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Excavations at the New Quay, Berwick-upon-Tweed, 1996

W.B. Griffiths

with contributions by L.J. Gidney, J. Huntley, A. Jenner and A. Rowntree

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SUMMARY

A combined excavation and watching brief conducted during the laying of a new sewerage system at the New Quay at Berwick-upon-Tweed, Northumberland, revealed that the area had been reclaimed in the eighteenth century, prior to which it had been a tidal foreshore used for waste dumping. The semi-waterlogged conditions encountered meant that organic material, principally wood and leather artefacts, were preserved as well as pottery and bone, and a large quantity of finds was recovered. Despite Berwick's historic significance there has been little previous archaeological excavation in the town, making this assemblage of particular interest.

INTRODUCTION

The quayside at Berwick lies outside the town walls on the north-east bank of the River Tweed, downstream from Old Berwick Bridge (Fig. 1). The original quay (the Old Quay) lies

to the north-east of the current Little Dock, and is assumed to have been originally constructed in the medieval period (Ryder 1993, 10) in order to provide access to the deep water channel of the river. The New Quay comprises the area to the south-east of the Little Dock, including the land in front of the Shoregate at the foot of Sandgate and running around the exterior of the eight-gun battery to the beach.

The insertion of a sewer diversion with pumping station and combined sewer overflow (CSO) involved the sinking of shafts and trenches, in places over 6.00m deep, in the area of the New Quay (Fig. 2). It was clear that the work would impinge upon deposits associated with the historical development of the riverside in this area, and to that end a combined excavation and watching brief was mounted to mitigate the impact of the works.

HISTORICAL BACKGROUND

Berwick lies on the north side of the lowest bridging point of the River Tweed on the border between England and Scotland. Medieval chroniclers suggest the presence of a substantial settlement at the site from at least the ninth century, although as they were all writing in the twelfth – thirteenth centuries their statements cannot be regarded as firm evidence (Gordon 1985, 10). However, the situation of the town indicates the likelihood of some form of settlement at an early date which Ellison (1976, 147) suggests may have been, according to the place-name evidence, of Saxon or Danish foundation. Laying such speculation aside however, the first contemporary reference to Berwick is dated to 1097 (Ryder 1993, 1).

In 1136, during the reign of David I of

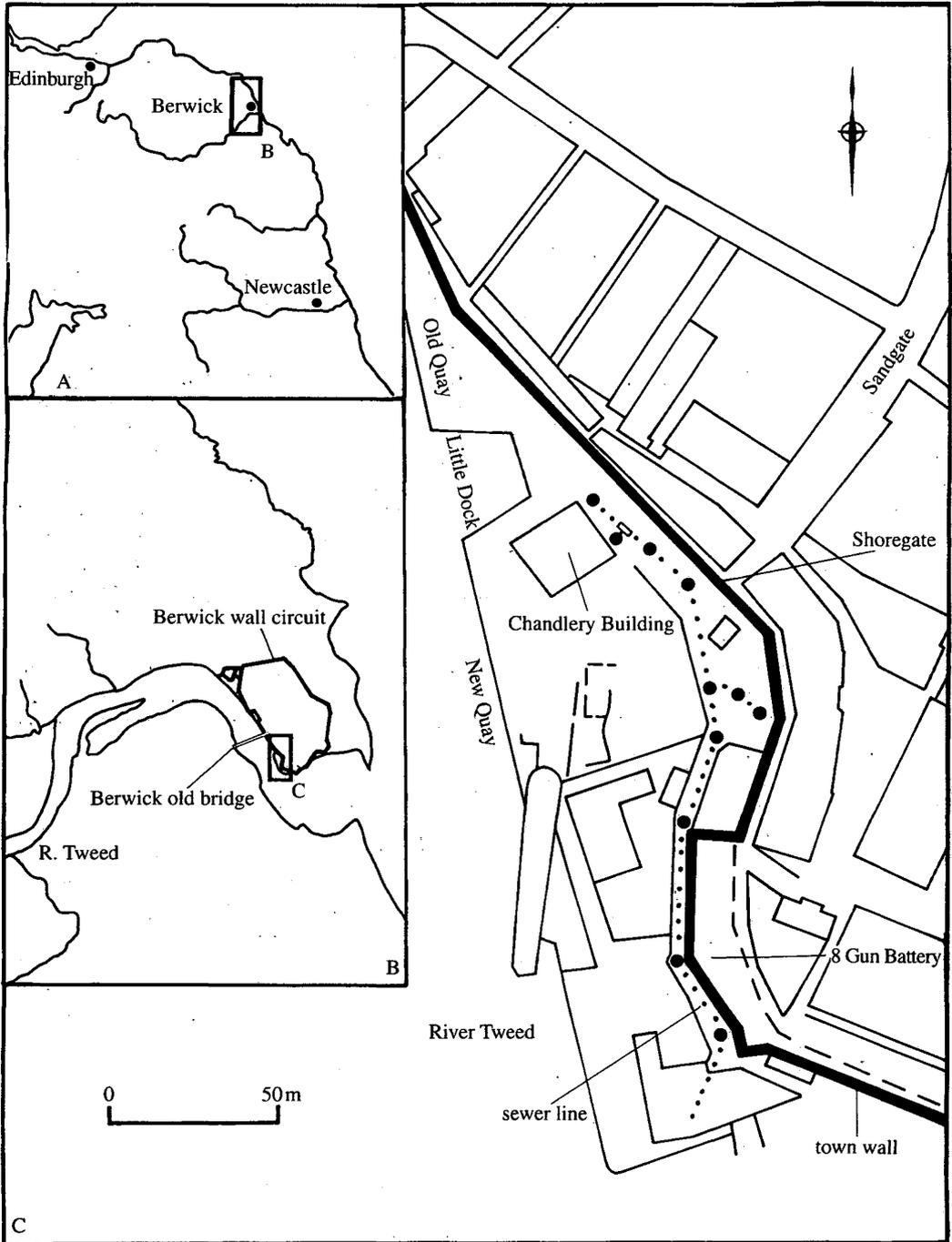


Fig. 1 Site Location (Scale 1:2000)

Scotland, Berwick was one of only four towns to be granted the status of a Scottish Royal Burgh, the others being Roxburgh, Edinburgh and Stirling (Gordon 1985, 13). The so-called 'Golden Age' of Berwick occurred in the thirteenth century when, as the southernmost Scottish trade port, it was densely populated with merchants, including communities of foreign traders; in addition the town maintained a strong monastic influence (Ellison 1976, 150; Gordon 1985, 16-29). The capture of the town by Edward I of England at the end of the thirteenth century led to the construction of the medieval town walls. During the Elizabethan period the, by then dilapidated, walls were replaced with a series of linked bastions, except to the east where the medieval riverside walls were simply repaired.

Following the thirteenth century Berwick was in reality little more than a garrison town until the later seventeenth century when prosperity gradually returned and it was established as the dominant market town of the Tweed valley. Indeed much of the present town's architecture has its origins in the eighteenth century, although the medieval street layout is still extant (Ellison 1976, 150).

THE NEW QUAY

Initially the site of the New Quay appears to have been an area of undeveloