraffito design under yellow glaze. Phase 12. A similar, more complete vessel was found in Chester.<sup>59</sup> This is the only sgraffito decorated vessel occurring with green and yellow mugs.

*Plates*

Sgraffito decorated plates occur only in the second half of the sixteenth century, from phase 14-17, and do not coincide with the period when green and yellow mugs occur, (see above).

*Single slip sgraffito*

Internal red slip-coating with sgraffito design under yellow glaze.

140. Rim of a plate with accidental copper stain on the rim at one point, presumably from being fired with green-glazed vessels. Disturbed late sixteenth-century context.
141. Fragment of a plate with the text *ih̄s*. Phase 17. Other examples like nos. 140 and 141 occur: one phase 15, four phase 16, one phase 17 and one from a context probably equivalent to phase 17.

*Double slip sgraffito*

Internal red slip-coating covered by white slip, with sgraffito design cutting the top layer of slip under yellow glaze.

142. Rim of a plate with alternate green and blue staining over the leaf motifs. Phase 15.
143. Fragment of a plate with the same decoration and glazing as 142. Late sixteenth-century context equivalent to phases 14-16. Nos. 142 and 143 represent the most common type of double slip sgraffito decoration. Similar examples occur: one phase 14, one phase 15, one phase 17, two in late sixteenth-century contexts probably equivalent to phase 17 and one unstratified example.
144. Rim of a plate in gritty white fabric with dark brown staining on the leaf motif. Phase 14.
145. Fragment of a plate with brown and green colouring. Phase 14.
146. Rim fragment of a plate in gritty off-white fabric with some blue staining over the leaf motifs. Phase 16.

*Stonewares*

*Grès*—a light grey unglazed stoneware with occasional external orange bloom.

*Drinking Bowls (coupes)*

Beauvais bowls of periods I and II, late fourteenth century to the end of the fifteenth century,<sup>60</sup> closely parallel Siegburg bowls of period 4,<sup>61</sup> both in form and fabric and the two are difficult to distinguish. All the bowls of this type recovered from the castle ditch occur in sixteenth-century contexts and the more complete examples can be identified with forms typical of Beauvais period III (sixteenth century) except for no. 275 which is probably an example of a Siegburg bowl (see Rhenish Wares). The rest of the fragments have therefore also been assumed to be mainly from Beauvais.

147. Drinking bowl, *grès* fabric. Phase 10. Another example in phase 10 and single examples in phases 8, 9, 12, 16 and 17, there is one unstratified example.
148. Drinking bowl, *grès* fabric with rings of orange bloom on the internal and external base. A central roundel is filled with blue enamel. Phase 17.

Nos. 147 and 148 are of the bowl-shaped type typical of period III (first half of sixteenth century)<sup>62</sup> in Beauvais.

*Goblets*

149. Base of a goblet in *grès* fabric. Phase 11. Another example phase 9. These are

probably goblets of the form described by Morisson as *godets ovoïdes*.<sup>63</sup> They seem to be of the latest type 135.4 (period IV, second half sixteenth century) or 134.3b (period III). Three body sherds in *grès* fabric occur in phase 8, phase 11 and a late sixteenth-century context equivalent to phase 17. One is probably from a drinking bowl but the other two are thicker than the usual body of drinking vessels.

#### *Possible Beauvais Ware*

##### *Salt-glazed Stoneware*

150. Costrel in dark grey stoneware with dark brown surfaces, salt-glazed externally. Phase 12.
151. A smaller costrel than above with the same fabric and glaze. Phase 16.
- Nos. 150 and 151 have the same form and general appearance as vessels from Beauvais<sup>64</sup> but no detailed comparison has been made.

##### *Other French Wares*

152. Jug rim in a soft pink fabric with red iron oxide, large irregularly shaped opaque white inclusions and mica. A band of pinkish orange painting externally. Possibly South West French. Phase 4.
153. Fragments of a chafing dish in a coarse off-white abundantly gritted fabric. The rosette has internal yellow glaze and external green glaze with dark red streaks, the other fragment is green glazed, the internal glaze being crazed and blackened. Phase 8. The rosette is similar to open-work chafing dishes<sup>65</sup> but the piercing is perhaps a simple hole.
- \*154. A fragment of a chafing dish with the base of a handle and one pierced hole, in pinkish white fabric with iron oxide and quartz inclusions and external copper green glaze. Fabric and glaze are very similar to Saintonage chafing dishes but the pierced hole suggests a different form of dish. Probably South West French. Phase 16.
- \*155. A small sherd in pinkish white fabric with iron oxide inclusions, external pale creamy yellow glaze with red, yellow and green flecks. Possibly northern French. Phase 3.
- \*156. A small sherd in hard cream/buff fabric with external lustrous brown glaze over stamped or rouletted decoration. Possibly northern French. Phase 5.

##### *Martincamp Flasks<sup>66</sup>*

The sample from the Black Gate (see fig. 6), is unusual in having a larger number of type I<sup>67</sup> (earthenware) flasks than type II<sup>68</sup> (stoneware), but the type I flasks clearly occur first, as elsewhere.

157. Neck of a flask. Type I. Phase 12.
158. Fragment of the side of a flask. Type I. Phase 12. Ten other fragments of type I flasks occur in phase 12, three in phase 9, two phase 10, twelve phase 11, twelve phase 13, one phase 14, nine in phase 15, seven in phase 16, six in phase 17 and one unstratified. The majority of these sherds probably represent one vessel each. Three fragments were sooted externally in use.
159. Neck of a flask in hard cream/buff near stoneware with external brown bloom. Type I or underfired type II. Phase 16.
160. Fragment of a flask with a patch of thin ash glaze externally. Type II. Phase 15.
- Six fragments of type II flasks occur in phase 12, eight in phase 13, five in phase 16, two in phase 17, one in a context equivalent to phase 17.

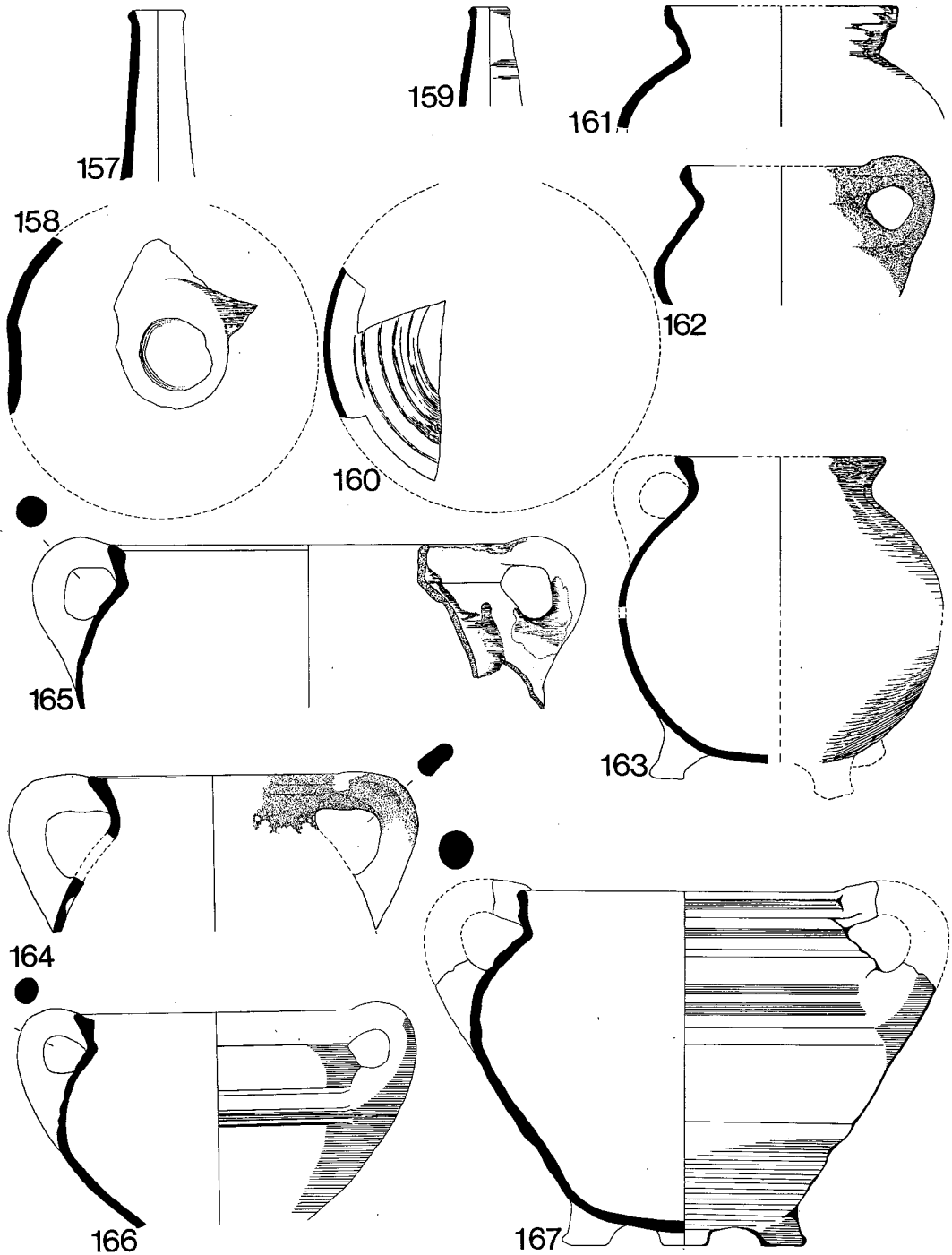


Fig. 19. (4) Martincamp nos 158–160; Redware nos 161–167.

## REDWARES

The term redwares is used to describe the red earthenwares, mainly from the Low Countries, which occur first in phase 3 (early fourteenth century) and are the most common import from then onwards. (For a discussion of the virtual absence of contemporary Low Countries grey-wares, see below.)

The fabrics are, typically, light red or reddish buff, slightly sandy and rather soft. The lead glaze ranges in colour from bright red/orange to brown/orange and yellow/orange, or dark brown and olive green where some reduction has occurred. The earlier wares (up to 1500) tend to have redder fabric and glaze, little glaze is used and often occurs in splashes rather than even cover. Later wares (increasingly up to 1600) have a lighter coloured fabric and consequently yellower glaze and are more fully and evenly glazed. Copper green glaze is used on some slip-coated wares.

White slip is commonly used for decorative effect. Slip-coating of one surface, usually the internal surface of bowls and plates, is common in the sixteenth century but a few examples occur earlier: one small sherd in phase 4 is slip-coated externally, the base of a dish in phase 5, the rim of a porringer in phase 6 and a sherd in phase 7 are coated internally, all have mottled copper green over-glaze. Slip-trailed arcs first occur in phase 6 (fifteenth century), but mainly in the sixteenth-century phases. Sgraffito decoration does not occur until phase 8.

Comparison of the redwares from the Black Gate with collections of these wares in the Netherlands<sup>69</sup> has confirmed that the majority could originate in the coastal areas of the Netherlands. The developments of fabric, glazing and slip decoration described above are consistent with trends observed in the Netherlands also. There was an important market at Dordrecht for the sale of both redwares and Rhenish stonewares,<sup>70</sup> that is the two largest groups of imports to Newcastle, so that the ports of the Rhine/Maas delta would seem to be a likely source of supply for many of the redwares. Exports of both 'stone pots' and 'earthen pots' from Middelburg to Newcastle are recorded in the first half of the seventeenth century<sup>71</sup> and Middelburg, Schiedam, Grevelingen, Brouwershaven and Vlissingen are listed in Newcastle port books contemporary with the deposition of redwares in the castle ditch as ports of origin of ships leaving the Tyne, but Amsterdam and ports on the IJssel Meer are also listed as well as Ostende, Bruges and Sluis in Belgium<sup>72</sup> and some Flemish wares have been identified amongst the redwares.<sup>73</sup> As the potting clay and vessel forms in all these areas are very similar and the production of pottery more prolific than in Britain, identifying individual sources with any certainty in the present state of knowledge is not possible. In addition, redwares were eventually manufactured from very similar clays and in the same forms, possibly by Low Countries potters, in England.<sup>74</sup> Newcastle's trade with London and the East Coast could have brought these wares to the Tyne also. One example of a probable German handle (no. 253) does occur and it is possible that body sherds from this source are also present but undetected. There is no evidence that any redwares of this type were made locally.

These red earthenwares have been found in considerable quantities in late medieval and post-medieval contexts elsewhere in England, especially on the East Coast and London and in Southampton.<sup>75</sup> The advent of these wares greatly increased the range of pottery vessels in domestic use and in Newcastle the tripod cooking pots, which are the most common form, appear to have replaced locally made cooking pots by the beginning of the fifteenth century (see fig. 7).



*Tripod Cooking Pots* (see fig. 20 for a histogram of the common forms).

The earliest form of these cooking pots is a globular-bodied vessel with a deep, narrow, conical neck (fourteenth and fifteenth centuries), developing in the sixteenth century to a much flatter-bodied vessel with a short, wide neck. By the seventeenth century the diameter of the neck can be almost as wide as that of the body of the pot. The pinched feet which are usual on Low Countries greywares and common on early redwares are probably absent from the castle ditch. Two fragments in phases 7 and 17 with pinched feet may represent such vessels but they would be rare in the late fifteenth century and in the sixteenth century, although not unknown.

External sooting occurs on the majority of these vessels from the castle ditch, indicating that they were used for cooking or at least heating food, but as with the local cooking pots, which they replace, unsooted examples occur, suggesting more than one function. T. J. Hoekstra found in studying material from Utrecht that only half of these vessels were sooted.

Examination of material from the Utrecht kiln by A. J. Bruijn has shown that single-handled vessels usually had the handle applied directly above one of the feet and sometimes had a pulled spout on the rim opposite, they were presumably used for heating liquids. The general cooking pot had two handles opposite each other and not placed above any of the feet. Bruijn also noted that single-handled vessels had handles with a round section and that two-handled vessels had handles pinched at the top, but this distinction could not be applied to vessels of fourteenth- or sixteenth-century date when only round-sectioned handles occur. It has not been possible in most cases to establish which forms of cooking pot (single- or double-handled) are represented by the fragments from the Black Gate, though the diameter of the rims of many sixteenth-century vessels makes it unlikely that they were single-handled. It was also found at the Utrecht kiln that these vessels were produced in a range of standard sizes, again the material from the Black Gate is too fragmentary for a standard pattern in the variation in sizes of the vessels to be established. The fact that the vessels come from a number of sources may also have some bearing on this.

Fragments in phases 3 and 4 do not have any diagnostic features by which they could be identified with any one of the illustrated forms but at least four tripod cooking pots were present (see fig. 7).

161. Fragments of the rim and body of a cooking pot with splashed and patchy glaze. Phase 5. This is a late fourteenth-century type in the Low Countries.
162. Cooking pot with splashed glaze. Phase 5a. Possibly late fourteenth-century rather than early fifteenth-century. Residual after phase 6 (see fig. 20).
163. Cooking pot with patchy glaze on rim and shoulder. Phase 5a.
164. Cooking pot glazed on the rim and shoulder. Phase 5. The lid-seated rim and pinched handles are both features which first occur in the Low Countries *c.* 1400. One other example phase 5a has both this rim form and the pinched handles.

Nos. 163 and 164 illustrate the early form of the lid-seated rim cooking pot in the fifteenth century. Five fragments in phase 5, one in phase 5a, one in phase 6 and two residual examples in phases 11 and 13 are probably of the early lid-seated rim type. A number of lid-seated rim fragments were too small to establish if they were like 163 and 164 or the later type (165 and 166). All lid-seated rimmed vessels are represented in column 2 fig. 20.

165. Cooking pot with patchy glaze on rim and shoulder. Phase 12.
166. Cooking pot, fully glazed. Phase 16.

Nos. 165 and 166 illustrate the development of wider, shorter necks on cooking pots with lid-seated rims by the sixteenth century. One possible example occurs phase 6, one phase 7,

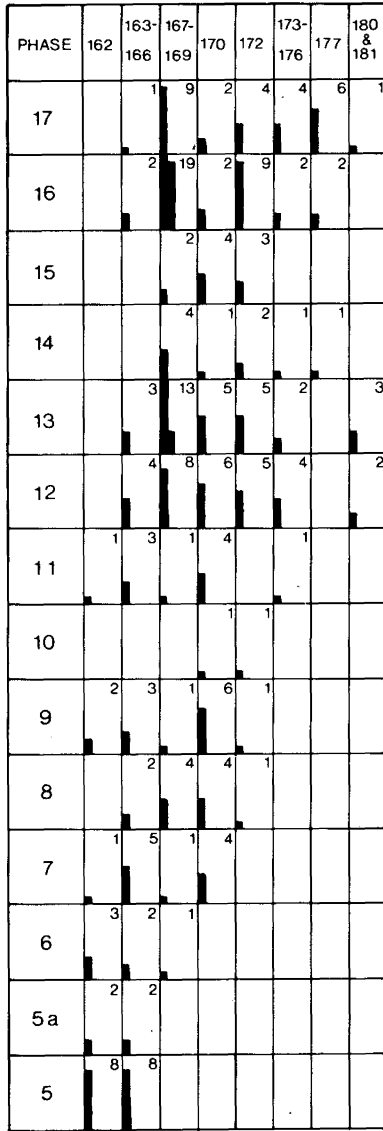


Fig. 20. Common Redware cooking pot forms.

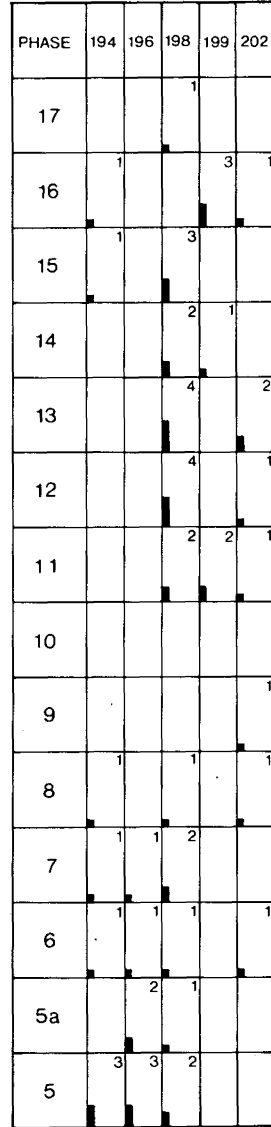


Fig. 21. Common Redware frying pan forms.

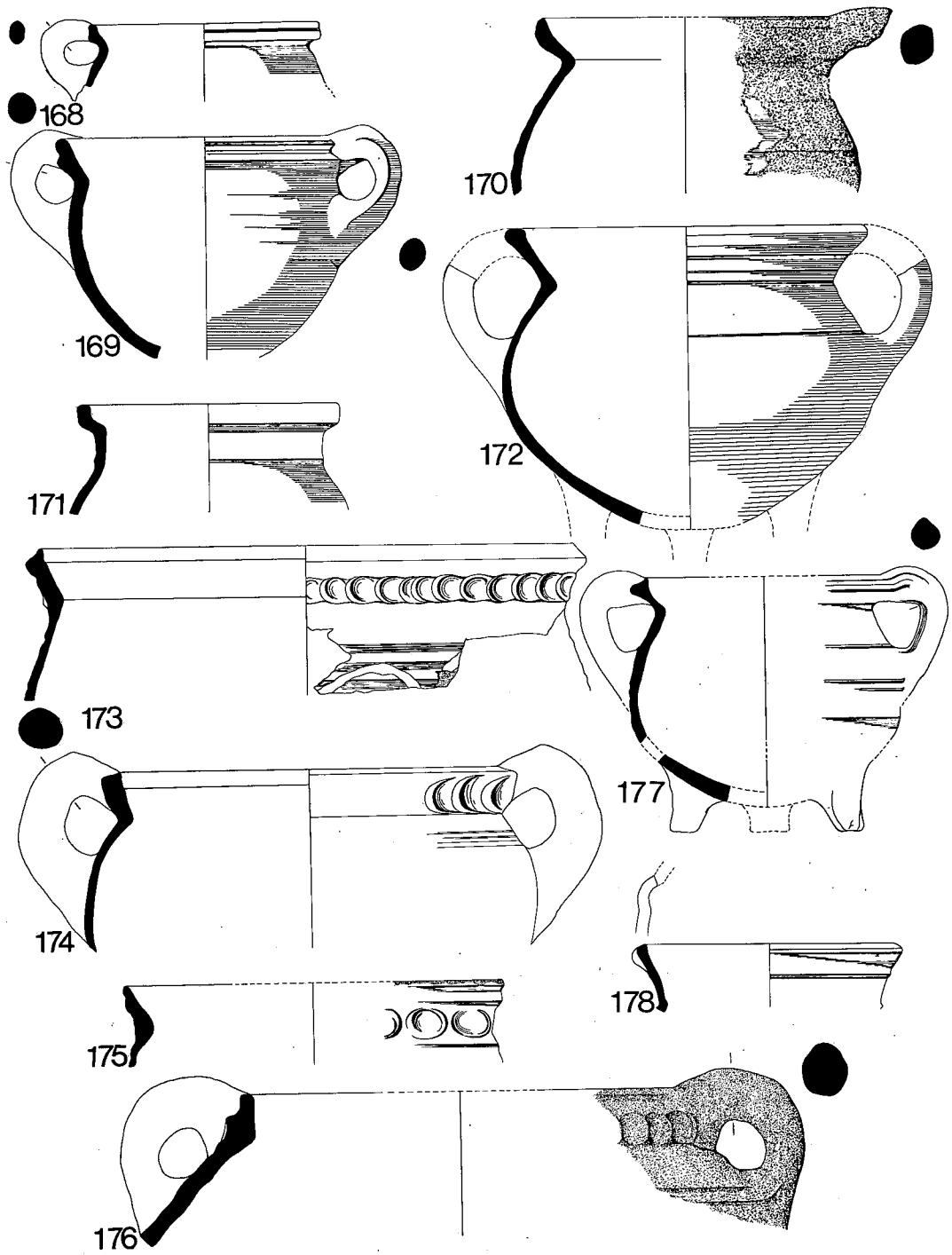


Fig. 22. (¼) Redwares.

one phase 9, one phase 11, two phase 12, two phase 13 and two phase 16. Several other fragments in the sixteenth-century phases probably represent vessels of this type but could not be positively identified.

167. Two-handled cooking pot, fully glazed internally and on the upper body externally. Phase 13.
168. Cooking pot, probably single-handled, glazed on the inner rim and top of the handle. Phase 16.
169. Two-handled cooking pot, fully glazed internally and on the upper body externally. A base fragment with one tripod foot probably belonged to this vessel. Phase 16.

Nos. 167–9 have a collared rim form which first occurs in the Low Countries in the fifteenth century and the neck lid-seating and widening of the neck which are typical of the later cooking pots. The first examples of this type at the Black Gate occur in fifteenth-century phases (6 and 7). It is the most common rim form in the second half of the sixteenth century, (phases 12–17) see column 3 fig. 20.

170. Fragments of a cooking pot with one or possibly two handles, with patchy glaze on the lid-seating and externally, the surfaces are rather abraded. Phase 13.

This type has the pronounced lid-seating formed by the angle of the neck which is found to be typical of the sixteenth century in the Low Countries. The earliest examples of this form at the Black Gate are in phase 7. The form perhaps begins to be less common in the late sixteenth century (phases 16 and 17), see fig. 20 column 4.

171. Cooking pot in a pinkish buff fabric with darker buff surfaces and splashed light green glaze on the lid-seating and patches externally. Most of the rim was present, the vessel was not spouted but could have had one handle. External sooting indicated its use as a cooking pot. The form, fabric and glaze are similar to, but not typical of known Low Countries' wares. Phase 16. No. 248, below, has similar fabric and glaze.
172. Cooking pot, glazed on the inner rim with patches elsewhere. Phase 13. This is a common sixteenth-century form, see fig. 20 column 5.
173. Cooking pot (a vessel of this diameter probably had two handles), fully glazed with slip-trailed decoration. Phase 12.
174. Cooking pot, probably two-handled, in light red fabric with pinkish buff external surface with yellow/orange glaze internally and on the top of the rim and handle. Not typical of Low Countries' wares but possibly from that source. Phase 16.
175. Rim fragment of a cooking pot similar to 173 and 174 with a slightly different rim profile, fully glazed. Phase 13.
176. Cooking pot in pinkish buff fabric, very badly abraded but probably originally fully covered by a yellow/orange glaze. The crude form and the fabric are not typical of Low Countries' wares. Possibly a British copy. Phase 17.

Nos. 173–6, cooking pots with thumbled decoration on the neck, only occur in the second half of the sixteenth century at the Black Gate (fig. 20 column 6) and all are wide necked vessels often with the lighter coloured fabric and glaze, which are typically late sixteenth century.

177. Cooking pot, probably two-handled, glazed internally and on the rim and external shoulder. Late sixteenth-century context probably equivalent to phase 17. Apparently a late sixteenth-century type, (fig. 20 column 7).
178. Rim fragment of a cooking pot with pulled spout and splashed glaze. This type of vessel would have a single handle opposite the spout. Phase 15. Fabric, glaze and rim form are all of an early type so probably residual in this phase. One example of a spouted cooking pot in phase 12 and one in phase 13 are probably sixteenth-century vessels.

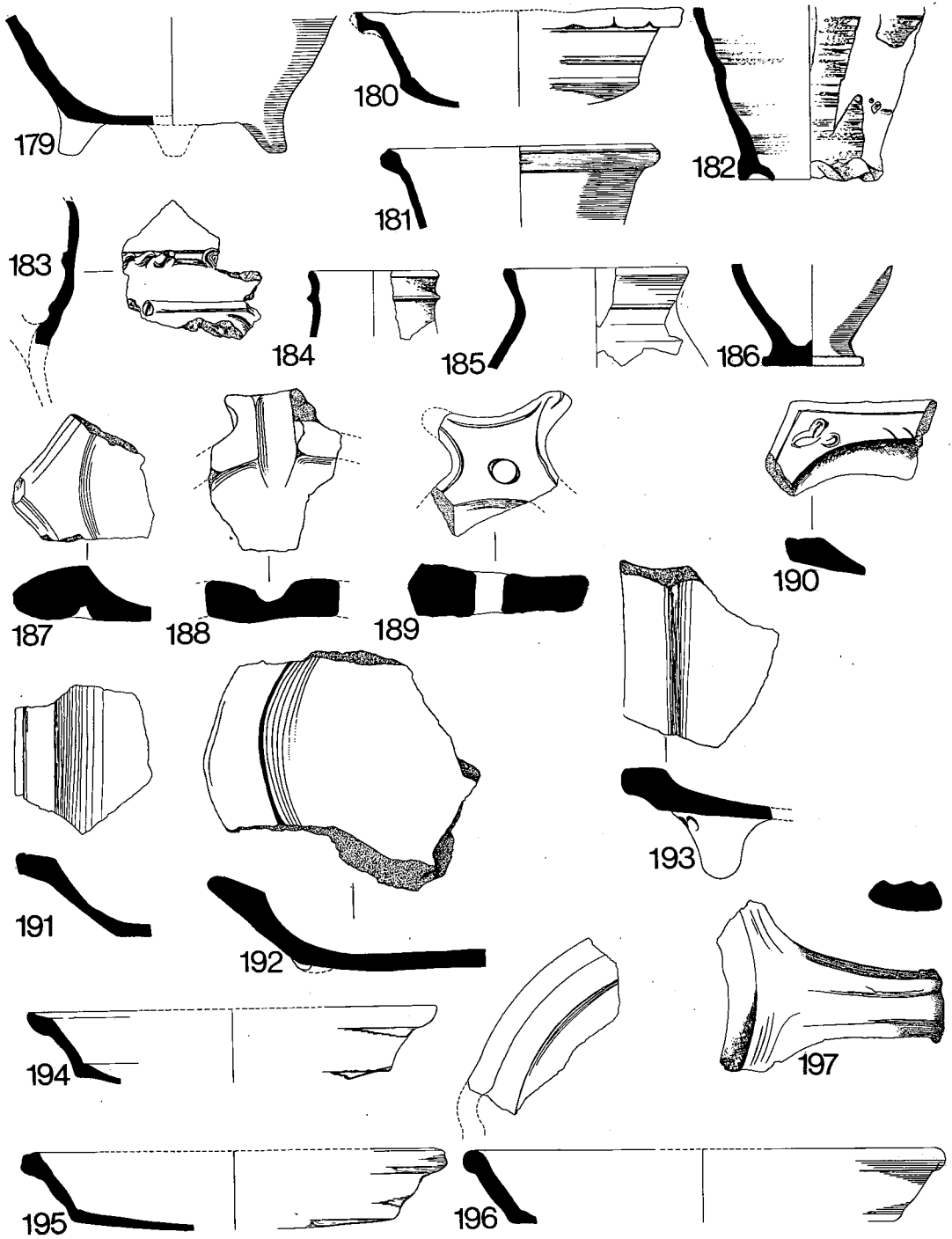


Fig. 23. (¼) Redwares.

179. Base of cooking pot in light red fabric with reduced core, dark brown glazed internally, patchy glaze externally. The sharp angle of the base is unlike vessels from the Low Countries, the hard firing, partial reduction and occasional lumps of aggregate of quartz in the fabric are also not typical. Phase 16.
180. Cooking vessel, fully glazed internally. Phase 17.
181. Rim fragment, probably of a similar vessel to no. 180, fully glazed internally. Phase 13.
- Vessels like nos. 180 and 181 only occur in the second half of the sixteenth century at the Black Gate, (fig. 20 column 8). All examples are sooted externally. Sixteenth-century vessels of this form in the Netherlands usually have tripod feet and either no handles or single pan handles.

### *Jugs*

Only occasional fragmentary examples occur.

182. The lower body, probably of a jug with a frilled base, fully glazed internally with a thick covering on the underside of the base spilling over in runs on to the body. The vessel was clearly stacked upside down in the kiln. Some external sooting probably occurred after breaking. Disturbed context equivalent to phase 9.

Examples of jugs with frilled bases similar to this one are known from the Utrecht kiln. It is probably somewhat residual in a sixteenth-century context.

183. Fragments, probably of a jug. One worn body sherd has the base of a handle. Partially glazed internally and fully externally, decorated with a "pie crust" cordon shaped by a tool (probably a stick) rather than fingers. Phase 9.

There is a jug with similar decoration in the Gemeentelijk Museum de Laken Hal, Leiden.

184. Rim fragment of a jug, fully glazed. Phase 10.
185. Rim fragment of a jug in light red fabric with reduced surfaces in places and full cover of olive green and brown/orange glaze. Phase 13. Possibly from Brabant.<sup>76</sup>
186. Base of a jug with splashes of glaze externally. Phase 16.

### *Dripping Pans*

These occur in small numbers from phase 5 onwards. The majority are represented by small fragments only. Feet and body sherds of these vessels are not always distinguishable from those of large cooking pots, so the numbers of vessels present may be more than indicated by fig. 7.

Some, but not all, of the fragments are sooted externally. These pans were normally designed for one side to be propped on the side of a hearth below a spit, with the feet and main handle on the opposite side away from the fire. This side would not normally be sooted.<sup>77</sup> At least one vessel of this type, at Southampton,<sup>78</sup> apparently has no feet.

Partial reduction in firing seems to be quite common on these wares, at Newcastle and in the Low Countries, perhaps because of the thickness of the body and large size. They are glazed internally.

187. Rim fragment from the corner of a dripping pan with a shallow groove running round the edge of the rim. Phase 5a.
188. Lug with a pouring channel from the end of a dripping pan. Phase 13. A similar, less fragmentary vessel is illustrated from Southampton.<sup>79</sup> Two examples occur phase 6 and one in phase 11.
189. Pierced lug from the end of a dripping pan. Phase 8. A more complete vessel is illustrated from Southampton.<sup>80</sup> One other example phase 13.

190. Rim fragment from the corner of a dripping pan with scratched decoration. Phase 9.
191. Rim to base fragment of the side of a dripping pan. Unstratified. Rim fragments with a groove running along the edge of the rim and a similar profile to 190 and 191 occur as follows: one phase 7, four phase 11, two phase 13 and one phase 14. These fragments and nos. 190 and 191 could well come from vessels with lug handles like no. 189. A rim fragment with this profile but no groove occurs in phase 5.
192. Fragment of the rounded corner of a dripping pan with a foot broken off. Phase 14.
193. Fragment of a dripping pan with a foot with finger-pressed decoration. Phase 16.
- Nos. 192 and 193 both appear to have been either broken by overheating or, more probably, burnt after breaking.

#### *Frying Pans*

These are shallow cooking vessels without feet and with a single pan handle opposite a pulled spout. (See fig. 21 for a histogram of the common forms.) They are all glazed internally, the later examples more evenly. The vessels from the Black Gate are usually sooted externally but a number of quite large fragments with a full profile or from the base of vessels show no traces of sooting.

No frying pans were identified before phase 5, (see fig. 7), although in the Low Countries the earliest examples occur in the thirteenth century before the first occurrence of tripod cooking pots.

194. Lid-seated frying pan. Phase 5. A late fourteenth- and fifteenth-century type, certainly residual after phase 8 (see fig. 21, column 1).
195. Lid-seated frying pan. Phase 5a. One fragment of a similar rim in phase 5.
196. Frying pan with simple folded rim. Phase 5. A late fourteenth- and fifteenth-century type (see fig. 21, column 2).
197. Rim fragment of a frying pan with a handle. Phase 9. Handles of this form, without folded edges, are dated to the second half of the fourteenth century and first half of the fifteenth century in the Netherlands. Another handle in phase 5a with a finger impression at the rim is of this type and one fragment in phase 6 and one in phase 7 are probably similar.
198. Frying pan with folded rim, the internal glaze scratched as if by cutting or stirring. Phase 11. Examples of this rim form, which is quite similar to no. 196, occur from phase 5 onwards but it is common in the sixteenth century, (see fig. 21, column 3).
199. Frying pan fragment. Phase 16. A more angular rim form which develops in the late sixteenth century (see fig. 21, column 4).
200. Frying pan fragment. Unstratified, probably late sixteenth century.
201. Frying pan handle. Phase 13. This form of handle with folded edges is thought to occur from the mid fifteenth century onwards in the Netherlands, the latest examples being the most exaggerated. No fragments of handles survive from phases 8-12. One fragment phase 13, two phase 14 and a complete handle in phase 17 can be identified as of this type.
202. Frying pan with a collared rim, (or possibly a shallow cream pan), the rim fragment thickening at one point to form the handle. Phase 11. A late fifteenth- and sixteenth-century type, (see fig. 21, column 5). There is also one unstratified example. The rim form is very similar to collared rimmed bowls, (especially no. 217) which are also often sooted, so that smaller fragments could not be identified with either form.

#### *Dishes*<sup>81</sup>

These occur from phase 5 onwards. It can be assumed that all the vessels had pinched feet

(either lobed or flanged) like those surviving on some of the vessels. Dishes without such feet are not known in the Netherlands in the medieval or early post-medieval period.

All the vessels have a full cover of glaze internally, the backs are unglazed except for runs on some which indicate that they were fired on end not horizontally. The vessels are commonly decorated with white slip. Plain internal slip-coating occurs from phase 5 onwards, simple sgraffito decoration and slip-trailed arcs occur from phase 8 onwards. From phase 12 onwards vessels are more commonly slip-decorated than plain. Yellow glaze is used on most of the vessels, the slipped areas appearing yellow, the edges of the rims, sgraffito lines and other unslipped areas, orange/brown, (or olive green when reduced). Copper green glaze is commonly used on the plain slip-coated vessels, usually rather mottled but the latest examples are smooth. The vessels are often sooted on the underside, presumably from being used to warm food, possibly on chafing dishes.

This type of comparatively simply decorated or plain dish also occurs in the Netherlands by 1400. The elaborate slip-decorated wares similar to Ardenburg as produced by the Utrecht kiln do not occur at the Black Gate.

203. Fragment of a dish with internal slip-coating under slightly copper-stained glaze. Phase 16. One possible example phase 5, one phase 14, three further examples phase 16.

204. Fragment of a dish with internal slip-coating and yellow glaze. Phase 12.

205. Fragment of a dish with internal glaze. Phase 17. A sharper angled profile than no. 204.

Vessels similar to nos. 204 and 205 occur as follows: one phase 8, three phase 9, two phase 11, three phase 12, four phase 14, one phase 16, five phase 17 and one unstratified.

206. Fragment of a dish with slip-trailed decoration and internal glaze. Phase 8.

207. Fragment of a dish with reduced internal surface, slip-coated with sgraffito design. Phase 12.

208. Fragment of a dish with reduced internal surface, slip-coated with sgraffito design. Unstratified.

209. Fragment of a dish with reduced internal surface, slip-coated. Phase 12.

Nos. 207–9 illustrate a rather crude, thick form of dish. Most examples are partly reduced so that the slip appears pale green and the sgraffito lines olive green. All the different types of slip decoration and glazing described above are used on these vessels. The fabric, method of firing and potting techniques exhibited by the majority of vessels of this form are very similar and suggest that they may be products of the same kiln or locality. Other examples occur: one phase 9, one phase 10, four phase 13 and one unstratified.

210. Fragment of a dish with internal slip-coating and yellow glaze. Possibly a sgraffito design in the centre. Phase 12. One other phase 17 and possibly one phase 6.

211. Dish with internal glaze. Phase 16.

212. Fragment of a dish with internal slip-coating, sgraffito design and yellow glaze. Phase 15.  
A fragment of a dish like nos. 204 and 205 has the same toothed pattern on the rim.

One other example of a dish with the same rim form as nos. 211 and 212 occurs in phase 13 and one in phase 15.

213. Fragment of a dish with internal glaze. Unstratified but probably late sixteenth century.

214. Pedestal foot and base of a *tazza* with internal slip-coating, sgraffito design and yellow glaze. Phase 12.



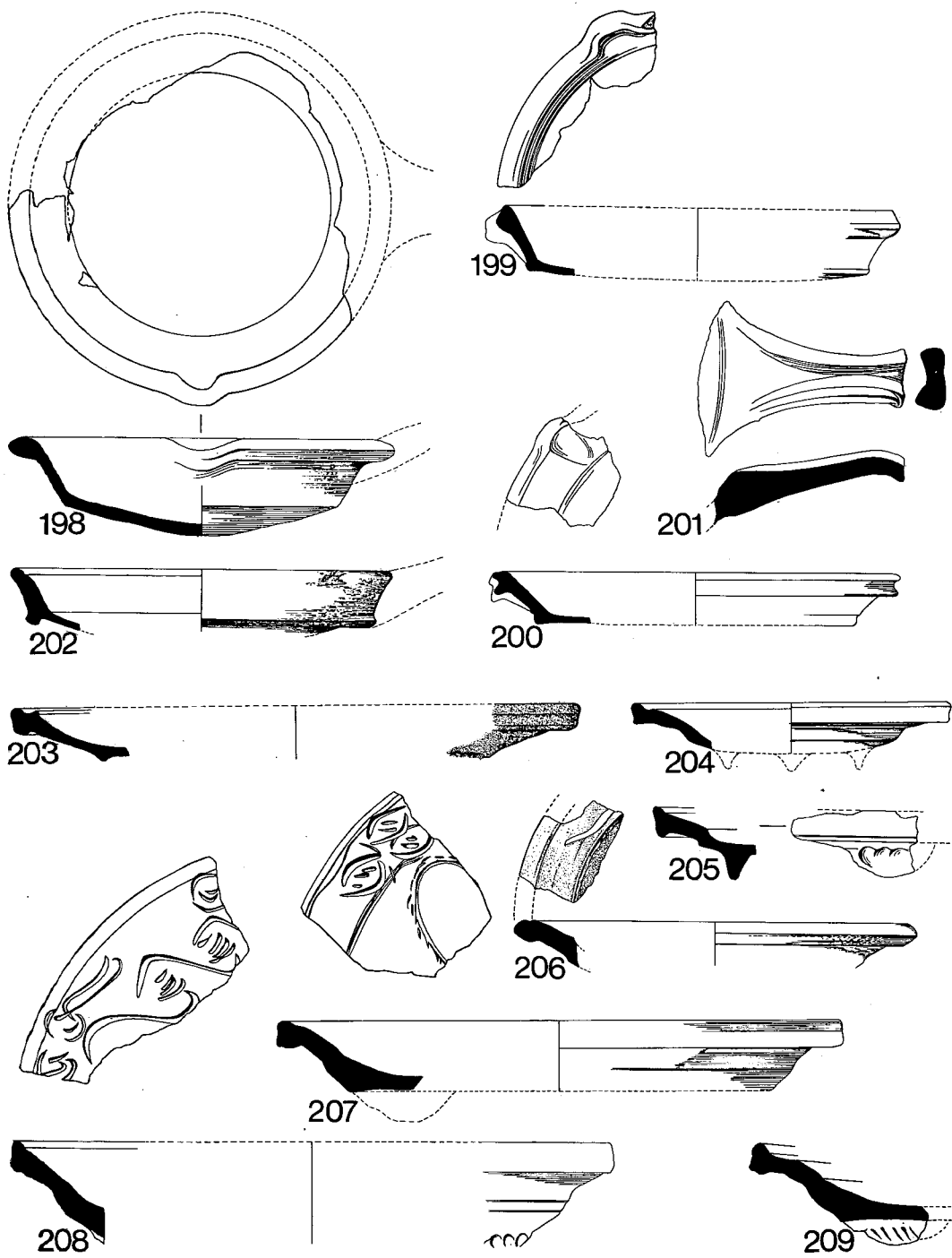


Fig. 24 (¼) Redwares.

*Plate*

215. Fragment in orange/buff fabric with internal slip-coating and a full and even cover of copper green glaze internally. Sooted externally. Disturbed sixteenth-century context below the cellar floor. Probably a seventeenth-century vessel.

*Bowls*

This category covers a number of forms and sizes of vessels which must have had a wide variety of functions. One vessel could also have a number of different uses, so, for example, some examples of most forms are sooted externally, though some forms were obviously more commonly used for heating than others.

Slip-coating of internal surfaces with yellow or green over-glaze is fairly common but no examples of sgraffito or slip-trailing occur.

Complete examples of bowls in the Netherlands have pinched or tripod feet or slightly frilled foot rings. A number of fragments of foot rings from the castle ditch could be from bowls, chamber pots or jars, (see nos. 239 and 248). The majority of these are sooted externally.

216. Fragment of a bowl with internal glaze. Phase 6. The fabric of this example suggests it may be Flemish<sup>82</sup> but the form is common throughout the Low Countries. Other examples of this form occur: One phase 12, one phase 14 and one unstratified.

217. Rim fragment of a bowl with internal glaze. Phase 13. The rim form of these vessels is very similar to no. 202, (see above) but they are deeper bodied. One example phase 12, four phase 13, one phase 14, one phase 15 and one phase 17.

218. Fragments of a bowl with pulled spout and internal glaze. Phase 13.

219. Fragment of a bowl with pulled spout and internal glaze. Phase 17. Another bowl of the same type as nos. 216–219 and with a pulled spout occurs phase 15.

Nos. 216–19 illustrate a type of wide, collared rimmed bowls known as cream pans, that is, vessels used for separating cream. Sooting on some vessels may also indicate heating milk for cheese-making but it is likely that the smaller vessels, at least, were put to a variety of domestic uses.

220. Fragment of a bowl and handle, originally with internal slip-coating and copper green glaze, now largely flaked off. Phase 6. Possibly a cream pan. One example phase 8, one phase 17 and one from a late sixteenth-century context equivalent to phase 17. A similar vessel with a lid-seated rim occurs phase 10. One fragment phase 5a and one phase 17 are probably of this type. Some of these vessels have external sooting.

221. Fragment of a bowl with internal slip-coating and copper green glaze. Unstratified. One example phase 17 and one possible example phase 9. The rim form is very similar to dish no. 203, so small rim fragments could be bowls or dishes.

222. Fragment of a bowl with internal glaze, partly crazed and blistered, the external surface sooted and burnt. Either burnt after breaking or the breaking was caused by over-heating. Phase 10. One possible example phase 11.

223. Fragment of a bowl with pulled spout, internal glaze and external sooting. Phase 7.

224. Rim fragment with pulled spout, internal glaze and external sooting. The rim diameter and form suggest a bowl rather than a spouted cooking pot. Phase 16. One possible example phase 17.

225. Fragment of a bowl with internal glaze and external sooting. Phase 16. Two phase 17.

226. Fragment of a bowl with internal slip-coating and yellow glaze. Phase 16.

227. Fragment of a bowl with internal glaze and external sooting. Phase 16.

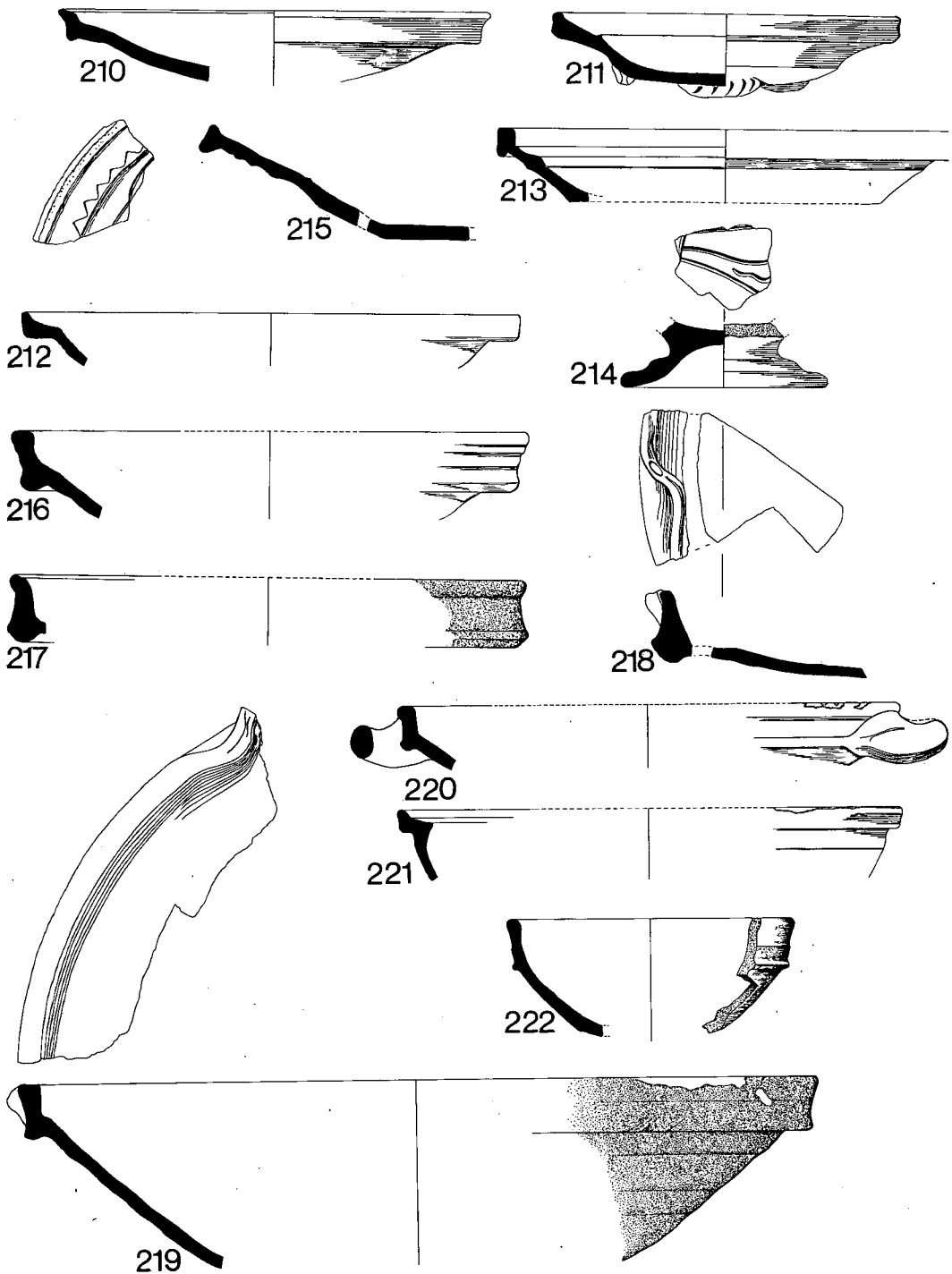


Fig. 25. ( $\frac{1}{4}$ ) Redwares.

228. Fragment, probably a bowl, with patchy internal and almost full external glaze and external sooting. Phase 17.
229. Fragment of a bowl, probably with pinched feet, with internal slip-coating and yellow glaze with flecks of copper green and external sooting. Phase 13.

#### *Porringers*

These occur in the Netherlands with one or two handles applied horizontally or vertically, or without handles, and always with a foot ring. External sooting is normal on these vessels at the Black Gate, and internal slip-coating with green or yellow glaze is common.

230. Porringer with at least one handle, internal slip-coating and yellow glaze. The fabric of the illustrated example is orange/buff rather than the usual light red. Phase 14. One phase 9, two phase 12, one phase 16, one phase 17 and one phase 13 with a horizontal handle.
231. Fragments of a porringer with internal glaze. Phase 17. The angular profile and pinching together of the top of the handle are typical of the late sixteenth- and seventeenth-century vessels in the Low Countries. A fragment without a handle occurs in a late sixteenth-century context equivalent to phase 17.
232. Probably a porringer, with internal glaze. Phase 17.

#### *Chafing Dishes*

233. Chafing dish, probably with two handles, with internal glaze slightly crazed and blackened. Phase 13. Probably for burning spirit, (see reduced greenware chafing dishes above).
234. Fragment of a chafing dish, unglazed with internal burning. Probably the hollow-stemmed type for burning charcoal. Phase 11.
235. Chafing dish, possibly with a knob broken off and probably with only one handle. Unglazed except for splashes externally, with some external sooting but more heavily sooted internally. Phase 11.

#### *Chamber Pots*

The forms illustrated below are known to be commonly used as chamber pots in the Low Countries and the internal sediment in a number of vessels confirms their use as such in Newcastle. However, in Newcastle, as in the Low Countries, other examples show no signs of sediment and are sooted externally indicating some other use.

All the different forms of chamber pot in the Low Countries have a single handle, so it can be assumed that the vessels illustrated here would have had handles, though only one example survives.

236. Chamber pot, fully glazed. Phase 17.
237. Fragment of the base of a chamber pot with internal glaze and heavy external sooting and burning. Phase 9. One possible example phase 13.
238. Fragments of a chamber pot, originally fully glazed with slip-trailing on the external shoulder, with internal sediment. Late sixteenth-century context equivalent to phase 17.

Nos. 236-8 illustrate the most common features of chamber pots in the Low Countries up to the mid sixteenth century: a kicked up base and a long, usually narrow neck.

239. Chamber pot, fully glazed except for the foot, with internal sediment. Phase 17. One phase 6, two phase 12, one phase 13, one phase 14, one phase 15, one phase 16 and one phase 17.

This is the most common form of chamber pot at the Black Gate although it is not typical

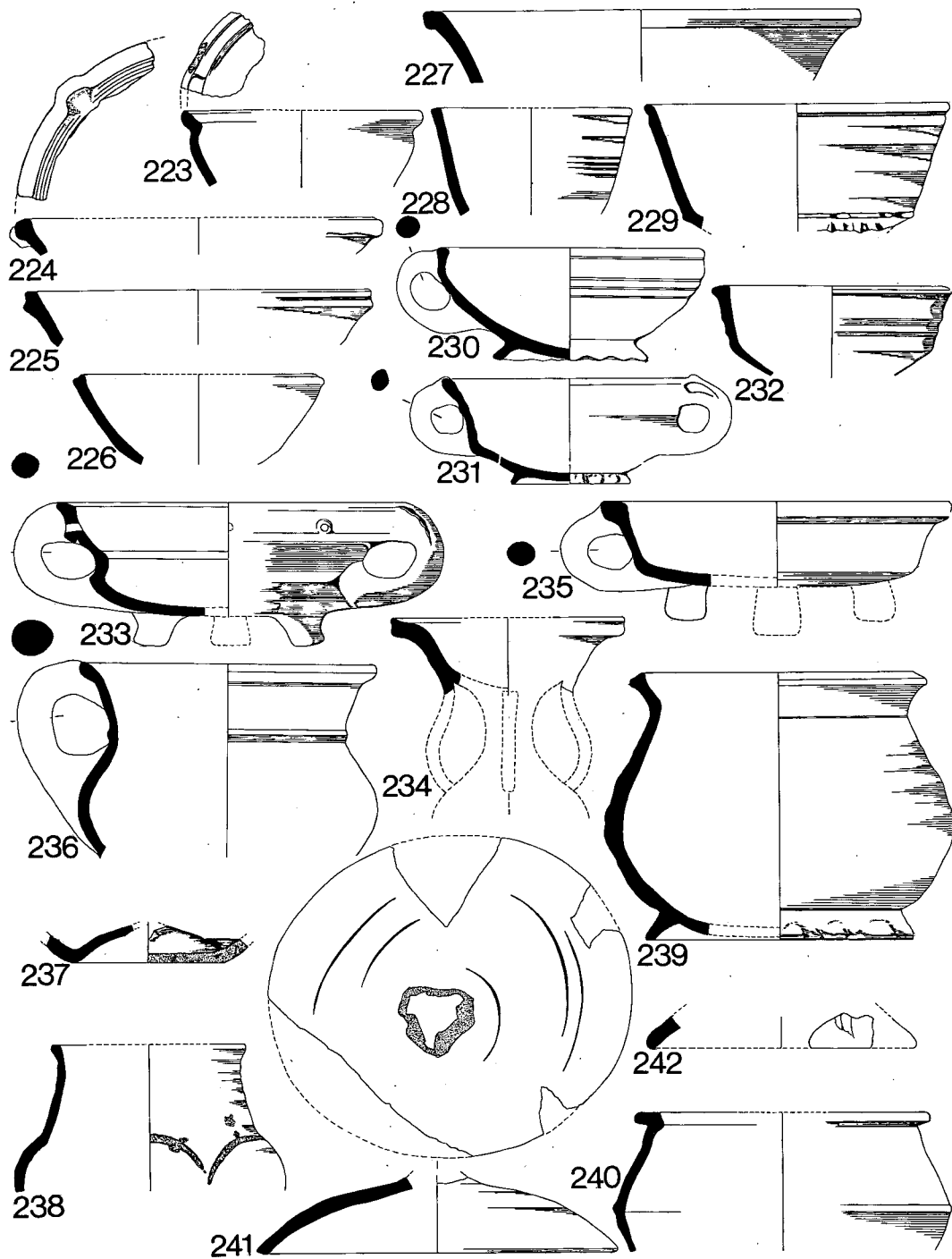


Fig. 26. (¼) Redwares.

in the Netherlands. This may perhaps indicate one particular source of supply. Probably a second half of sixteenth-century type, (the example in phase 6 could be intrusive).

240. Chamber pot with internal glaze and patches externally. Unstratified. Possibly one phase 14. This is the most common late sixteenth- and seventeenth-century form in the Low Countries.

#### *Lids*

These are not common at the Black Gate in any fabric (see fig. 7), or in the Low Countries. There is perhaps one other redware example besides those illustrated. Nos. 241 and 242 seem from their rim diameters to be suitable for use on tripod cooking pots and frying pans, but although the majority of cooking pots and some frying pans have lid-seated rims or necks they were obviously not normally supplied with pottery lids.

241. Lid, probably with a central knob broken off, with external glaze, the rim cut out by a sharp tool. It appears to have been cut from a flat slab of clay and moulded, rather than thrown. Phase 17.

242. Fragment of a lid with external glaze and slip-trailing, the edges of the rim somewhat abraded. Phase 14.

243. Fragment of a lid in orange/buff fabric with reduced core including one large purple grit (1 cm × 2 cm), unglazed except for splashes of yellow/green glaze on the underside. From a seventeenth-century pit but possibly residual. Examples of heavy lids of this type are found in Flanders in contexts dated between 1350 and 1450,<sup>83</sup> though they may continue into the sixteenth century.

#### *Collanders*

244. Fragment of a collander with internal glaze and slightly frilled foot ring. The foot ring is pierced at one point. Probably a bowl-shaped vessel. Unstratified. Probably sixteenth-century.

245. Fragment of a collander with internal glaze and splashes on the handle. Phase 17. A late sixteenth- and seventeenth-century form in the Netherlands.

246. Fragment of a collander with internal glaze, heavily sooted and burnt externally and on the fracture with some blistering of the glaze, this probably occurred after breaking. A thickening of the rim at one side probably indicates the start of a handle. Unstratified. Probably late sixteenth century.

247. Fragment, possibly a small strainer, (the edge of a small hole is visible on the fracture), with internal glaze and patches externally, badly abraded. Phase 12.

#### *Jars*

248. Two-handed jar with a slightly frilled foot ring in orange/buff fabric, unglazed except for splashes of light green and yellow/brown on the lid-seating and externally. Probably for storage. Phase 17. The fabric and glaze are not typical of Low Countries' wares but similar to no. 171 above.

249. Rim fragment of a small jar, glazed on the rim. Phase 13.

250. Rim fragment of a jar? in orange/buff fabric with full cover of yellow/orange glaze and some traces of sooting and burning externally and internally. Phase 12. One phase 15, and one phase 16, possible examples phase 12, 15 and 17. The fabric of the illustrated vessel is not typical of Low Countries' wares, the other examples are in the usual fabric.

251. Rim fragment of a jar? with internal glaze and external sooting. Phase 6.

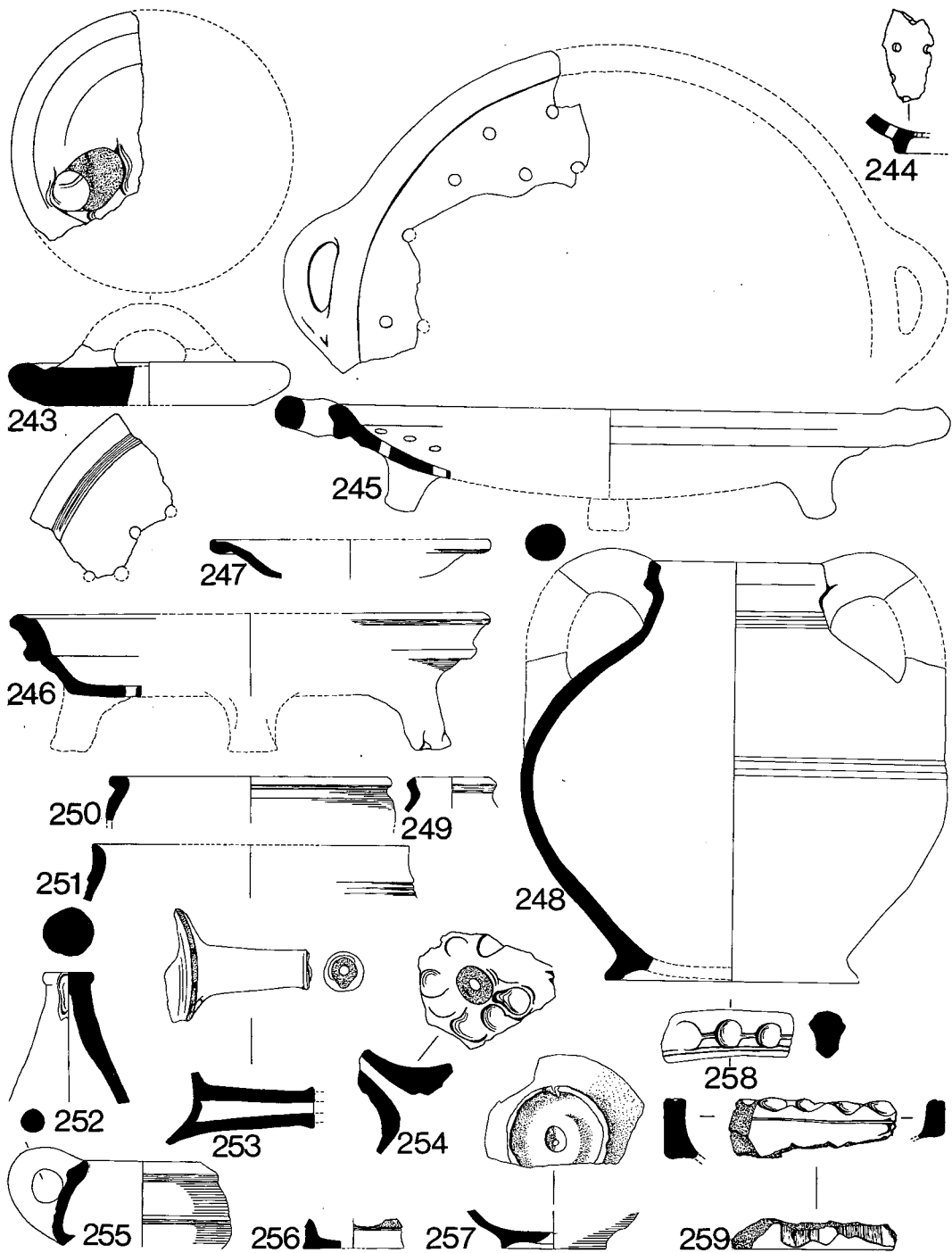


Fig. 27. (¼) Redwares.

*Roof Finial*

252. Fragment in orange/buff fabric with reduced core, unglazed. Cellar wall construction, seventeenth century.

Very similar to complete examples in the Netherlands,<sup>84</sup> but smaller.

*Cooking Vessel*

253. Fragment in orange/buff fabric with bright orange glaze internally and a hollow handle. Phase 14. Redware, tripod cooking vessels with handles of this form are known in Scandinavia in fifteenth- and sixteenth-century contexts and thought to be from North Germany.<sup>85</sup>

*Lavabo*

254. Fragment with a spout with thumb-pressed decoration, slip-trailing and external glaze. Unstratified. Similar to a complete vessel in the Van Beuningen Collection, a globular vessel with two handles by which it was designed to be suspended, and the spout placed on the shoulder.

*Fragmentary and unidentified vessels*

255. Vessel, fully glazed. Possibly a kind of porringer but there is no evidence of heating. The shape of the rim makes its use as a cup impossible. Phase 16.

256. Foot of a cup or small bowl? with internal slip-coating and copper green glaze. Phase 15.

257. Base of a bowl or pot with a hole bored in the centre, with internal slip-coating and copper green glaze and external sooting. The sooting clearly occurred before the hole was bored in the base, which suggests a vessel used first for cooking or heating, then re-used, possibly as a plant pot or for drawing off a distillation.<sup>86</sup> Phase 16.

258. Fragment of a handle, glaze covering all but the underside. Unstratified.

259. Fragment of a decorative flange, fully glazed on the upper surface. Possibly part of a candle mould or a type of elaborate dripping pan which occurs in the Low Countries in the late 16th century. Phase 16.

## LOW COUNTRIES GREYWARE

Greywares (unglazed reduced earthenwares), were an important part of the production of the potteries in the Low Countries, in the fourteenth century and to a decreasing extent in the fifteenth century; but while the redwares which were produced at the same potteries are the largest group of imports at the Black Gate, the greywares are only represented by a few fragments in sixteenth-century contexts where they are probably residual. (Greywares were produced in some areas of the Low Countries up to the sixteenth century but not after that). The explanation for this disparity probably lies in the range of products in the two different wares. Greyware was used for large traditional kitchen vessels, storage jars, large jugs and bowls, while redware was used for higher quality glazed wares in the new forms. It was apparently in this new "quality" market that opportunities for export were found.

260. Rim fragment and handle of a jug in unglazed dark grey earthenware. Phase 15. One handle fragment and two body sherds phase 12.



## LOW COUNTRIES WHITEWARES

These were also produced in very small quantities at the same potteries as the redwares and in the same range of forms but from clay imported for making white slip. Several vessels were found at the Utrecht kiln site with red earthenware scars indicating that they had been fired with redwares.<sup>87</sup> Examples of whitewares are known from the fourteenth century onwards in the Low Countries but they do not occur in large quantities until the seventeenth century.

261. Porringer in hard off-white fabric with full internal cover of copper green glaze and patches of green and yellow glaze externally and external sooting. Possibly Low Countries. Phase 16.
262. Fragment of a porringer in slightly gritty white fabric with full internal cover of mottled copper green glaze, also covering the rim and top of the handle. Low Countries. Phase 15. One example phase 14 and a body sherd in a similar fabric from a seventeenth-century context.

## RHENISH WARES

Langerwehe and Siegburg wares first occur at the Black Gate in phase 4 and from then onwards wares from the Rhineland form the second largest group of imports after the Low Countries' redwares. It is probable that the Rhenish wares were supplied from the same ports in the Rhine/Maas delta as the redwares. Dordrecht, in particular is known to have had an important market for the sale of Rhenish stonewares and local redwares, (see Redwares above).

*Langerwehe*<sup>88</sup>

These wares were the most common Rhenish import in the fourteenth and fifteenth centuries and were still common in the early sixteenth century, but the infrequent occurrences after phase 9 can be regarded as residual, (see fig. 6). Both dark grey stoneware and near-stoneware fabrics and unfused pink earthenwares occur. Many of the vessels are iron-washed which produces a red/brown or purple/brown matt surface. Some of these wares are also partially salt-glazed and many vessels are salt-glazed without first being iron-washed. This produces a grey/brown colouring very similar to early Raeren wares, (see below) but sometimes distinguished by iron flecks in the salt glaze.

*Jugs*

263. Fragment of a jug rim and handle, near-stoneware, iron-washed with external salt glaze and rouletted decoration. Phase 5. Probably a cordoned rimmed jug, Hurst type II.<sup>89</sup> Other fragmentary examples phase 5a, phase 6, phase 12 and phase 15.
264. Rim fragment of a jug, near-stoneware, iron-washed with patches of salt glaze externally and rouletted decoration. Phase 15. Hurst type III.<sup>90</sup> One phase 5, one phase 5a, one phase 6 and one phase 17.

Fragments of the neck and shoulder of vessels with rouletted decoration, probably jugs like nos. 263 and 264 occur as follows: six phase 6; four phase 7, one phase 10, two phase 15 and one phase 17. One neck fragment on phase 5 is probably a type I jug.<sup>91</sup>

265. Part of the base and lower body of a jug, near-stoneware, iron-washed externally and par-

tially salt-glazed, with internal sooting. A "medium" sized jug.<sup>92</sup> Possibly used as a fire pot. Phase 5a.

266. Base and lower body of a jug, earthenware with external iron wash and salt glaze. A "small" jug. Phase 13.

#### *Drinking Vessels*

267. Fragment of a small mug, near-stoneware, iron-washed and thinly salt-glazed. Hurst type IV,<sup>93</sup> perhaps no. 2. Phase 5.
268. Fragment of a small mug, stoneware, iron-washed with external salt glaze. Hurst type IV, possibly no. 3.<sup>94</sup> Phase 6.
269. Fragments, probably of a mug rather than a beaker, stoneware with internal iron wash and external salt glaze. Possibly Hurst IV no. 4. Phase 11.

Fragments of type IV vessels occur as follows: two phase 5, possibly one phase 5a, two or three phase 7 and three unstratified.

270. Rim fragment, possibly of a cup, stoneware, iron-washed with external salt glaze. Possibly a vessel like Hurst fig. 6 no. 3.<sup>95</sup> Phase 6. One other possible example phase 7.
271. Conical-necked beaker, stoneware with external iron wash and fully salt-glazed. Probably Langerwehe but could be early Raeren. Phase 9. A fragment of the neck of a similar vessel in phase 7 is certainly Langerwehe, with stoneware fabric and iron wash.
272. Fragments, probably of a conical-necked vessel similar to no. 271, stoneware with external salt glaze, some internal sooting and the base scorched externally. Phase 13.

#### *Costrels*

273. Fragments of the neck of a costrel, near-stoneware with external iron wash and thin salt glaze. Probably a standing costrel rather than the mamiform type. Phase 5a.
274. Fragment of the neck of a costrel, near-stoneware, iron-washed with external salt glaze and rouletted decoration. Phase 7.

#### *Siegburg*

A fully fused, fine, light grey or off-white stoneware, sometimes with external orange bloom or thin light brown ash glaze. A less common import than Langerwehe wares but occurring mainly in the same period, from the mid fourteenth century (phase 4) to the sixteenth century. Less frequent and probably mostly residual after phase 10, (see fig. 6). The comparatively large group in phase 15 provides further confirmation of the residual character of much of the pottery in that phase.

The majority of fragments are body sherds or small fragments of rims, flrilled bases and handles, which cannot be identified with particular vessel forms. The rims appear to be "simple jugs", Beckmann<sup>96</sup> nos. 77-104 or "deep cups", Beckmann nos. 117-21 or "beakers" nos. 132-5, and the bases are probably also from such vessels.

One neck fragment in phase 7 is possibly from a standing costrel, Beckmann no. 44-9 and a body sherd in phase 8 is possibly from a hanging costrel, Beckmann no. 53 or 54.

275. Drinking bowl. Phase 13. The form can be equated with Beckmann nos. 161-4. These vessels are very similar to Beauvais drinking bowls of period II (1450-1500)<sup>97</sup> but the Siegburg vessels appear to be thicker-bodied, as this one is, and whereas Beauvais vessels of this form are regarded as residual by the sixteenth century, when more bowl-

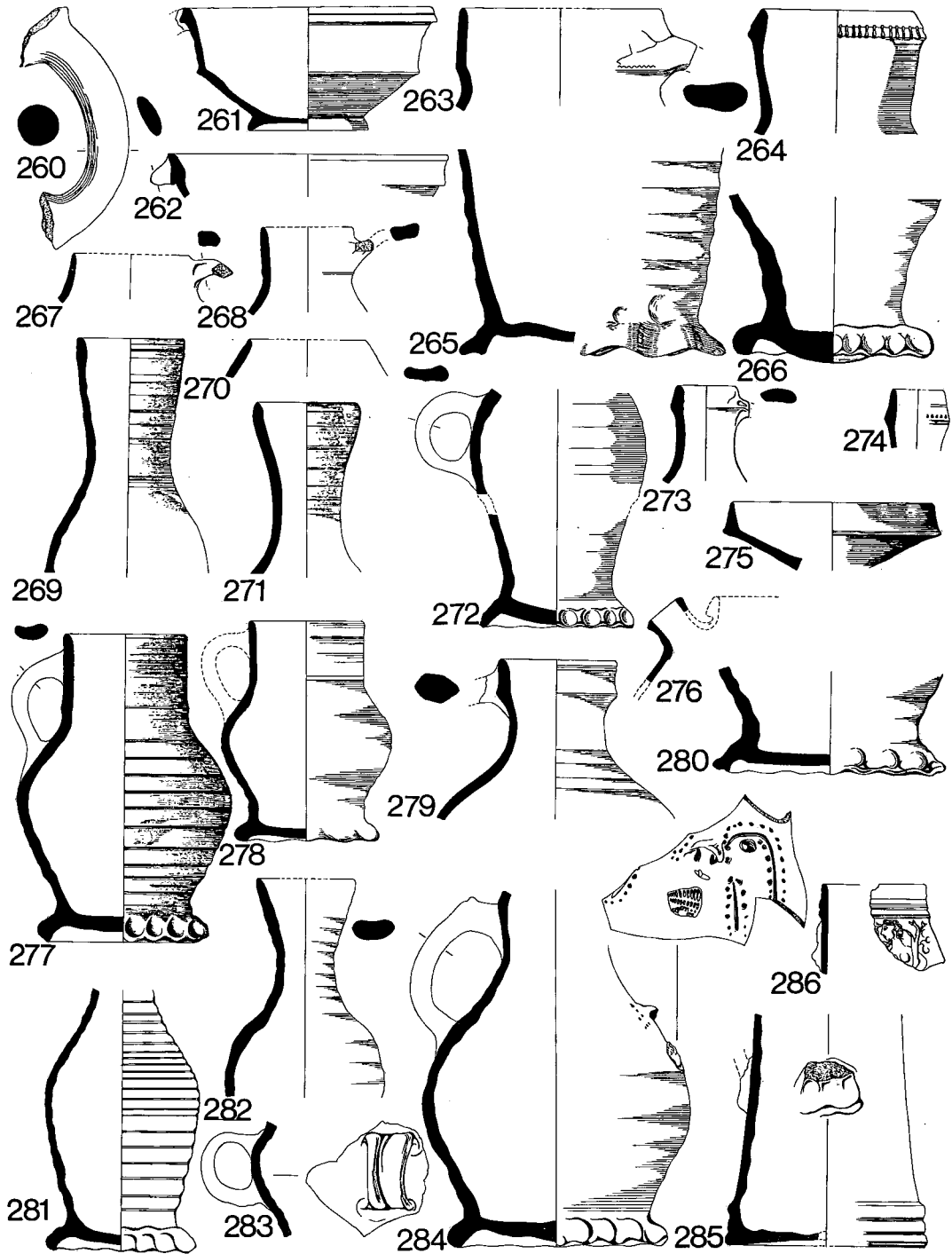


Fig. 28. (¼) Low Countries Greyware no. 260; Low Countries Whiteware nos. 261–262; Rhenish Stoneware nos. 263–286.

shaped vessels occur (see nos. 147 and 148 above), they are thought to persist in Siegburg into the sixteenth century.<sup>98</sup>

276. Fragment of a spouted pitcher. Phase 16. This type of vessel is illustrated by Beckmann nos. 39–43.<sup>99</sup>

### *Raeren*

Wares of Raeren type,<sup>100</sup> (very similar wares were produced in nearby Aachen), occur first in the fifteenth century (phase 6). One fragment in phase 5a, (see above) is probably intrusive. These imports reach a peak in the second quarter to mid sixteenth century, (phases 10–12) and become relatively infrequent after phase 15, (see fig. 6), when they can be regarded as residual.

The fabric is usually a dark grey stoneware with grey and brown salt glaze. Some light grey fabrics occur with light brown or cream salt glaze. It was not always possible to attribute sherds occurring in phases 6–8 with certainty to either Langerwehe or Raeren. Langerwehe wares are common at this time and the early Raeren wares are not as uniformly fired as in later phases, often showing close similarity to Langerwehe salt-glazed wares. The re-occurrence of these early Raeren or Langerwehe wares in phase 15 is evidence of the residual nature of most of the pottery in that phase.

277. Mug. A context equivalent to phase 16.

278. Mug in light grey fabric. Phase 12.

Examples of mugs of the same form as nos. 277 and 278 occur as follows: two, possibly four, phase 6, two, possibly four, phase 7, three, possibly six, phase 8, ten, possibly twelve, phase 9, seven phase 10, seventeen phase 11, sixteen, possibly twenty-three, phase 12, eleven, possibly sixteen, phase 13, three phase 14, one, possibly two, phase 15, possibly four phase 16, two unstratified. It is also likely that the majority of the numerous fragments of fluted bases which occur, represent vessels of this type.

279. Fragment of a collared rimmed jug. Phase 12. One phase 10, two phase 11, four phase 12, one phase 13, one phase 14, two phase 15.

280. Base of a larger size than that of drinking vessels, probably a jug, in light grey fabric. Phase 13.

281. Possibly a standing costrel, if so with one handle only, or a conical-necked beaker. Phase 14.

282. Conical-necked beaker in light grey fabric. Phase 11. One other example phase 12. (Complete vessels of this type can be with or without handles on the side like no. 283 below).

283. Fragment, probably of a conical-necked beaker with a handle on the side of the body. Phase 12. One other example phase 12. Fragments of narrow necks, either from conical-necked beakers or standing costrels occur as follows: one phase 9, one phase 11, one phase 15, one phase 16.

284. Underfired jug in pink/buff earthenware with light grey external salt glaze and a part moulded and part scratched face mask. Phase 13. These precursors of the "Bellarmine" were probably made in Raeren or Aachen.<sup>101</sup>

### *Cologne/Frechen*

The production of these wares dates from the early sixteenth century in Cologne and was transferred to Frechen in the mid sixteenth century. It is noticeable that, although production at Cologne was contemporary with that at Raeren in the first half of the century,

Cologne wares are not discarded at the Black Gate until the mid sixteenth century (see fig. 6). Cologne/Frechen wares appear to supersede the Raeren wares in phases 16 and 17 (second half to late sixteenth century), although it should be taken into account that by this time Raeren was producing similar forms (without the characteristic decorative motifs) and that the fabrics are not always easy to differentiate. The Cologne/Frechen fabric is, typically, a mid or dark grey stoneware, often with a pink or light coloured internal surface, with grey and brown salt glaze. The glaze on later Frechen vessels sometimes has a pronounced "orange peel" texture, (see no. 290). Occasional examples, which have not reached the firing temperature for stoneware, occur as pink earthenware.

Rose and oak motifs, characteristic of the earlier production at Cologne, occur first in phase 12, the acanthus and medallion decoration of the later production in Cologne and Frechen, occur by phase 14, both types are equally common in phase 16 but by phase 17 only the acanthus type is represented. (The fragment of acanthus leaf in phase 9 is from a contaminated context and is probably intrusive. Fragments from phase 6 are certainly intrusive.)

285. Fragment of tankard, *schnelle*. Phase 15. The fabric seems typical of Cologne/Frechen but these vessels were also produced at Raeren, (see note below 286).

286. Fragment of a tankard, *schnelle*, with part of a decorative panel depicting Eve. The fragment is completely burnt so the provenance cannot be deduced from the fabric and glaze. Phase 14.

Nos. 285 and 286 represent vessels of a type produced at Raeren and Cologne/Frechen.<sup>102</sup> Rather more finely modelled examples were also produced at Siegburg. No. 285 would probably have had a decorative panel, (these usually depicted biblical scenes) but only the area surrounding the handle, which was always undecorated, has survived. Two other examples, one in phase 16 and one unstratified are represented by bases only. Since no other decorated wares from Raeren or Siegburg occur at the Black Gate, the Cologne/Frechen potteries are the most likely source for these vessels.

287. Mug. Phase 12. The fabric and glaze are very similar to Raeren wares but the cordon at the base indicates that the vessel had the fiat, footed base typical of Cologne/Frechen vessels. Fragments of similar rims occur: one phase 12 and one phase 14.

288. Neck and base fragments, possibly of the same vessel, although the neck is in a lighter grey stoneware than the base. Phase 16. This illustrates the most common form of Cologne/Frechen mug, with a cordon at the base of the neck, a groove just below the rim and the fiat, footed base.<sup>103</sup> Undecorated mugs of this type occur as follows: one phase 12, probably two phase 13, three phase 15, seven, possibly ten phase 16, five, possibly twelve phase 17 and one in a context of the second half of the sixteenth century. No. 293 is a decorated example of this form, other decorated examples occur: one phase 13 and one phase 15.

289. Mug. Unstratified.

290. Fragment of a mug. Phase 16.

Nos. 289 and 290 illustrate a variation on the common mug form (288) with a cordon running round the neck at the level of the top of the handle. Two other examples occur, phase 16, both are undecorated. Bases and other fragments of undecorated mugs occur as follows: three phase 6 (intrusive), four phase 12, one phase 13, three phase 14, three phase 15, eleven phase 16, ten phase 17 and five from contexts dated to the second half of the sixteenth century.

291. Fragment of a mug with rose leaf motif. Phase 14. The complete design usually incorporated rose flowers and leaves.<sup>104</sup>

292. Fragment of a mug with oak leaf and acorn motif. Context probably equivalent to

- phase 16. Other examples of this motif occur: one phase 6 (intrusive), one phase 12, one phase 13, one phase 14, five phase 16 and the leaf motif occurs on no. 293 below.
293. Fragment of a mug, showing the oak leaf motif (partly broken off) combined with a medallion of a man's head. Phase 16.
294. Fragment of a mug. Poorly stratified, probably late sixteenth-century. This illustrates the arrangement of motifs common on the later decorated wares: acanthus leaf, floral band and medallion containing a human head.<sup>105</sup>
295. Fragment of a mug with the usual arrangement of acanthus, medallion and band but the band incorporates alternating male and female heads in the foliage and the medallion contains a female head. Phase 17. Another example of a medallion with a female head occurs in a context from the second half of the sixteenth century.
296. Fragment of a mug with floral border and a soldier's head in a medallion. Phase 17.
297. Fragment of a mug without the sharp angle and cordon at the base of the neck, but with a cordon at the top of the handle and the usual arrangement of motifs. The medallion contains a negro's head. Phase 17.
298. Fragment of the shoulder and neck of a mug similar in form to no. 297. The medallion is surrounded by a wreath and the various elements of the pattern applied somewhat erratically. Phase 17.
299. Fragment of a mug, probably without a cordon at the base of the neck, with a soldier's head in the medallion and spiral motifs in the floral border. Phase 17.

Other fragments with all or some of the three pattern motifs illustrated above and with further variations on the male heads in the medallions occur as follows: one phase 9 (see above) two phase 14, four phase 16, seven phase 17, three from contexts of the second half of the sixteenth century and one from an early seventeenth-century context.

300. Fragment of a mug with kings' heads in medallions, acanthus leaf and a band with geometric in-filling. Phase 17. Another example of a band filled with bars occurs phase 16. These represent a debasing of the original scheme described above (no. 293), which occurred in the late sixteenth century.
301. Fragment, probably of a mug or "Bellarmine" with a flat, footed base, decorated with applied rosettes. Phase 16. A similar rosette occurs on the neck of another vessel in phase 13 and a fragment of a rosette containing a stylized lion mask occurs phase 16.
302. Fragment, possibly of a "Bellarmine", in pinkish buff earthenware with grey and red/brown external salt glaze. Phase 17. The "raspberry" motifs are very similar to those on a "Bellarmine" in the Musée Royaux d'Art et d'Histoire in Brussels, which is dated to the mid sixteenth century.<sup>106</sup> Another example of this motif occurs in phase 13 and a flat base without a foot, also in phase 13 may be from a vessel of this type.
303. Fragment of a "Bellarmine". Unstratified.
304. Fragment of a "Bellarmine". Phase 17. Two other examples phase 16.

Nos. 303 and 304 illustrate the earliest type of "Bellarmine" with finely moulded face masks, produced in the middle years of the sixteenth century.<sup>107</sup>

305. Fragment, probably of the neck of a "Bellarmine". Phase 16. This may represent a slightly later type than nos. 303 and 304.<sup>108</sup>

#### *Rhenish Yellow-wares*

This term is used to describe yellow glazed, white earthenwares which are thought to have been produced in the Rhineland by the sixteenth century.<sup>109</sup> The fabric is off-white, fairly hard and slightly gritty with iron oxide inclusions. The yellow glaze is commonly spotted with brown iron stains and sometimes heavily stained, unglazed surfaces are buff or pinkish buff. At

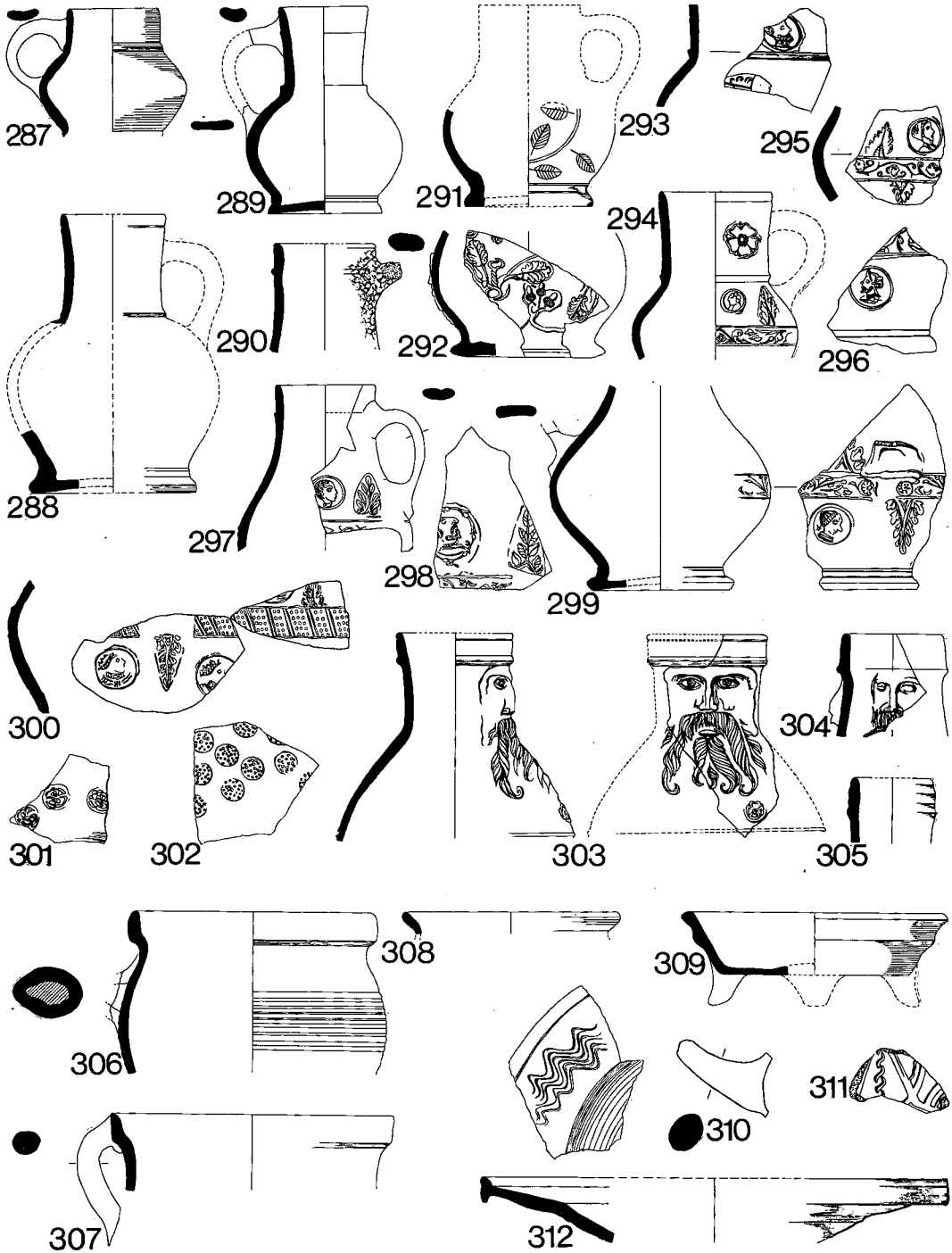


Fig. 29. (‡) Rhenish Stonewares nos. 287–305; Rhenish Yellow-wares nos. 306–312.

least some of these wares appear to have been produced at Cologne, since they are made in forms and decorated in styles typical of these potteries. (A jug in the Van Beuningen Collection, for example, is decorated with Cologne oak leaf motifs.)

These wares are discarded in increasing numbers from the mid sixteenth century onwards at the Black Gate, (see fig. 6) but production in the Rhineland is thought to have started in the first half of the sixteenth century.

306. Fragment of a cooking pot, glazed internally and sooted externally. Phase 13.

307. Fragment of a cooking pot, or possibly a chamber pot, glazed internally. A fragment of a second handle from the same context may be from the same vessel. Phase 16.

There are examples of cooking pots with hollow handles, like no. 306, and solid handles, like no. 307, in the Van Beuningen Collection. Both types are sooted externally, have ribbing on the shoulder and are tripod-footed. A large tripod foot in phase 15, therefore, probably belongs to a cooking pot of one of these types. Other fragments occur as follows: one phase 13, one phase 14, six phase 16, five phase 17 and one unstratified. About half these fragments show no signs of sooting. This may indicate that, like the redware cooking pots, some were used for other purposes, but one example in phase 16, a fragment of rim and body like no. 307, has internal sediment indicating that it was used as a chamber pot.

308. Rim fragment, possibly of a small tripod vessel, the fabric is finer gritted than the normal wares, glazed internally. Unstratified. Another rim fragment, two ribbed body sherds and another body sherd in this fine-gritted fabric and from late sixteenth-century contexts probably belong to vessels of this type.

309. Cooking vessel, glazed internally and sooted externally. Phase 15. One other phase 15, two phase 16, (one of these is not sooted). Two flat base fragments in phase 16 are sooted and could represent vessels of this type, or plates (see below).

310. Handle and body sherd in fine-gritted fabric, glazed internally. Slight sooting on the end of the handle. Unstratified. Possibly from a vessel similar to 309.

311. Fragment of the base of a plate, sooted and abraded externally, with internal red slip-coating and sgraffito design under yellow glaze. Phase 16. The fabric is very similar to the cooking vessels above and the vessel is flat-based (without feet) like other plates in this ware. However I do not know of another example with sgraffito decoration.

312. Fragment of a plate in hard off-white fabric without grits, with a pinkish buff external surface, scratched combing on the inner rim and internal yellow glaze giving place to copper green on one edge. Unstratified. Probably a Cologne or Frechen product of the late sixteenth or seventeenth century.<sup>110</sup> The refined fabric and the use of copper green glaze are characteristic of the late sixteenth and seventeenth centuries.<sup>111</sup>

#### CISTERCIAN WARE

Phase 7 (late fifteenth century) provides the first reliable evidence of this type of pottery. The fragments from the counterweight slot fill (5a) are certainly intrusive, and at least some of the fragments in phase 6 (fifteenth century) which are decorated in the late sixteenth century style described below, must be intrusive (see above *Residual and Intrusive Material*). Only a few fragments of plain vessels in the common early form (nos. 313 and 314) are perhaps not intrusive.

From the early sixteenth century, (phase 8) onwards Cistercian wares occur in increasing quantities (see fig. 6), the largest quantities occurring in the late sixteenth century, (phases 16 and 17). Some clear trends in both vessel form and decoration can be identified, some of



Fig. 31 Common Cistercian ware cups.

PHASE	313 & 314	315 - 322	323 - 326	327 & 328
17	2			30
16	4	1	1	19
15	3	3	2	1
14	1	6	1	1
13	9	13	2	
12	28	11	25	
11	9		7	
10	16	1	2	
9	29			
8	8			
7	4	1		

PHASE	Plain	Decorated
17	31	36
16	30	75
15	11	12
14	7	20
13	69	43
12	93	44
11	48	8
10	25	10
9	44	
8	24	2
7	15	

Fig. 30. Plain and Decorated Cistercian ware cups.

PHASE	Vertical lines with		Lines		Random pellets
	shoulder pellets 315	shoulder lines 322	rouletted	smooth	
17	1	22	15	71	9
16		13	42	32	9
15	1	3	8	4	10
14	1	6	16	2	2
13	12	1	39		10
12	11		39		17
11	5		7		3
10			3		6

Fig. 32. Decoration on Cistercian ware cups.

which can be related to Yorkshire wares of this type and some which are, so far, found to be specific to Newcastle, suggesting a more local source for some of the wares, especially the late sixteenth-century types occurring at a much later date than Yorkshire Cistercian wares.

As in other Cistercian ware groups, the fabric ranges, according to firing temperature, from fairly soft, light red to hard, dark purplish red, often partly reduced to dark grey. The glaze varies from chestnut to purplish brown with occasional examples with a *tenmoku* effect. The decoration consists of applied lines and pellets of a white firing clay, which appears yellow under the glaze.

It is noticeable at the Black Gate that undecorated wares are dominant from the late fifteenth century to the mid sixteenth century, (phase 7–phase 13) (only two decorated sherds occur before phase 10), and that decorated wares are dominant in the second half of the sixteenth century, (see fig. 30). This is related to the pattern of occurrences of the four most common forms of cups, (see fig. 31). Cups of Brears type 14,<sup>112</sup> nos. 313 and 314, which occur principally in phases 7–13, are rarely decorated in the Black Gate sample. Posset pots of Brears type 1, nos. 315–22, which occur principally in phases 12–15, are usually decorated. There are a large number of undecorated examples of the variant of type 1, nos. 323–6, which is common in the mid sixteenth century, but the majority of these are decorated. The late sixteenth-century cup form, nos. 327 and 328, is rarely undecorated.

Developments in the main decorative features are illustrated by fig. 32. A pattern of vertical lines with a horizontal base line and at first pellets, then another horizontal line on the shoulder, is the most common form of decoration. The line decoration on most of the late cups (nos. 327 and 328) is more fluid than that on the earlier types and has not been pressed on with a roulette wheel. A technique similar to slip-trailing may have been used but the clay probably still had a stiffer consistency than normal slip.

### *Cups*

313. Cup. Phase 9.

314. Cup, blistered round the edge of the base. A thick accumulation of glaze on one side of the base internally suggests that the vessel was tipped on its side during firing. Phase 9.

Nos. 313 and 314 can be equated with Brears type 14, (see above). This is the first form of Cistercian ware cup to occur (phase 7) and it is the dominant form in the first half of the sixteenth century, (phases 8–12), see fig. 31. It is possible that some fragments which appear to have handles starting from the shoulder represent vessels like Brears type 4, but there are no examples complete enough for positive identification.

315. Posset pot. Phase 12. The occurrence of shoulder pellet and line decoration, as on this vessel, is shown in fig. 32.

316. Fragment of a posset pot lid, glazed externally only. Phase 12. One phase 10, one other phase 12, one phase 13.

317. Fragment of a posset pot. Phase 12.

318. Fragment of a posset pot, the decoration is a variation of the pellet and line decoration, (see 315). Phase 13.

319. Fragment of a posset pot. Phase 13. Other examples of this motif of radiating lines and pellets occur: one phase 11, one phase 12.

320. Posset pot. Phase 15.

321. Posset pot. Phase 13. One other example of the same decoration phase 13.

322. Posset pot, rather crudely made with a base of uneven thickness. Phase 14.

Nos. 315–22, (see fig. 31 for the occurrence of this type), can be equated with Brears type 1. Nos 315–17 in particular, are very similar to Yorkshire vessels.<sup>113</sup>

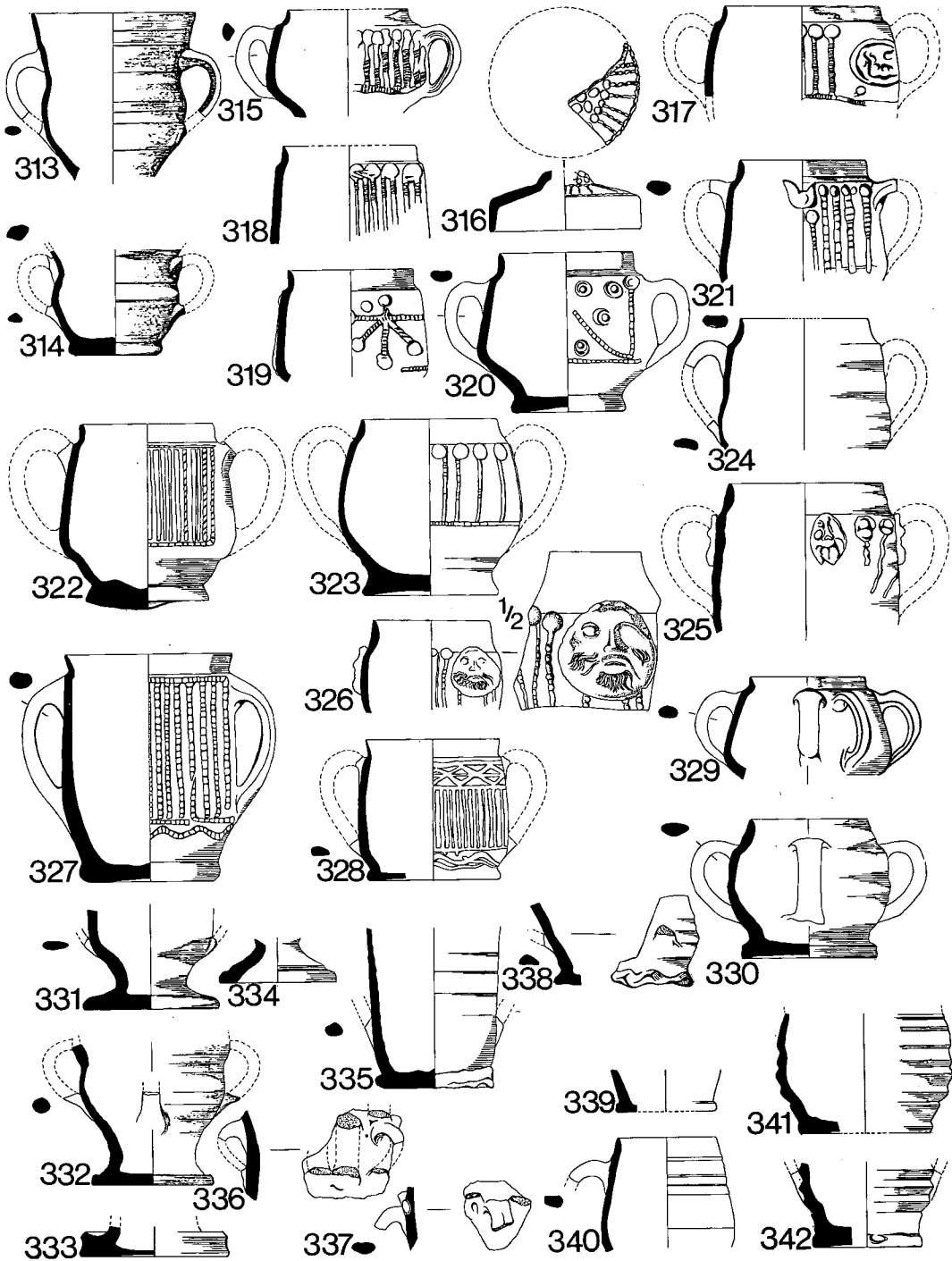


Fig. 33 (4) Cistercian Ware.

323. Posset pot. Phase 12.  
 324. Posset pot. Phase 12.  
 325. Posset pot. Phase 12. One other vessel of this type with the acorn motif, phase 12.  
 326. Fragment of a posset pot. Phase 12. One other vessel of this type with the same decorative arrangement but a slightly different face occurs phase 13.

Nos. 323–26, (see fig. 31 for the occurrence of this type), illustrate a variant of type 1 posset pots, with a deeper rim and less pronounced angle at the shoulder. This type is more common at the Black Gate than the more typically Yorkshire type. The finely modelled faces occurring on some of the cups are also not paralleled in Yorkshire<sup>114</sup> and seem, if anything, to be reminiscent of early “Bellarmines”.

327. Cup. Context, second half of sixteenth century probably equivalent to phase 16.  
 328. Cup. Context, second half of sixteenth century.

Nos. 327 and 328 illustrate the most common cup form in the late sixteenth century at the Black Gate, (see fig. 31). Although it is similar to the earlier posset pots, the everted rim shows that it did not have a lid. The decoration, usually consisting only of patterns of lines, is often carelessly applied and in phase 17 the majority show no signs of rouletting.

329. Multi-handled cup. Phase 12. This form can be equated with Brears type 12.  
 330. Multi-handled cup. Phase 12. One other phase 12, one phase 15. A similar vessel form to 329 but with the deeper rim form as on nos. 323–6. One fragment in phase 12 and one in phase 13 could belong to vessels like nos. 329 or 330. None of these vessels are decorated.

331. Two-handled pedestal cup. Phase 12.  
 332. Three-handled pedestal cup. Phase 11. One three-handled vessel and one four-handled, phase 12.  
 333. Fragment, probably of a pedestal cup. Phase 12. One other example phase 12.

Nos. 331, 332 and possibly 333 can be equated with Brears type 8 but the details of form and the number of handles are sufficiently different to suggest a different source.

334. Base of a pedestal cup? Glazed externally only. Phase 11. This is the only example of this type of base.  
 335. Cup, possibly two-handled. Phase 17. Other fragments of similar bases: one phase 13, three phase 17. These may be Brears type 3.  
 336. Fragment of a multi-handled cup with two tiers of handles. Phase 13.  
 337. Fragment of a multi-handled cup with two tiers of handles. Phase 12.  
 338. Fragment of a cup with a frilled base. Phase 13. One example of a base of this type was found at Potterton.<sup>115</sup>  
 339. Fragment, possibly a small cup, glazed internally only. Phase 15.  
 340. Fragment of a cup, possibly with more than one handle. Phase 17.  
 341. Fragment of cup. Phase 17.  
 342. Fragment of a cup, possibly two-handled. Phase 17.

Nos. 341 and 342, while the fabric and glaze are clearly Cistercian ware, represent a form which is perhaps related to the ridged blackware cups which also first appear in phase 17, see below.

#### *Decorative motifs*

343. Fragment, probably of a cup similar to nos. 313 and 314. Phase 10. This is the only example at the Black Gate of applied decoration using two colours of clay, (red pellets on white), and of this motif, which is known in Yorkshire.<sup>116</sup>

344. Fragment of a cup. Phase 10.  
 345. Fragment of a cup. Phase 11. The crude representation of a face on one of the pellets is the only example of this type at the Black Gate.  
 346. Fragment of a cup, probably Brears type 1. Phase 16. The face motif on the larger pellet is the only one occurring at the Black Gate which shows some similarity to Yorkshire examples.<sup>117</sup>  
 347. Fragment of a cup, possibly similar to nos. 323-6. Phase 16.  
 Nos. 344-7, illustrate examples of random pellet decoration, (see fig. 32), which occurs with much the same frequency in all phases, both on its own and combined with line decoration. Most of the pellets are stamped with some kind of motif but plain pellets also occur.  
 348. Fragment of a cup similar to nos. 327 and 328. Phase 17. This illustrates the combination of stamped pellets and lines applied without rouletting.

#### *Other Vessels*

349. Fragments of a base with a handle, of a larger vessel than the cups above, possibly a jug. Phase 11. One other, phase 13.  
 350. Fragment of a chafing dish. Phase 13.  
 351. Fragment of a chafing dish. Phase 14.  
 Examples of vessels similar to nos. 350 and 351 occur: two, possibly three phase 13, possibly 3 phase 14, one phase 15, three, possibly five phase 16 and one in a late sixteenth-century context equivalent to phase 17. These vessels are fully glazed and occur in the normal range of fabric and glaze typical of Cistercian ware, see above. They have therefore been included as Cistercian wares. One example of a chafing dish of different form was found at Potterton.<sup>118</sup>

#### *Cistercian type wares*

These wares are similar to the Cistercian wares in fabric and glaze but also show some similarity to seventeenth-century coarse redwares or to blackwares.

352. Fragment of a base, possibly of a chafing dish, in light red fabric, partly reduced, with full cover of dark brown glaze. Phase 17. One other example phase 17.  
 353. A crudely made vessel in light red fabric with full cover of metallic dark brown to black glaze. Phase 17.

#### BLACKWARES

A few black-glazed red earthenwares, of the type common throughout much of the country by the seventeenth century, occur in the last phase (17) of the ditch fill and provide one of the indicators for a late sixteenth-century date for this phase.

354. Fragment of a mug, possibly as Brears type 6,<sup>119</sup> in bright red fabric with full cover of glossy black glaze with a greenish tinge externally and brown-streaked internally. Phase 17.  
 355. Fragment of a mug in dark red fabric with full cover of glossy black glaze streaked with brown. Late sixteenth-century context equivalent to phase 17.

The glazing of nos. 354 and 355, a body sherd in phase 17 and an unstratified cup base has not achieved the uniform glossy black appearance of the fully developed blackwares and may therefore represent the early development of the ware, especially as the stratified examples all occur before any of the examples with uniform black glaze listed below.

356. Rim fragment of a mug, possibly Brears type 4 or 5. Phase 17. A handle fragment from the same context is from the same or a similar vessel.
357. Fragment of the body of a mug. Phase 17.
358. Fragment of the base of a mug, possibly Brears type 4. Phase 17. One other fragment of a ridged base, phase 17, two unstratified.

#### ENGLISH WHITEWARES

These wares occur from phase 11 onwards. The quantity is quite small, consisting mainly of small sherds. The majority seem to be of the Surrey type,<sup>120</sup> with a few possible Midlands yellow-wares.<sup>121</sup>

359. Fragment of a jar in hard off-white fabric with apple green glaze on the rim and shoulder. Surrey. Phase 11. The form is similar to butter pots<sup>122</sup> but the external glazing is not normal on such vessels.
360. Cup in off-white fabric with flaking internal yellow glaze with flecks of copper green, Surrey. Phase 15. A number of vessels of this type were recovered at Guy's Hospital.<sup>123</sup> Two examples phase 16.
361. Base fragment in pinkish white fabric with white external surface and flaking internal yellow glaze. Surrey or Midlands. Phase 16. Two similar yellow-glazed base fragments, and a larger copper green glazed base with the same profile, which is probably Surrey ware, occur phase 15.
362. Fragment of a porringer in off-white fabric with internal greenish yellow glaze spilling over the rim. Surrey. Phase 16.
363. Fragments of a vessel used as a urinal, in pinkish white fabric with pinkish buff external surface where unglazed, yellow-glazed internally and on the upper body externally. Some internal sediment. Probably Midlands. Phase 15.

Other fragments occur as follows:

#### *Probable Surrey wares*

One sherd phase 12, one rim fragment, possibly a porringer, and one fragment with stabbed dot decoration, phase 13, three unglazed sherds phase 15, two sherds, a base fragment of a pipkin with a foot, two base fragments and a handle fragment, phase 17.

#### *Possible Midlands yellow-wares*

Three phase 16, one in a context equivalent to phase 16.

#### MIDLANDS PURPLE WARE<sup>124</sup>

Wares of Midlands purple type occur occasionally from phase 13 onwards.

364. Fragment of a storage jar with applied sprig decoration, possibly thickening to the start of a handle on one side. Phase 13.
365. Fragment of a lid-seated storage jar. Phase 13.
- Nos. 364 and 365 and a sherd in phase 15 are all fired to near vitrification. The fabric is dark purplish red with internal and external purple/brown glaze.
366. Fragment of a storage jar in hard light red sandy fabric with darker red surfaces and splashed yellow/brown glaze externally. Phase 13. One other similar sherd phase 15. Possibly the "underfired" type described by Coppack.

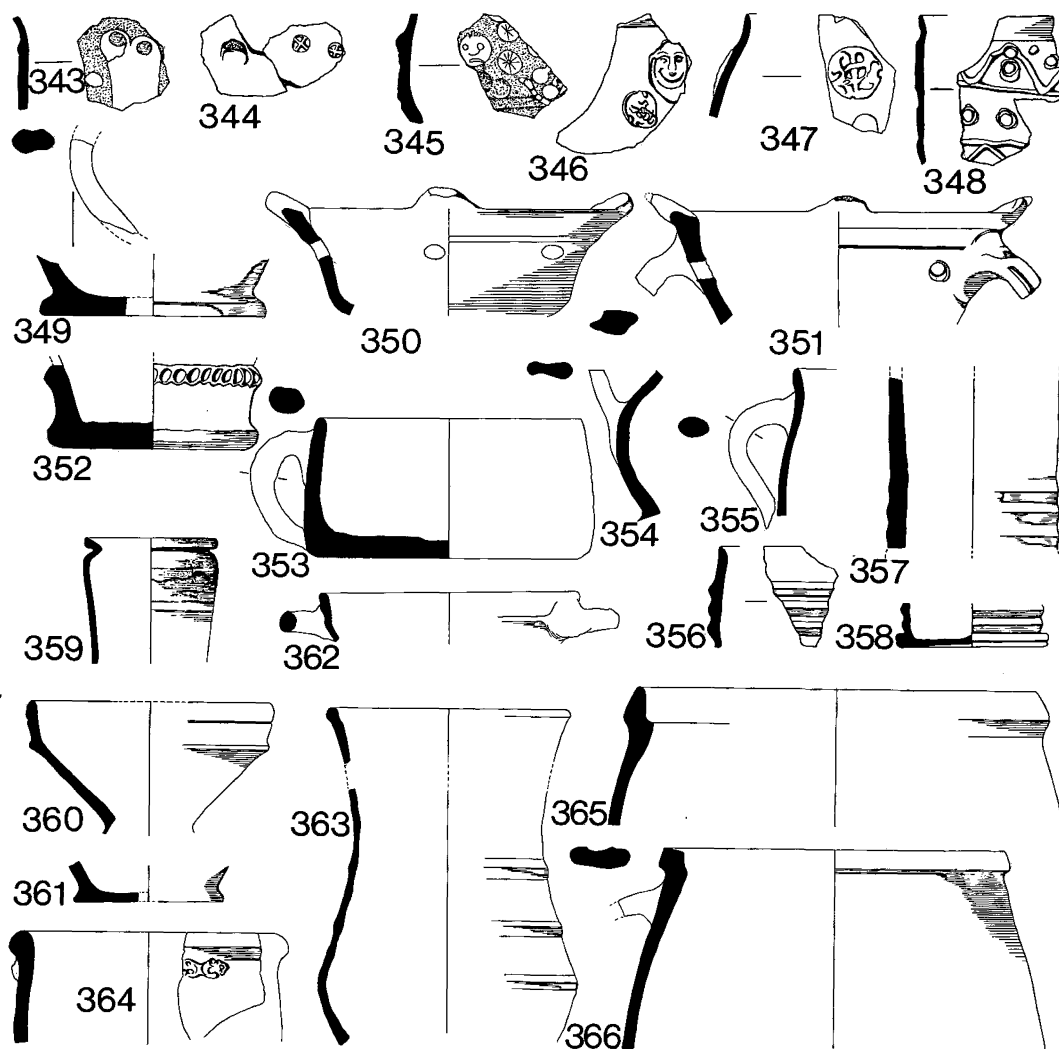


Fig. 34. (¼) Cistercian Wares nos. 343-351; Other English Wares nos. 352-366.

#### ENGLISH TIN-GLAZED WARES<sup>125</sup>

The presence of Malling wares in the latest phases of the ditch is one of the indicators that these date to the second half of the sixteenth century. The presence of similar but later, (usually regarded as early seventeenth century), London tin-glazed wares in phase 17, is not unexpected, as some other seventeenth-century types also begin to appear in that phase.

367. Base fragment of a mug or jug in cream/buff fabric with internal white tin glaze with some mixture of lead glaze and external tin glaze with fairly dense stippling with

manganese purple. Phase 14. The use of tin glaze internally is common on the seventeenth-century tin-glazed mugs but unusual on Malling vessels.

Other fragments of Malling vessels with both manganese and cobalt stippling and internal lead glaze occur in phase 16: two body sherds and the base of a mug.

368. Fragment of a jug or mug in cream fabric, white tin-glazed internally and externally and sprinkled externally with manganese purple and cobalt blue. Probably London rather than Malling. Phase 17. Two other fragments of this ware occurred unstratified.
369. Base of a porringer or cup in cream fabric with full cover of plain white tin glaze. Seventeenth-century context.

#### NETHERLANDS TIN-GLAZED WARES

##### *South Netherlands Maiolica*<sup>126</sup>

370. Jug in cream fabric with full cover of pearl white tin glaze and external blue and yellow painting. Phase 12.
371. Possibly a jug, though without a spout. There is no evidence of side handles like those found on vases, but there is perhaps not enough of the vessel surviving to be certain. Cream fabric with full cover of white tin glaze and external dark and light blue and red/brown painting. Phase 13.

Nos. 370 and 371 are the only examples at the Black Gate of this ware, which was imported into this country in the late fifteenth and early sixteenth century.

##### *North Netherlands Maiolica*

372. Fragment of a jar or jug in cream fabric with external tin glaze and bands of yellow, orange and blue painting and internal pale yellow lead glaze mixed with tin glaze. Phase 14.

##### *North Netherlands Delftware*

One sherd phase 15, the base of an ointment pot phase 17, the base of a second ointment pot in a late sixteenth-century context equivalent to phase 17.

Other fragments were from disturbed contexts or unstratified: the base of an ointment pot, three fragments of early seventeenth-century bowls or porringers, two late seventeenth-century fragments, probably plates.

#### ITALIAN MAIOLICA

373. Fragment of a plate in pinkish buff fabric, the glaze largely flaked off but traces of polychrome painting survive. Phase 16. Probably Tuscan.<sup>127</sup>

Two sherds occurred in phase 17: one in off-white fabric with internal and external tin glaze and internal manganese and iron oxide painting, is probably from Montelupo, the other in off-white fabric with external pale blue tin glaze with a darker blue waving line pattern and internal white tin glaze is probably Italian but of uncertain provenance.<sup>128</sup>

#### SPANISH MAIOLICA

- \*374. A sherd in pinkish buff fabric, white tin-glazed with a fragment of blue painting on one edge is probably Valencian lustre-ware, possibly from the concave base of a dish. Phase 5.<sup>129</sup>



- \*375. A thick body sherd, probably of a large dish, in pinkish buff fabric with internal and external white tin glaze. Spanish but of uncertain provenance. Phase 12.<sup>130</sup>
- \*376. Two fragments of the same vessel in pinkish red fabric with a white tin-glazed surface showing traces of lustre decoration, the other surface chipped off. Valencian lustreware. Phase 15 (residual in this context).

*Maiolicas of uncertain provenance*

- 377. Fragments, possibly a jar or jug, in cream fabric with internal and external white tin glaze and external blue and red/brown painting. Phase 16.
- 378. Base of a jar in pale pinkish buff fabric, white tin-glazed with traces of blue painting on one edge. Abraded. Phase 9.

MEDITERRANEAN AND SPANISH COARSE WARES

- 379. Fragment of a costrel with base of a handle in pinkish buff micaceous fabric with white and red inclusions. The form is probably similar to Merida type costrels.<sup>131</sup> This type of vessel, however, probably had a wide distribution in the Mediterranean. Phase 3.
- \*380. A fragment, probably of a jar, with external ribbing similar to Hurst (*op. cit.*) nos. 53-60 figs. 33 and 34, and in a very similar fabric to 379, occurred in the pit under the drawbridge, (disturbed context equivalent to phase 5a). This is also a general Mediterranean type.
- \*381. One sherd in phase 17, in pinkish red micaceous fabric with light grey reduced core, is of Merida type.<sup>132</sup>

UNKNOWN PROVENANCE

This category includes a large proportion of burnt and abraded sherds which are probably unidentifiable. In addition, there are a number of single sherds and larger fragments and a few identifiable groups, which are so far unprovenanced. These are all recorded in the site archive but it was decided to publish only those individual fragments which could be illustrated and those which represented recognizable fabric groups.

- 382. Fragments of the rim and base of two vessels, representing a form of small globular pot. The base is roughly trimmed with a tool. Phase 3.

The fabric of these vessels is finely gritted, usually orange/buff in colour with darker reddish external surface and occasional large white inclusions, but examples fired at a higher temperature are dark brown with dark grey reduced core. The vessels are unglazed except for occasional splashes. S. Moorhouse has suggested that these might be ink pots, but there is no staining internally.

- \*383. Rod handle fragment in the same fabric as no. 382 but probably from a different vessel such as a small jug. Phase 3. One other sherd in phase 3 has the scar where a handle has broken off and a base fragment from the same context is obviously not from a globular vessel but possibly a jug.

Other fragments in the same fabric as nos. 382 and 383, the majority from globular vessels occur as follows: forty-six phase 3, eleven phase 4, one phase 5, two phase 16. It appears from this distribution to be an early to mid fourteenth-century type, the occurrence in the sixteenth century is obviously residual.

- 384. Bung-hole with thumbing at the base and quite a pronounced collar, (the edges are

- broken off) externally. In a hard pale buff fabric with slightly darker external surface and with occasional red (iron oxide or grog) inclusions. Phase 8.
385. Lid-seated rim fragment in mid grey, slightly sandy fabric with light red surfaces and full cover of metallic black and dark brown glaze. Phase 8. The glaze, but not the fabric is very similar to nos. 386-8.
386. Lid-seated rim fragment in coarse sandy reddish buff fabric with the remains of a full cover of purplish black glaze. Phase 8.
387. Fragment of a large crudely made vessel, possibly for storage, in hard, coarse, sandy orange/buff fabric, reduced in places, glazed on the inner rim, where it appears yellow/green and externally from the rim to just below the handle, where it appears as a metallic blackish brown with occasional yellow/brown patches. Phase 12.
388. Fragment, possibly of a jug, very crudely made and over-fired, the rim scarred in firing; perhaps a kiln second. The fabric and glaze are like no. 387. Unstratified. Fragments of similar, equally crude vessels occur as follows: two phase 9, one phase 10, two phase 12.
- Nos. 386-8 all appear to be in the same fabric with a similar glazing and style of potting which possibly has some similarity to Midlands purple wares, though very crude by comparison. Other fragments occur: four phase 8, ten phase 9, four phase 10, three phase 11 and single sherds in phases 13, 14, 16 and 17.
389. Fragment of a small bowl, badly abraded and covered in a white sediment after discarding, but probably the same fabric as nos. 386-8, and with a similar glaze internally. Phase 12.
390. Rim fragment of a jar or cooking pot in hard orange/buff fabric with irregularly shaped black and white inclusions, reduced core and buff surfaces. Phase 9.
391. Fragment, possibly a cooking pot, in light orange/red fabric with irregularly shaped white inclusions, the external surface coated in a greenish buff slip and with slight traces of sooting. The handle is obviously misshapen. Phase 10.
392. Fragment of a jar or cooking pot in the same fabric as no. 391 unglazed with a buff external surface. Phase 10. One similar sherd phase 11.
393. Rim fragment (and a body fragment not illustrated) of a vessel similar to redware chamber pots but used for heating or possibly as a fire pot. Buff fabric largely reduced to mid grey with full internal cover of green/brown glaze and patchy cover externally, external sooting and internal crazing and blistering of the glaze. Phase 16.
394. Fragment of a vessel possibly used for an industrial process. Pale pinkish buff fabric with occasional red iron oxide or grog inclusions and with darker pink surfaces, possibly as a result of heating, the surfaces are also brittle and flaking, probably from the same cause. The inside is encrusted with a white sediment and the outside soot-blackened. Phase 15.
395. Fragment of a small jar or phial, the fabric burnt to a dark purplish red, possibly used in an industrial process. Unstratified.
396. Fragment in unglazed orange/buff fabric, a shallow dish or possibly a lid. Context probably seventeenth century.

## THE GLASS

*Margaret Ellison*

Glass does not occur in significant quantities until phase 8, and no vessels occur before

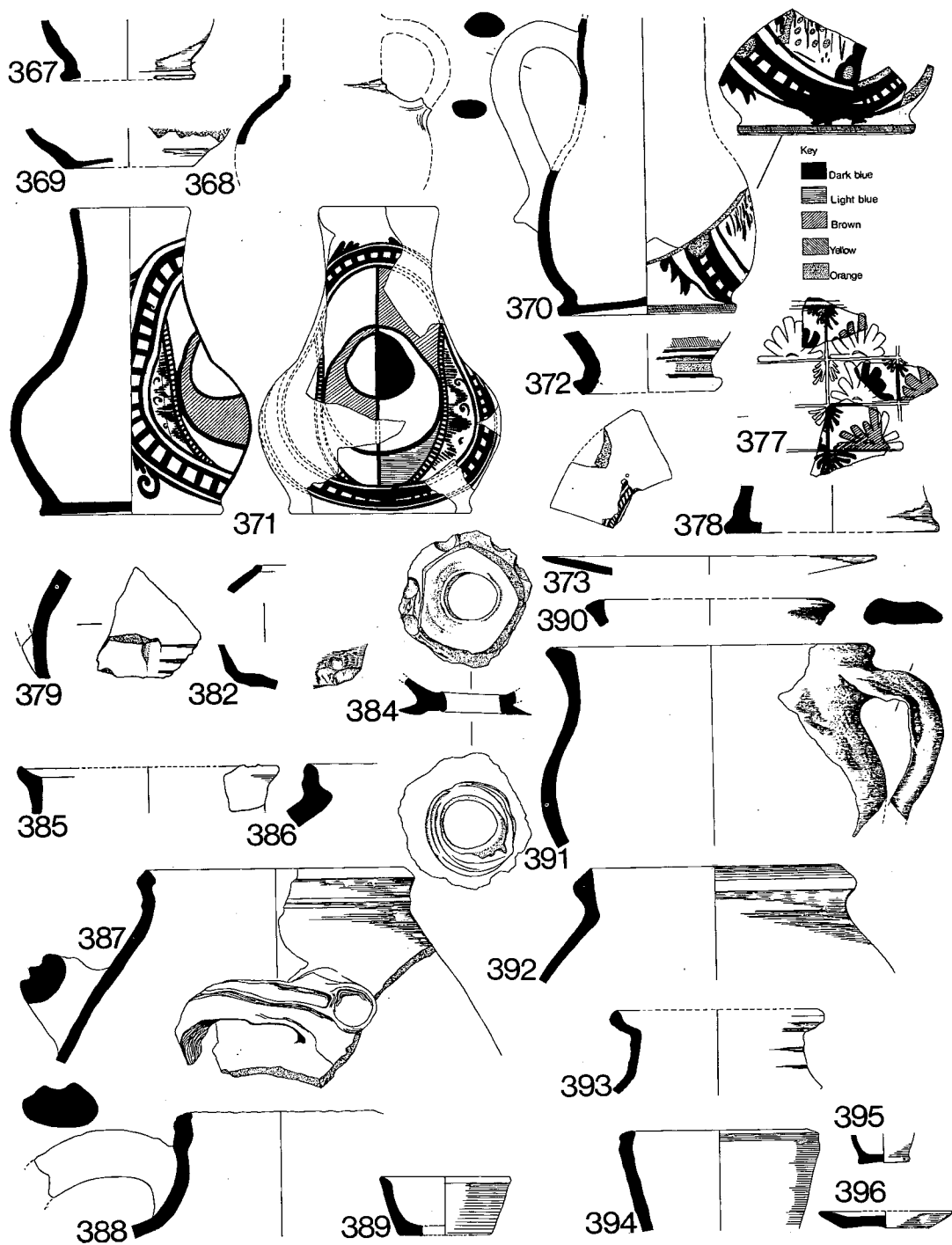


Fig. 35. (4) Tin-glazed wares nos. 367-378; Spanish coarse ware no. 379; Unknown provenance nos. 380-396.

phase 11. The largest quantities occur in phases 16 and 17. The majority of fragments were almost completely de-vitrified, and it is possible that much of the glass deposited in the ditch may have totally decomposed so that the fragments which remained sufficiently stable for the metal or form to be identified are perhaps an atypical sample of better quality wares. An improvement in the quality of English green glass metal as well as a general expansion of the industry in the second half of the sixteenth century<sup>133</sup> may account for the higher incidence of English green glass from phase 11 onwards, especially in phases 16 and 17.

The incidence of imported crystal and green glass vessels is also confined to the second half of the sixteenth century (phase 12 onwards) in spite of the facts that these types are of good quality and would be likely to survive better than the early sixteenth-century English green glass types, and that imported coloured window glass does occur in the first half of the sixteenth century (see below). The evidence, such as it is, seems to suggest that the use of glass table wares, in this part of Newcastle at least, was either unknown or very uncommon before the second half of the sixteenth century. It is also noticeable that the imported vessels outnumber the English green glass vessels by nearly two to one.

### *Window Glass*

#### *Medieval*

One de-vitrified fragment. Phase 4.

One largely de-vitrified fragment, phase 5, ranging in thickness from 2 to 3 mm, which suggests the "crown" method of manufacture (see below).

Six de-vitrified fragments. Phase 6. (One other fragment in phase 6 of thin good quality, light green metal is probably late sixteenth-century. See above, p. 101 for discussion of late material in phase 6).

It is not possible to determine the original characteristics of the metal of these fragments but they are presumably of the green potash type.

#### *Sixteenth-century Green Window Glass*

The plain window glass fragments from phases 8 to 17 which had not de-vitrified were in light green or blue/green metal, a few examples being almost clear, but presumably all of the potash formula. Both crown and broad glass were represented: broad glass was indicated by straight "thumb" edges and an even thickness, crown glass by a thickening from the edge to the centre and by occasional examples of the pontil marks from the centre and curved heat-sealed edges.<sup>134</sup>

At least twice as many examples of broad glass as crown glass were identified amongst those fragments which retained their original form and thickness. This leaves a majority of fragments which were either too small or too decomposed to be identified with either type.

There appeared to be a trend towards thinner broad glass in the later sixteenth century. The average thickness up to phase 12 was 2 mm with some as thick as 3 or 4 mm. In phases 13 and 14 the average was 1.5 mm with none thicker than 2 mm. In phases 16 and 17 the average was less than 1.5 mm,—1 mm thickness was common and none were more than 2 mm. This is consistent with Kenyon's observations of the Weald Industry.<sup>135</sup>

A few examples of "grozed" edges occurred including four from the acute angled tip of diamond shaped quarrels, (two of 79° in phase 11 and phase 17, one of 71° in phase 17, one of 54° in phase 16).

Fragments of green window glass occurred as follows: seven phase 8, one phase 9, four phase 10, twenty-eight phase 11, eleven phase 12, two phase 13, seven phase 14, one phase

15, thirty-two phase 16, forty-eight phase 17, and a number of small and de-vitrified fragments unstratified. (Where several fragments of the same quarrel were found these are recorded as one).

It is probable that all the glass was of English manufacture. There are some indications of glass making in the area before the permanent establishment of the Lorraine glass houses in 1618<sup>136</sup> so some could be of local manufacture, the rest presumably arriving as part of the East Coast trade.

397. Fragment from the centre of a "crown" with characteristic pontil mark. Sixteen de-vitrified fragments and one fragment of a heat-sealed edge were too fragmentary to illustrate. Phase 11. One other fragment with a pontil mark, phase 17.

#### *Painted Window Glass*

Three fragments in a clear green metal with brown painted decoration occurred in phases 15 and 16. Two are illustrated:

398. Phase 15.

399. The bottom edge is "grozed". Phase 16.

These are perhaps an imported type.

#### *Coloured, "flashed" Window Glass:*

A type of coloured window glass consisting of a clear window glass with one, or occasionally two, surfaces coated with a coloured glass. Although there is some evidence of attempts at this type of window glass by English glasshouses<sup>137</sup> the examples from the Black Gate are of a high quality and probably imported.<sup>138</sup> Examples of orange, yellow, red and blue occur; a few examples with de-vitrifying grey and black surfaces were probably originally one of these colours. The thickness varies from 3 to 1.5 mm but it was not possible to suggest if the fragments were of crown or broad glass. The type seems to be most common in the first half of the sixteenth century. The following quarrels occur represented by one or more fragments: six phase 8, one phase 9, four phase 11, one phase 13, one phase 16.

#### *Sixteenth-century English Green Glass Vessels*

All these vessels are in a light green or blue/green potash metal with some brown and yellow surface weathering.

400. Fragment of the pushed-in base of a beaker. Phase 16. One similar fragment in phase 17. One fragment from the centre of a pushed-in base showing the pontil mark on the underside and much thicker walled (2 to 3 mm), phase 16. Similar vessels have been found on glasshouse sites in the Weald,<sup>139</sup> in Yorkshire<sup>140</sup> and in Staffordshire.<sup>141</sup> Two fragments, probably from a beaker, with "wrythen" mould-blown ribbing (2 to 3 mm thick) occur in phase 12.<sup>142</sup>
401. Hemmed-rim base of a large beaker or other table vessel, phase 17. Similar in form to the bowl base from the Weald described by Kenyon<sup>143</sup> but smaller.
402. Fragment of the pushed-in base probably of a larger vessel than a beaker, such as a bowl. Phase 17.
403. Fragment of the body and handle, probably of a small tankard. Phase 16. Similar to vessels found at Bagots Park.<sup>144</sup>
404. Fragment of the rim of a large shallow vessel. It is not possible to determine the diameter from this small section of the rim but it could have been in excess of 35 cm. The underside of the rim is illustrated in plan showing a scar which may indicate where

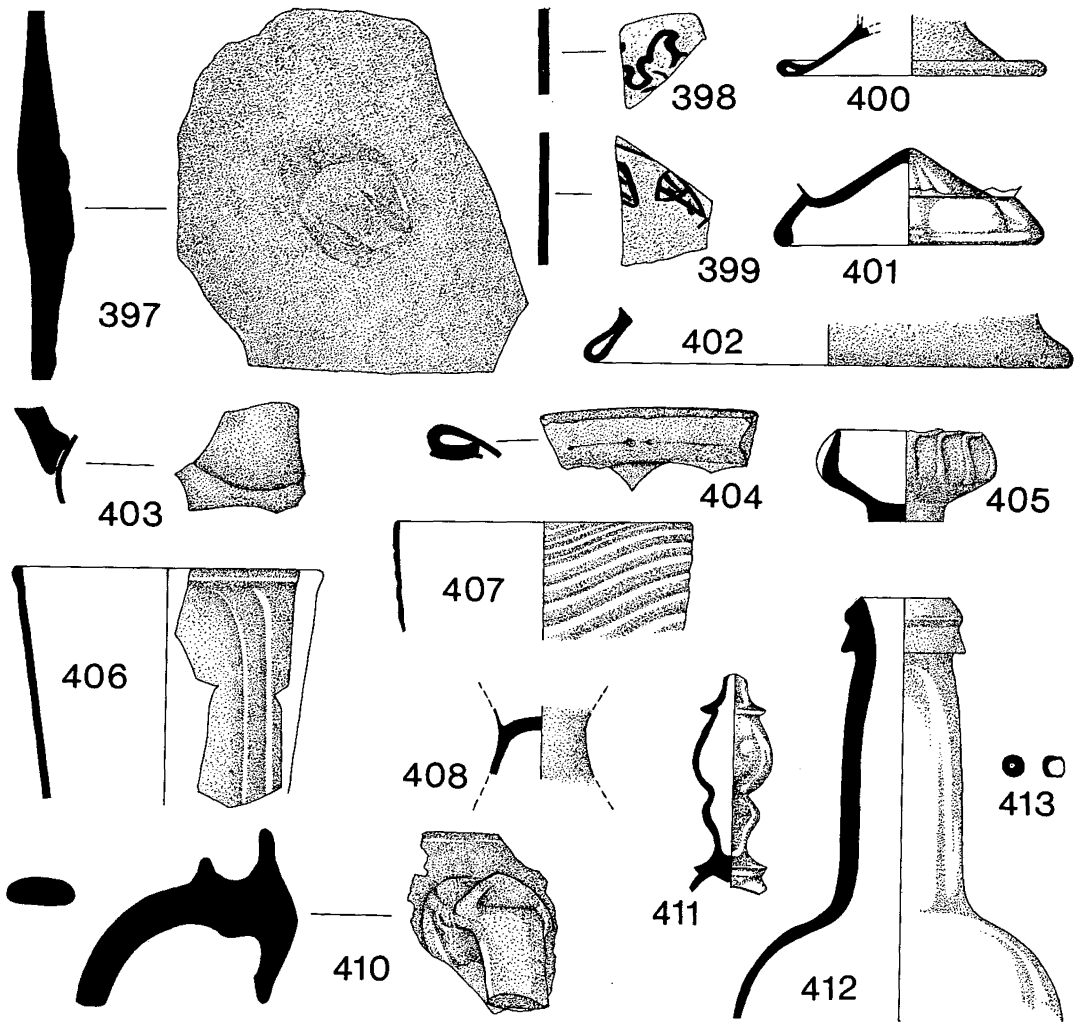


Fig. 36. (½) Glass.

a foot has broken off. Phase 16. R. J. Charleston has suggested that this might be a piece of chemical apparatus rather than a domestic vessel.

One small fragment of tubing from chemical apparatus occurred, unstratified, and a curved fragment of even 2 mm thickness in phase 13 which might, possibly, be from the base of a round-bottomed flask or receiver.

One fragment in light green metal in phase 12 was clearly from a vessel of some kind and three fragments in phase 11 were from the same vessel ranging in thickness from 2 to 4 mm and almost completely de-vitrified but probably of green glass. Two fragments of melted green glass occurred in phases 16 and 17.

*Imported Green Glass*

Venice, Flanders and the Rhineland are all possible sources, but a North European provenance is most likely in Newcastle (see below "crystal" glass).

405. Fragments of the gadrooned knob and top of the stem probably of a bi-conical goblet<sup>145</sup> in a light green metal, the knob possibly coated with opaque white glass but severe de-vitrification makes it difficult to be certain. Phase 13. This type of vessel was common in the first half of the sixteenth century but persisted into the seventeenth century.<sup>146</sup>

*Imported Crystal Glass Vessels*

In view of the large quantities of pottery from the Rhineland and Low Countries and the fact that only three sherds of Italian pottery were present in the ditch fill, it seems likely that the imported *façon de venise* glass also came largely or entirely from the Rhineland or Flanders rather than Venice itself.

The metal, of the soda-lime formula, is usually almost clear; a few examples have a smokey colouring and the majority now show opaque white or iridescent surface weathering.

The most common form of vessel is the beaker with a pushed-in base. The form of the bases is the same as the green glass vessels (see 400 above). Seven examples occur: two, phase 13, diam. 8 cm; one, phase 15, diam. 8 cm; three, phase 16, two of diam. 9 cm, one of 8 cm; one, phase 17, diam. 8 cm.

406. Fragment of a beaker with vertical ribbing. Phase 16. One other ribbed fragment, phase 16.

407. Fragment of a beaker with "wrythen" mould-blown ribbing. Phase 17. One similar fragment, phase 16.

408. A fragment of the waist of a simple bi-conical goblet (without knob). The form probably like Woodchester, no. 9, and a crystal glass example from Winchester.<sup>147</sup> Phase 12. One similar fragment, phase 13.

\*409. A wine glass rim fragment, diam. approx. 9.5 cm, with a double band of opaque white threads below the rim externally, occurs in phase 12. Three other fragments with multiple bands of white glass threads occur in phase 12, phase 16 and a late sixteenth-century context probably equivalent to phase 16.

A fragment in phase 15 is possibly from the base of a flat-bottomed beaker. One fragment of a folded foot, phase 17, a fragment of a vertical neck turning to a shoulder, phase 14, and a melted fragment in phase 13 could not be identified with any particular form.

*Seventeenth-Century Glass*

410. Fragment of a tankard, originally in dark blue metal but almost entirely de-vitrified to mottled dark brown and yellow. Small tankards occur by the second half of the sixteenth century (see no. 398), but large vessels such as this, usually in bottle glass, are normally regarded as early eighteenth century.<sup>148</sup> This vessel comes from D1 16/D2 93, a context which contains a clay pipe (no. 414) and slipware pottery datable to the third quarter of the seventeenth century, which may mean that it is of a similar date. The context is sealed by a deposit dated to c. 1850, so an eighteenth-century date is possible but unlikely in view of the notable lack of eighteenth-century finds from the top of the ditch fill.

411. Balluster stem of a wine glass in lead glass. The form suggests a late seventeenth-century date. Lead glass was being manufactured on the Tyne by 1696.<sup>149</sup>

Fragments of sack bottles occurred in unstratified contexts and below the cellar floor.

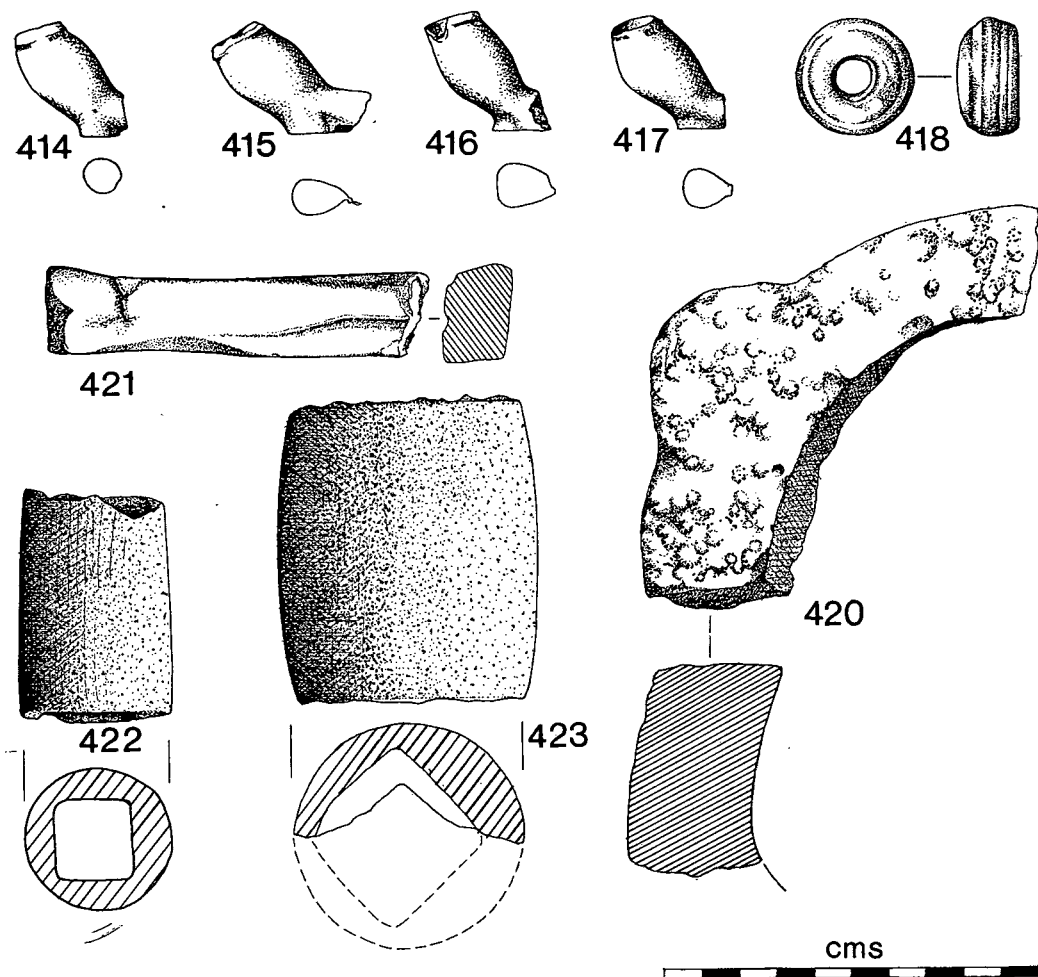


Fig. 37.

*Late Eighteenth-century Glass*

412. Fragment of a bottle in green bottle glass from below the cellar floor.<sup>150</sup>

413. *Glass Bead*, black. Phase 8.

## CLAY TOBACCO-PIPES

The pipes fall into two groups, seventeenth-century and associated with the cellared house beside the Black Gate, nineteenth- or twentieth-century and found in the modern pits and pipe trenches. Only the first group is published here; all four are probably of London origin.

414. Bowl with flat round heel, no mark. Oswald type 4G, 1630-50.<sup>151</sup> Layer 16.



415. Bowl with flat, heart-shaped heel, no mark. Oswald type 5G. 1640-60. In the south wall of the cellar.
416. Two bowls with flat, heart-shaped heels, no marks. Oswald type 5G, 1640-60. D2 287, 417. below the flagged floor of the cellar.

#### SPINDLE WHORL

418. Spindle whorl, ceramic. Overall diam. 30 mm, thickness 15 mm, diam. of central hole 11 mm. Phase 16.

### BUILDING MATERIALS

#### FLOOR TILES

Broken, plain glazed floor tiles were common finds in the upper layers of the ditch filling as they are in most late medieval contexts in Newcastle. No attempt, however, was made to reach an absolute total. All unmeasurable chips were discarded and only those which retained some basic characteristics were studied.

Apart from one doubtful example, floor tiles were not found earlier than Phase 5, and 5a when they had been thrown into all three counterweight slots. Thereafter they were among the refuse of every phase of tipping. Since there are no significant differences between the tiles from the various phases they will be described as a group.

Made of red earthenware, and not usually overfired or reduced, most of the tiles would originally have been square. The complete sides which survived ranged from 110 to 137 mm, but there were several broken examples which were longer, one being as much as 193 mm. Their thickness at the edge varied from 20 to 47 mm, but between these extremes 70% measured 23 to 31 mm. Many, however, were thicker in the middle, some by as much as 4 mm. About two-thirds had bevelled edges so making the bottom smaller in area than the top and allowing space for mortar to be put between the tiles. About a quarter retained the holes of the nails put through the glaze and into the fabric to separate the tiles in the kiln. On a complete tile one would expect to find a hole in each corner and one in the centre. The glazes were yellow, green, amber and various shades of brown, from greenish-brown to almost black, and were put on the tiles just as for pottery.

Although these tiles appeared later on the site than the redware pottery, it seems likely that they too were imports from the Low Countries. In fabric and glaze they were foreign to North-East England but comparable examples are commonly found in the Netherlands.

#### BRICKS

Bricks, usually broken, were regular if uncommon finds in the ditch filling from Phase 5 onwards. This note is based on fifty-six fragments, most of which retained one measurable dimension. It was noticeable that though there were variations in size between one brick and another the proportions in each of thickness: width: length were quite often 1:2:4, type ii excepted. They have been divided into five reasonably clear types, and a sixth which is probably an artificial group; two defied categorization.

- (i) A yellow soapy brick was the most common, sixteen being found in Phases 5, 6, 7, 9, 12, 13 and 17. About half had smooth, pale green surfaces which gave them a

- superficially glazed appearance. This feature was also found on type (vi). Thickness 50 to 55 mm; average width 110 mm; length unobtainable. Similar bricks have been found in sixteenth-century contexts in the Dominican and Austin Friaries in Newcastle.
- (ii) There were four examples of wide red bricks from phases 9, 10 and 17. Thickness 52 to 55 mm; width 123 to 132 mm; length unobtainable.
  - (iii) Six dirty, buff, sandy bricks were recovered from phases 13, 14, 16 and 17. Average thickness 40 mm; average width 80 mm; length of the two complete examples 175 and 198 mm. These closely resembled bricks found in excavations in Amsterdam and Utrecht.
  - (iv) Eight cream-coloured sandy bricks, very light in weight by comparison with the others, were found in phases 15, 16 and 17. A common but not universal thickness was 40 mm; width varied from 83 to 90 mm; length unobtainable.
  - (v) Four which had characteristics common to both types (iii) and (iv) but were larger, came from phases 6, 7, 13 and 14. Thickness 48 to 53 mm; width 100 to 110 mm; length of the two complete examples 200 and 230 mm.
  - (vi) Sixteen fragments, some small, form the last group from phases 8, 10, 11, 12, 13, 15 and 17. Most were hard and heavy, all were over-fired, some to the point of vitrification, the fabric of several contained whole pebbles and a number bore the smooth green surfaces noted on type (i). The over-firing has almost certainly prevented their being more precisely grouped since the varied dimensions suggest several types are present. Thickness 42 to 55 mm; width 90 to 114 mm; one complete length 180 mm.

There has been no study of the use of early bricks in the area of Newcastle and, on present evidence, it is unlikely that they were manufactured here until perhaps the seventeenth century. It is probable that those of type (iii) were imported from the Netherlands, and in view of the similar texture of types (iv) and (v), and the similar treatment of their upper surfaces which had been pressed down and not wiped across, that they, too, were Dutch in origin. Another possible source, particularly for type (ii), is Hull but much work remains to be done.

#### ROOFING MATERIALS

Fragments of roof and ridge tiles, made of both clay and stone, were found in layers dating from most of the main phases. While it was comparatively easy to distinguish the few residual pieces of Roman *tegulae*, it was impossible to be certain whether or not the clay ridge tiles were *imbrices*, and it was also conceivable that some of the clay plain tiles were Roman.

##### *Glazed Clay Ridge Tiles*

Sixty fragments of undecorated, unmeasurable tiles made of local boulder clay, so corresponding with local pottery fabrics, were recovered. There were five fabrics:

- (i) Earliest reduced type (green-glazed wares).
- (ii) Similar to (i) but with added quartz grits.
- (iii) Buff/white, sometimes over-fired and including stone chips.
- (iv) Over-fired; perhaps no. (ii) or no. (iii).
- (v) Sandy/buff ware of the sixteenth century.

The glaze used was normally a lead glaze to which copper had occasionally been added. The colour ranged from pale to dark green, with varying amounts of brown mottling. The thickness of these tiles varied from 11 to 19 mm.

Since forty-three were distributed through phases 2 to 8, and another nine came from phase 15 where many of the finds were residual, it seems likely that such tiles were less popular from the early sixteenth century onwards.

#### *Clay Plain Tiles*<sup>152</sup>

Forty-seven probable fragments were found scattered through more than half the phases. The fabric of most was red, in a few it was reduced: one surface was usually smooth, the other rough: amber glaze survived on parts of a few examples. Nibs survived on four examples, and nail-holes on none. Other than the thickness, which averaged 13 mm, no precise dimensions could be recovered. If it could be assumed that there was usually only one nib, the two fragments on which one top corner and nib survived would have been 130 and 135 mm wide.

That the majority came from the layers dated to phases 15 (fifteen) to 17 (twelve) was less significant than that a few were found in contexts dating from the late fourteenth century and earlier. Even if the four fragments from phases 2 and 3 are Roman, the nibbed piece from phase 5 is clearly medieval and, just as for the floor tiles and bricks, we are faced with the problem of provenance. The red fabric of these tiles is foreign to this area in the Middle Ages, there is no documentary or archaeological evidence for the local manufacture of clay building materials at this time and, once again, the most probable explanation for their presence in Newcastle is that they were being imported from the Netherlands.

#### *Clay Ridge Tiles*

Four fragments of half-round tiles were found. If the three from phases 2 and 3 are not Roman *imbrices* then they, too, must be Dutch imports and presumably used on the ridges of roofs of clay plain tiles, or later—as perhaps in the case of the example from phase 17—with pantiles.

#### *Pantiles*

Two fragments, both 15 mm thick, one from close to the curved right hand edge of a pantile, and the other from the cutaway lower left hand corner, were recovered from the layers of phase 16. These are the earliest (second half of the sixteenth century) pantiles to be found in Newcastle, and they, too, must have come from the Netherlands.<sup>153</sup>

#### *Stone Flags (Roofing)*<sup>154</sup>

No certain flags were found in phases 1 to 6, and only a few scattered examples in phases 7, 11 and 13. In phase 10, however, there was one layer composed solely of broken flags, and a considerable number were recorded in the layers of phase 17. On this site, therefore, there is little or no evidence for their being dumped before the second quarter of the sixteenth century.

All were of sandstone; their thickness ranged from 16 to 22 mm; no other dimensions could be recovered.

#### *Wrestlers*

Two certain, though incomplete, examples (and a possible third) were found of sandstone flags cut to form wrestlers or interlocking ridge tiles. Here they were recovered from mid to late sixteenth-century deposits (phases 13 and 15), while at Black Friars, Newcastle, one has been found in a seventeenth-century context.

Ridge tiles of this shape, i.e. with deep notches cut into the long sides of the flag and

fairly close to its upper end, are usually said to be of slate and to be peculiar to the Lake District.<sup>155</sup> It is certain, however, that sandstone examples were used in the south of Northumberland and the north of Co. Durham, and they were considered of some antiquarian interest as early as 1891 when Mr. Featherstonhaugh, the rector of Edmundbyers in Co. Durham, presented to the Society of Antiquaries of Newcastle "two ridge tiles . . . locally known as Jack-necks".<sup>156</sup> He noted that at one time they had been used on the ridges of the church and many old cottages in the village, but had later been replaced by "solid hewn stone ridging". They "are arranged alternately on each side of the roof ridge, laid on with each notch fitting into its neighbour, and so cut in size that, when fitted close, they form a continuous self-supporting ridge with a cock's comb-like apex". Ridges of this type still survive on a house in Blanchland,<sup>157</sup> on two abandoned farmhouses on the grounds of East Steel, near Whitfield,<sup>158</sup> on Haydon Old Church,<sup>159</sup> on Rudchester North Shop<sup>160</sup> and, rather oddly, on a small roof on the top of Langley Castle, where one would suppose it had been replaced by Cadwallader Bates at the time of his restoration.<sup>161</sup>

### *Slates*

Three pieces of what were probably roofing slates were found in the mid sixteenth-century deposits of phases 12 and 13. They have been identified as Ordovician, with their nearest source being the Skiddaw area of the Lake District.<sup>162</sup> No slate has been found in a context as early as this in Newcastle, and at the moment no explanation can be offered as to why it should have been needed, or indeed how it was brought. There is no evidence yet available that slates were used in Newcastle before the eighteenth century. Then, from the middle of the century the local newspapers began to carry advertisements for the sale of slates from Scotland,<sup>163</sup> Cumberland,<sup>164</sup> Westmorland<sup>165</sup> and Devonshire.<sup>166</sup>

### \*419. *Hearth Kerb*

Corner of a hearth kerb, 23 by 20 cms along the outer faces, *c.* 7 cms wide and 9.5 cms high. Heat-blackened on both sides; top surface worn. Sandstone. From the north counterweight slot.

### STONE OBJECTS

420. Fragment of the side of a mortar, from flat rim to internal basal angle. A lug, of which the top is flush with the rim, is continued as a rib down the outer face. Purbeck marble.<sup>167</sup> Phase 8.

In the recently published distribution map of mortars in Purbeck marble, the northernmost find was from Byland Abbey in Yorkshire.<sup>168</sup> This mortar from Newcastle extends the range; it probably reached the Tyne by sea. Its deposition was, however, so much later than the main period of production during the thirteenth and fourteenth centuries that it may have been among the residual material in the ditch filling.

421. Whetstone. Broken at both ends, hollowed on two faces, a needle-sharpening groove on a third. Schist.<sup>169</sup> Phase 17.

422. Twelve fragments of grindstones, one from phase 12, two from 13, one from 15, seven from 16 and one unphased. The two typical sizes are illustrated. Susan Turner writes, "The stone used for these objects is a sandstone from the coal measures and is indeed called Newcastle grindstone. It was quarried at Byker and Felling on the north and south banks of the Tyne respectively".

## COINS AND JETONS

G. D. Robson

*Phase 8*

- \* 424. Gilt Æ French jeton of Tournai. Fifteenth century.
- \* 425. Fragmented Æ French jeton of Tournai. Fifteenth century.

*Phase 9*

- \* 426. Lead jeton, or forgery of fourteenth-century half groat.
- \* 427. Æ fragment of fourteenth- or fifteenth-century jeton.

*Phase 13*

- \* 428. Base Æ fragment of late fourteenth or early fifteenth-century jeton, probably French.
- \* 429. Æ English halfpenny, late fourteenth century?
- \* 430. Æ fragment of a fifteenth/sixteenth-century continental jeton.

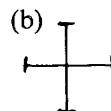
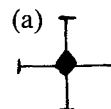
*Phase 15*

- \* 431. Æ fourteenth/fifteenth-century continental jeton.
- \* 432. Æ penny, Edward I.
- \* 433. Æ penny (in two pieces), early fourteenth-century. Although little of this coin can be seen clearly, the long cross on the reverse is divided at the centre thus, (a)

\* unlike the other coins in the series which appear as (b)

A cross of the former type identifies the coin as a penny of Edward III from the Durham mint, struck under Bishop Beaumont, 1327-33.

- \* 434. Æ French jeton, probably fifteenth-century.

*Phase 16*

- \* 435. Æ disc, with pierced centre and incised circle, probably a fourteenth-century jeton

*Phase 17*

- \* 436. Æ English groat, fourteenth-century.

The final group were associated with House A in post-medieval contexts.

- \* 437. Æ penny of George II or early George III. Under the cellar floor.
- \* 438. Æ halfpenny of George II, 1755. } In occupation layers in
- \* 439. English Æ farthing of Charles II, 1672-9 } ground floor room.
- \* 440. Æ fragment of fourteenth-century jeton, } In rubble filling the cellar.
- probably French. }
- \* 441. Æ coin, unidentifiable.

## COPPER ALLOY

The readily identifiable objects are listed individually, or sometimes, e.g. the pins, in summary. The number of unrecognizable fragments are shown as totals for each phase in order to give some idea of the bulk of material which was thrown into the ditch.

*Phase 2*

- Lump—1.

*Phase 3*

Sheet metal—6; possibly once formed a square-ended socket.

*Phase 4*

Strips—2; rod—1.

442. Stud.

443. Possibly parts of folding scales or balance.

444. Earscoop.

445. Pin, with an almost hemi-spherical head. Four other pins, with heads which were more nearly spherical, and in length 33—40 mm, were found in phases 8 (two), 10 and 12.

*Phase 5*

Sheet metal—1; strips—2; wire—1.

446. Strap-end buckle, incised decoration on plate.

447. Buckle pin.

*Phase 5a*

Strip—4; hollow object—1.

448. A crude sheath, broken at both ends, semi-circular in section.

449. D-shaped buckle, pin missing.

450. Three strips with incised decoration and three rivet holes.

451. Two studs attached to a fragment of leather.

*Phase 6*

Sheet metal—2.

*Phase 7*

Strip—1.

*Phase 8*

452. Pin with double spiral twist wire head. Nine similar pins, 30–50 mm in length, were found in phases 12 (one), and 17 (eight).

*Phase 9*

Sheet metal—1.

453. Strip binding the semi-circular end of a broken wooden object.

454. Twist loop. Similar loops came from phases 9 (one), 10 (five), 11 (one), 13 (three), 15 (two), 16 (one), 17 (one).

455. A pilgrim badge. We are indebted to Brian Spencer for the following note.

“The object is part of a pilgrim sign or devotional badge and illustrates a late medieval technique used at many sanctuaries for the multiple production of cheap souvenirs, namely, the striking of paper-thin flans of metal, usually copper alloy or silver, with a die. Easily punctured by a needle, such ‘medallions’ could be stitched down at the edges and neatly secured to the devotee’s hat or clothing. Like this specimen from the castle ditch, however, some badges were never perforated in this way, having originally been fitted at the back with a stitching-ring, set in a spot of pitch or solder.

“Recent finds from London confirm that at the beginning of the sixteenth century pilgrim badges of this kind were being sold at Canterbury and Walsingham, alongside the more

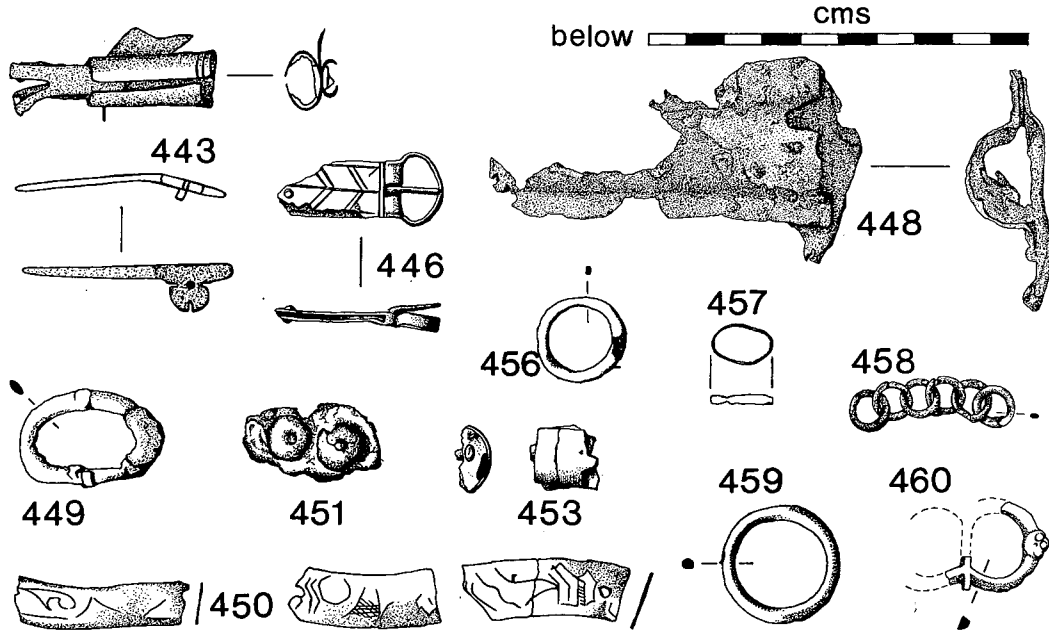
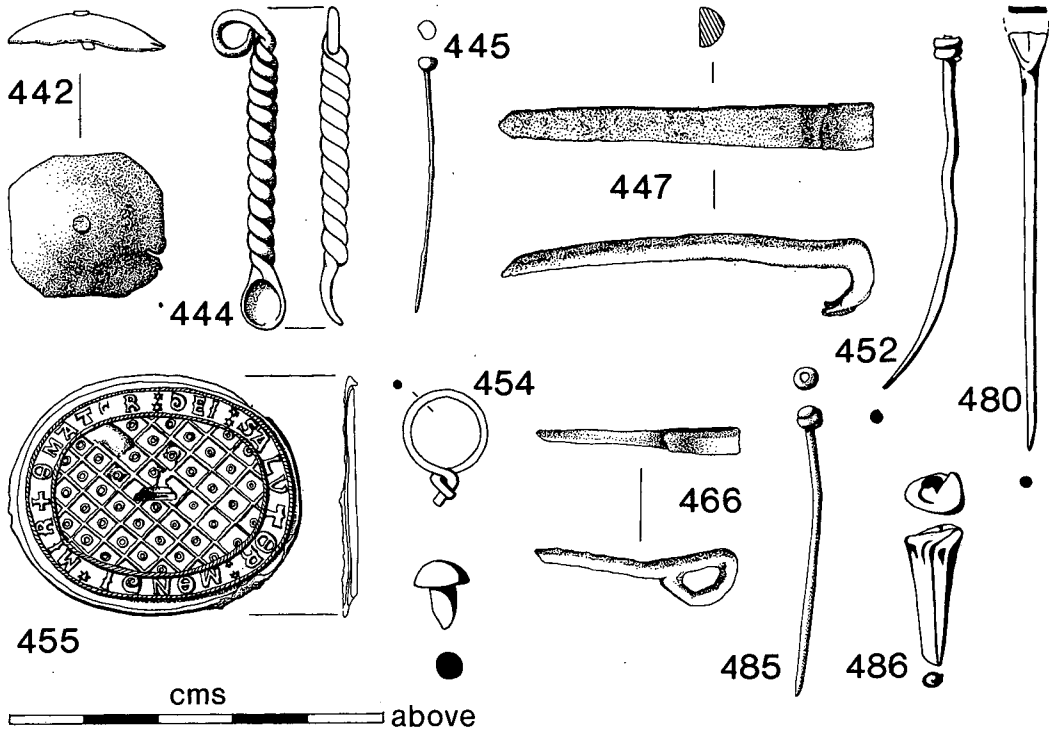


Fig. 38. Objects of copper alloy.

traditional tin and pewter souvenirs, cast from moulds. But the fashion was essentially a continental one, centring on the Low Countries and the Rhineland between c. 1480 and c. 1520.

“Usually the image of the saint or holy object commemorated by a particular badge was an integral part of the die’s design. But in a few surviving instances the die-struck flan was planned as the background to a figure, separately cast in copper alloy or in a contrasting lead alloy and attached by a lug piercing the centre of the flan. The Newcastle specimen appears to have lost such a figure. It was presumably of the Virgin Mary and the Holy Child to whom the invocation round the border is addressed. But, as with so many other pilgrim souvenirs, this badge failed to signify precisely which wonder-working image of the Madonna it was intended to honour.

“I find the inscription a bit of a puzzle. The ‘O’ at the beginning suggests an invocation, requiring ‘MIR’ to be a contraction of a verb (? *miseret* or *miserent*) instead of an adjective (? *mirabilis*, *mirus*, *mirificus*) qualifying ‘MATER’ or ‘SALV[A]TOR’, and I would take the general sense of it to be ‘O Mother of God [and] Saviour of the world have pity [on me]’”.

#### *Phase 10*

Tubular fragments—3; wire—1.

456. Annular brooch, pin missing.

#### *Phase 11*

457. Loop. Also one from phase 12.

#### *Phase 12*

Lumps—3; strip—1; sheet metal—1.

458. Six links of a small chain.

459. Annular brooch, pin missing.

#### *Phase 13*

Strip—3; sheet metal—26; lumps—c. 60. From a single deposit there were also a number of heavy fragments of even thickness, some of them curved, plus one foot. These were probably the remains of one or more cauldrons.

460. Fragment of a double buckle.

461. Foot of a cauldron.

462. Foot of a cauldron.

463. Harness fitting?

464. Purse bar, type B 3.<sup>170</sup>

#### *Phase 14*

Strip—3; lumps—5; sheet metal—2.

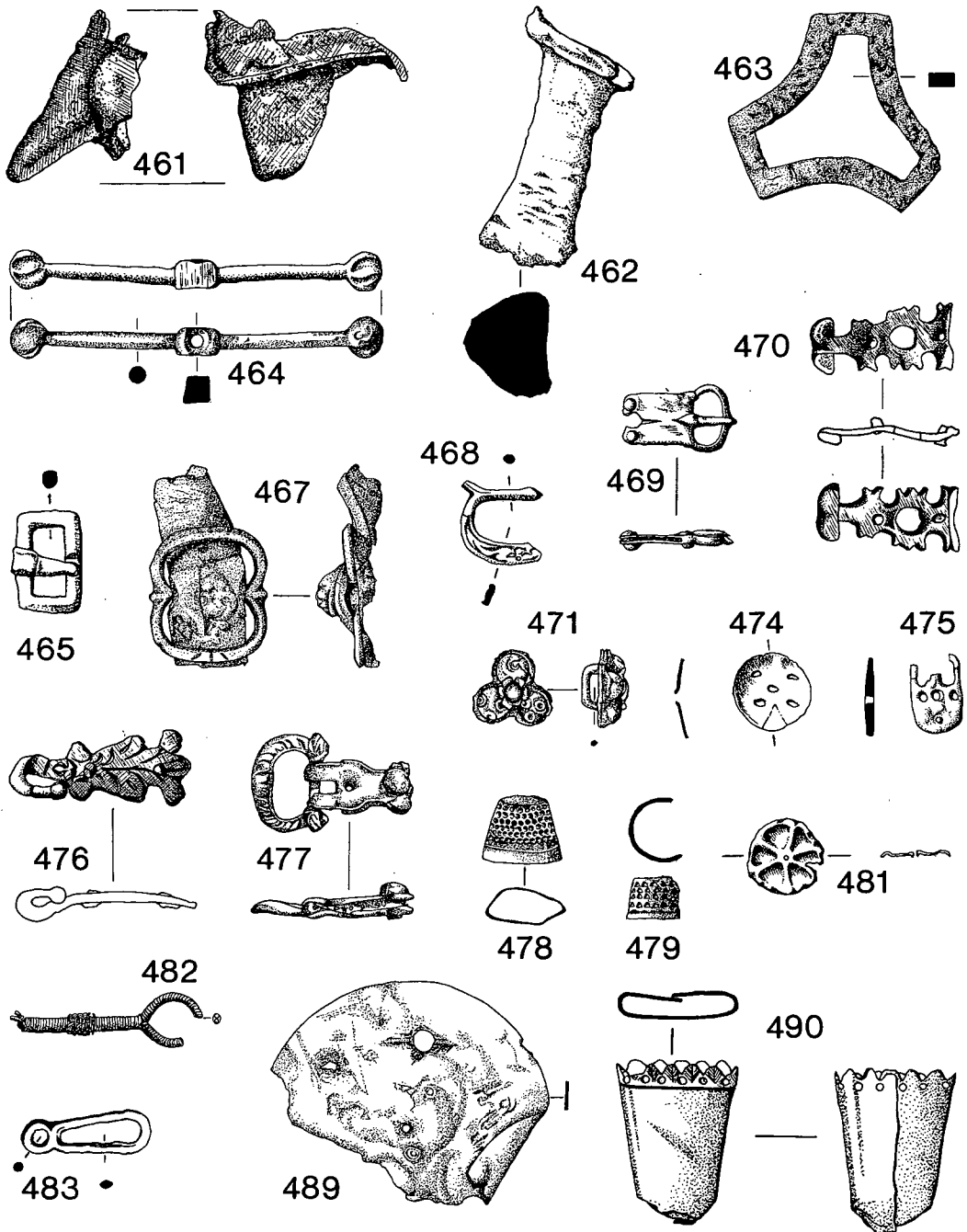
#### *Phase 15*

Wire—2; strip—11; sheet metal—12; lumps—34; other—9, including probable fragments of a vessel rim.

465. Rectangular buckle.

466. Buckle pin.





A scale bar is located at the bottom left of the figure, consisting of a horizontal line with alternating black and white segments, labeled "cms" at the right end.

Fig. 39.

*Phase 16*

Wire—2; lumps—10; rod—5; sheet metal—5; strip—1 +.

- 467. Double buckle, retaining a fragment of leather.
- 468. Fragment of a double buckle.
- 469. Strap-end buckle, with iron rivets.
- 470. Belt-fitting, originally fastened to the leather with two rivets.
- 471. Dress ornament, three lobes with central boss, and loop on the back.
- \*472. Fragment of square or oblong buckle.
- \*473. Fragments of a thimble.
- 474. Disc, pierced by five holes.
- 475. Possibly part of a belt chape.

*Phase 17*

Wire—1; rod—1; sheet metal—22; strip—4.

- 476. Belt fitting with end hook, originally fixed to the belt with rivets.
- 477. Strap-end buckle, pin missing.
- 478. Thimble.
- 479. Part of a thimble. There were fragments of two others from this phase.
- 480. Pin, head broken.
- 481. Ornamental boss.
- 482. Dress fastener; rod bound with wire.
- 483. Double loop; perhaps a loop from a penknife, or an intermediate chain link.
- 484. Stud.
- 485. Pin, with a head of the same material in the form of a bead, decorated with an incised spiral groove. Similar pins, 37–40 mm in length, were recovered from phases 9 (one), 16 (one) and 17 (two).
- 486. Hollow tapering object, closed at the wider end.
- \*487. Rim of cauldron.
- \*488. Part of an annular brooch, pin missing.
- 489. Part of a disc, pierced by three holes.

*Not securely stratified*

- 490. Large dagger chape, of late fourteenth/fifteenth-century type.

## LEAD

As was to be expected, very little lead was found.

Seven pieces of came. Phases 9 and 11.

Three washers: all approximately circular, two flat, one 10 mm thick; diams. 15–23 mm. Phases 8, 12, 13.

Four trimmings from lead sheet of varying thicknesses, 1–3 mm. Phases 4, 10, 12, 17.

The tapering end of a rough rod, 76 mm long, square in section, *c.* 10 by 10 mm at the thickest point. Phase 11.

Strip, ends broken, 6 mm wide and with an internal groove, curved into an approximate semi-circle 60 mm across. Phase 15.

Small trickle. Phase 11.

Two possible repairs or patches, one roughly circular (*c.* 40 mm in diam.) from phase 12, the other oval (491) (85 by 50 mm) from phase 5a, both rough underneath and smooth on top. The edge of the oval is partly grooved.

## IRON

As is usual in Newcastle the ironwork was heavily corroded, and in some cases the metal had virtually disappeared. The X-rays of some of the 1974 finds did nothing to clarify matters. More recently all the iron finds have been viewed through a fluoroscope, but it was concluded that a purely visual examination would be just as effective. As with the copper alloy, some attempt has been made to indicate the number of objects.

*Phase 2*

One nail.

*Phase 3*

Two nails.

*Phase 4*

Three nails; part of a bar lozenge-shaped in section.

*Phase 5 and 5a*

Six nails; a bracket; parts of three bars.  
492. Part of a horseshoe.

*Phase 6*

Two nails; fragment of bar.

*Phase 7*

Nine nails; fragments of small tube.

*Phase 8*

Two nails; flat strip, ? binding.

*Phase 9*

Nine nails; two lengths of very fine rod, almost wire; fragment of horseshoe?

*Phase 10*

Six nails; fine rod.

*Phase 11*

Three nails; fragment of bar.

*Phase 12*

Six nails; tapering bar; flat strip or binding; lump of fine chain, probably interlinked to give the effect of mail.

*Phase 13*

One hundred and twenty nails; nine flat strips, three with nails through them—bindings or parts of strap hinges?; hinge pivot; fragments of three blades; tapering bar; lead-wrapped end of a bar, rectangular in section, perhaps from a socket in a wall.

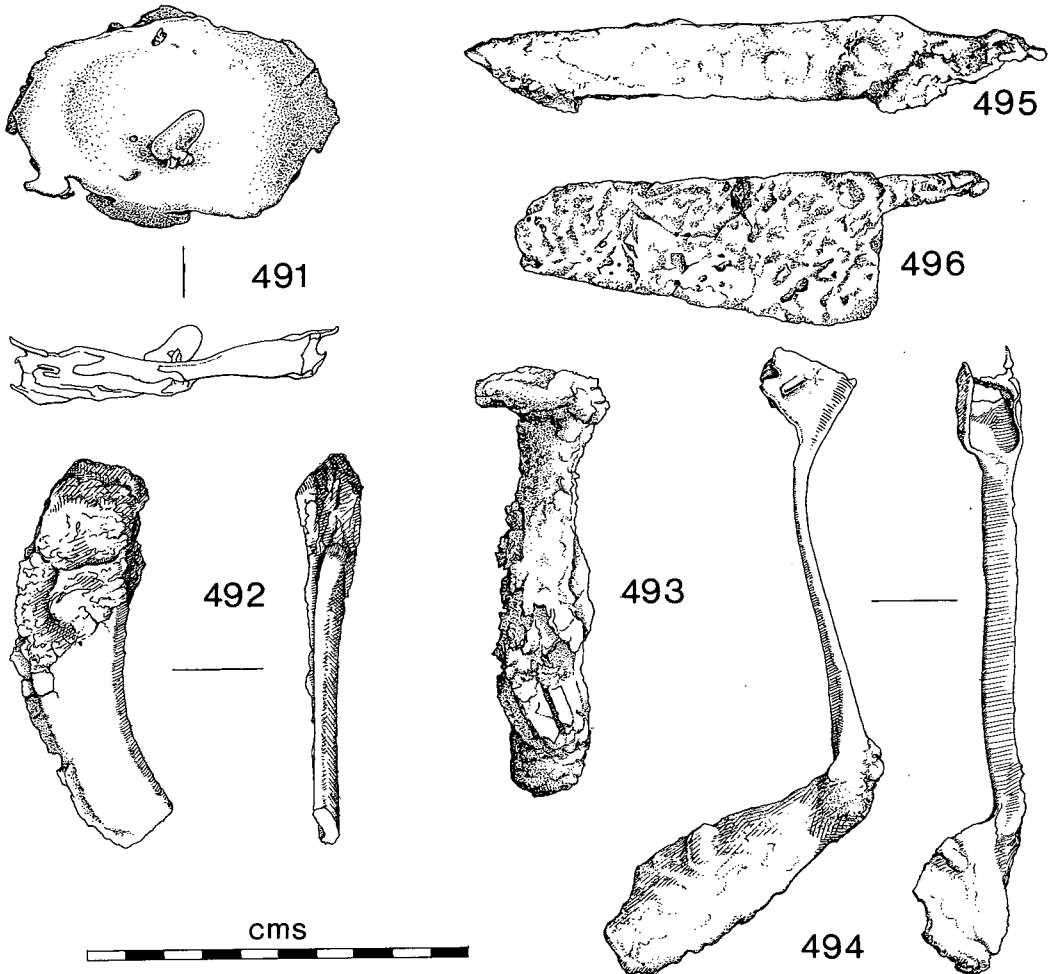


Fig. 40. Lead and iron objects.

493. Chisel.

494. Tool, with twisted blade on which the upper edge in the drawing was probably the cutting edge. It had presumably once had a wooden handle.

*Phase 14*

One nail; probable end of strap hinge.

495. Knife blade with whittle tang.

*Phase 15*

Seventy-seven nails; six strap or binding fragments; three fragments of tube; hinge pivot; possible chisel and wedge.

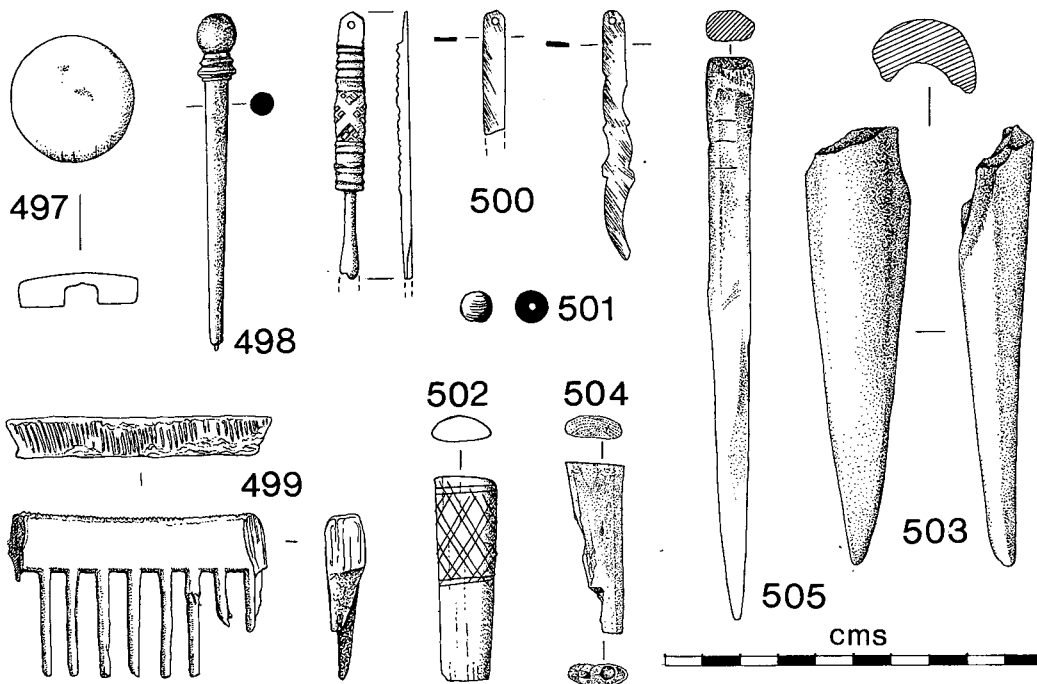


Fig. 41. Objects of bone, horn and antler.

*Phase 16*

Thirty-three nails; half a square buckle; three tapering bars; possible chisel; broken knife blade.

*Phase 17*

Seventeen nails; three strap fragments; a bar; three lumps of fine chain (see above, phase 12). 496. Cleaver.

BONE, HORN, ANTLER<sup>171</sup>

497. Cap, with polished, slightly convex upper surface, and rougher underside in which there is an off-centre circular socket showing the mark where it was held in a clamp on a lathe. Apparently from the basal region of an antler, probably red deer. Phase 3.
498. Pin of antler, presumably red deer. Lathe-turned, with spherical head above cordons at the top of a tapering shaft in which there is an iron point. It has been suggested that such pins were used for pricking out parchment.<sup>172</sup> Phase 5.
499. Part of a comb of horn, originally a double comb but the fine teeth have been broken off. Phase 8.
500. Two and a half implements of a toilet set made of bone; skeletal elements and species are unknown. The complete objects are a probable nail-scraper, and an earscoop which has a decorated handle and therefore formed the upper surface of the group when they were fastened together. Phase 11.

501. Bead of bone, skeletal element indeterminate, lathe-turned. Phase 11.  
 502. Butt of a probable knife handle, socket end broken off. Manufactured from a long-bone of an ox-sized animal, element indeterminate. Phase 13.  
 503. Point, worked from the shaft of a long bone of a large animal. Phase 13.  
 504. Knife handle with traces of a socket. Manufactured from the shaft of a big bone of an ox-sized animal, element indeterminate. Phase 17.  
 505. Pointed tool, probably made from an ox or horse metapodial, precise definition impossible. Phase 17. Objects of comparable size, but with an eye, have been found at King's Lynn where they are termed "pin-beaters", i.e. weaving tools.<sup>173</sup> Similar objects, 90 to 207 mm, from Southampton are variously called needle, bodkin or skewer.<sup>174</sup>

### THE LEATHER<sup>175</sup>

*Janet E. Vaughan*

#### *Phases 1, 6 and 7*

There is only a small quantity of leather in these three phases. The few shoe fragments in Phase 6 indicate a welted shoe construction which generally speaking does not appear until around 1500. This agrees with evidence from other finds of sixteenth-century intrusion into this phase.

506. From Phase 1, right foot turnshoe sole, slightly dished. The curve on the outside forepart is a typical turnshoe shape. Stitch length: 5 mm. Width at waist: 5 cm. Width at forepart: 9 cm. Length probably about 23 cm originally.

#### *Phase 8*

The large amount of leather in this phase, most of it from one layer, (D1 104/D2 288) suggests rubbish from a cobbler's (i.e. shoe mender's) shop. There are many identifiable parts of shoes which have had pieces cut from them, and also a large number of waste offcuts and small fragments. No. 507 is one of three large forepart repair patches. These can be recognized by their irregular and widely spaced stitch holes, usually not going right through the substance of the leather (tunnel stitches). No. 509 shows nicely both the decorative slashing of the vamp and the fashion for broad toes which appear around about the beginning of Henry VIII's reign.

507. Forepart repair patch with hole.

508. Vamp wing (inside) with thongs still in place.

Welt seam sts: 7 mm to 9 mm. Quarter seam (butted): 4 mm.

509. Broad toe piece with lining joined to instep piece by closed seam. One quarter, butted on.

Welt seam sts: 4 mm (at toe) to 9 mm. Closed seam: 6 mm Quarter seam: 3 mm.

#### *Phase 9*

Most interesting in this phase is no. 510, a shoe which has been identified by June Swann of Northampton Museum as a wedge-heeled cork-soled shoe. The earliest instance of a wedge heel previously known was on the monument of Elizabeth, Countess of Worcester, in Chepstow church, dated 1549. The upper is a mule (no quarters) and although the style as a whole is a development of the medieval patten (overshoes with a wooden or cork sole) it has not heretofore been much in evidence until the last quarter of the sixteenth century.

The phase produced a quantity of waste offcuts equal to that of Phase 8 but not in such

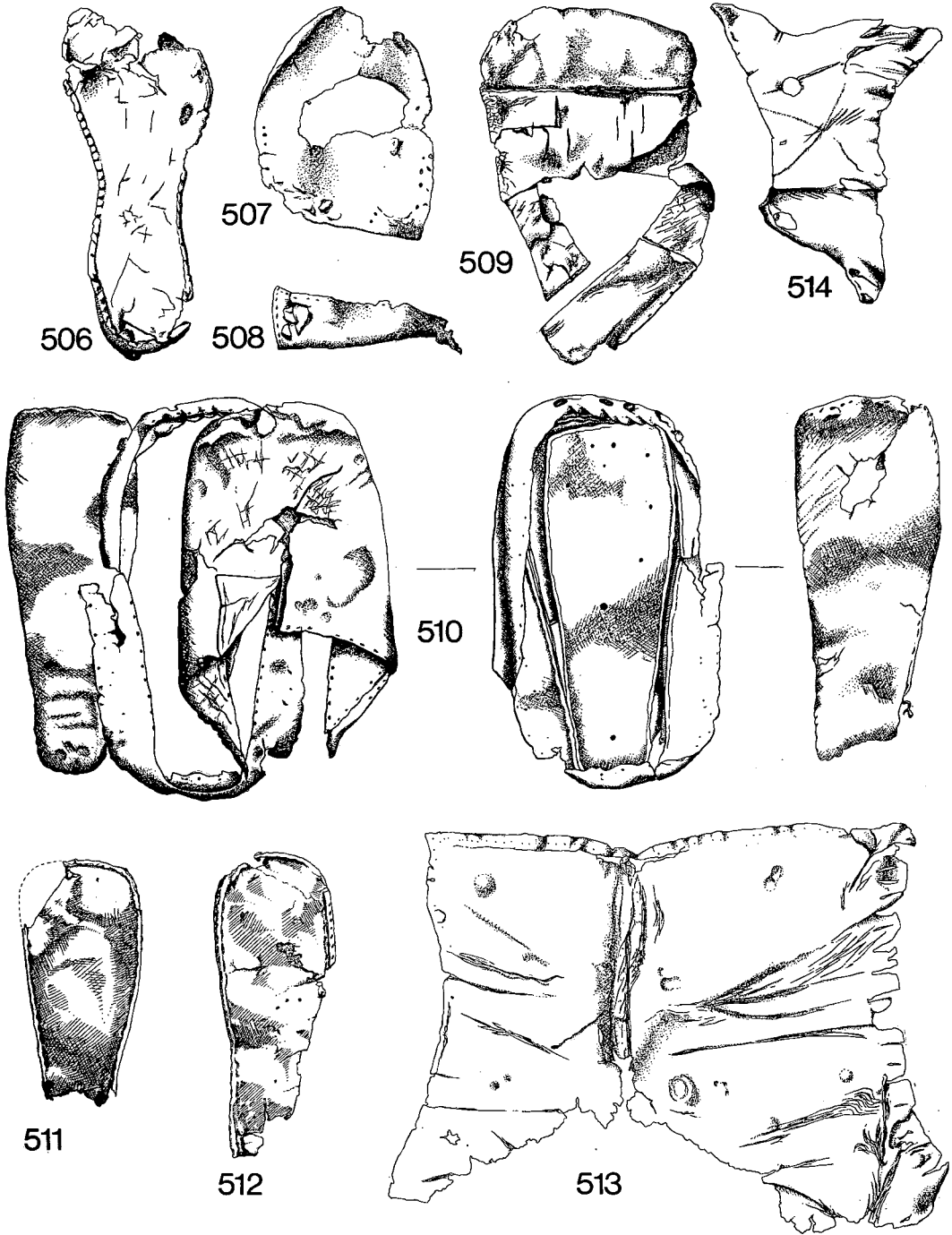


Fig. 42. (4)

a great concentration and the rest of the material was not so fragmented. It included several pieces from purses or bits of clothing.

510. Vamp, insole, sole cover (in place of welt), and outer leather sole of a cork-soled mule with wedge heel. Cork sole now missing. The upper is lined with goatskin, the two layers being stitched together along the edge, although not down the vertical slit, which Miss Swann suggests may have been a later cut to make the shoe more comfortable. The outer row of stitches on the sole cover would have been for thread to brace it across the cork before the outer leather sole was stitched on. Wear on this sole indicates that the shoe was probably worn on the right foot. Stitches on the insole pass from edge to grain joining it to sole cover, 7 mm to 8 mm stitches. The distance between this row and the middle row on sole cover represents thickness of cork sole: 12 mm at toe increasing to 20 mm at heel. Length (insole): 21.5 cm.
- 511, 512. Insoles with similar toe shape to above.
513. Large piece possibly of boot upper. One edge has regular horizontal slashes for lacing or perhaps to loop over buttons.
514. Fragment with two large holes, no seams visible. Unknown use.

#### *Phase 10*

This phase produced several pieces of decorated leather, two knife sheaths and some pieces probably of clothing. The number of recognizable fragments of shoes is greater than in the previous phases while there are far fewer offcuts and these are spread over several small deposits. The leather has a generally more domestic air about it.

No. 516 is an "eared" or "horned" insole. The fashion for "eared" shoes lasted, rather surprisingly, for over 25 years, being most popular in the 1530s. There is an almost complete excavated example from St. Neots,<sup>176</sup> the sole being eared but the insole squared off. The construction details for this style varied. A squared insole such as No. 515 may have taken a horned upper.

515. Insole with pointed heel and squared off toe. One piece quarters, slit half way up in the back seam position with stitch holes in the edge. This slit would make it easier to shape the upper to the pointed heel. The insole was one of a pair (the only pair of anything) and there was also a piece of welt which matched in shape and stitch length. It was flat in section and both rows of stitch holes went straight through the substance. Welt seam: 6 mm to 8 mm. Quarter seam: 5 mm. Sole seam on the welt was 4 mm to 5 mm at toe and 9 mm elsewhere. Insole 18 cm long.
516. Eared insole; 8 mm to 9 mm stitches. Length 21.5 cm.
517. Fragment of upper possibly from this shoe, lined. Folding at one side suggests the formation of a horn here but it has been worn or cut off. There are butt seam stitch holes along the other edge which would be up the middle of the vamp.
518. Insole; welt seam 6 mm to 7 mm. 20 cm long.
519. Quarter and vamp wing, with remains of thong near quarter seam. Fragments of woven basket adhering to both pieces. The double row of stitch holes for the attachment of the heel stiffener is clearly visible. This method of attachment gives the heel stiffener a characteristically scalloped edge. Top edge pierced with edge/flesh stitch holes. Welt s. sts: 6 mm to 7 mm.
520. Vamp wing, upper edge is oversewn.
521. Rectangular fragment with large holes along one side. The other long side has holes for 8 mm stitches along it and one short side is pierced for a butt seam.
522. Belt made of two layers stitched together. 23 cm long. 1.8 cm wide.



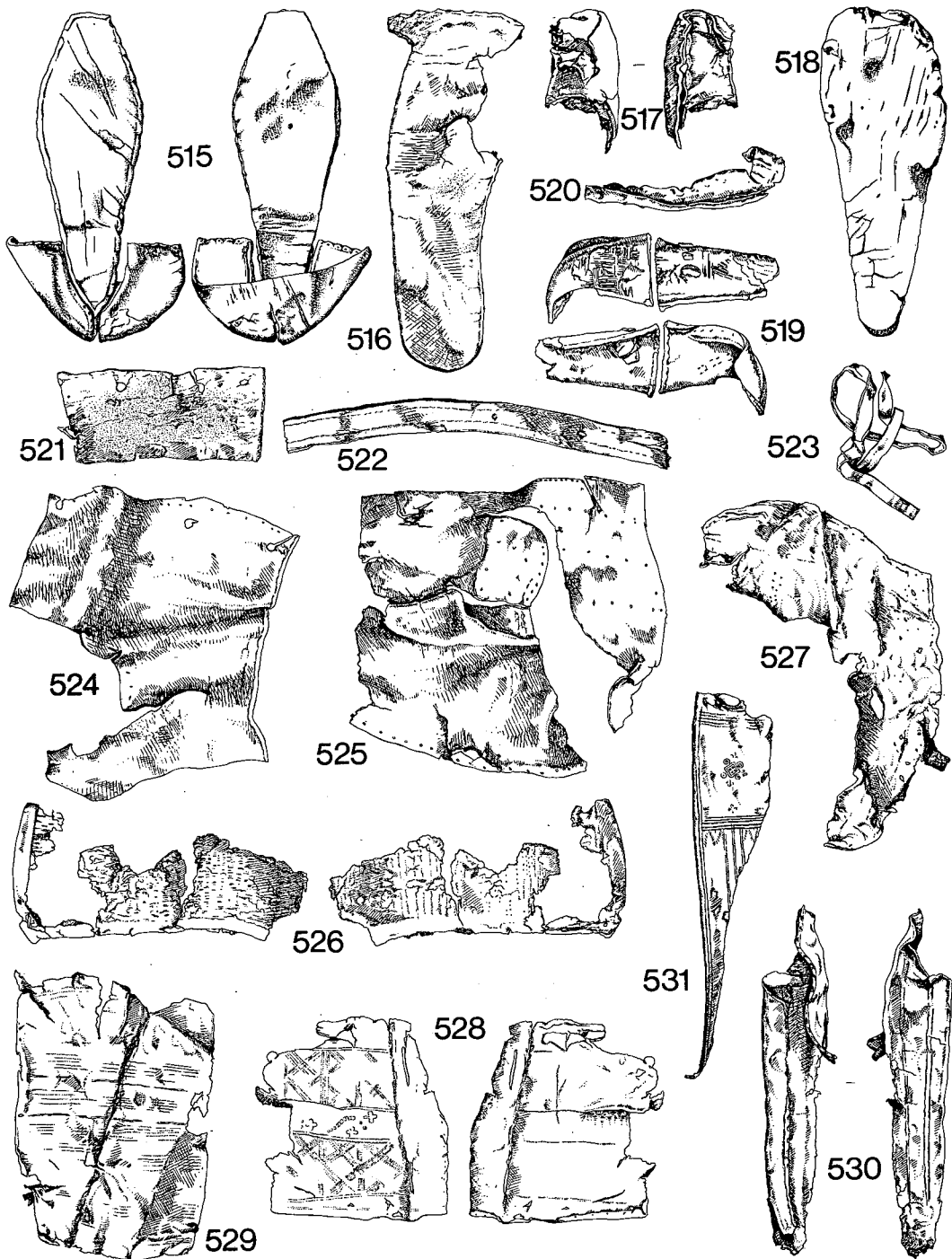


Fig. 43. ( $\frac{1}{4}$ ) Leather.

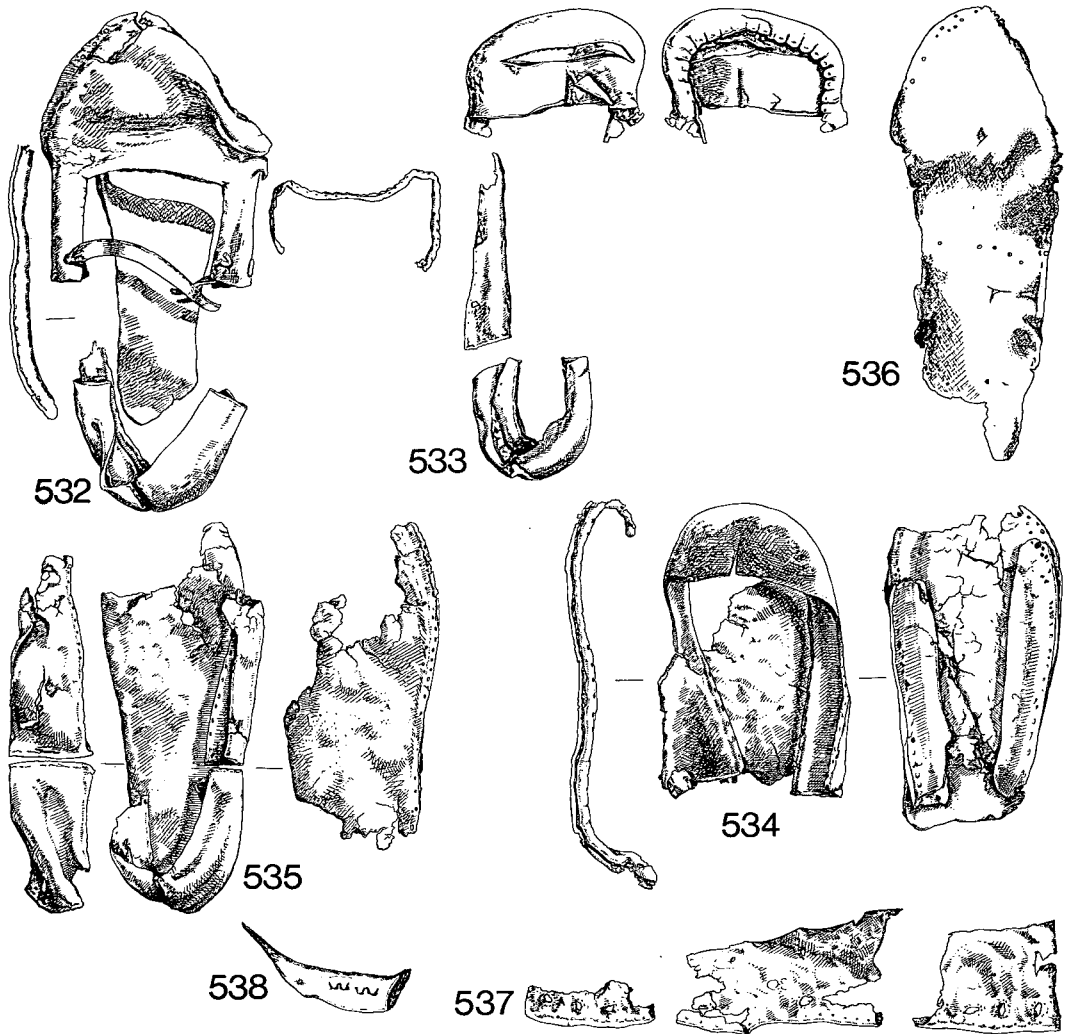


Fig. 44. (4).

523. Plaited thongs.
524. Large unidentified fragment. One edge is pierced for a butt seam. Approx. 15 cm × 15 cm.
525. Another similar fragment. Various holes and seams; one edge has holes for a closed seam. These two pieces have possibly been recut and used for a new purpose. Approx. 16 cm × 16 cm.
526. Two joining pieces. Apart from an edge strip about 1 cm wide the pieces are covered with a rusted concretion. Where the surface is visible it is covered with rows of fine holes through which thin wire was threaded, oxidation of the wire causing the concretion. The plain edge strip has a few stitch or tack holes but no regular seam. No suggestion as to use.

527. Clothing fragment (?). Numerous pin-pricks are perhaps some form of decoration as they do not appear to be functional.
528. Clothing fragment (?). Decorated with lines and a clover-leaf motif. Two edges are torn and one edge has a narrow hem, one a broad hem. Approx. 8 cm × 12 cm.
529. Clothing fragment (?). Fine stitch holes along three sides although it is difficult to see a regular seam. Impressed lines. Approx. 10 cm × 17 cm.
530. Sheath, 20 cm long, 3.8 cm widest part. Two pairs impressed lines.
531. Decorated sheath torn. 23 cm long. 4.6 cm widest part.

### *Phase 11*

The large quantity of leather in this phase differed noticeably in composition from that in Phase 10, being almost exclusively shoes and bits of shoes, small fragments and waste scraps suggesting dumps of cobbler's waste rather than any domestic cast-offs. Illustrated are four shoes with only one or two of their component parts missing. No. 532 is excessively broad for a shoe which is only a child's size (approx. 8). There were far more soles, though none complete, represented in the material. From the same context as No. 534 came an inner sock—see Textile Report.

532. Complete upper (apart from welt) and fragment of insole. Broad vamp has square cut-out, the narrow binding strip which went round this survives. Strap over the instep attached on the left-hand vamp wing. Probably buckled though only the stubs of thongs for attaching the buckle remain in holes on the right-hand side. Shoe was worn on the right foot: the lasting margin on the right quarter was worn away and the insole was also worn through at this point. The heel stiffener extends beyond the quarter seam on to the left vamp wing.

Welt seam: 7 mm-8 mm sts. Sole seam: 4 mm-5 mm sts. Length (inside): 18 cm approximately.

533. Shoe upper, vamp wing missing. Round gathered toe and toe-puff. Vamp slashed across, the vertical slit is perhaps part of a re-cutting, as there are no stitch holes round this edge whereas there are along the vamp wing. The vamp wing has a lace hole near its upper edge about 2.5 cm from the quarter seam. Welt seam 7 mm to 9 mm sts. Insole length would be about 19 cm. The sole and insole of this shoe are not illustrated, they were incomplete and deteriorated.

534. Shoe, quarters missing, with low cut round toed vamp. Part of the original vamp has been cut away, only a short length of each vamp wing has the edge/flesh stitch holes along the upper edge. Stubs of thongs in right vamp wing for buckle attachment. Left wing has hole for the strap. There are signs of restitching through the welt and the sole edge. The original sole has been cut away down the middle and a complete new sole stitched on.

Welt seam: 8 mm. Sole seam: 5 mm sts. Length about 20 cm.

535. Shoe with toe of vamp missing. There is a hole at the top edge of each quarter on either side of the back seam. Each vamp wing probably had a hole near the quarter seam but the leather is torn. Sole and insole incomplete. Seams as No. 534.

536. Sole, much deteriorated and with signs of restitching and repairs. Length about 24 cm.

537. Three fragments with lacing holes along a narrow hemmed edge.

538. Scrap with impressed mark.

### *Phase 12*

All this phase produced was a small quantity of scrap, four bits of repair patches, a few

other small fragments and a large fragment which has had a patch "sewn" on with a thong. Phases 13, 15 and 16 produced altogether five small fragments.

## THE TEXTILES

*Penelope Walton*

It has long been recognized that small scraps of textile from archaeological excavations carry not only information on the appearance of fabrics in use at the time, but also on the technology of cloth manufacture, its tools and techniques. More recently, work on fleece types used in wool textiles and the identification of ancient dyes has increased the amount of data which can be extracted from a single fragment of cloth. At the present time, a sizeable body of information has been built up on the textiles of Roman, Saxon and Viking England and large groups from medieval London (Baynard's Castle) and Perth are in the process of an exhaustive examination. With the Black Gate sixteenth-century finds we move into an era for which there is already much historical evidence, both from documents and paintings, and from rare survivals of pieces of clothing. However the historical record is by no means complete and the costume evidence is inevitably biased towards the dress of wealthy courtiers: with these finds from Newcastle we are at last in touch with the ordinary citizens of a provincial town.

The bulk of the finds are from the early and mid sixteenth century, a period when England's woollen industry, which had been expanding through the previous century, was at its peak. Later in the century there was to be a move towards the lighter, finer worsteds and half-worsteds of the "new draperies", but in the period with which we are dealing the fine woollen broadcloth with its soft handle and drape was supreme. This supremacy of woollens is evident from the finds, where, out of a total of 496 woven fragments, 443 were woollens, some of the finest quality. Because of the predominance of wool, the features of technological interest have been dealt with in the order of manufacture, from the raw wool to the finishing processes.

### *Fleece Types*

The large body of work which Dr. Ryder has done on fleece types has shown that wool textiles are an important source of information on the evolution of domestic sheep. By first measuring the fibre diameters in samples of wool from ancient textiles and parchments and then categorizing the results into fleece types, he has been able to establish certain trends in fleece evolution, and, with the aid of other biological evidence, identify the points at which new types of sheep were introduced to this country.

By the time the Black Gate textiles came to be manufactured, the major introductions were long past, and we know from documentary evidence that distinct regional types, the forerunners of the modern breeds, had emerged.<sup>177</sup> Of course, it is not possible to identify these regional types from their wool, only the broad categories of fleece type to which they belong: for example, the longwools can be differentiated from the shortwools and the hairier mountain sheep by their fibre diameter distributions.

Accordingly, whole mounts of samples of fibres from randomly selected textiles (a sample each for warp and weft) were viewed at 400× and the diameters of 100 fibres from each sample measured. The results of these measurements are given in table 1, together with the identifications of fleece types. As can be seen, out of a total of 32 samples, shortwool (10) is the most common, with generalized medium (6), hairy (5), hairy medium (2) and true

medium (3) also represented; only one fine type was found and the remaining five are borderline cases between two fleece types.

The hairy and hairy medium types are typical of the modern British mountain breeds such as the Scottish Blackface and the Swaledale (hairy) and the hairy Soay, the Shetland and the Cheviot (hairy medium). In the sixteenth century, as now, these coarse fleece types predominated in the uplands: there appear to have been sheep of the Herdwick type in the Lake District, the ancestor of the modern Cheviot in the Scottish borders, hairy black-faced sheep on the uplands of northern England, and the Welsh Mountain breed in Wales with a related type in the South-West.<sup>178</sup> There are also several documentary references to the coarse wool of the northern counties,<sup>179</sup> so that the presence of hairy fleece types in only 22% of the sample suggests that Newcastle was far from relying on local textiles or wool.

The skewed distribution of these hairy fleece types is a primitive feature. The generalized medium type, exemplified by the fleece of the woolly Soay, has this distribution but no hairy fibres, and is thought to be an intermediate stage in the fleece's evolution from the hairy type towards the symmetrical distributions of the true fine, shortwool and true medium (longwool) types.<sup>180</sup> A high proportion of medieval textiles are from wool of this type, but the shortwool starts to emerge in increasing numbers in the later part of the period<sup>181</sup> and dominates this fifteenth-sixteenth-century group.

In the fifteenth century large flocks of shortwools were to be found in Lincolnshire, the Midland Plain and the Welsh borders. However the enclosures of the sixteenth century, with their improved pasturage led to the fine short-woolled Ryelands being replaced with larger sheep which were more suitable for meat production, but whose fleeces were longer and coarser.<sup>182</sup> Nevertheless, Ryelands and other shortwools such as Shropshires and South-downs were still to be found from the Welsh marches, through Wiltshire, Berkshire and Hampshire, to Sussex,<sup>183</sup> many of them supplying the fine broadcloth industry of the West of England.

The true medium fleece type, which appeared in only three of the yarns, all from fine worsteds, is found nowadays in the longwool breeds, such as the Lincoln and the Romney Marsh (a primitive longwool). In the sixteenth century the longwools were, as described above, replacing the shortwools in Lincolnshire and the Midlands, and they were also established in the salt marshes of Kent and East Anglia,<sup>184</sup> providing suitable fleeces for the worsted industry of Norfolk.

The fine fleece type, although it also evolved from the generalized medium, is not considered typical of any of the British breeds of sheep, being closest to the modern Merino. Spanish wools of this sort were being imported into England from the Middle Ages onwards, but mainly for use in the felt-making industry.<sup>185</sup> The single fine type in this collection comes from a piece of early fifteenth-century knitting, probably an import (see below, *knitting*).

#### *Wool preparation*

The majority (90%\*) of the Black Gate textiles are woollens, that is, made from wool which has been carded. In carding, the fibres are worked into a loose floss, which, when spun, produces a soft "woolly" yarn, suitable for fabrics which are intended for fulling and napping. In the worsteds on the other hand (9%) the wool is carefully combed so that all the fibres lie parallel, the yarn produced having a hard feel and a shiny finish, suitable for the smooth-finished satins.

\* Textiles from the same find-spot which appeared to be identical have been treated as one fragment for the purposes of calculating statistics.

TABLE 1 Fleece types

	<i>range</i>	<i>mode</i>	<i>mean</i>	<i>S.D.</i>	<i>Pearson coeff. of skewness/distribution</i>	<i>% pigmented</i>	<i>% medullated</i>	<i>fleece type</i>
<i>phase 6</i>								
T13 (knitting)	10-39	20	23.1	± 7.2	+0.25, symmetrical	0	0	true fine
<i>phase 8</i>								
T47 (knitting)	11-40	20, 30	25.2	± 5.9	-0.01, symmetrical	1	0	shortwool
T61 (woollen) a	11-40, 51, 53	22	24.3	± 7.5	+0.61, pos. skewed	0	0	generalized medium
b	13-48	24	24.9	± 7.3	+0.60, pos. skewed	0	0	generalized medium
<i>phase 11</i>								
T131 (woollen) a	12-43	20	24.4	± 5.7	+0.48, sym./pos. skewed	8	0	shortwool
b	14-46	23, 28	27.6	± 7.7	+0.18, symmetrical	0	0	shortwool
T141 (woollen) a	18-38	23	26.5	± 4.7	+0.15, symmetrical	0	0	shortwool
b	15-37	28	25.8	± 5.1	-0.22, symmetrical	0	0	shortwool
T144 (woollen) a	12-47	23	24.4	± 7.8	+0.76, pos. skewed	dyed	0	generalized medium
b	12-57, 62	25	30.9	± 10.6	+0.63, pos. skewed	dyed	3	hairy medium
T160 (worsted) a	12-54, 64, 65	30	31.3	± 9.9	+0.35, symmetrical	1	0	true medium
b	18-56, 62	25	30.8	± 9.2	+0.63, pos. skewed	2	0	gen. medium/medium
T175 (worsted) wa	18-56, 70, 77	20	35.2	± 11.9	+0.42, continuous	11	3	true hairy
we	18-49	25	29.9	± 7.2	+0.60, pos. skewed	11	0	gen. medium/medium
T246 (woollen) a	14-38	23, 28	26.0	± 6.0	+0.18, symmetrical	0	0	shortwool
b	14-45, 52	23	28.4	± 7.6	+0.26, symmetrical	0	0	shortwool
T261 (worsted) wa	18-52	28, 37	33.0	± 8.5	+0.11, symmetrical	0	0	true medium
we	18-46	28	30.3	± 7.3	+0.42, symmetrical	0	0	true medium
T257 (woollen) a	10-59, 70-127	22	33.0	± 19.4	+0.84, continuous	0	10	true hairy
b	13-56, 114, 118	22	31.6	± 16.0	+0.91, continuous	0	16	true hairy
T319 (woollen) a	11-48, 83-127	24, 27	28.5	± 17.1	+0.57, continuous	0	5	true hairy
b	12-53, 62, 102	20, 30	28.0	± 11.7	+0.32, continuous	0	4	true hairy
T355 (woollen) a	14-51, 66	25	27.6	± 10.5	+0.88, pos. skewed	8	0	hairy medium/gen. med.
b	12-47, 61, 67	22	27.9	± 9.2	+0.63, pos. skewed	9	1	hairy medium
<i>phase 12</i>								
T366 (woollen) a	14-51, 62	20	26.8	± 8.6	+0.70, pos. skewed	33	0	hairy med./gen. med.
b	14-56, 59	20	29.4	± 10.5	+0.74, pos. skewed	40	0	hairy med./gen. med.
T367 (woollen) a	14-43	18, 23	24.7	± 6.1	+0.48, sym./pos. skew	dyed	0	shortwool
b	12-46	20	25.7	± 7.7	+0.35, symmetrical	dyed	0	shortwool
T370 (woollen) a	11-46, 51, 51	23	26.5	± 9.3	+0.51, pos. skewed	0	1	gen. medium
b	12-46	20	25.4	± 7.5	+0.87, pos. skewed	0	0	gen. medium
T373 (woollen) a	12-49	28	28.5	± 8.2	+0.25, symmetrical	dyed	0	shortwool
b	11-49	25	25.6	± 8.3	+0.65, pos. skewed	dyed	0	gen. medium

Fleeces with short crimp fibres, such as shortwools, are most suited to carding, whereas the straighter fibres of longwools are best for combing; the finer types of hairy fleece may be carded, but the coarsest are often too long and are combed for coarse worsteds. This use of appropriate wool for the different fabrics can be seen in Table 1. It can also be seen that most of the worsteds lack the finest fibres, a result of the combing process where the short fine fibres are caught up in the teeth of the combs.

### *Spinning*

When making a thread it is necessary to twist the fibres either clockwise or anti-clockwise. The different lie of the fibres according to which way they have been twisted is the same as the middle stroke of the letters Z and S and these letters are therefore used to describe the direction of spin.

Fabrics made entirely of S-spun yarn predominate in this group, representing 75-96% of the totals for the different phases, and 83% overall. Almost all of these S-spun fabrics are medium-coarse woollens with low thread-counts (see Table 2), while a Z-spun warp and weft is used, with only one exception, for the finer worsteds. The small number of woollens with spinning ZZ or ZS occupy an intermediate position. Similarly, measurement of the various yarns used in the largest group (phase 11), showed the average diameter of the S-spun woollen yarn to be a coarse 0.85 mm, while the Z-spun yarns are much finer at 0.30 mm in the worsteds and 0.56 mm in the woollens.

TABLE 2 Mean thread counts

	woollen			worsted ZZ	
	SS	SZ	ZZ	warp (?)	weft (?)
<i>phase 6</i>	7.9	—	13.0	14.0	94.0
<i>phase 7</i>	5.6	15.0	—	—	—
<i>phase 8</i>	8.4	—	—	13.0	92.0
<i>phase 9</i>	7.2	12.8	—	—	—
<i>phase 10</i>	8.6	—	—	30.0	50.0
<i>phase 11</i>	8.8	12.0	12.8	23.9	58.3
<i>phase 12</i>	10.7	14.0	12.5	26.4	48.2
<i>phase 13</i>	9.1	—	—	26.0	30.0
<i>phase 16</i>	8.8	—	—	24.0	29.0
unstrat.	13.0	—	15.0	—	—
overall	9.1	12.9	13.5	24.2	55.4

The means of the woollens are calculated from an average of the warp and weft count for each textile. Separate means were calculated for the warp and weft of the worsteds where there was a wide difference between warp and weft counts.

The reasons for this finer Z-spinning are not immediately clear. It may be that there is some correlation between direction of spin and the type of tools used: the weighted (suspended) spindle continued to be used in Norfolk, the centre of the worsted industry, long after the spinning wheel had come into regular use<sup>186</sup>—even though the flyer spinning wheel, an early sixteenth-century introduction used in flax-spinning, was particularly suitable for the long fibres of worsted yarn.<sup>187</sup> It would appear that Z-spinning comes more naturally to a right-handed spinner using a weighted spindle, which *may* explain its presence in the worsteds; however, as the spindle wheel, the instrument mainly used for woollen yarn, has no such bias to S or Z, the high percentage of S-spun yarns in the woollens is still puzzling.

It may be that tradition played a part here: amongst medieval textiles it is common to

find a strong fine Z-spun yarn (occasionally worsted) in the warp, with a coarser S-spun yarn in the weft, especially in 3-shed fabrics where the soft weft face was deliberately matted, while the warp face was left without finishing.<sup>188</sup> It is possible that Z-spinning became identified with a good fine yarn, especially of combed wool, while S-spinning was synonymous with less carefully spun yarns, so that when, by the sixteenth century, the vogue for heavy napping of both faces of the cloth demanded soft yarn in both warp and weft, tradition dictated that it should be S-spun.

### Weaves

The heavy finishing of woollen cloth by fulling and napping, which became popular in the later Middle Ages and the Tudor period, obscured the weaves of these fabrics, so that the many different twills of pre-thirteenth century date must have become obsolete. It was therefore no surprise to discover that only a very small number of basic weaves have been used in the Black Gate woollens: these are tabby (plain weave) and plain 2/2 twill, with a few fragments, probably all from the same piece, of a broken 2/2 twill. However, the weaves of the worsteds, where the pattern of the weave is clearly visible showed little more adventurousness, being 5-end satin, 2/2 twill and tabby. This lack of variation may well be the natural standardization which occurs when a craft develops into a commercialized industry, producing large quantities of cloth for sale at home and abroad.

The most common weave is the simplest construction, tabby (fig. 45a), representing 68% of the total number of textiles. All except two are woollens and on average they are coarser than the twills, as can be seen from the following table. The figures give the lowest and the highest thread-count (number of threads per centimetre) for warp or weft (in general warp and weft counts were so similar that little differentiation could be made between the two) and the mean calculated from an average of the warp and weft count for each textile.

An extended tabby weave with double threads in one system (i.e. either warp or weft) was noted in a small number of pieces, but as these are all narrow strips, it is probable that they are in fact remains of borders of the type shown in fig. 46, a, b, and e.

Colour has been used in some of the tabbies to produce different effects: six present a mottled or flecked appearance, a result of weaving with a different colour warp from weft and then fulling the fabric so that the check effect of the weave is blurred. One unusual piece, T46 (phase 8) is clearly striped, one weft of a fine dark brown yarn similar to the warp, alternating with two wefts of a thicker, lighter yarn; this piece has been only slightly fulling, so that the pattern is clear.

Of the remaining fabrics 26% are 2/2 twills (fig. 45b), of which 5% are in worsted yarn and two appear to have a worsted warp and woollen weft. This weave has more strength and

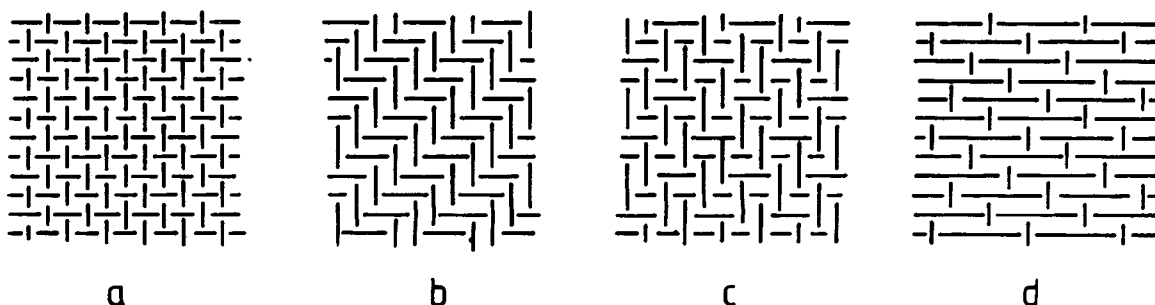


Fig. 45. a) tabby, b) 2/2 twill, c) broken 2/2 twill, d) 5-end satin.



TABLE 3

	<i>woollen tabbies</i>		<i>woollen twills</i>	
	<i>range</i>	<i>mean</i>	<i>range</i>	<i>mean</i>
<i>phase 6</i>	4-7	5.8	12-22	17.0
<i>phase 7</i>	4-16	7.5	—	—
<i>phase 8</i>	4-14	7.8	10-19	14.8
<i>phase 9</i>	4-16	7.5	11-13	12.0
<i>phase 10</i>	4-10	6.5	16-18	17.0
<i>phase 11</i>	3-14, 18	7.6	10-24	15.1
<i>phase 12</i>	4-14	7.4	8-24	15.6
<i>phase 13</i>	2-10	6.1	16-18	16.8
<i>phase 16</i>	7-12	8.8	—	—
<i>unstrat.</i>	5-8	6.8	14-22	16.8
<i>overall</i>	2-18	7.5	8-24	15.4

elasticity than tabby, but requires more expertise to weave: in a few fragments it was noticed that the weaver had occasionally pressed the wrong treadle, so that the diagonal "wale" of the fabric was interrupted. Of these twills all except one small group, T400-1, are plain (i.e. unreversed), the exceptions being broken twill (fig. 45c), a weave which deliberately presents no obvious pattern to the naked eye, unlike the diagonal lines of ordinary twill.

Several of the worsted twills and both the worsted tabbies have well-spaced warps(?) which lie flat whilst the closer-packed wefts(?) weave round them. This gives a ribbed effect in the tabbies, but in the twills the long floating threads of the weft(?) give the appearance of satin. True satin does not make its appearance amongst these finds until phase 11, although the small number of textiles from the earlier phases reduces the significance of this point. The selvages on T404 and T475 prove these to be weft-faced satins: if all the other pieces are assumed to be weft-faced, then there appears to be a standard thread count in the warp at about 28 threads per centimetre, while the counts in the weft vary tremendously, from 28 to 80. The explanation for this may lie in weaving regulations of the medieval period (and presumably later) which list weights, lengths and breadths of specific types of cloth and the number of warp threads to be used for each:<sup>189</sup> thus the warp threads would of necessity be a certain number per centimetre, while the weft, which only had to meet the requirement of weight could be tightly packed fine yarn or coarse and well-spaced. Similar regulations would probably have applied to the tabbies and twills, but the wide variety of finishes and the difficulty of telling warp from weft, makes the identification of specific types of fabrics and their standard thread counts impossible.

Conspicuous by its absence is the three-shed (2/1) construction, so common amongst medieval finds. This weave, which lent itself to being napped on one side only, was less in evidence among the Baynard's Castle late fifteenth- and early sixteenth-century finds than in earlier material,<sup>190</sup> perhaps as the fashion moved towards napping of both faces of the fabric, for which a balanced twill (2/2) is more suited. It is interesting to note that one fragment of 2/2 twill amongst the small number of early fifteenth century Black Gate finds, had a combed warp and carded weft and was napped on one side only, in the manner of the medieval 2/1 twills.

The majority of the borders in the woollens are heavily reinforced with extra paired and corded warp threads. These strong selvages must have been necessary for cloths which were to be heavily fulled and then stretched on tenter frames, and most have puckered edges with

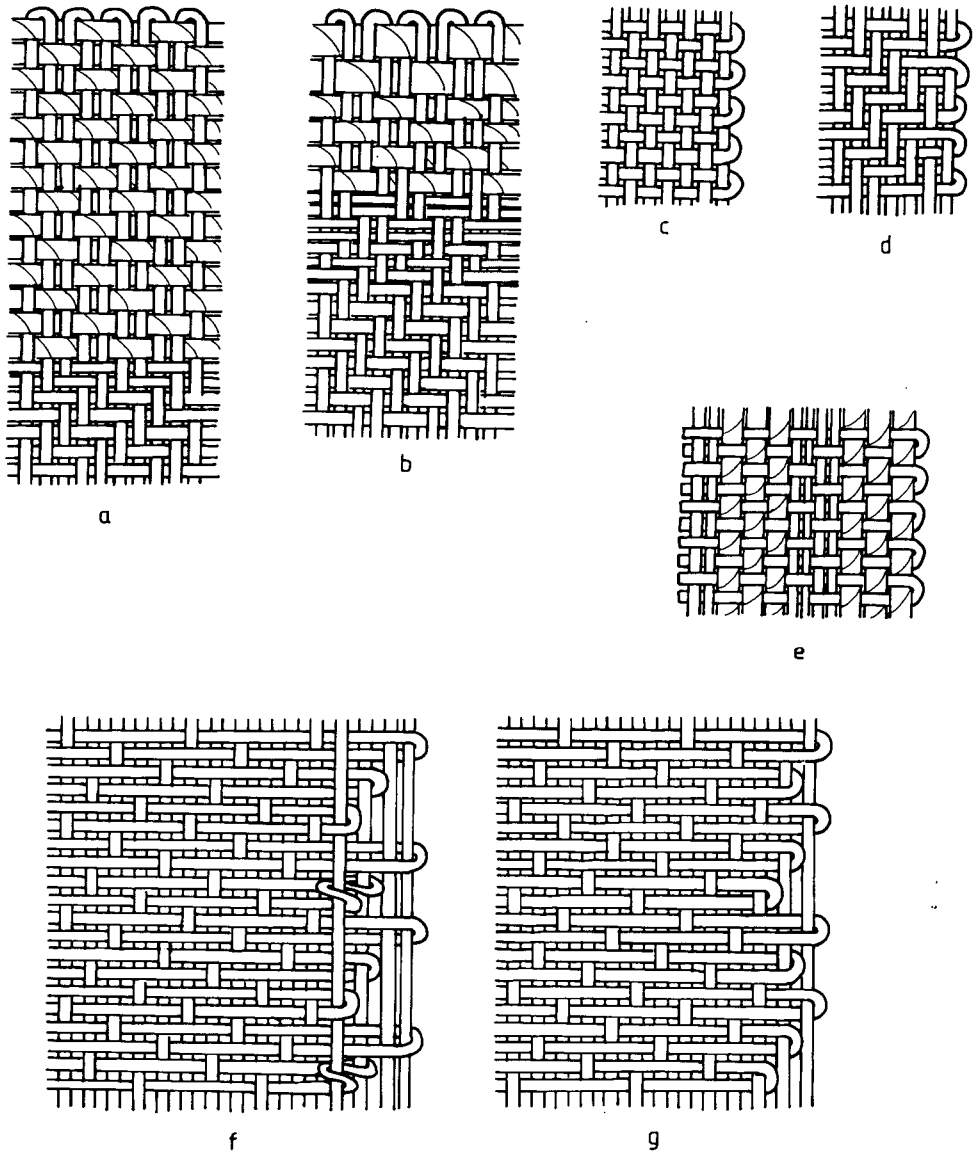


Fig. 46. a) starting border (or possible selvedge) on 2/2 twill (T179, T182). T291 is similar but with only eight reinforcing cords.  
 b) starting border (or possible selvedge) on 2/2 twill T245 with early faults in shedding order.  
 c) simple selvedge on tabby (T165, T493)  
 d) selvedge on 2/2 twill (T175)  
 e) reinforced selvedge from T372. Several tabbies have reinforced edges with varying numbers of plied and double warp threads:  
 T21 2 × 2-ply reinforcing threads  
 T27 1 double  
 T82 5 × 2-ply and 2 double  
 T264, 265, 271 15 double

T293 1 × 2-ply and 1 double  
 T308 1 single thread at edge then 12 double  
 T326, 328 3 double  
 T349 at least 14 double  
 T206 ?-ply and ? double  
 T209 1 double  
 T403 at least 5 double  
 T419 8 double  
 T423 9 double  
 T427 at least 8 double  
 T448 at least 10 double  
 f) selvedge on satin T475  
 g) selvedge on satin T404

small, often torn, holes, bearing witness to the strain of tentering. Borders a and b (fig. 46) are at first sight surprising finds to come from sixteenth-century levels. This construction is usually identified as a starting border, woven as part of the warping procedure (in this case for 2/2 twill), and is generally associated with the warp-weighted loom.<sup>191</sup> This loom was superseded in England by the horizontal loom several centuries before these textiles were made and the most recent finds of starting borders in this country had until now come from Saxon and Viking sites. It seems unlikely that even rural Northumberland would have retained these old-fashioned looms for so long when the rest of the country had such a flourishing trade in fabrics woven on the more advanced loom—or even that the old warping technique would have been transferred to the new loom and still have been in use so long after it had become irrelevant. It therefore seems probable that these fabrics are imports.

Although the horizontal loom had reached most European countries during the Middle Ages, the warp-weighted loom continued in use in remote parts of Norway and Finland into the twentieth century<sup>192</sup> and in Iceland and the Faeroes was used exclusively until the eighteenth century.<sup>193</sup> Borders of the type of a and b, with paired warp threads in a separately woven border, are more common among Viking Age and earlier finds from Scandinavia than in the historic period, but one piece of 2/2 twill from Skjoldehamn in Norway, dated to about A.D. 1500, has a starting border of this type<sup>194</sup> and the Norwegian Lapps were still preparing the warp for weaving on the warp-weighted loom by the same technique in 1955.<sup>195</sup> The most important product of the Icelandic and Norwegian looms was wadmál, described as “woollen cloth, usually in plain 2/2 twill, fulled”,<sup>196</sup> a description which fits well the fragments from Black Gate. A medieval find of coarse “wrapping wadmál” has already been identified at another English port, King’s Lynn,<sup>197</sup> although this piece dates from a period when there were stronger trade links with Iceland and Norway than in the sixteenth century.

Without doubt it is possible that all four fragments with these borders could be from cloth imported from Scandinavia. However one’s suspicions are aroused by the fact that of the 95 fragments of woollen twill these are the only borders to be found, and the possibility that they are in fact reinforced selvages for twill must be considered. This construction is probably most easily accomplished with separate heddle tie-ups for the borders, but no evidence for this technique has been found amongst the Baynard’s Castle finds or, most notably, in the Black Gate satins where a tabby border would have strengthened their uneven edges. This problem cannot be solved until more finds with borders become available.

### *Finishing*

Only the worsteds and some coarse pieces of woollen tabby (probably sacking) have had no finishing at all. The majority of the woollens have been fulled to a greater or lesser extent, ranging from fabrics in which the threads hug together tightly but still display the weave clearly (marked with one asterisk in the catalogue), to fabrics which have clearly been given prolonged treatment in the fulling mill, so that the weave is obscured by heavy matting (two asterisks). These last are thick, tough fabrics which must have been non-fraying and to some extent waterproof.

In some fifty of the textiles (marked with three to four asterisks) the weave is again obscured, but the layer of finishing is thicker and more springy and the surface is very smooth and even. The finest and most heavily finished of these (four asterisks) are very soft to handle and must be examples of the broadcloth so popular in Britain and on the continent at this date. Their nap was raised with teasels mounted in a frame, either mechanically or by hand, and the surface was then trimmed back with long cropping-shears, the process being repeated

TABLE 4 Results of tests for dyes carried out by Prof. M. Whiting and Dr J. Harvey

	Indigotin	Madder	Kermes	Alizarin/Purpurin ratio
<i>phase 6</i>				
T13	—	—	1100	—
<i>phase 9</i>				
T110	—	610	—	0.2
<i>phase 11</i>				
T155	10	—	—	—
T166	—	310**	—	1.8
T171	5	—	—	—
T175	10	—	—	—
T226	16	—	—	—
T230	—	21	—	1.1
T247	—	10	—	0.2
T295	—	13	—	0.7
T344	—	50	—	0.6
<i>phase 12</i>				
T373	1.6	—	—	—

\*\* Also contained a yellow dye, almost certainly luteolin (weld).

several times for a good finish. The heavily napped and sheared fabrics were found to be more commonly twill, although some tabbies had been given the finest finishing.

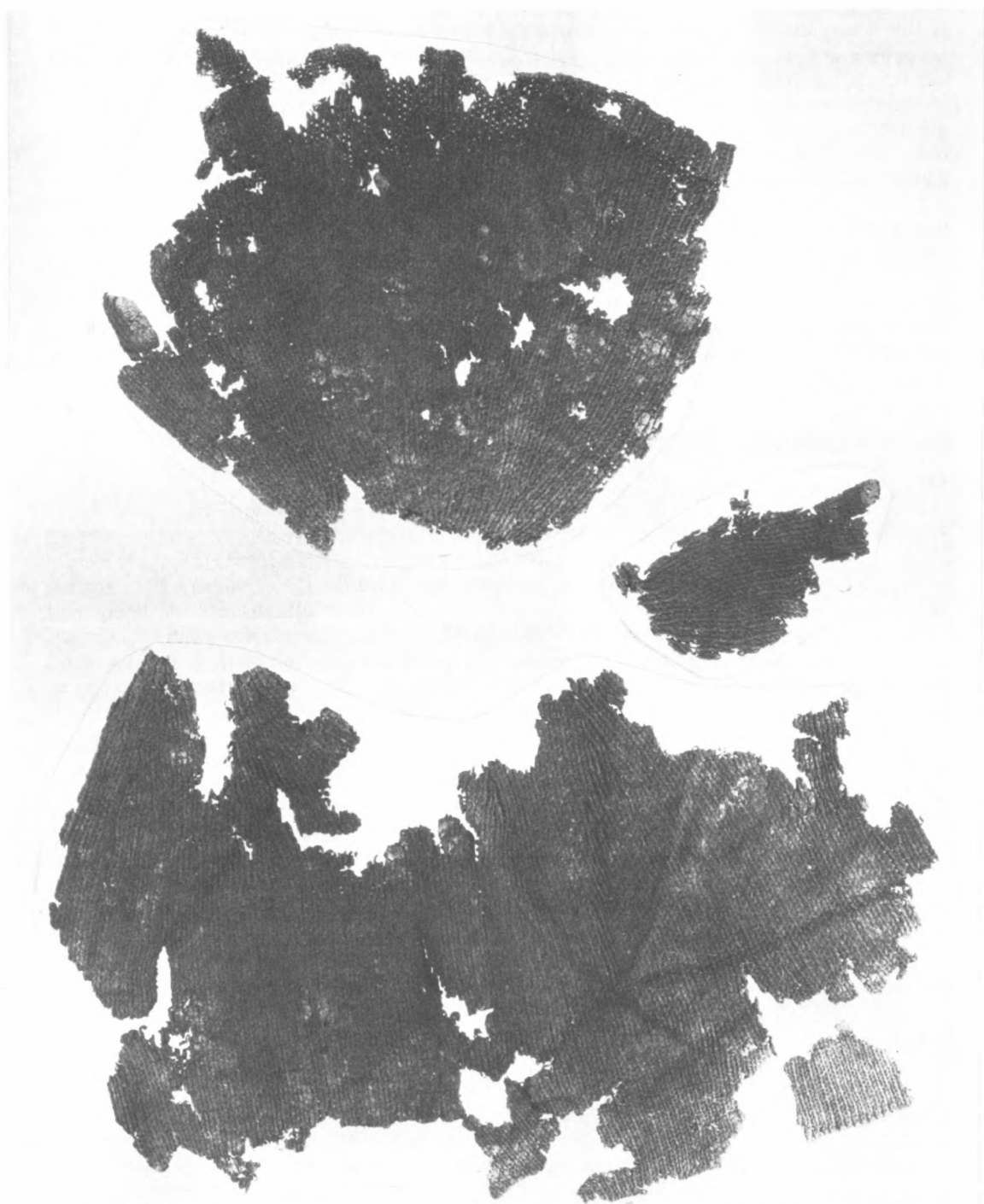
Two twill fabrics have a thick nap raised on one side only (marked N in the catalogue), with the weave remaining clear on the other side. No doubt these would have been known by one of the many generic terms used to differentiate fabrics of different weights, weaves and finish, but these terms have not been as thoroughly researched as the wadmal mentioned above.

The finishing processes of cloth, in particular tentering, which involves stretching the wet fulled cloth over a tenter-frame to dry, put considerable strain on the edges, and the need for reinforced borders becomes clear.

#### *Dyes*

As is common with archaeological textiles, these finds show little sign of dye to the naked eye, being mainly shades of brown and black. However, Professor Mark Whiting and Dr. John Harvey of Bristol University undertook an examination of thirty fragments (five selected by eye and a random sample of twenty-five from phase 11) using spectroscopic and chromatographic techniques, and twelve of these produced the results shown in Table 4. The eighteen which produced no results were either undyed or their dyes were of a type which decomposes in such a way as to be undetectable.

The proportion of indigotin to other dyes is higher than among medieval textiles from Baynard's Castle and Perth<sup>198</sup> reflecting the move towards blacks and dark colours in the late fifteenth and early sixteenth century.<sup>199</sup> There are two possible sources of indigotin, chemically indistinguishable, woad and indigo: it is uncertain whether indigo was imported from India



Black Gate, Newcastle upon Tyne: knitted fragments from the Castle ditch.

at this stage, but woad had been cultivated for some time in this country, both for dyeing pure blue and as a foundation for other colours, and was supplemented extensively by supplies from western Europe.<sup>200</sup>

Madder, similarly, was both grown in this country and imported, along with weld and other dyes, from the continent<sup>201</sup> and Professor Whiting informs me that the variable proportions of alizarin to purpurin in the madder in this sample suggests a very mixed source. Kermes, on the other hand, the costly scarlet dye known as "grain", is certainly not a local dye, being made from a sub-tropical insect. The dye itself was imported for use in this country, but taking all the factors together, it is probable that this particular piece, T13 is an import (see below, *Knitting*).

Dyeing may be carried out at any of the stages of manufacture, in the wool, in the yarn, before fulling or in its finished state. Several of the heavily finished fabrics have a markedly lighter core when viewed in cross-section, suggesting they were dyed after finishing, but it is difficult to tell whether this is in fact dye or stain from the soil. The striped and mottled fabrics, however would have been dyed in the wool or yarn.

### *Non-woven Fabrics*

#### (a) Knitting

The craft of knitting is assumed to have been introduced into Europe by the Arabs in Spain and appears to have become established in several northern countries in the Middle Ages.<sup>202</sup> However, it seems to have taken some time to reach England, despite the early imports of knitted silk garments,<sup>203</sup> the earliest known references to English knitting being 1465 and 1478.<sup>204</sup> By the mid sixteenth century knitting was well-established here, being used for hose, petticoats, gloves and sleeves<sup>205</sup> as well as caps. From these dates it can be seen that the small fragment of knitting T13, from phase 6, would have been an exciting find if it could have been considered a local product. However the presence of a foreign dye-stuff and an unusual fleece type (see above) together with the early date suggest that this piece is an import, probably from Italy or Spain, or perhaps France.

The other knitted fragments (phases 8 and 11) come from a period when cap-knitting in particular was a vigorous industry. T47-50 and T51-5 although fragmentary are clearly the remains of two hats of similar style. A reconstruction knitted by carefully following all the increases and decreases produced a hat resembling a beret: a flat circular crown, approximately 23 cms in diameter is decreased back inwards and is finished with a narrow, tightly-knit band 3 cms wide; one of the hats, T51-5, has stitch holes along the lower edge, probably for attaching a brim. An interesting feature of these hats is that they have been knitted from the centre, the increasing being done in a random fashion, by eye, and at least one of them was worked on only two needles. This last feature is unlike the sixteenth-century caps in the Victoria and Albert Museum<sup>206</sup> and the seventeenth-century caps from Scotland.<sup>207</sup> One of the Black Gate caps is more felted than the other, perhaps from fulling; the second may have been shrunk but there is no sign of any attempt to mat the surface.

#### (b) Felt

Felt is made by compacting wool with the aid of heat and humidity, the result being a fabric with similar surface appearance to the heavily finished cloth described above. Only one small triangle of felt was found among all the Black Gate textiles. Fine Spanish wools were in demand in the sixteenth century for the better quality felt, but coarser wools are known to

have been used<sup>208</sup> and this particular fragment was found to have a few coarse medullated fibres amongst predominately fine wool.\*

#### *Unspun wool and hair*

Several flat pads of wool and hair were found with the textiles, in one case adhering to a piece of tabby and some decayed leather. Of seven pieces sent to a specialist for examination, two were identified as wool, two as possibly wool, and two as animal hair similar to dog.<sup>209</sup> These may have been stuffing for chairs or "bombast" for the costume of the period.

#### *Non-wool Fibres*

One fragment of tabby and two short lengths of yarn were positively identified as silk; another decayed and fragmentary tabby and another piece of yarn were tested and found to be either wool or silk; a large group of finely woven fragments also in tabby were too decayed for identification.<sup>210</sup> The small proportion of silk to wool is a reflection of the comparative availability of these fabrics at the time, but it should not be forgotten that linen would also have been used. Unfortunately vegetable fibres do not survive on wet sites as well as animal fibres do—a fact which is abundantly clear when one looks at the stitch holes on some of these wool textiles, where only a few decayed fibres, almost certainly linen, are all that survive of the sewing thread.

Silk working in England was limited at this date to band-weaving and embroidery<sup>211</sup> and the most probable source of the silk is Spain or Italy.

#### *Costume*

A tailor's shop appears to have been the source of most of these textile fragments: many of them are angular or curved offcuts, left over after the pattern pieces had been cut from the



Fig. 47. A flat cap: taken from Holbein's sketch of Sir Thomas More's younger son, John (1527).

length of cloth, while a few of them also show remains of seams, suggesting that old garments were unpicked and re-used. A very small number of finds are fragments of discarded garments: the remains of two knitted flat caps from phase 8 (described above), the lining of a round-toed shoe and two decorative slashed strips from phase 11 show how the citizens of Newcastle were not slow in following the fashions of London.

Beret-like hats with brims were worn through much of the sixteenth century, first of all as high fashion in the 1520s and 30s, as can be seen in some of Holbein's drawings, such as his sketch of Sir Thomas More's son (fig. 47)<sup>212</sup> and later as everyday wear for citizens and

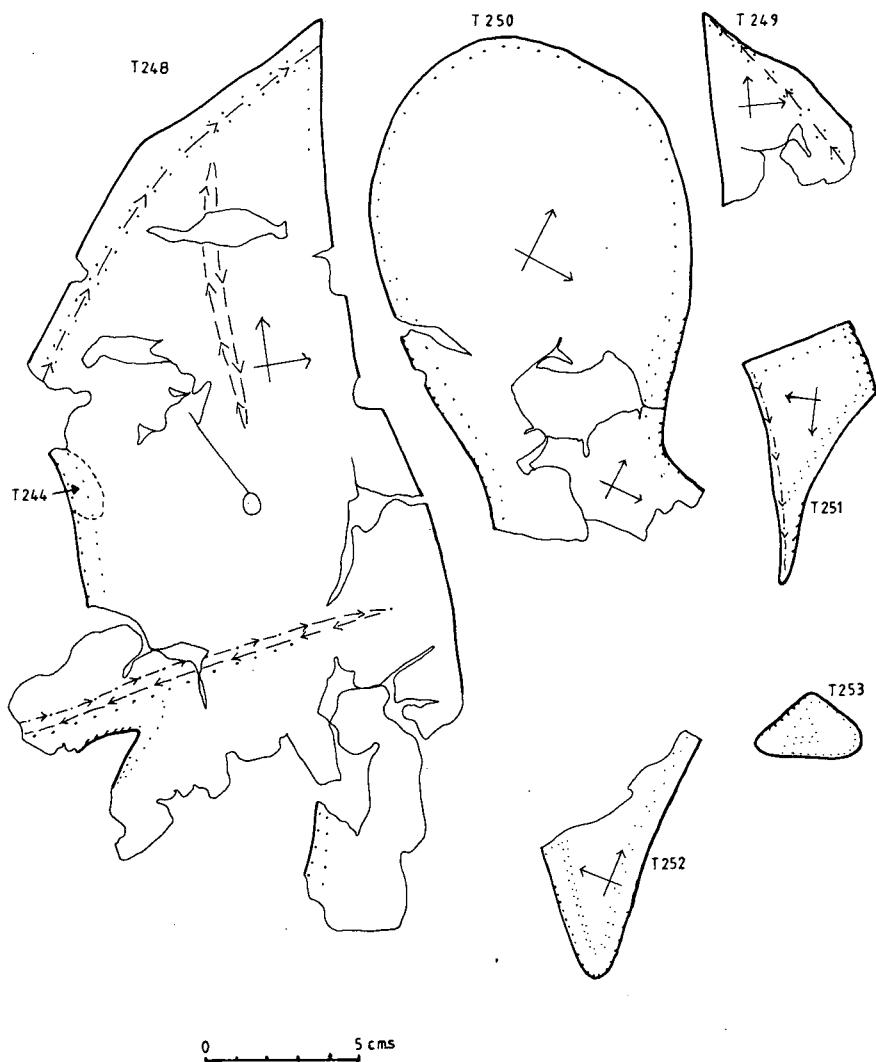


Fig. 48. Shoe lining T248-253. Heavy lines indicate cut edges, arrows folds and dotted lines are stitch holes.



apprentices.<sup>213</sup> It is unfortunate that these fragmentary caps are incomplete at their lower edges and have lost their brims, as a wide variety of styles are known.<sup>214</sup>

The shoe lining (fig. 48) is equally tattered, being the forepart with part of the waist of a round-toed sole (T250), the remains of an upper with a centre vamp seam (T248, T249) and three other pieces, one of which appears to be a reinforcement tab (T253) and another which is possibly the back part of the sole (T252). Miss J. M. Swann, Keeper of the Shoe Collection at Northampton Museum informs me that the shape of the sole is typical of footwear of the 1520s-30s and that shoes of this date had baggy uppers, often decorated with slashing. Few shoes with linings have survived from the sixteenth century and it is difficult to understand the exact construction of this lining without more comparative material.

The slashed strips (fig. 49, T179-81) belong to a somewhat later fashion. The stitching and central fold of T179 show it to be a "wing", a feature used to hide the join between a detachable sleeve and the body of a doublet, or to decorate the armhole of a jerkin. T180 and T181, with two longitudinal folds, are parts of an applied piece of slashing from the body of a garment or a sleeve (fig. 50). Wings first make their appearance in the 1540s and continue in use for the next century, but the particular type of slashed roll we have here, resembles most closely the fashions of 1565-90.<sup>215</sup> The slashing of garments, for which non-fraying fullered cloth was particularly suited, was popular for much of the sixteenth century and was clearly

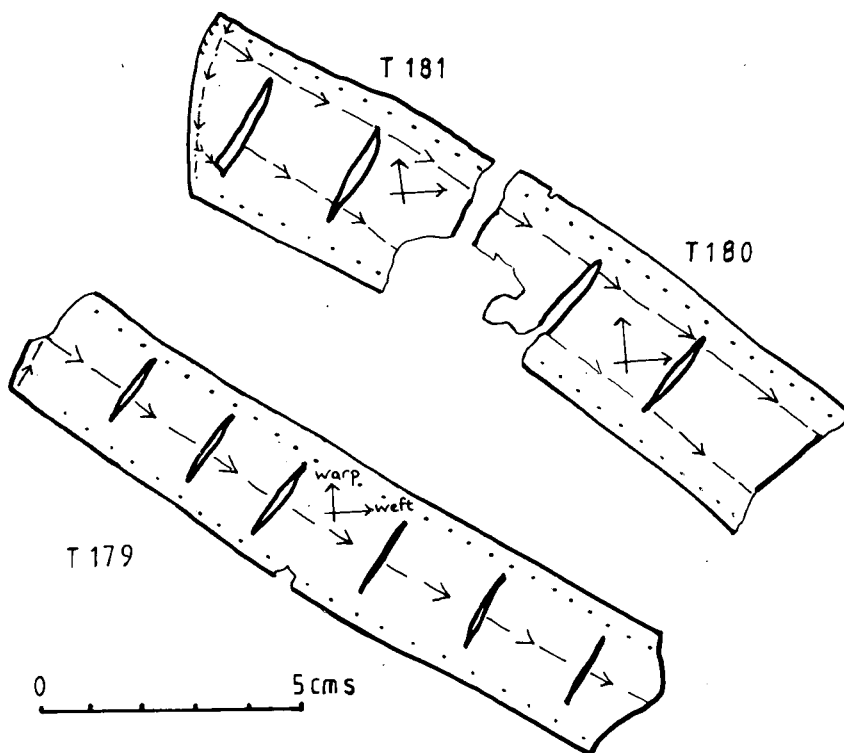


Fig. 49. Slashed strips T179-181. Heavy lines indicate cut edges, arrows folds and dotted lines are stitch holes.

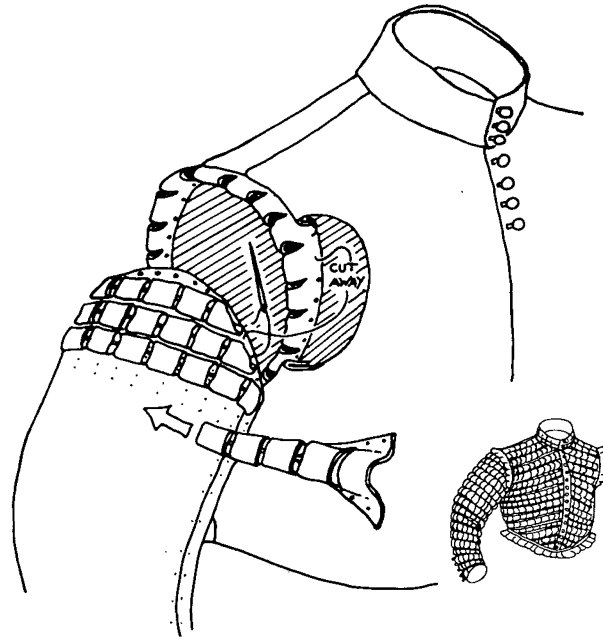


Fig. 50. Slashed "wing" and applied slashing.

fashionable amongst the apprentices of Newcastle when in 1554 their employers decried their wearing of "garded cotes, jagged hose, lyned with silke, and cutt shoes" and forbade "cutt hose, cutt shoes or pounced jenkins".<sup>216</sup> The tools used for making these cuts, pinking irons, were entered in an inventory of a Newcastle tailor's shop in 1581.<sup>217</sup>

Two further pieces show remains of costume detail but have not as yet been identified: a lightly fulled piece of tabby, from phase 8 has a scalloped edge, each scallop being approximately 10 cms wide and 3 cms deep; the second fragment has several shallow tucks (3 mm deep) running parallel to each other, each tuck being approximately 2 cms from the next.

### *Stitching*

Although in most cases the stitching had disintegrated during burial, the stitch holes and the impressions of the thread show how small and even the stitching was (between 3 and 5 stitches to the centimetre) and how carefully the edges, even of the heavily finished fragments, have been oversewn. Only in one case has the stitching survived, a decorative hemming stitch, probably of the same fibre as the fabric on which it was found, T493; this find consists of several large pieces of fine tabby now in a very decayed state. Similar types of stitching have been found on fine linen tabby-weave smocks of the sixteenth and seventeenth centuries,<sup>218</sup> which suggests that T493 may be a smock or shirt.

### *Trade and Industry*

Although Newcastle was never an important centre for cloth manufacture, a certain amount of weaving was carried out within the town,<sup>219</sup> and cloth finishing is attested to at least into the

fifteenth century.<sup>220</sup> However, few of the products of the area seem to have been of good quality, only a small number being worth taxing<sup>221</sup> and the rest being "cogware" (so-called from its sale to the crewmen of cogships), exempt from tax because of its poor quality.<sup>222</sup> Some worsted cloth must have been produced by the chaloners mentioned in the fifteenth and sixteenth centuries<sup>223</sup> but the regulations of the clothworkers' guilds suggest that woollen manufacture was more important. The ordinary of the society of fullers and dyers, 1477, shows that kerseys, broadcloth and friezes were all being worked in Newcastle at this time, while similar rules for the weavers' guild in 1527 list broadcloth, straits and kerseys.<sup>224</sup> all these names refer to woollen cloth and although occasionally made in finer qualities they were generally, with the exception of broadcloth, the medium-coarse manufactures—a category into which a large proportion of the Black Gate finds fall.

No doubt the local cloths were supplemented by the equally coarse Cumbrian and Yorkshire woollens, but a wide range of better quality fabrics from English manufacturing centres would also have been available, exposed for sale in the booths of Newcastle's Cloth Market. The fine broadcloth of the West of England and the worsteds of Norfolk would both have made their way there, to be sold at a considerably higher price than the local wares. Textile fragments which may be tentatively identified with these fabrics, that is the finest of the heavily napped and sheared pieces and the worsted satins, occur in small numbers among the Black Gate finds, reflecting this higher price-range. Medium quality woollens perhaps from the South-East or the southern midlands are also represented amongst the finds.

Although England must have been capable of being self-sufficient in goods made from wool in this the woollen industry's hey-day, it is not surprising that wool textiles of foreign manufacture should have been discovered in Newcastle. Any port acquires a certain amount of foreign goods amongst its debris and cloth may arrive as part of the dress of foreign merchants or seamen, or as gifts brought by home-coming sailors. Thus the fifteenth-century knitted fragment, probably of southern European or French manufacture does not necessarily have to be explained in terms of a serious import trade.

The problematical pieces with possible starting borders (see above), if of Scandinavian origin, may have come by similar means. However a certain amount of wadmal was being imported into London according to the 1550 customs list<sup>225</sup> and may have been traded directly into Newcastle. The Hanseatic merchants some of whom were in Newcastle in the early fifteenth century<sup>226</sup> controlled the Norwegian and Icelandic trade,<sup>227</sup> but as they lost their hold on English ports the Newcastle adventurers having previously concentrated on the trade with the Low Countries turned their attention to Scandinavia and the Baltic. Together with other northern ports they were early contributors to an attempt on a north-east passage to Russia and were founder members of the Russia Company (1566) and the Eastland Company (1579) trading to Norway and the Baltic.<sup>228</sup> Other more valuable fabrics were also being brought into Newcastle, probably arriving in the southern ports with Italian and Spanish merchants and then being shipped north. An inventory of a mercer's shop in the parish of All Saints shows the types of silk ("syndall", "brode silke", "sylke gyrdlls", etc.<sup>229</sup>) available and silk garments appear in several Newcastle wills. Clearly these were articles of great value and their small numbers amongst the Black Gate finds must reflect how they were so seldom discarded, unlike—fortunately for us—the ordinary everyday wear, the tough, hard-wearing English woollens.

#### *Acknowledgements*

As well as those mentioned in the text, my thanks are due to the following people: Miss

Elisabeth Crowfoot for information on the Baynard's Castle finds and her comments on starting borders; Dr. M. L. Ryder for help with the wool analysis; A. A. Barton for his identification of the slashed strips and the drawing, fig. 50; Miss Janet Arnold for help with costume details and stitching; Lorri Tolan and the York and District Guild of Weavers, Spinners and Dyers for information on the technical aspects of spinning; and to D. J. Rackham, for help with the preparation of the manuscript. I should also like to thank the York Archaeological Trust, in particular their conservator, J. A. Spriggs, for use of their laboratory facilities.

### *Catalogue*

Dimensions given are the maximum length and width; scrap refers to a tattered fragment less than 2 cms square.

The thread count is the number of threads per centimetre, one figure for warp and the other for weft. Where known, the warp count is given first and the same applies to the direction of spin. Borders a to g are illustrated in fig. 46

The amount of finishing, indicated by asterisks is explained in the text.

† Compare with Table 4 (dyes)

The words "seam" and "stitching" refer only to stitch-holes and impressions of stitches.

I WOVEN FRAGMENTS CATALOGUE

*Phase 6. First half of fifteenth century*

	Dimensions in cms	Woolen Worsted	Thread- count	Spin	Tabby 2/2 twill	Broken twill	5-end satin	Weft(?) -faced Border	Finishing	Colour/dye	Offcut Seam.	Other details	BGT
T1	8.0 × 5.0	*	7 × 6	S × S	*				**	mid brown			13
T2	8.0 × 4.0	*	7 × 4	S × S	*				*	mid brown			
T3	9.5 × 1.3	* *	14 × 12	S × S	*				N	dark chestnut	*	combed warp, carded weft	14
T4	5.5 × 4.5	*	22 × 20	S × S	*				*	light brown			
T5	12.5 × 0.5	*	6 × 5	S × S	*				**	dark brown			
T6	4.0 × 2.5	*	14 × 84-104	Z × Z	*		*		—	orange-brown			21
T7	5.5 × 4.5	}	7 × 6	S × S	*				*	mid brown			22
T8	3.0 × 2.5												
T9	3.5 × 3.0												
T10	9.0 × 1.0	*	5 × 5	S × S	*				**	dark brown	*		
T11	10.0 × 1.0	*	14 × 12	Z × Z	*				***	mid brown	*		26
T12	11.5 × 8.5	*	5-6 × 5	S × S	*				*/**	black-brown	*		

*Phase 7. Later fifteenth century*

T14	9.0 × 4.5	}	8 × 7	S × S	*				*/**	yellow-brown			33
T15	4.0 × 2.0												
T16	16.0 × 4.0	*	6 × 5	S × S	*				*/**	light brown	*		36
T17	12.0 × 7.0	*	16 × 14	S × Z	*				***	light brown	* *		
T18	14.0 × 5.0	}	6 × 5	S × S	*				*/**	black-brown			42
T19	13.0 × 5.0												

	Dimensions in cms	Woollen	Worsted	Thread- count	Spin	Tabby	2/2 twill	Broken twill	5-end satin	Border	Weft(?) -faced	Finishing	Colour/dye	Offcut Seam	Other details	BGT
T20	16.0 × 1.0	}	*	4 × 4	S × S	*					e	*	black-brown	*		42
T21	12.5 × 0.8															

*Phase 8. Beginning of sixteenth century*

T22	7.0 × 2.0	*		8 × 6	S × S	*						**/**	black-brown	*		34
T24	27.0 × 22.0	*		11 × 8	S × S	*						*	orange			59
T25	23.0 × 22.0	*		9 × 9	S × S	*						*	mid brown	scalloped edge		
T26	25.0 × 11.0	}	*	8 × 8	S × S	*					e	**	black-brown			
T27	14.0 × 13.0															
T28	11.0 × 3.5	}	*	8 × 8	S × S	*						**	black-brown			
T29	39.0 × 4.0															
T30	9.0 × 6.5	*		8 × 8	S × S	*						**	black-brown			
T31	11.0 × 3.0	}	*	6 × 5	S × S	*						*	dark brown			
T32	13.0 × 10.0															
T33	15.0 × 10.0	}	*	7 × 5	S × S	*						—	mid brown			
T34	14.0 × 13.0															
T35	5.5 × 3.5	}	*	12 × 6	S × S	*						**	black-brown	}	* *	
T36	11.0 × 6.5															
T37	9.0 × 5.5											—	mid brown			
T38	7.5 × 6.5	*		7 × 5	S × S	*						—	rust brown			
T39	6.5 × 6.0	*		7 × 6	S × S	*						—?	light brown			
T40	3.0 × 1.5	*		5 pairs × 9	S + S × S	*						—?	light brown	one system in pairs		
T41	8.5 × 6.6	*		14 × 11	S × S	*						—/*	light brown			
T42	12.0 × 7.0	*		9 × 8	S × S	*						*	light brown			
T43	4.0 × 3.5	}	*	8 × 7	S × S	*						*	red			
T44	3.0 × 2.0															
T45	3.5 × 2.0											*	dark brown with mid brown	stripes in weft		
T46	13.0 × 13.0	*		8 × 7	S × S + S	*						*	dark brown with mid brown	stripes in weft		

T56	20.0 × 10.5	*	19 × 19	S × S	*	**/**	mid brown	stitched tucks	60
T57	15.0 × 3.0	*	11 × 10	S × S	*	**/**	mid brown	stitched tuck	
T58	25.0 × 2.0	*	7 × 7	S × S	*	**	mid brown	* *	
T59	10.5 × 4.0	*	6 × 4	S × S	*	—/*	black		
T60	18.0 × 7.5	*	8 × 7	S × S	*	*	yellow		
T61	9.0 × 1.0	*	8 × 8	S × S	*	*	black	*	

T64	12.0 × 1.5	*	13 × 88-96	Z × Z	*	*	—	mid brown	63
T65	22.0 × 6.0	}	11 × 8	S × S	*	*	*	mid brown	
T66	10.0 × 4.5								
T67	3.5 × 2.5								

T68	16.5 × 9.0	}	9 × 8	S × S	*	**	brown-black	{	* * * *	64
T69	13.0 × 1.5									
T70	8.0 × 3.0									
T71	4.0 × 4.0 + scraps									

*Phase 9. Early sixteenth century*

T72	6.0 × 4.5	}	7 × 5	S × S	?	****	black-brown	*	27
T73	8.0 × 6.0								
T74	8.0 × 4.5								
T75	13.5 × 1.0								
T76	6.0 × 2.5	*	9 × 7	S × S	*	*	rust brown	* * * * * stitched tucks	28
T77	7.5 × 5.0	*	7 × 6	S × S	*	*	mid brown		
T78	14.5 × 1.5	*	8 × 6	S × S	*	*	dark brown		
T79	11.5 × 3.0	*	16 × 15	S × S	*	*	dark brown		

T80	13.0 × 11.0	*	14 × 12	Z × S	*	*	mid brown	* * * *	28
T81	9.5 × 5.0	*	10 × 10	S × S	*	**	chestnut		
T82	12.0 × 11.0	*	8 × 10	S × S	*	e *	mid brown		
T83	6.0 × 4.5	*	8 × 6	S × S	*	*	light brown		

	Dimensions in cms	Woollen	Worsted	Thread- count	Spin	Tabby	2/2 twill	Broken twill	5-end satin	Weft(?) -faced	Border	Finishing	Colour/dye	Offcut Seam	Other details	
T84	7.5 × 6.0	*		8 × 6	S × S	*						*	dark brown/ light brown	*	warp different colour from weft	29
T85	7.0 × 5.5															
T86	6.5 × 2.0															
T87	6.0 × 4.0															
T88	7.5 × 7.0															
T89	14.5 × 5.0	*		7 × 6	S × S	*						*	mid brown			30
T90	11.0 × 8.0															
T91	5.5 × 3.5															
T92	4.0 × 2.5															
T93	3.0 × 2.0															
T94	7.0 × 4.0															
T96	10.0 × 9.0	*		6 × 5	S × S	*						*	grey brown			37
T97	28.0 × 3.5															
T98	11.0 × 2.5															
T99	14.0 × 7.0	*		9 × 8	S × S	*						*	light brown			38
T100	11.0 × 7.0															
T101	6.0 × 2.0 + scraps															
T102	13.0 × 0.5															
T103	5 × 4 + scraps	*		7 × 6	S × S	*						*	dark brown			39
T104	5 × 4 + scraps															
T105	3 × 3 + scrap															
T106	scrap															
T108	23.0 × 4.5															
T109	7.0 × 3.0	*		7 × 6	S × S	*						*	dark brown			40
T110	18.0 × 6.0															
T111	7.5 × 2.5															
T112	8.0 × 3.5															
T112	8.0 × 3.5															
T109	7.0 × 3.0	*		13 × 11	S × S	*						***	dark brown			41
T110	18.0 × 6.0															
T111	7.5 × 2.5															
T112	8.0 × 3.5															
T112	8.0 × 3.5															
T109	7.0 × 3.0	*		13 × 12	S × Z	*						***	dark red-brown † ?			41
T110	18.0 × 6.0															
T111	7.5 × 2.5															
T112	8.0 × 3.5															
T112	8.0 × 3.5															
T109	7.0 × 3.0	*		6 × 4	S × S	*						**	light brown			41
T110	18.0 × 6.0															
T111	7.5 × 2.5															
T112	8.0 × 3.5															
T112	8.0 × 3.5															



T113	33.0 × 9.5	*	5 × 5	S × S	*	*	dark brown	85
T114	6.0 × 3.0	}	7 × 7	S × S	*	*	mid brown	89
T115	4.0 × 1.5							

*Phase 10. Second quarter of sixteenth century*

T116	5.0 × 3.0	}	5 × 4	S × S	*	*	dark brown	17
T117	4.0 × 3.0							
T118	9.0 × 6.0	}	8 × 8	S × S	*	**	brown-black	54
T119	6.0 × 2.5							
T120	7.5 × 2.0							
T121	3.5 × 1.5							
T122	2.0 × 1.5							
T124	11.5 × 8.0	}	6 × 5	S × S	*	**	black-brown	61
T125	3.5 × 2.0							
T126	10.0 × 5.0	*	30 × 50	Z × Z	*	—	mid brown	84
T127	6.0 × 5.0	}	18 × 16	S × S	*	*	dark brown	
T128	8 × 6 + scraps							
T129	6.0 × 4.5	*	10 × 6	S × S	*	***	black	*

*Phase 11. Second quarter of sixteenth century—mid sixteenth century*

T130	14.5 × 7.5	*	6 × 6	S × S	*	**	black	*	9
T131	14.0 × 2.0	*	16 × 14	S × S	*	***	dark brown	*	10
T132	5.0 × 3.0	*	18 × 18	S × S	*	***	black	*	

	Dimensions in cms	Woolen Worsted	Thread- count	Spin	Tabby 2/2 twill Broken Twill 5-end satin Weft(?) -faced Border	Finishing	Colour/dye	Offcut Seam	Other details	BGT
T133	9.0 × 9.0	* }	6 × 5	S × S	*	*	chestnut brown			23
T134	6.5 × 5.5									
T135	12.5 × 3.0									
T136	3.5 × 2.5	*	9 × 7	S × S	*	**	dark brown/ light brown yellow-brown		warp different colour from weft	
T137	11.0 × 5.0	* }	16 × 16	Z × Z	*	N?	mid brown	*		24
T138	8.0 × 5.0									
T139	6.0 × 1.5									
T140	10.0 × 5.0									
T141	6.0 × 3.5									
T142	14.5 × 11.0									
T143	11.0 × 9.0									
T144	6.0 × 4.0	*	8 × 8	S × S	*	**/**	black	*		25
T145	12.0 × 7.0	*	9 × 8	S × S	*	**/**	black	*		
T146	7.0 × 4.0	*	9 × 7	S × S	*	*	mid brown			
T147	3.0 × 2.0	*	10 × 10	S × S	*	*	mid brown			
T148	2.0 × 2.0	*	9 × 7	S × S	*	*	mid brown			
T149	9.5 × 8.5	*	12 × 10	Z × S	*	*	rust brown	*		
T150	14.0 × 7.0	*	8 × 7	S × S	*	*	brown-black	*		
T151	13.0 × 2.5	* }	8 × 7	S × S	*	*	dark brown/ light-brown		warp different colour from weft	
T152	4 × 1 + scrap									
T153	9.0 × 4.5									
T154	4.5 × 2 + scrap	*	6 × 6	S × S	*	—	orange-brown black-brown	*		
T155	15.0 × 11.0	*	11 × 10	S × S	*	*	grey-brown†			
T156	16.0 × 13.0	*	11 × 11	S × S	*	*	grey-brown			
T157	6.0 × 2.0	*	10 × 9	S × S	*	*	grey-brown			
T158	13.0 × 6.0	silk	44 × 38	Z × unspun	*	—	mid brown		folded several times longitudinally	

T159	7.0 × 3.0	*	18 × 110-120	Z × Z	*	*	—	orange-brown		43	
T160	7.5 × 1.0	*	30 × 46	Z × Z	*		—	mid brown	*		
T161	4.5 × 1.0	*	15 × 10	S × S	*		*	mid brown			
T162	6.0 × 4.0	*	14 × 13	S × S	*		*	mid brown			
T163	16.0 × 7.5	}	7 × 6	S × S	*		c	**	brown-black	{	*
T164	11.0 × 2.5										*
T165	9 × 7 +										*
	scrap										
T166	6.0 × 4.0	}	9 × 8	S × S	*			*	red-tan†		
T167	5.5 × 2.0										*
T168	3.5 × 2.0										*
T169	3 × 1 +	*	7 × 5	S × S	*			*	mid brown		
	scrap										

T171	2.0 × 1.5	*	27 × 75-80	Z × Z		*	*	—	brown-black†		44
T172	12.0 × 5.0	*	26 × 36	Z × Z		*	*	—	rust-brown	*	
T173	19.0 × 2.5	}	18 × 110-120	Z × Z	*		*	—	mid brown	?	
T174	9.2 + scraps										*
T175	7.0 × 6.5	*	28 × 48	Z × Z	*		d	—	black†	*	
T176	7.0 × 4.0	*	30 × 43	Z × Z	*			—	mid brown		
T177	10.5 × 6.5	*	20 × 16	Z × Z	*			*	dark brown		
T178	7.0 × 4.0	*	16 × 12	Z × Z	*			*	dark brown		
T179	14.0 × 2.8	*	22 × 20	S × S	*		a	**	black-brown	* slashed strip	
T180	7.5 × 3.0	}	18 × 16	S × S	*			**	black-brown	* slashed strips	
T181	6.0 × 3.2										*
T182	11.0 × 3.0	*	18 × 18	S × S	*		a	**	black-brown		
T183	5.0 × 5.0										
T184	9.5 × 5.0	*	14 × 14	Z × Z	*			***	black-brown		
T185	9.0 × 5.0	*	16 × 16	S × S	*			***	black-brown	*	
T186	7.0 × 6.5	*	14 × 12	S × S	*			***	black-brown	?	
T187	7.0 × 6.0										
T188	6.0 × 2.0	}	12 × 12	S × S	*			***	black	*	
T189	5.0 × 3.0										*
T190	7.0 × 1.5										*
T191	13.0 × 1.5	*	14 × 14	S × S	*			***	black-brown	*	
T192	12.0 × 0.5	*	?	Z × S?	?			***	black-brown	*	
T193	12.0 × 0.5 +	}	?	Z × Z	?			***	black-brown	*	
	13.0 × 0.5										*

	Dimensions in cms	Woolen Worsted	Thread- count	Spin	Tabby 2/2 twill	Broken twill	5-end satin	Weft(?) -faced Border	Finishing	Colour/dye	Offcut Seam	Other details	BGT
T194	13.0 × 4.0	*	?	S × S	?				*** / ****	dark brown	*		44
T195	6.0 × 3.0	}	20 × 18	S × S	*				N	mid brown			
T196	5.0 × 4.5												
T197	13.0 × 8.0												
T198	5.0 × 2.0												
T199	2.5 × 2.0												
T200	17.0 × 1.5	*	12 × ?	S × S	?			?	****	dark chestnut	*		
T201	5.5 × 5.0	*	15 × 15	S × S	*				***	mid brown	*		
T202	8.0 × 7.0	*	14 × 14	Z × S	*				***	chestnut brown	*		
T203	8.0 × 0.5	*	10 × 10	Z × Z	*				** / ***	black	*		
T204	10.0 × 1.0	*	15 × 14	S × S	*				***	mid brown	*		
T205	6.0 × 3.0	*	5 × 4	S × S	*				* / **	brown-black	*		
T206	8.0 × 1.5	*	10 × 6	S × S	*			e	**	dark brown	*		
T207	7.5 × 0.8	*	?	?	?				**	black	*		
T208	50.0 × 3.5	*	7 × 6	Z × Z	*				** / ***	dark brown	*		
T209	38.0 × 1.5	*	5 × 6	S × S	*			e	**	black	*	long strip tied in overhand knot	
T210	15.0 × 3.0	*	5 × 4	S × S	*				**	dark brown	*		
T211	10.0 × 0.5	*	5 × 6	S × S	*				*	dark brown/ light brown		warp different colour from weft	
T212	14.0 × 7.0	}	6 × 4	S × S	*				*	brown-black			
T213	8.5 × 3.5												
T214	8.5 × 3.5												
T215	5.0 × 2.5												
T216	5.0 × 2.5												
T217	6.0 × 2.0	*	6 × 4	S × S	*				*	mid brown			
T218	3.5 × 2.0	*	9 × 8	S × S	*				* / **	dark brown			
T219	9.0 × 0.5	*	6 × 5	S × S	*				*	dark brown			
T220	17.0 × 3.0	*	7 × 7	S × S	*				*	dark brown	*		
T221	7.0 × 6.0	}	7 × 6	S × S	*				—	brown-black			
T222	11.0 × 5.5												
T223	9.0 × 9.0												
T224	7.0 × 6.0												

T225	13 × 3+ scraps	*	12 × 10	S × S	*	**	dark chestnut		
T226	6.0 × 2.5	*	9 × 9	S × S	*	***	dark chestnut†		
T227	7.5 × 2.0	*	8 × 8	S × S	*	**	dark brown	*	
T228	11.0 × 2.5	*	9 × 7	S × S	*	*	dark brown	*	
T229	6.0 × 6.0	*	14 × 10	S × S	*	***	dark brown	*	
T230	14.0 × 3.0	*	8? × 6	S × S	*	***	black†	*	
T231	7.5 × 3.0	*	?	S × S	?	***	dark chestnut		
T232	3.5 × 2.5	*	?	S × S	?	***	dark brown	*	
T233	5.5 × 2.5	*	?	S × S	?	***	dark brown	*	
T234	11.0 × 4.5	*	6 × 6	S × S	*	*	dark brown		
T235	9.0 × 2.5	*	13 × 13	S × S	*	***	orange-brown		
T236	5.5 × 1.0	*	6 × 5	S × S	*	**	dark brown	*	
T237	8.0 × 4.5	*	7 × 7	S × S	*	*	yellow-brown		
T238	2.5 × 1.5	*	6 × 6?	S × S	?	**	dark brown		
T239	20.0 × 5.0	*	8 × 6	S × S	*	*	yellow-brown		
T240	3.5 × 2.5	*	8 × 8	S × S	*	*	black		
T241	8.0 × 5.0	*	6 × 5	S × S	*	*	light brown	*	
T243	30.0 × 1.0	*	7 × 6	S × S	*	*	mid brown/ light brown	warp different colour from weft	45
T244	4.0 × 1.0	*	18 × 16	Z × Z	*	*	light brown	lining of T250	46
T245	18.0 × 9.0	*	15 × 12	S × S	*	b **	mid brown	*	
T246	7.0 × 4.0	*	15 × 15	S × S	*	*	dark brown	stitched dart	
T247	5.0 × 4.5	*	12 × 12	S × S	*	*	mid brown†		
T248	31.0 × 15.5	}	11 × 8	S × S	*	N?	mid brown	remains of shoe-lining	
T249	7.0 × 5.0								
T250	17.0 × 11.0								
T251	9.0 × 4.5								
T252	9.0 × 4.0								
T253	4.0 × 2.0								
T254	11.0 × 1.0	*	6 pairs × 7	S + S × Z	*	*	mid brown		
T255	4.0 × 3.5	*	7 × 6	S × S	*	*	light brown		
T257	5.0 × 1.5	*	5 × 4	S × S	*	*/**	mid brown		
T258	12 × 9+ scraps	*	18 × 16	S × S	*	*	orange-brown		47
T259	8.0 × 2.0	*	6 × 6	S × S	?	**	light brown		

	Dimensions in cms	Woolen Worsted	Thread- count	Spin	Tabby 2/2 twill	Broken twill	5-end satin	Wéft(?)—faced Border	Finishing	Colour/dye	Offcut Seam	Other details	BGT
T260	16.0 × 4.0	*	27 × 35	Z × Z			*	*	—	mid brown			48
T261	11.0 × 2.0	*	30 × 75	Z × Z			*	*	—	light brown	*		49
T262	10.0 × 6.0	*	14 × 13	S × S	*				*	dark brown		two layers sewn together	
T263	6 strips 0.5 cms wide	*	?	S × S	?				***	dark brown			
T264	13.5 × 4.5	}	5 × 4	S × S	*			e	*	black	}	*	
T265	13.5 × 2.0												
T266	16.0 × 6.0												
T267	6.0 × 4.5												
T268	11.0 × 5.0												
T269	19.0 × 5.0	*	6 × 5	S × S	*				*	black	*		
T270	5.0 × 5.5	*	7 × 7	S × S	*				*	dark brown			
T271	20.0 × 7.0	*	6 × 6	S × S	*				*	black-brown			
T272	5.0 × 2.0	*	7 × 5	S × S	*				*	dark brown			
T273	18.0 × 2.5	*	6 × 5	S × S	*				*	dark brown	*		
T274	8.5 × 3.5	*	6 × 6	S × S	*				*	black			
T275	6.0 × 2.5	*	8 × 5	S × S	*				*	black	*		
T276	5.5 × 3.0	*	6 × 6	S × S	*				*	black			
T277	9.0 × 2.5	*	7 × 6	S × S	*				*	black			
T278	10.0 × 2.5	*	5 × 4	S × S	*				*/**	mid brown			
T279	9.0 × 4.0	*	6 × 5	S × S	*				*	black			
T280	9.0 × 1.0	*	6 × 6	S × S	*				*	brown-black			
T281	9.0 × 2.0	*	5 × 4	S × S	*				*	dark brown			
T282	8.0 × 2.0	*	6 × 5	S × S	*				*	dark brown			
T283	7.0 × 5.5	*	7 × 6	S × S	*				*	dark brown			
T284	10.0 × 1.5	*	7 × 5	S × S	*				*	dark brown			
T285	25.0 × 3.0	*	4 pairs × 4	S + S × S	*				*/**	dk brown/black		one system worked in pairs	

T287	8.0 × 3.0	}	*	18 × 80	Z × Z	*	*	—	mid brown		50
T288	3.5 × 3 + scraps										
T289	9.0 × 1.5	}	?	18 × 14	S × S	*	*	—	black	*	
T290	27.0 × 3.5										
T291	8.0 × 7.5	}	*	20 × 14	S × S	*	a	**	black	*	
T292	24.0 × 2.0										
T293	27.0 × 1.5	}	*	5 × 8	S × S	*	e	**	grey-brown	*	
T294	6.0 × 3.5										
T295	21.0 × 4.5	}	*	11 × 9	S × S	*		***	rust-brown†	*	
T296	4.5 × 2.0										
T297	5.5 × 2.5	}	*	9 × 8	S × S	*		*	mid brown	*	
T298	5.0 × 1.5										
T298	5.0 × 1.5	}	*	16 × 38	Z × Z	*	*	—	black		51
T299	7.0 × 2.5										
T300	11.5 × 2.5	}									
T301	3.5 × 2.0										
T302	11.5 × 5.0	}	*	18 × 16	S × S	*		***	black-brown	*	
T303	15.5 × 2.0										
T304	7.0 × 6.0	}	*	7 × 5	S × S	*		*/**	light brown		
T305	5.0 × 2.0										
T306	4.0 × 2.0	}	*	6 × 6	S × S	*		x?	mid brown		
T307	7.0 × 3.0										
T308	16.0 × 3.0	}	*	6 × 8	S × S	*	e	*/**	red-brown	* *	lining T300
T309	9.5 × 2.0										
T310	13.0 × 2.0	}	*	7 × 6	S × S	*		*	black	?	51
T311	11.5 × 2.5										
T312	9.5 × 2.0	}	*	8 × 6	S × S	*		*	yellow-brown		
T313	9.0 × 1.5										
T314	3.5 × 3.0	}	*	7 × 7	S × S	*		—	dark brown		
T315	22.0 × 2.5										
T316	6.5 × 2.5	}	*	10 × 6	S × S	*		*	black-brown	*	
T317	24.0 × 7.0										
T318	21.0 × 2.0	}	*	8 × 8	Z × Z	*		**	dark brown	*	
T319	8.0 × 1.5										
T320	7.0 × 1.0	}	*	6 × 5	S × S	*		*/**	dark brown	*	
T321	8.0 × 5.5										
T321	8.0 × 5.5	}	*	8 × 8	S × S	*		*	golden brown	*	
T320	7.0 × 1.0										
T321	8.0 × 5.5	}	*	12 × 11	Z × Z	*		*	black	* *	52
T322	7.0 × 1.0										

	Dimensions in cms	Woollen Worsted	Thread- count	Spin	Tabby	2/2 twill	Broken twill	5-end satin	Wef(?) -faced	Border	Finishing	Colour/dye	Offcut Seam	Other details	BGT
T322	7.0 × 1.2 +	* }	10 × 8	S × S	*						*	mid brown	2 cut strips sewn together folded strip sewn to cut strip ditto	53	
	7.0 × 0.8														
T323	7.0 × 1.7 +														
T324	7.0 × 0.7 4.0 × 1.7 4.0 × 0.7														
T325	20.0 × 8.0	*	8 × 6-7	S × S	*						*	mid brown		55	
T326	12.0 × 4.0	* }	4-5 × 3	S × S	*					e	—	mid brown			
T327	6.0 × 5.0														
T328	10.0 × 4.0														
T329	11.0 × 2.0	*	8? × 6	S × S	*						***	dark brown	?		
T330	7.0 × 2.0	* }	12 × 12	S × S	*						*	mid brown		56	
T331	14.0 × 10.0														
T332	13.0 × 10.0														
T333	9.0 × 6.0														
T334	21.0 × 20.0														
T335	8 scraps														
T336	7.0 × 2.0	*	12 × 12	S × S	*						*	dark chestnut	*		
T337	10.0 × 4.5	*	10 × 8	S × S	*						***	brown-black	*		
T338	9 × 5.5 + scraps	*	7 × 6	S × S	*						*	mid brown		57	
T339	19.0 × 12.0	*	8 × 7	S × S	*						*	brown-black	?		
T340	8.0 × 1.0	* }	12 × 11	Z × S	*						***	mid brown		58	
T341	12.0 × 4.0														
T342	11.0 × 3.0														
T343	18.0 × 2.0														
T344	6.0 × 2.0														
T345	8.0 × 3.5	*	7 × 6	S × S	*						*	mid brown	*		
T346	8.0 × 2.0	*	9 × 7	S × S	*						*/**	black	*		



T347	5.0 × 1.0	*	7 × 6	S × S	*	*	mid brown		
T348	5.0 × 2.5	*	18 × 13	S × Z	*	***?	mid brown		62
T349	5 × 1.5 + scrap	*	6 pairs × 4	S + S × S	*	e *	mid/dk brown	one system worked in pairs	
T350	12.0 × 3.5	*	10 × 7	S × Z	*	**	dark chestnut	*	81
T351	9.5 × 8.0	}	8 × 7	S × S	*	*	rust brown		
T352	11.0 × 7.5								
T353	12.0 × 1.0 + 7.5 × 1.0								
T354	scraps	*	12 × 10?	S × S	*	*	mid brown		
T355	9.5 × 6.0	*	7 × 6	S × S	*	*	dark brown		82
T356	4.0 × 4.5	}	12 × 25	Z × Z	*	*	dark grey		83
T357	4.0 × 2.0								
T358	9.0 × 5.0								
T359	8.0 × 5.0	}	7 × 5	S × S	*	*	grey-brown		
T360	20 × 16 + scrap								
T361	8.5 × 8.0								
T362	8.5 × 3.5	}	7 × 5	S × S	*	*	black-brown		
T363	4.0 × 3.5								
T364	19.0 × 3.5								
T365	11 × 8 + scraps	*							

*Phase 12. Mid sixteenth century*

T366	19.0 × 4.0	*	4 × 4	S × S	*	*	mid brown	?	1
T367	10.0 × 4.0	*	18 × 16	S × Z	*	***	dark brown		2
T368	7.0 × 4.0	*	12 × 12	S × S	*	*	mid brown	} silk yarn T527 adhering to these	3
T369	3 × 2.5 + scraps	*	11 × 11	S × S	*	*	light brown		

	Dimensions in cms	Woolen Worsted	Thread- count	Spin	Tabby 2/2 twill	Broken twill 5-end satin Weft(?) -faced Border	Finishing	Colour/dye	Offcut Seam	Other details	BGT	
T370	13.0 × 6.0	*	8 × 7	S × S	*		*	mid brown			4	
T371	11.0 × 6.0											
T372	10.0 × 2.0	*	? × 5-6	? × S	?		e	*	*	border only present	8	
T373	16.0 × 4.0	*	10 × 9	S × S	*			***	*	black†	11	
T374	13.0 × 8.0	*	14 × 10	S × S	*			***	*	brown-black	12	
T375	9.5 × 3.0	*	24 × 24	S × S	*			****	*	brown-black		
T376	9.0 × 2.5	*	18 × 16	Z + S × S	*			***	*	brown-black	spin of yarn changes halfway through fragment	18
T377	7 × 7 + scraps	*	8 × 6	S × S	*			*		dark brown	19	
T378	14.0 × 10.0	*	28 × 60	Z × Z		* *	—			mid brown	20	
T379	3.0 × 2.0	*	30 × 32	Z × Z		* *	—			mid brown	71	
T380	5.0 × 2.5	*	18 × 16	S × S	*		*			mid brown		
T381	5.0 × 4.0	*	8 × 8	S × S	*		*			mid brown		
T382	4.5 × 1.5	*	10 × 9	S × S	*		*		*	mid brown		
T383	4.5 × 3.0	*	18 × 16	S × S	*		**			mid brown		
T384	5.0 × 5.0	*	10 × 10	S × S	*		*			rust brown		
T385	5.5 × 2.0	*	14 × 10	Z × S	*		*			yellow brown		
T386	4.5 × 4.5	*	9 × 5	S × S	*		*			mid brown		
T387	4.0 × 2.5	*	8 × 7	S × S	*		*			mid brown		
T388	3.5 × 3.5	*	10 × 9	S × S	*			*		rust brown		
T389	4.5 × 2.0											
T390	10.0 × 4.0	*	10 × 6	S × S	*		*			mid brown		
T391	scrap	*	7 × 6	S × S	*		***			dark brown		

T392	3.0 × 2.0	}	*	26 × 40	Z × Z	* *	—	mid brown	72
T393	2.5 × 1.5								
T394	5.0 × 1.0								
T395	5.0 × 1.0	}	*	12 × 11	S × S	*	**	dark brown	*
T397	7.0 × 3.0	}	*	28 × 30	Z × Z	*	—	dark brown	73
T398	15.0 × 13.5								
T399	18.5 × 7.0								
T400	7.0 × 3.0	}	*	10 × 9	S × S	*	*	dark brown	
T401	6 × 2 + scraps								
T402	14.5 × 7.5	}	*	8 × ?10	S × S	*	***	dark brown	*
T403	9.0 × 1.5								
T404	9.5 × 3.0	}	*	28 × 50	Z × Z	* * g	—	mid brown	74
T405	4.0 × 4.0								
T406	12.0 × 4.0								
T407	2.5 × 1.0								
T408	7.3 × 1.5								
T409	6.5 × 1 + scrap								
T410	6 × 4 + scraps								
T411	4.5 × 4.5 + scraps								
T412	15.0 × 2.5								
T413	6.0 × 4.0								
T414	5.3 × 3.0								
T415	12.5 × 1.5								
T416	5.0 × 1.5								
T417	4.0 × 2.0								
T418	34.0 × 1.5								
T419	15.0 × 1.5								
T420	13.5 × 1.5								
T421	11.0 × 2.0								
T422	17.0 × 1.5								
T423	19.0 × 1.3								
T424	15.5 × 0.8								
T425	18.5 × 0.5								

	Dimensions in cms	Woolen Worsted	Thread- count	Spin	Tabby	2/2 twill	Broken twill	5-end satin	Weft(?) -faced	Border	Finishing	Colour/dye	Offcut Seam	Other details	BGT
T426	32.5 × 2.0	*	6 × 6	S × S	*						*** /****	brown-black	*		74
T427	9.5 × 4.0	*	10 × 8	S × S	*					e	**	brown-black	*		
T428	39.0 × 1.5	*	8 × 8	S × S	*						**	dark brown	*		
T429	5.5 × 2.5 + scraps	*	28 × 38	Z × Z			*	*			—	mid brown	*	sewing thread T528	75
T430	4.5 × 2 + scraps	*	5 pairs × 6	S + S × S	*						*	dark brown		one system worked in pairs	
T431	4.0 × 1.0	*	8 × 6	S × S	*						*	dark brown			
T432	5.0 × 5.0 + scraps	*	18 × 108	Z × Z	*		*				—	dark brown			76
T433	5.0 × 4.0	}	18 × 18	S × S	*						** /***	dark brown	*		
T434	7.0 × 2.0														
T435	5.0 × 4.0														
T436	6.0 × 6.0														
T437	7.0 × 3.5	*	11 × 9	Z × S	*						*	black			
T438	16 × 9 + scraps	*	10 × 8	S × S	*						*	mid brown			
T439	5.0 × 3.0	*	7 × 5	S × S	*						**	dark brown			
T440	16.0 × 4.0	*	6 pairs × 4	S + S × S	*						*	mid brown		one system worked in pairs	
T441	11.0 × 2.0	*													
T442	4.0 × 3.0	*	5 × 5	S × S	*						*	dark brown			
T443	9.0 × 4.0	*	10 × 9	S × S	*						***	dark brown	*		
T444	9.0 × 7.0	}	12 × 10	S × S	*						— /*	dark brown			
T445	7.0 × 7.0														
T446	8.0 × 1.5	*	6 × 8	S × S	*						*	dark brown			
T447	9.0 × 4.0	*	8 × 5	S × S	*						*	dark brown			
T448	20.0 × 2.5	*	4 pairs × 4	S + S × S	*						*	mid brown	*		
T449	20.0 × 2.5	*	6 × 7?	S × S	*					e	*** /****	black	*		

T450	10.5 × 2.5	}	*	6 × 6?	S × S	?	*** / ****	black	*	
T451	30.0 × 1.5									
T452	9.0 × 5.0									
T453	9.0 × 2.5									
T454	11.0 × 4.0	}	*	10 × 8	S × S	*	***	dark brown	*	
T455	8.0 × 1.5									
T456	7.5 × 1.0									
T457	13.0 × 0.8									
T458	12.0 × 0.3									
T459	19.0 × 0.5	*	?	S × S	?	**	black	*		
		*		5 × 6?	S × S	*	*	dark brown	*	
T461	5 × 3 + scraps	*		28 × 38-42	Z × Z		* *	—	mid brown	77
T462	6.0 × 1.0	*		28 × 32	Z × Z	*		—	mid brown	
T463	7.5 × 4.5	*		22 × 22	S × S	*		*	mid brown	*
T464	9.0 × 7.0	*		18 × 16	S × S	*		*	mid brown	*
T465	5.5 × 3.5	*		19 × 16	S × S	*		*	mid brown	
T466	4.0 × 3.0	*		19 × 18	S × S	*		*	mid brown	
T467	3.5 × 3 + scraps	*		20 × 18	S × S	*		*	mid brown	
T468	10.0 × 10.0	*		16 × 18	S × S	*		*/**	dark brown	* *
T469	10.0 × 3.5	*		8 × 6	S × S	*		***	dark brown	T472 (yarn) adhering to this
T470	21.0 × 1.0	*		6 × 5	S × S	*		**	black	
T471	4.5 × 2.5	*		9 × 6	S × S	*		*	mid brown	
T474	3.0 × 2.5	*		6 × 5	S × S	*		*	mid brown	78
T475	8.0 × 4.5	*		28 × 60-65	Z × Z		* * f	—	dark brown	79
T476	4.5 × 4.0	}	*	26-28 × 35	Z × Z		* *	—	mid brown	
T477	4.0 × 3.0									
T478	8.0 × 2.5	*		22 × 14	S × S	*		**	orange-brown	*
T479	6.5 × 4.0	}	*	14 × 13	S × S	*		*	mid brown	
T480	3.5 × 2.5									
T481	10 × 5 + scraps									
T482	8.0 × 1.5	*		18 × 16?	S × S	*		**	mid brown	*
T483	10.5 × 8.5	*		9 × 8	S × S	*		*	mid brown	*
T484	7.0 × 6.0	}	*	9 × 8	S × S	*		*	mid brown	* *
T485	8.0 × 6.0									

	Dimensions in cms	Woollen Worsted	Thread- count	Spin	Tabby 2/2 twill	Broken twill	5-end satin	Wef(?) -faced Border	Finishing	Colour/dye	Offcut Seam	Other details	BGT
T486	6.0 × 0.75	*	18 × 17	S × S	*				*	dark brown			79
T487	4.0 × 3.0	}	14 × 14	S × S	*				*	light brown			
T488	4.5 × 1.0												
T489	3 × 2 + scraps	*	9 × 7	S × S	*				**	light brown	*		90
T490	9.0 × 2.5	*	6 × 5	S × S	*				*	dark brown			
T491	1.0 × 1.0	*	8 × 6	S × S	*				*	dark brown			
T492	10.0 × 4.0	*	10 × 10	S × S	*				*	black	*		

*Phase 13. Mid sixteenth century*

T493	several tattered pieces, largest 20.0 × 20.0 cms	?	20 × 22	Z × Z	*			c	—	black		several layers folded together; hems; fibre unidentified	66
T494	7.5 × 5.0	*	18 × 17	S × S	*				*	dark brown		triangle of stitches	67
T495	6.5 × 5.5	*	10 × 7	S × S	*				*	dark brown			
T496	9.0 × 1.5	*	7 × 6	S × S	*				*	mid brown			
T497	7.0 × 5.0	}	3 × 2	S × S	*				*	dark brown			
T498	8.0 × 3.5												
T499	4 × 1.5 + 4 × 1.5	?	15 × 15	Z × Z	*				—	dark grey		fibre unidentified	68

T500	5.5 × 3.0	*	26 × 30	Z × Z	* *	—	reddish brown		69
T501	5.0 × 2.0	*	8 × 4	S × S	*	*	mid brown		
T502	9.0 × 3.5	*	16 × 16	S × S	*	*	dark brown		70
T503	8.0 × 8.5 + scraps	*	8 × 6	S × S	*	*	dark brown		

*Phase 16. Second half of sixteenth century*

T504	10.0 × 9.0	*	8 × 7	S × S	*	*	mid brown		7
T506	3.5 × 2.0	*	10 × 9	S × S	*	*	orange	see T507	15
T508	5.5 × 3.0	}	24 × 28–30	Z × Z	* *	—	mid brown	*	16
T509	5.5 × 4.0								
T510	7.0 × 3.0								
T511	scraps	?	22–24 × 20	Z × Z	*	—	black	wool or silk	31
T512	9.0 × 6.0	*	12 × 7	S × S	*	*	light brown		32

*Unstratified,*

T514	15.0 × 4.5	*	16 × 14	Z × Z	*	***	black-brown		5
T515	12.0 × 5.0	}	16 × 16	S × S	*	***	black-brown		
T516	16.0 × 2.5								
T517	3.5 × 2.0								
T518	12.0 × 2.5	*	18–20 × 16	S × S	*	***	black-brown		
T519	8.0 × 5.0	*	16 × 16	S × S	*	***	black-brown		
T520	14.5 × 1.0	*	22 × 20	S × S	*	***	black-brown		
T522	7 × 6 + scraps	*	15 × 15	Z × Z	*	*	dk red-brown		

	Dimensions in cms	Woollen Worsted	Thread- count	Spin	Tabby 2/2 twill	Broken twill	5-end satin	Weft(?) -faced	Border	Finishing	Colour/dye	Offcut Seam	Other details	BGT
T523	24.0 × 13.0	*	6 × 5	S × S	*					*	dark brown			86
T524	11.0 × 6.0	*	8 × 6	S × S	*					*	yellow-brown		warp different	
T525	8 × 1.5 + scrap	*	8 × 8	S × S	*					*	mid brown/ light brown		colour from weft	

*Addendum*

T529	1.0 × 1.0	?	14 × 16	S × S	*					—	dark brown		adhering to cow metatarsus	
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II KNITTED FRAGMENTS

*Phase 6*

	Dimensions in cms	No. of stitches + rows per 5 cms	Yarn	Colour/dye	Other details	BGT
T13	6 × 3 + scraps	15 sts × 27 rows	2-ply, Z-twist, S-spun	pale red-brown†		26

*Phase 8*

T23	4 × 4 + scraps	10 sts × 15 rows	2-ply, Z-twist, S-spun	black-brown		34
T47	25 × 13	17 sts × 25 rows with a border	2-ply, ?Z-twist, S-spun	dark chestnut	} fragments of a knitted hat, lightly fulled	59
T48	17 × 14					
T49	4 × 1	17 sts × 25 rows	2-ply, ?Z-twist, S-spun	dark chestnut		
T50	8 × 4					
T51	10 × 9	22 sts × 35 rows	2-ply, ?Z-twist, S-spun	dark grey-brown		
T52	3.5 × 3.5					
T53	5.5 × 4.5					
T54	24.5 × 11.0					
T55	19.0 × 18.0					
T62	10.0 × 9.0	10 sts × 18 rows	2-ply, Z-twist, S-spun	black-brown		60



*Phase 11*

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T256	16.0 × 7.0	16 sts × 20 rows	2-ply, ?Z-twist, S-spun	mid brown	46
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*Unstratified*

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T526	15.5 × 12.0	18 sts × 26 rows with a border 26 sts × 42 rows	2-ply, ?Z-twist, S-spun	dark red-brown with grey-brown border	86
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All are worked in stocking stitch

III FELT

*Phase 9*

T107 1.5 × 1.0 cms triangular offcut of dark brown/black felt.

IV YARN

*Phase 11*

T170 3 lengths of mid brown woollen cord, S-twisted from tight S-spun yarn:—

a) 17 cms long, 2.5 mm diameter, 3-ply, each ply being 0.7 mm diameter.

b) 8 cms long, 2.0 mm diameter, 2-ply, each ply being 0.7 mm diameter.

c) 8 cms long, 1.0 mm diameter, 2-ply, each ply being 0.6 mm diameter. b) and c) may have been twisted together originally.

T527 Two short lengths (1.3 cms) of yellow silk yarn 0.2–0.3 mm diameter, Z-spun, found adhering to surfaces of T368 and T369

T528 The sewing thread of T429 is a golden brown yarn, 0.1 mm in diameter; wool or silk; spin uncertain

*Phase 12*

T472 Adhering to surface of T469 are short lengths of worsted wool yarn, Z-spun approx. 1.0 mm in diameter.

V WOOL/HAIR

*Phase 8*

T63 A circular pad of black-brown hair. [Similar to T242 which may be dog hair] 60 BGT

*Phase 9*

T95 A loose ball of unspun black wool: [medium diameter wool, no medullation or pigment but appears to have been dyed dark brown] 35

*Phase 10*

T123 Several small pads of mid-brown wool or hair 54

*Phase 11*

T242 Mainly mid brown hair, with light and dark tufts [a mixture of fine and coarse fibres, some of which are medullated; too regular for wool fibres. Very little evidence of scale structure but the cross-section shows some features which are similar to some kinds of dog hair] 44

T286 Several layers of mid-brown wool or hair. 49

*Phase 12*

T396 Several short pieces of mid brown hair 72

T460 Small pad of mid-dark brown hair 76

T473 Compacted pad of mid brown wool or hair 77

*Phase 16*

T505 Several flat, compacted pads of mid brown wool or hair [probably wool] 7

T507 Flat compacted pads of mid brown wool or hair, some of which adheres to a layer of leather(?) over a layer of textile, T506, with a second layer of leather on top [pigmented; probably wool] 15

T513 Fragment of matted mid brown wool 32

*Unstratified*

T521 Compacted pad of dark red-brown wool [animal fibres of fine to medium diameter. Some are pigmented. Probably wool] 6

Note: H. M. Appleyards identifications are given in brackets.

## THE ANIMAL REMAINS

*James Rackham*

including a report on the Bird Bones by *Enid Allison*

### *Introduction*

Amongst the debris recovered during the excavations at Black Gate was a variety of animal material relating to the diet and economy of the people of Newcastle. A fairly large collection of mammal bones was excavated and in addition to these small numbers of bird, fish, mollusc and crustacean remains were found. The relative absence of fish and marine invertebrates from the study material is surprising considering the location of the town on the banks of the Tyne only a few miles upstream from the mouth of the river. It may well be that this is in part due to the manner of recovery of the sample. Excavation by hand often results in the failure to notice the small bones,<sup>230</sup> and it is possible that many fish bones and the smaller mammal bones may have been missed. However excavations in the fishing port of Hartlepool (unpublished work) have yielded a high fish to mammal bone ratio by excavation and the very small sample (less than fifty bones) from the whole site at Black Gate suggests that there must be an alternative explanation for their absence. The "semi-official" nature of the tipping suggested above may have imposed restrictions upon who, or what, dumped, or was dumped, into the ditch and could easily result, and has in some layers, in a number of biases in the assemblage. It is the recognition of these biases that permits interpretation and conclusions to be reached concerning the economy or industries that produced the rubbish. Conclusions drawn from such a sample must be critically viewed and generalizations regarding husbandry practice or changes in diet based upon it may fail to recognize the influence of other economic factors.

The majority of the bones from the excavations were recovered from the ditch, a few only coming from layers unassociated with the ditch. The earliest deposits date to the early medieval period and the first three pottery phases covering the period from the early thirteenth century to the early fourteenth century produced little material (Table 4). By the later fourteenth century the ditch appeared to function as a semi-official rubbish tip and much of the later material from the sixteenth century contains groups of bones suggestive of such bulk disposal.

The stratigraphy of the deposits was clear and the separation of the sample of bones discussed below is based upon this and the phases determined from an analysis of the pottery. A particularly interesting aspect of the sample is that it has been possible to divide the sixteenth-century deposits into nine pottery phases, 8-17, and with the relatively large collections of bones from each phase it is possible to observe the changing proportions of the species and bones in the deposit over an archaeologically short period of time. Neither of these observed changes need necessarily have been influenced by anything other than local industrial factors. Perhaps more important yet not dealt with in detail in this report is the fact that the collection provides a very large sample of closely dated domestic animal bones for comparison with other site assemblages.

### *Method of Analysis*

Individual bones were assigned to species where possible. Bones for which specific identification could not be made were classed in terms of size and morphological character where the latter was apparent. Fragments catalogued as "large ungulate" (Table 4) could be distinguished as horse/ox/red deer but no closer and those recorded as "Large mammal" were ox-sized—a category encompassing animals larger than a fallow deer. Horse vertebrae and ribs are

generally distinguishable from those of cattle and deer, the large ungulate class is therefore likely to be mainly ox and deer. The class "small ungulate" can be taken to include roe deer, sheep, goat and pig, although the vertebrae of the latter and some ribs are readily recognized—this class therefore being more specific to sheep and deer. All other fragments of small or unknown animal size are grouped under the title "mammal, indet" (Table 4).

The data was recorded using the Ancient Monuments Laboratory (DoE) Computer based Recording System<sup>231</sup> and subsequently processed at Durham University on NUMAC (Northern Universities Multiple Access Computer) using a program written by B. J. Lamden. Owing to technical difficulties the time available for the processing was short and the level of the report below does not take into account all the recorded data for each bone fragment. The recorded data included information on side, fragment size and part, butchery, pathology, sex, epiphyseal fusion and tooth eruption and wear. Measurements were taken where possible according to Von den Driesch and Jones.<sup>232</sup> The data is archived at The Ancient Monuments Laboratory, Fortress House, 23 Saville Row, London and The Department of Archaeology, University of Durham, 46 Saddler Street, Durham.

The data is summarized in terms of fragment numbers for each bone and species and presented below in tabular form. The sample consisted of 21,230 mammal bones, 71% of which were identified to species.

#### MOLLUSCS AND CRUSTACEANS

Shells were found in all phases of the site, but finds were few in number (Table 1). This does not appear to be related to preservation conditions in the deposits—those shells found being in fair condition—although many layers contained ash and may have been sufficiently acidic to corrode shell. The commercial origin of much of the material (below) may be responsible for the absence of these finds which turn up more frequently among sites with domestic debris. The finds include mussel, oyster, periwinkle, cockle and limpet shells. The crustacean remains are fragmentary, but two portions of claw were identified as *Cancer pagurus* L., the edible crab.

TABLE 1 Black Gate, Newcastle: Mollusc and Crustacean Finds in each Phase

	2	3	4	5/6	7	8	9	10	11	12	13	14	15	16	17
Common Mussel, <i>Mytilus edulis</i>	2							4			2				
Oyster, <i>Ostrea edulis</i>		1	2	5	2	5	5	8	3	2	3	3	11	1	1
Common Cockle, <i>Cardium edule</i>						2		1			8	2	4		2
Common Limpet, <i>Patella vulgata</i>							1	1	1	1	1				
Periwinkle, <i>Littorina littorea</i>				1		11	6		1	3	7	11	6		12
Whelk, <i>Buccinum undatum</i>							1								
Flat Winkle, <i>Littorina littoralis</i>											1				
Freshwater Bivalve, species indet.									1						
Edible Crab, <i>Cancer pagurus</i>					1							2			1

#### FISH (identifications by A. J. K. Jones)

Reference has been made to the possible failure to recover some or many of the fish bones from

the site. Those that have been found are mostly from large fish, the bones of smaller individuals and species have either been missed or were not present. Cod and ling were identified from a number of the phases (Table 2) and were mainly large specimens. Haddock occurred in phase 8 and a fragment of sturgeon in phase 11.

TABLE 2 Black Gate, Newcastle : Fishes Identified from each Phase

	8	9	10	11	12	13	14	15	16	17
Cod, <i>Gadus morhua</i>	+	+	+	+			+		+	
Ling, <i>Molva</i> sp.				+	+	+	+	+	+	
Gadidae, Cod family										
Sturgeon, <i>Acipenser sturio</i>				+						
Haddock, <i>Melanogrammus aeglefinus</i>	+									

## THE BIRD BONES

A total of 494 bird bones were recovered from the site. The vast majority (94.5%) are those of domestic fowl and goose, which are represented by approximately equal numbers. A list of the species and number of bones present in each phase is shown in Table 3. Bones from phases of similar dating have been combined.

TABLE 3 Numbers of bird bones

Species	Phases									
	1-4	5/7	8/9	10	11	12	13	14/16	15	17
Cormorant, <i>Phalacrocorax carbo</i>	—	2	—	—	—	—	—	—	—	—
Grey Heron, <i>Ardea cinerea</i>	—	—	—	—	—	—	1	—	—	—
Goose cf. dom., <i>Anser anser dom.</i>	14	3	51	11	22	35	49	17	10	11
Wild goose sp.	—	—	1	1	—	1	—	—	1	—
Mallard, <i>Anas platyrhynchos</i>	—	—	—	2	1	—	—	1	—	—
Red Kite, <i>Milvus milvus</i>	—	—	?	—	—	—	—	—	—	—
Black Grouse, <i>Lyrurus tetrix</i>	—	1	—	—	1	—	—	—	—	—
Domestic fowl, <i>Gallus gallus</i>	2	7	43	13	21	35	54	27	15	17
Peafowl, <i>Pavo cristatus</i>	—	—	—	1	—	—	—	—	—	—
Turkey, <i>Meleagris gallopavo</i>	—	—	—	—	—	—	—	—	—	1
Plover sp., <i>Charadriid</i> sp.	—	—	—	—	1	—	—	—	—	—
Woodcock, <i>Scolopax rusticola</i>	—	—	—	—	—	—	—	1	—	2
Scolopacid? Woodcock	—	—	—	—	—	2	—	—	—	—
Starling, <i>Sturnus vulgaris</i>	—	1*	—	—	—	—	—	—	—	—
Raven, <i>Corvus corax</i>	—	—	—	—	—	—	—	—	—	1
unidentified	1	—	—	—	—	—	—	—	—	—
indet.	—	—	—	—	—	—	—	1	2	—

\*? modern intrusion

A starling skull from Group 6 may have been a modern contaminant. Of the rest of the species present, only the raven and the red kite are unlikely to have been eaten. Ravens and red kites were common scavengers in towns in the past and their remains are frequently recovered from archaeological sites. Cormorants were eaten and their bones have been found among domestic refuse, particularly on Scottish prehistoric sites.<sup>233</sup> Bewick<sup>234</sup> mentions that because of their strong smell they must be "sweetened" before cooking. This involved their being skinned and drawn and then wrapped in a cloth and buried for a while. After being dug up they were usually potted like Moor Game. The position of this site near the River Tyne, however, makes it possible that the cormorant represented here was not eaten but died while it happened to be in the area.

Most of the goose bones were compatible with the modern domestic variety but four were smaller and more slender. Only one of these four bones, a carpometacarpus from Phase 8, was sufficiently complete for comparison with measurements of modern specimens and comes within the ranges for pinkfooted, whitefronted and barnacle geese.<sup>235</sup>

The bones of domestic fowl fall into two size groups which correspond to males and females. The birds seem to have been of fairly slender build and about the size of modern bantams. Where possible, measurements were taken on these bones and are stored in the archive of the Environmental Archaeology Unit, University of York.

The two most exotic species represented are the peafowl and the turkey. The peafowl is a native of India and Burma and is thought to have been introduced into Britain by the Romans. In medieval times it was often served as a centrepiece at banquets, the bird being flayed, roasted and then replaced in its skin and arranged in a lifelike position. Andrew Boorde (1562), the author of an early Dietarie said of them: "Yonge peechyken of halfe a yere be praysed. Olde peacockes be harde of dygestyon."<sup>236</sup>

The turkey is represented by an incomplete tarsometatarsus in phase 17 and is considerably smaller than modern specimens. The turkey is a North American species and was first domesticated in Mexico and the south western U.S.A. It was imported into Europe in 1523 or 1524.<sup>237</sup> The first mention of it in this country is in a Dietarie written by Archbishop Cranmer in 1541.

#### WILD MAMMALS

*Red deer.* Finds of this species although occurring in a number of phases are infrequent. A few of the bones are antler beam and tine fragments some of which are sawn and cut but apparently with no functional object in mind. The remainder of the bones are post-cranial and are presumably food waste.

*Fallow deer.* It is sometimes difficult to separate fragments of bones of large fallow bucks from those of small female red deer, and one humerus from phase 15 fell into this category, otherwise the bones of this species fell within the range of size shown by my reference material (bucks and hinds from Cannock Chase). Both bucks and hinds were present, the identifications being based solely on size.

*Roe deer.* The bones of roe deer were less common than the other two species, and post-cranial elements only were found.

*Rabbit.* Bones of this species first appear in phase 12, one or two bones occurring in the later part of the sixteenth century.

*Hare.* The hare bones of which eight occurred in sixteenth and early seventeenth-century phases have been identified to species on the basis of size, but no specific morphological features were recognized.

*Rat.* Three bones of rat from phase 17 are the only remains of this animal recovered. It is perhaps surprising considering the nature of the deposit that a much larger number of specimens was not found. The site would appear to have been ideal for such scavenging animals.

*Badger.* Bones of badger were found in phases 8 and 10. It is probable that one individual is represented in each phase. Both finds would indicate a carcass rather than a skin, and although not usual badger can certainly be eaten and tastes were no doubt different in the sixteenth century. The skins may well have been in demand in this period.

#### HUMAN BONES

There are isolated finds of human bone in a number of the phases. The group in phase 4 indicated at least three individuals, all of them adult, but it seems probable in this case and the others that the human bones are chance inclusions, perhaps brought in with rubbish from another part of the town.

#### DOMESTIC MAMMALS

The domestic animals in the collection are horse, cattle, sheep, goat, pig, dog and cat. Most of this material is fragmentary but whole and partial skeletons of dog, cat, horse and one pig were found, the remaining bones are food and industrial debris.

*Dog.* Bones of this species are common in all phases particularly phase 15 where nearly 10% of the bone fragments are dog. The majority of the bones in all phases are partial skeletons, although many consist of only two or three bones from the same individual. The disruption of the skeletons would appear to have been before or during deposition since no skeletons were excavated in an articulated condition, and few of them were more than half complete. The possibility that this disruption was actually caused by scavenging dogs is not supported—none of the dog bones are chewed and relatively few of the bones of other animals have been gnawed. There is a very wide range in gross size and also skull morphology among the bones. Some individuals are markedly smaller than an ordinary domestic cat while others compare well in size with wolf bones. Skulls included both long and short faced animals—the latter being generally small animals. No attempt is made here to describe the types or breed of dog, but both functional and pet or lapdogs appear to be present. The majority of the individuals represented were adult animals.

*Cat.* Many of the cat bones are partial skeletons, although none are complete or even half complete. The size range of the individuals is fairly consistent, one or two bones only reaching the size of the modern wild cat. Both sub-adult and adult animals have been identified but no juveniles are present in the sample.

*Horse.* Many of the bones of horse, particularly in the sixteenth-century phases of tipping, are either partial skeletons or a number of bones from the same limb or backbone. None of the bones showed any evidence of butchery, and considering that this evidence was common on the bones of ox it is probable that the animals were not butchered, and therefore not eaten. The occurrence of a number of bones from one animal in some layers, possibly originally articulated support this conclusion. In view of this it is possible that the ditch formed an officially acceptable place for the burial or dumping of the carcasses of the horses and ponies being used in the town. The disposal of an unbutchered carcass would be difficult for a private individual with little or no land for burial.

All the bones are from adult animals. None of the epiphyses of the limb bones and vertebrae are unfused—the condition found in sub-adult and young animals—and many of the bones exhibit pathological features. This was particularly common in the backbones where adjacent or a number of adjacent vertebrae had become ankylosed, the condition being restricted to the posterior part of the thoracic region and the lumbar vertebrae. This condition occurs as the result of the natural ageing process, and is found in very old animals, but may be accelerated by the trauma or loading in an animal used for draught. The occurrence of arthritic conditions in the limbs, particularly at the distal tarsals—which may be spavin,<sup>238</sup> and osteo-arthritis of the proximal articulation of a humerus may be connected with the animal's mode of existence. Although in sum the evidence suggests that these animals are probably draught and work horses, there is no skeletal evidence present to make a categorical statement.

The withers height has been calculated for a number of the bones<sup>239</sup> and produced a range from 121–145 cm, the majority falling between 130 and 135 cm. This corresponds in size to an average modern pony.

*Goat.* Very few goat bones have been identified from the site. All those listed are horn cores or skull fragments and no post-cranial elements were recognized among the large number of sheep remains. The few post-cranial bones that may have been present and absorbed by the total for sheep and goat (Table 4) would add little information.

Two of the horn cores in phase 4 are of male or castrated animals, the remainder of the bones in phases 9–17 were identified as female on the basis of horn core shape and size.

*Pig.* Pig bones are the least frequent of the main domestic food species and among the bones of these species that could have derived from food debris (Table 6) range between 2.4 and 7.3% of the samples from different phases. The economic potential of pigs is limited by comparison with sheep and cattle. It is utilized for meat and hide, but the latter use may go largely unrecognized in archaeological deposits because the feet (trotters), often a waste of the tanning industry where the feet of some species may be left in the skins, are generally utilized for food and would be discarded with domestic refuse rather than industrial waste.

A partial skeleton of a juvenile pig was found in layer 3d (phase 17) with portions of all the limbs, but no feet bones, skull or vertebrae. There were no butchery marks on the bones.

*Sheep.* All postcranial elements of the sheep skeleton have been catalogued as Sheep and Goat and the distinction between the species has only been made on the basis of horn core and skull characters.<sup>240</sup> The very low number of goat finds, coupled with the absence of any post-cranial elements with obvious goat features and the presence of large numbers of sheep skulls and horn cores, suggests that very nearly all of the sheep and goat material is sheep, although the skulls and post-cranial parts may have a different pre-depositional origin.

The skeletal representation in the sample (Table 7) is very uneven although it is consistent throughout the sixteenth-century phases. Carpals, tarsals and phalanges are heavily under-represented, but smallness of size and recovery methods may be responsible in part for this. Vertebrae on the other hand should not be missed during excavation, yet these bones which are the most frequently occurring in the skeleton are among the least common in the sample. There is a certain uniformity in the numbers of the larger bones from the limbs, which tends to support a hypothesis involving failure to recover the smaller bones, but the figure for the metatarsal bone in phases 12 and 13 is disproportionately high as is the figure for the radius in phase 8 and the metacarpus in phase 12. These figures are caused by some layers containing groups of the bones and one possible explanation is rubbish from a butcher's stall where these bones have been boned out rather than sold with the meat. The metapodials particularly are very low meat yield parts of the carcass.



TABLE 4 Black Gate, Newcastle: Species Count by Pottery Phase

	1	2	3	4	5/6	7	8	9	10	11	12	13	14	15	16	17
Man				12			1		1		1	1			1	3
Horse			4	8	22	1	71	16	127	85	79	254	14	31	32	13
Cattle	6	13	47	120	178	120	895	406	254	179	617	784	112	477	370	352
Sheep		1	3	2	13	5	166	72	163	128	105	417	151	131	78	134
Sheep and goat	1		21	38	144	64	754	360	319	320	800	1028	222	539	455	490
Goat				3				1	2	1		2	1	2	1	2
Pig		3	6	24	16	6	41	20	28	28	40	67	14	59	55	66
Dog				4	29	1	74	19	11	21	49	70	23	224	62	76
Cat			2	1	8	8	31	30	15	19	23	67	15	30	3	59
Red deer, <i>Cervus elaphus</i> L.			2	3	2		6	2	8	4	7	9		3		
Fallow deer, <i>Dama dama</i> L.				3	2		5	4	5	8	9	16	3	4	9	5
Red or fallow deer														1		
Roe deer, <i>Capreolus capreolus</i> L.					1		4	1	2	4	7	1		2	3	
Rabbit, <i>Oryctolagus cuniculus</i> L.											1			1	4	2
Hare, cf. <i>Lepus capensis</i> L.								1	2			3				1
Badger, <i>Meles meles</i> L.							7		3							
Rat, <i>Rattus</i> sp.																3
Large ungulate		8	28	67	65	43	491	186	232	229	302	532	130	209	164	130
Small ungulate		4	3	25	25	4	91	70	63	83	81	161	57	74	70	87
Large mammal, fragments		2	18	49	65	25	175	40	34	66	99	245	46	290	52	77
Mammal, indeterminate bone frag.		1	11	24	38	5	83	42	51	42	33	97	18	284	58	88
Totals	7	32	145	383	608	282	2895	1270	1320	1217	2253	3754	806	2361	1417	1585

TABLE 5 Black Gate, Newcastle: Fragment Percentages for the Main Domestic Species

	1	2	3	4	5/6	7	8	9	10	11	12	13	14	15	16	17
Horse			5	4	6	0.5	3.5	2	14	11.5	5	10	2.5	2.5	3	1
Cattle			58	61.5	48	61	46.5	50.5	28.5	24	37.5	30.5	22	38.5	37.5	33.5
Sheep			4	1	3.5	2.5	8.5	9	18	17.5	6.4	18.5	29.5	10.5	8	12.5
Sheep and goat			26	21	38.5	32.5	39	45	35.5	43	49	40.5	43	43.5	46	46.5
Pig			7	12	4	3	2	2.5	3	4	2.5	2.5	2.5	5	5.5	6

The figures have been rounded up to the nearest 0.5 per cent.

TABLE 6 Black Gate, Newcastle: Fragment Counts and Percentages for Cattle, Sheep and Pig with the horn cores removed from the count.

	5/6	7	8	9	10	11	12	13	14	15	16	17
Cattle	172	117	786	310	206	174	559	732	104	466	296	322
	51.6%	62.2%	47.8%	44.0%	35.7%	31.5%	38.5%	38.7%	26.1%	42.8%	36.0%	35.6%
Sheep and goat	145	65	818	374	343	351	851	1091	279	563	469	515
	43.5	34.5	49.7	53.1	59.4	63.5	58.7	57.7	70.2	57.7	57.2	57.0
Pig	16	6	41	20	28	28	40	67	14	59	55	66
	4.8	3.1	2.4	2.8	4.8	5.0	2.7	3.5	3.5	5.4	6.7	7.3

On firmer ground; the collection of horn cores and skulls of sheep are of obvious commercial origin although not necessarily the same. Most of the skulls have been split longitudinally down the middle dorso-ventrally. The most obvious reason for such an action is the removal of the brains for consumption and the skulls are certainly butchers' waste. The skulls have, without exception, had their horn cores chopped off, generally by a chop at the base of the core. This would have been carried out prior to the butchering of the skull to remove the horn of the animal for sale to a horner's workshop. Such a workshop is described in Wenham<sup>241</sup> and after the soaking of the horns the sheath can be removed from the core which is then discarded. The collections of cores in one layer may represent the disposal of one or a number of days rubbish from such a workshop. As might have been expected, most of the cores themselves have been chopped laterally at the base where they have been removed from the frontal bone.

Recognition of male animals from the horn cores is clear. The ram has a very bulky, thick walled core, distinctly triangular in section with a strong medio-frontal keel, and curves upwards and backwards with a pronounced inward twist about half way up the core as it begins to flatten and lose its triangular shape. The remainder of the cores, the bulk of the sample, contains both ewes and wethers but no satisfactory distinction could be made that would permit the separation of the two groups. The male cores rarely formed more than 5% of the phase collections.

Three skulls only were naturally polled, that is hornless, and one fragment in an early phase appeared to be from a four-horned animal.

*Cattle.* In contrast to the sheep collection the vertebrae of cattle and large ungulates are quite well represented although still not in the frequencies that would be expected. The improved recovery in this species of carpals, tarsals and phalanges goes some way to enforcing differential recovery as an explanation but this merely ignores other possible selective factors that may apply to sheep and not cows.

Cattle horn cores are abundant in most of the sixteenth-century phases.

The early deposits in the ditch had little material but those layers in phases 8, 9, 10 and 12 had collections of up to eighty or more. The dumping of these cores continued in the period represented by phases 13-17 but less material was recovered.

The early cores from phase 4 are somewhat diminutive—of short-horn type with the core standing up from the skull.

An early group from the late fourteenth-century counterweightslot deposits (Table 10) contrast with those in the ditch containing two specimens that are large enough to fall within the classification of long horn although not of strict long horn character. The majority of the cores have a similar conformation. They fall within the medium-horned group<sup>242</sup> with a circular to slightly ovate proximal cross section. The horn rises either horizontal from the frontal bone or angled up slightly, with an initial forward and upward curve. The distal portion or tip of the core twists upwards and slightly backwards.

There are a number of variations on this pattern largely those of degree of curvature and twist with a number of cores in each group having a marked ovate basal circumference with some degree of flattening in the body of the core. It is characteristic in a proportion of these latter, that the core rises at a posterior angle and curls forward where most of the cores move out laterally from the skull.

It was not felt that the sex of the animals could be adequately determined either on morphological or biometric grounds, and no attempt has been made to classify the animals as cows, steers or bulls.

An attempt has been made to group the cores into age classes<sup>243</sup> and four classes have been distinguished upon the basis of the degree of surface porosity and closure of blood vessel foramina on the core surface. Since the assessment of this porosity was in this case largely a

TABLE 7 Black Gate, Newcastle: The Numbers of Bones of each Element of Sheep and Small Ungulate

	5/6	7	8	9	10	11	12	13	14	15	16	17
Skull	1	1	40	12	16	16	27	43	13	12	8	7
Skull fragment	5		84	23	44	27	49	63	24	57	21	34
Horn core	17	4	102	58	139	97	54	354	95	107	64	111
Mandible	10	3	40	40	32	23	56	79	11	25	25	37
Scapula	12(6)	1	50(52)	32(4)	27(3)	30(3)	74(7)	90(5)	30	32(6)	24(3)	33(3)
Humerus	20	10	64	33	20	25	41	65	19	41	35	37
Radius	24	12	116	60	44	48	72	143	32	60	54	68
Ulna	2		26	6(1)	7	8	11(1)	24(1)		6	11	8
Carpals										1		2
Metacarpus	11	4	64	31	25	38	158	138	20	61	53	71
1st phalanx	1	1	1	6(1)	2	5	10	24	1	16	3	18
2nd phalanx								1		2		3
3rd phalanx									1			1
Sesamoids												
Innominate	9	6	48(3)	23	37(1)	18	32	55(2)	11	29	26(1)	26(1)
Femur	11(1)	4	57	19	17	12	26	53	18	22	26	15
Patella												
Tibia	16	6	64	19	24	32	45	82	13	38	56	27

Fibula												
Calcaneum	2		2	1	1	3	3	3(1)		9	3	6
Astragalus		1	3	2			1	2(1)		5	1	6
Centroquartal											1	
Tarsals												
Metatarsus		7	79	28	30	41	203	147	27	54	61	54
Metapodial	1					1	1		1	4		
Rib	(12)	(4)	(67)	(42)	(47)	(60)	1(51)	(104)	(37)	(44)	(37)	(44)
Atlas		1	6	5(1)	1	4	6	9	3	6	11	7
Axis	1	3	12	7	1	2	2	11	2	3(1)	8	4
Cervical vertebra	(3)		14(5)	(7)	(7)	1(2)	1(10)	2(10)	1(10)	2(12)	1(14)	1(17)
Thoracic vertebra	(3)		(2)	(3)	(2)	(4)	(4)	(13)	(7)	(4)	(2)	(11)
Lumbar vertebra			(5)	(11)	(3)	(14)	2(8)	1(23)	(3)	(15)	(13)	(11)
Sacrum			1(2)	2	1	1		3		3(2)		
Caudal vertebra												
Mandibular teeth	7	2	6	5	3		8	14	8	31	10	13
Maxillary teeth	2		41	20	11	9	10	36	8	44	30	34

Bracketed bones were identified as small ungulates.

TABLE 8 Black Gate, Newcastle: The Numbers of Bones of each Element of Cattle and Large Ungulate

	5/6	7	8	9	10	11	12	13	14	15	16	17
Skull		1	1	5	2		2	5	1			
Skull fragment	15	9	115	33	35	16	73	87	4	25	18	24
Horn core	6	3	109	96	48	5	59	52	8	11	74	30
Mandible	19	7	55	34	17(1)	16	38	49	3	23	16	11
Scapula	7(1)	6	33(12)	18(1)	12(8)	15(3)	30(4)	23(6)	6	19(5)	22(2)	23(2)
Humerus	12(2)	8	42(3)	22	8	21	30	42	4	36	18	13
Radius	12	9	50	13	8	13	30	35	2	26	11	13
Ulna		5	26(3)	6	6	1	10	22	1	10	10	7
Carpals			6	4		1	11	6	2	6	5	6
Metacarpus	6	8	23	7	9	5	31	46	10(1)	27	38	25
1st phalanx	6	4	22	10	9	4	26	33	5	18	12	23
2nd phalanx	1	3	10	3	1		9	7	3	11	4	10
3rd phalanx	2	1	5	3	1	2	7	8		2	2	7
Sesamoids												
Innominate	18	7	57(1)	15	8	8	27	46	5	32	16	21
Femur	13	6	63	23	13	10	30	46	1	29	17	17
Patella	1		1(1)	2		1		3				
Tibia	3	8	35	13	7	7	29	41	6	29	15	16



subjective decision these figures must be treated as representing general ratios of broad age categories. The absence of immature beasts, the most easily distinguished group, is marked and few of the cores could be described as adult, when the porosity and foramina have largely closed over to leave a smooth core in which growth has ceased. The majority of the cores fall within the subadult group which has been divided into two. (Table 9).

TABLE 9 Black Gate, Newcastle: Age Categories Determined from the Cattle Horn Cores

	8	9	10	11	12	13	15	16	17
Adult	10	11	7	1	4	2	1	4	1
Sub-adult, group 2	12	45	19		20	8	5	17	8
Sub-adult, group 1	32	28	12	2	25	11	2	13	6
Immature	2	1	4		2	1		1	1

Classifications after Armitage and Clutton-Brock (1976), Armitage, in preps and pers. comm.

It is apparent from the context of the cores that they represent, as do the sheep, the rubbish from hornworkers workshops. Many show evidence of having been chopped from the skull, characteristically a chop mark below the core and through the dorsal part of the temporal bone or frontal-parietal suture in an anterior posterior direction from a ventral direction. In addition many of the frontal bones bear the marks made by the skinning knives when removing

TABLE 10 Black Gate, Newcastle: Bones Identified from Deposits other than the Ditch

	II	III	IV	V
Man				5
Horse	6			
Cattle	31	6		7
Sheep	1	1	1	2
Sheep and goat	7	13	9	5
Goat				1
Pig		1	1	3
Red deer, <i>Cervus elaphus</i> L.	1		2	2
Roe deer, <i>Capreolus capreolus</i> L.				1
Large ungulate	5	4	2	11
Small ungulate	1	2		7
Large mammal	5			4
Mammal, indeterminate frag.		2		1



the hide from the head, and indicate that the carcasses were skinned before the horns were removed. These marks are often very fine and would have gone unnoticed if not pointed out to me by P. Armitage.

Although I have not quantified it for this collection there is a general but not marked increase in gross size of the horn core, without any marked change in shape between phases 8 and 17. In the latter groups there is an apparent change in the relationship between basal circumference and total length of the core. The early material contains numbers of thin walled cores with small basal circumferences in proportion to length in the later groups the circumference is much larger proportionally to length. It cannot be ruled out that such a change may in part be due to sexual selection in the sample. Small cores still occur and it is possible that the change is due to an increase in dimorphism rather than a general increase throughout the population.

One core in phase 10 has a completely different shape, unfortunately only the proximal part survives but the core drops downwards and slightly backwards from the frontal with a forward turning twist and is similar to the bull figured by Armitage & Clutton-Brock (Fig. 11).

#### *General discussion*

The species percentages in Table 5 indicate the proportions of the main domestic species in each phase. In the larger samples a pattern can be observed with the proportion of cattle bones diminishing from phase 6 onwards and conversely the sheep bones increasing. In order to ascertain that this was not due to merely an increase or decrease in the dumping of industrial waste—horn cores—the percentages were recalculated using only sheep, pig and cattle and with the counts for the horn cores removed from the total—only the bones possibly forming food debris being counted (Table 6). The pattern was still present and involved a fluctuation of approximately 10%. Whether this change in pattern is due to a primary change in availability or merely a local change in dumping practice or trading cannot be determined without reference to other sites in the town.

The evidence from the animal bones in this deposit indicates that waste from horners' workshops and butchers was being disposed of in the ditch, as were also the carcasses of a number of domestic species which presumably died of old age, misadventure or disease.

#### *Acknowledgements*

I should like to indicate my thanks to A. K. G. Jones (Environmental Archaeology Unit, York University) for identifying the fish material and to Enid Allison for her report on the bird bones from the site. This report would not have been possible without the assistance of B. J. Lamden who was responsible for much of the processing of the data and the writing of the program used.

#### BOTANICAL REPORT

*Alison M. Donaldson*

#### SILT SAMPLES

Two samples of silt from phase 1 of the ditch filling (D1 142, 143) were examined for botanical remains.

Fragments of wood were present in both samples. Those big enough to section were found to be oak (*Quercus* sp.). The samples were not rich in other plant remains but contained the following:

## D1 142

<i>Ranunculus sceleratus</i> L. (Celery-leaved Crowfoot)	8 achenes
<i>Rumex</i> sp., <i>crispus</i> T. (Docks)	1 nutlet

## D1 143

<i>Ranunculus sceleratus</i> L.	2 achenes
<i>Eurhynchium praelongum</i> (Hedw.) Hobk.	shoots

*Ranunculus sceleratus* grows in or by slow streams, ditches and ponds with mineral-rich water and muddy bottoms. It is entirely consistent with a ditch flora.

The Docks are common weeds of waste places and damp areas, so could easily be growing in the area.

The moss *Eurhynchium praelongum* is extremely shade tolerant and, while not growing in the water itself, is very likely to have been growing on the soil banks of this very deep ditch.

These silts therefore would seem to be natural accumulations with the remains of plants growing very locally, with no indicators of economic activity.

## WOOD

All the wood sent for identification was unworked, and was almost entirely oak, with some ash and pine. From phases 1, 2, 4, 8, 9, 10, 11, 12, 13, 15.

## NUTS

Two walnut shells (*Juglans regia*), phases 10 and 11. The walnut is not native but has been grown in this country since the Roman period.

## NOTES

<sup>1</sup> Barbara Harbottle, "Excavation and Survey in Newcastle upon Tyne, 1972-3", *AA*<sup>5</sup>, II (1974). On pp. 57-82 there is a report of a preliminary excavation in the castle ditch in 1973, and a summary of the history of that part of the castle.

<sup>2</sup> A report on part of the work during that period has already been published—Margaret Ellison, Margaret Finch and Barbara Harbottle, "Excavation of a 17th-century pit at the Black Gate, Newcastle upon Tyne, 1975", *Post-Medieval Archaeology*, 13 (1979), 153-81.

<sup>3</sup> Symeon of Durham, *Historia Regum* (Rolls Series, 1885), 211.

<sup>4</sup> It has been suggested at Oxford Castle that a layer of clay was deposited on both the castle mound and the lip of the moat as a lining, but here soil-creep seems more likely. T. G. Hassall, "Excavations at Oxford Castle, 1965-1973", *Oxoniensia* XLI (1976), 243.

<sup>5</sup> R. Allen Brown, H. M. Colvin and A. J. Taylor, *The History of the King's Works*, II (1963), 746.

<sup>6</sup> We are particularly grateful to Mr. Eric Cam-

bridge for his thought on this problem.

<sup>7</sup> Brown, Colvin and Taylor, *op. cit.*, 746-7.

<sup>8</sup> W. H. D. Longstaffe, "The New Castle upon Tyne", *AA*<sup>2</sup>, IV (1860), 132 and plan opp. 112.

<sup>9</sup> W. H. Knowles, "The Castle, Newcastle upon Tyne", *AA*<sup>4</sup>, II (1926), 48-51.

<sup>10</sup> S. Toy, *The Castles of Great Britain* (1954), 237.

<sup>11</sup> Brown, Colvin and Taylor, *op. cit.*, 720-21.

<sup>12</sup> R. C. H. M., *Herefordshire*, vol. I—South-West (1931), 74-8.

<sup>13</sup> Derek F. Renn, "An Angevin gatehouse at Skipton Castle (Yorkshire, West Riding)", *Chateau Gaillard* VII (1975), 177-8.

<sup>14</sup> This was the main entrance into the barbican, built c. 1277, see plan 2 in C. N. Johns, *Caerphilly Castle* (DoE official guide, 1978), and elevation and section in Toy, *op. cit.*, 238. We are grateful to Dr. C. Coulson for his general comments on the development of drawbridges, but he is no way responsible for any of our errors.

- <sup>15</sup> Brown, Colvin and Taylor, *op cit.*, 747; Longstaffe, *op. cit.*, 68.
- <sup>16</sup> Longstaffe, *op cit.*, 48.
- <sup>17</sup> *Calendar of Close Rolls, 1333-1337*, 697.
- <sup>18</sup> Longstaffe, *op. cit.*, 126-32.
- <sup>19</sup> Barbara Harbottle, "Excavations at the Carmelite Friary, Newcastle upon Tyne, 1965 and 1967", *AA*<sup>4</sup>, XLVI (1968), 202-5.
- <sup>20</sup> In particular no Common Council Books survive before 1645.
- <sup>21</sup> Tyne and Wear Archives Dept. (T.W.A.D.) 534/14, *Calendar of Chamberlain's Account Book, 1561-1565*, ff. 151a, 153a and *passim*.
- <sup>22</sup> G. Salusbury-Jones, *Street Life in Medieval England* (1975), 92.
- <sup>23</sup> *Cal. of Chamberlain's Account Book, 1561-1564*, ff. 137a, 138, 159.
- <sup>24</sup> Salusbury-Jones, *op. cit.*, 90.
- <sup>25</sup> Longstaffe, *op. cit.*, 77-8.
- <sup>26</sup> H. Bourne, *History of Newcastle upon Tyne* (1736), 119n.
- <sup>27</sup> This will be the subject of a subsequent report.
- <sup>28</sup> The various illustrations are listed in Harbottle (1974), *op. cit.*, p. 59 note 10. We are grateful to Messrs. A. G. Chamberlain and A. J. McLeod for their comments on this building.
- <sup>29</sup> T. W. A. D. Map 602.
- <sup>30</sup> *Cf.* first (1859) and second (1896) editions of the O.S. 10.56 ft. = 1 mile maps.
- <sup>31</sup> Information from Laurie Addis.
- <sup>32</sup> M. A. Ellison, "The Pottery", in E. Tullett and G. McCombie, "Excavations in the Cloth Market, Newcastle upon Tyne, 1979", *AA*<sup>5</sup>, VIII (1980), 139.
- <sup>33</sup> Excavation at Black Friars, Newcastle, 1979, not yet published.
- <sup>34</sup> S. Moorhouse, "Documentary Evidence for the uses of Medieval Pottery: An Interim Statement", *Medieval Ceramics* 2 (1978), 14.
- <sup>35</sup> I am grateful to Laurie Addis for arranging this experiment.
- <sup>36</sup> Information from S. Moorhouse.
- <sup>37</sup> I am grateful to S. Moorhouse for his comments on the vessels in this category.
- <sup>38</sup> S. Moorhouse, "Medieval Distilling Apparatus of Glass and Pottery", *Medieval Archaeology* XVI (1972), fig. 53 no. 9 and pp. 118 and 120.
- <sup>39</sup> Information from S. Moorhouse.
- <sup>40</sup> C. Platt and R. Coleman-Smith, *Excavations in Medieval Southampton* 2 (1975), no. 582.
- <sup>41</sup> P. G. Farmer, *An Introduction to Scarborough Ware and a Re-assessment of Knight Jugs* (1979), 29.
- <sup>42</sup> *Ibid.*, 28-9.
- <sup>43</sup> *Ibid.*, fig. 8.
- <sup>44</sup> I am grateful to J. G. Hurst for his assistance in identifying and commenting on these wares.
- <sup>45</sup> K. J. Barton, "Medieval Pottery at Rouen", *Archaeological Journal* CXXII (1966), 72-85.
- <sup>46</sup> Platt and Coleman-Smith *op. cit.*, no. 1051.
- <sup>47</sup> *Ibid.*, no. 1047.
- <sup>48</sup> J. G. Hurst, "Sixteenth and Seventeenth-Century Imported Pottery from the Saintonge", *Medieval Pottery from Excavations, Studies presented to Gerald Clough Dunning* (1974), ed. Vera I. Evison, H. Hodges and J. G. Hurst, p. 225 and fig. 1.
- <sup>49</sup> Platt and Coleman-Smith *op. cit.*, no. 1014.
- <sup>50</sup> L. A. S. Butler and D. H. Evans, "The Old Vicarage, Conway", *Archaeologia Cambrensis* CXXVIII (1979), p. 72 and fig. 12, no. 5.
- <sup>51</sup> Hurst (1974) *op. cit.*, pp. 239-43 and figs. 6, 7.
- <sup>52</sup> *Ibid.*, p. 243 and fig. 8.
- <sup>53</sup> *Ibid.*, p. 245 and fig. 8.
- <sup>54</sup> P. J. Davey and J. A. Rutter, "A Note on Continental Imports in the North West 800-1700 A.D.", *Medieval Ceramics* 1 (1977), no. 7.
- <sup>55</sup> H. Morisson, "Pots et Godets du Beauvaisis, Essai de Typologie des Gres du XIVE au XVIIe Siecle", *Groupe de Recherche et d'Etudes de la Ceramique du Beauvaisis* 3 (1970-71), 56.
- <sup>56</sup> Information from J. G. Hurst.
- <sup>57</sup> Information from J. G. Hurst.
- <sup>58</sup> J. G. Hurst, "Sixteenth-Century Beauvais Drinking Jugs", *Groupe de Recherche et d'Etudes de la Ceramique du Beauvaisis* 3 (1970-71), 6.
- <sup>59</sup> Davey and Rutter *op. cit.*, no. 13.
- <sup>60</sup> Morisson *op. cit.*, 63.
- <sup>61</sup> B. Beckmann, "The Main Types of the First Four Production Periods of Siegburg Pottery", *Medieval Pottery from Excavations, op. cit.*, nos. 161-4.
- <sup>62</sup> Morisson *op. cit.*, p. 64 pl. 6 nos. 114, 3a, b, c.
- <sup>63</sup> *Ibid.*, p. 66 pl. 10.
- <sup>64</sup> Information from J. Cartier.
- <sup>65</sup> Hurst (1974) *op. cit.*, pp. 235-6 and fig. 4.
- <sup>66</sup> J. G. Hurst, "Martincamp Flasks", in David S. Neal, "The Palace of Kings Langley", *Medieval Archaeology* XXI (1977), 156-7.
- <sup>67</sup> J. G. Hurst, "Imported Flasks", in C. V. Bellamy, "Kirkstall Abbey Excavations 1960-64", *Thoresby Society* LI (1966), 55.
- <sup>68</sup> Hurst (1966), *op. cit.*, 57.
- <sup>69</sup> I am grateful to the following for the opportunity to study pottery collections in the Netherlands:—

J. M. Baart—pottery from excavations in Amsterdam. See also in *Opgravingen in Amsterdam. Twintig jaar stadskernonderzoek*. 1977.

A. Bruijn—pottery from a kiln site in Utrecht (1400–25). See also A. Bruijn, "Pottersvuren langs de Vecht. Aardewerk rond 1400 uit Utrecht", with contributions by H. J. E. van Beuningen and T. J. Hoekstra, *Rotterdam Papers* III (1979).

H. J. E. van Beuningen—Collection van Beuningen.

C. Hoek—pottery from Rotterdam and Poortugaal.

T. J. Hoekstra—pottery from the Castle, Utrecht, and other sites.

H. Janssen—pottery from castle sites.

I. W. L. Moerman—pottery in the Gemeentelijk Museum De Laken Hal, Leiden.

H. Sarfatij—pottery from Dordrecht.

J. Schimmer—an early fourteenth-century kiln group and other pottery from Haarlem. See also J. Schimmer, "Een Veertiende-Eeuwse Pottenbakkersoven in de Haarlemse Binnenstad", *Harlems Bodermonderzoek* 10 (1979), and in the same volume S. E. van der Leeuw, "De technologische aspecten van het aardewerk uit de Haarlemse oven".

H. Suurmond-van Leeuwen—late thirteenth-century kiln material from Leiden.

L. J. Weijs—pottery from Bergen op Zoom.

<sup>70</sup> Information from H. Sarfatij.

<sup>71</sup> B. Hall, *The Trade of Newcastle and the North East Coast 1600–1640*, (unpublished M.A. thesis, London University, 1934).

<sup>72</sup> Information from C. M. Fraser.

<sup>73</sup> I am grateful to F. Verhaeghe for identification of some vessels and for comments based on a preliminary examination of the vessels in this catalogue.

<sup>74</sup> G. J. Dawson, "Excavations at Guy's Hospital, 1967", *Surrey Archaeological Society Research* volume 7 (1979), and information from G. Watkins on the possible production of redwares on the Humber.

<sup>75</sup> G. Watkins, "Pottery from Excavations in Hull", *Medieval Ceramics* 2 (1978), 43–50; C. and J. Orton and P. Evans, "E. V. Medieval and Tudor Pottery", in Harvey Sheldon, "Excavations at Toppings and Sun Wharves, Southwark, 1970–1972", *Trans. London and Middlesex Archaeological Society* 25 (1974), 76–87; Dawson *op. cit.*; Platt and Coleman-Smith *op. cit.*; there are also unpublished groups from Norwich, and from Baynards Castle and the Treasury site in London.

<sup>76</sup> Information from F. Verhaeghe.

<sup>77</sup> S. Moorhouse (1978), *op. cit.*, 7.

<sup>78</sup> Platt and Coleman-Smith *op. cit.*, no. 1167.

<sup>79</sup> *Ibid.*, no. 1165.

<sup>80</sup> *Ibid.*, no. 1166.

<sup>81</sup> J. G. N. Renaud, "Middeleeuwse Ceramiek", *Archaeologische Werkgemeenschap voor Nederland*, monograph III (1976), p. 91, fig. 50.

<sup>82</sup> Information from F. Verhaeghe.

<sup>83</sup> J. A. Trimpe Burger, "Aardenburgse pottenbakkerswaar", *Mededelingenblad van de Vrienden van de Nederlandse Ceramiek* 1/2 (1974), pp. 2–12, fig. 18; A. van Doorselaer and F. Verhaeghe, *Excavations at the XIVth Century Village of Roeselare (Sint-Margriete) East-Flanders, Belgium* (1974), (= *Dissertationes Archaeologicae Gandenses* XV, pp. 53–4 and 66, fig. 29 no. 11; St. Vandenberghe, "Archaeologisch onderzoek van een aalput aan het St. Romboutskerkhof te Mechelen", *Handlingen van de Koninklijke Kring voor Oudheidkunde, Kunst en Letteren van Mechelen* LXXVI, 2 (1972), p. 110 and fig. 11 no. 10; F. Verhaeghe, *De Middeleeuwse landelijke bewoningssites in een deel van Veurne-Ambacht. Bijdrage tot de middeleeuwse archeologie*. (Doctoral dissertation, unpublished, University of Gent, 1977). Bijlage I, pp. 733–6 and figs. 1202–5.

<sup>84</sup> C. Hoek, "Schiedam. Een historisch-archeologisch stadsonderzoek", *Holland Regional-Historisch Tijdschrift* Zevende Jaargang, no. 6 (1975), p. 559 no. 125.

<sup>85</sup> S. Grieg, *Middelalderke Byfund fra Bergen og Oslo*, Norske Videnskaps-Akademi i Oslo, 1933, 196–8; P. B. Molaug, "Pottery from Mindets Tomt", in H. I. Hoeg, H. Linden, A. Liestol, P. B. Molaug, E. Schia, C. Wiberg, "Feltet 'Mindets Tomt'", *De arkeologiske Utgravinger i Gamlebyen, Oslo*, Bind I (1977).

<sup>86</sup> Information from S. Moorhouse.

<sup>87</sup> Information from T. J. Hoekstra.

<sup>88</sup> J. G. Hurst, "Langerwehe Stoneware of the Fourteenth and Fifteenth Centuries", in *Ancient Monuments and their Presentation: Essays presented to A. J. Taylor*, (1977), ed. M. P. Apled, R. Gilyard-Beer and A. D. Saunders, pp. 219–237.

<sup>89</sup> *Ibid.*, p. 229 and fig. 3.

<sup>90</sup> *Ibid.*, p. 229 and fig. 4.

<sup>91</sup> *Ibid.*, 226 and fig. 2.

<sup>92</sup> *Ibid.*, table 1 p. 224.

<sup>93</sup> *Ibid.*, p. 231 and fig. 5.

<sup>94</sup> *Ibid.*, p. 232 and fig. 5.

<sup>95</sup> *Ibid.*, p. 235.

- <sup>96</sup> Beckmann *op. cit.*
- <sup>97</sup> Morisson *op. cit.*, pl. 6 111 la, b and 112 2a, b.
- <sup>98</sup> Information from J. G. Hurst.
- <sup>99</sup> Beckmann *op. cit.*
- <sup>100</sup> L. Hugot, "Aachener Steinzeug", *Steinzeug aus dem Raerener and Aachener Raum*, Aachener Beiträge für Baugeschichte und Heimatkunst, IV (1977).
- <sup>101</sup> *Ibid.*, p. 239 pl. 5.
- <sup>102</sup> E. Klinge, *Deutsches Steinzeug der Renaissance und Barockzeit* (1979), nos. 1-6, 29-32, 41-3 and 69.
- <sup>103</sup> J. G. Hurst, "Stoneware Jugs", in B. Cunliffe, *Winchester Excavations 1949-1960 I* (1964), 142-3.
- <sup>104</sup> Platt and Coleman-Smith *op. cit.*, no. 1213.
- <sup>105</sup> J. G. Hurst, "A Sixteenth-Century Cologne Jug from Newcastle," *AA<sup>5</sup>*, II (1974), 281-3.
- <sup>106</sup> Klinge *op. cit.*, no. 16.
- <sup>107</sup> *Ibid.*, nos. 9 and 19; M. R. Holmes, "The So-called 'Bellarmine' mask on imported Rhenish stoneware", *Antiquaries Journal* (1951), p. 173 type I.
- <sup>108</sup> *Ibid.*, p. 174 type II.
- <sup>109</sup> Information from J. M. Baart, H. J. E. van Beuningen and H. Janssen.
- <sup>110</sup> Information from E. Klinge.
- <sup>111</sup> Information from H. J. E. van Beuningen.
- <sup>112</sup> P. C. D. Brears, *The English Country Pottery. Its History and Techniques* (1971), 20.
- <sup>113</sup> H. E. Jean Le Patourel, "The Pottery", in C. Vincent Bellamy, "Pontefract Priory Excavations", *Thoresby Society XLIX* (1962-4), no. 110 fig. 38 la, b, c.
- <sup>114</sup> Information from Jean Le Patourel.
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- <sup>117</sup> Le Patourel (1966) *op. cit.*, fig. 6 no. 8, fig. 7 no. 22.
- <sup>118</sup> *Ibid.*, fig. 7 no. 28.
- <sup>119</sup> Brears *op. cit.*, pp. 37 and 39.
- <sup>120</sup> F. M. Holling, "A Preliminary Note on the Pottery Industry of the Hampshire-Surrey Borders", *Surrey Archaeological Collections LXVIII* (1971), 57-88.
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- <sup>134</sup> *Ibid.*, 85.
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- <sup>139</sup> J. S. Daniels, *The Woodchester Glass House* (1950).
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<sup>151</sup> Adrian Oswald, *Clay Pipes for the Archaeologist*, British Archaeological Reports, No. 14, 1975, and his note on the pipes from the seventeenth-century pit at the Black Gate, *Post-Med. Arch.* 13, (1979) 175-7.

<sup>152</sup> We have adopted the terminology in R. W. Brunskill, *Vernacular Architecture* (1970), 86-87.

<sup>153</sup> Jan Baart, of the Amsterdam Museum, considered that pantiles were in use there in the early sixteenth century. Oral communication.

<sup>154</sup> Brunskill, *op. cit.*, 84-5.

<sup>155</sup> Alec Clifton-Taylor, *The Pattern of English Building* (1972), 169-70; R. W. Brunskill, *Vernacular Architecture of the Lake Counties* (1974), 114, 116-17.

<sup>156</sup> *P.S.A.N.* 2, V (1891-2), 97-8.

<sup>157</sup> Oral information from Dr. Stafford Linsley.

<sup>158</sup> We are grateful to Mr. Ian Parnall, the owner of East Steel, for allowing access to his buildings, and to Dr. Linsley for climbing up the roofs to look at the ridges.

<sup>159</sup> Oral information from Mr. John Wardle.

<sup>160</sup> So called on Greenwood's map of Northumberland of 1828; "blacksmith's shop" on the 1845 Tithe Map of West Heddon Township (N.R.O.). Now a private house; grid ref. NZ 114686.

<sup>161</sup> Thomas Hodgkin, "Obituary Notice of Mr. C. J. Bates" *AA*<sup>2</sup>, XXIV (1903), 179.

<sup>162</sup> Identification by Miss Susan Turner, Hancock Museum, Newcastle.

<sup>163</sup> *Newcastle Journal*, 16 June 1793, p. 4, col. 1.

<sup>164</sup> *Newcastle Courant*, 6 October 1753, p. 3, col. 2.

<sup>165</sup> *Ibid.*, 2 October 1756, p. 4, col. 2.

<sup>166</sup> *Ibid.*, 5 July 1766, p. 2, col. 3. We are grateful to Mr. A. G. Chamberlain for these four newspaper references.

<sup>167</sup> Identified by Mr. A. M. Tynan, Curator of the Hancock Museum, Newcastle.

<sup>168</sup> G. C. Dunning, "Mortars", in Helen Clarke and Alan Carter, *Excavations in King's Lynn 1963-1970*, Society for Med. Archaeol. Monograph Series: No. 7 (1977), 320-47, and fig. 146.

<sup>169</sup> Identified by Mr. A. M. Tynan.

<sup>170</sup> *London Museum Medieval Catalogue* (1954), 168.

<sup>171</sup> Identified by D. J. Rackham.

<sup>172</sup> Brian Durham, "Archaeological Investiga-

tions in St. Aldate's, Oxford"; *Oxoniensia*, XLII (1977), fig. 38, no. 15.

<sup>173</sup> Clarke and Carter, *op. cit.*, 311-12, and fig. 143, nos. 1-5.

<sup>174</sup> Platt and Coleman-Smith, *op. cit.*, 271-3.

<sup>175</sup> The general references used were "A Glossary of Shoe Terms", issued by the Northampton College of Technology, Department of Boot and Shoe Manufacture, and *Transactions of the Museum Assistants' Group* for 1973, No. 12, ed. Philip S. Doughty.

<sup>176</sup> J. H. Thornton, "Leather Objects", in P. V. Addyman and J. Marjoram, "Post-Medieval Finds from St. Neots", *Post-Med. Arch.*, 6 (1972), 94-6.

<sup>177</sup> M. L. Ryder, "The History of Sheep Breeds in Britain", *Agricultural History Review* 12 (1964), 72.

<sup>178</sup> *Ibid.*, 65-7, 70-73.

<sup>179</sup> P. J. Bowden, *The Wool Trade in Tudor and Stuart England*, (1962), 108, 116.

<sup>180</sup> M. L. Ryder, "Changes in the fleece of sheep following domestication", *The Domestication and Exploitation of Plants and Animals* (1969), pp. 505-506, figs. 2, 5.

<sup>181</sup> M. L. Ryder, "Medieval sheep and their wool types", *Medieval Industry (the Raw Materials of)*, (C.B.A., in the press).

<sup>182</sup> Ryder (1964), *op. cit.*, 70.

<sup>183</sup> Bowden (1962), *op. cit.*, 30, 34.

<sup>184</sup> *Ibid.*, 32, 35-6.

<sup>185</sup> *Ibid.*, 47.

<sup>186</sup> J. E. Pilgrim, "The Cloth Industry in East Anglia", *The Wool Textile Industry in Great Britain* (1972), 257.

<sup>187</sup> P. Baines, *Spinning Wheels, Spinners and Spinning* (New York, 1977), 82, 89-90.

<sup>188</sup> E. Crowfoot, "Textiles", in M. O. H. Carver, "Three Saxo-Norman Tenements in Durham City", *Medieval Archaeology* XXIII (1979), 36-9.

<sup>189</sup> M. Hoffmann, *The Warp-weighted Loom* (Oslo, 1964), 270-77.

<sup>190</sup> Crowfoot personal communication.

<sup>191</sup> Hoffmann *op. cit.*, 151ff.

<sup>192</sup> *Ibid.*, 39, 80.

<sup>193</sup> *Ibid.*, 114, 141.

<sup>194</sup> *Ibid.*, 171, figs. 76, 77.

<sup>195</sup> *Ibid.*, 63-5.

<sup>196</sup> *Ibid.*, 420.

<sup>197</sup> E. Crowfoot, "XII. Textiles", in Clarke and Carter (1977), *op. cit.*, 374-7.

<sup>198</sup> Whiting personal communication.

<sup>199</sup> L. Barton, *Historic Costume for the Stage* (1935), 198.

- <sup>200</sup> E. Carus-Wilson, *Medieval Merchant Venturers* (1954), 216-18.
- <sup>201</sup> *Ibid.*, 218, 220.
- <sup>202</sup> S. M. Levey, "Illustrations of the History of Knitting selected from the Collection of the Victoria and Albert Museum", *Textile History* Vol. 1, no. 2, (1971), 186.
- <sup>203</sup> M. Hartley and J. Ingilby, *The Old Hand-Knitters of the Dales* (1951), 4-5.
- <sup>204</sup> K. Buckland, "The Monmouth Cap", *Costume* no. 13 (1979), 23.
- <sup>205</sup> Hartley and Ingilby *op. cit.*, 9.
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- <sup>207</sup> A. S. Henshall, "Early Textiles found in Scotland, part I, locally made", *P.S.A.S.* LXXXVI (1951-2), 21, 24, 25, plate IV).
- <sup>208</sup> Bowden (1962) *op. cit.*, 47.
- <sup>209</sup> I am most grateful to Mr. H. M. Appleyard for these identifications.
- <sup>210</sup> Thanks are due to Dr. P. R. Blakey and Dr. D. Raven of the Textile Technology Dept. at Bradford University for these identifications.
- <sup>211</sup> A. Geijer, *A History of Textile Art* (1979), 164.
- <sup>212</sup> I am extremely grateful to Miss Santina M. Levey of the Textiles Department at the Victoria and Albert Museum for information on the history of knitted caps and surviving examples in the Museum.
- <sup>213</sup> C. W. and P. Cunnington, *Handbook of English Costume in the Sixteenth Century* (1954), 47.
- <sup>214</sup> See for instance K. G. Ponting, "Knitted Caps", *Bulletin de Liaison du CIETA* no. 49 (1979), 78, 80, and Levey *op. cit.*, plate IV.
- <sup>215</sup> Cunnington and Cunnington *op. cit.*, 3.
- <sup>216</sup> *Extracts from the Records of the Merchant Adventurers of Newcastle upon Tyne* (Surtees Society, 93, 1894), 20-21.
- <sup>217</sup> *Wills and Inventories from the Registry at Durham*, part III (Surtees Society, 112, 1906), 88.
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- <sup>220</sup> 1323, Richard the fuller in Oakwellgate in Gateshead, Surtees Soc. 1924, 107, 109.
- 1341, John Tinctor witnessing Newcastle deed, *ibid.*, 105.
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- <sup>223</sup> See note 219, 1449, 1516.
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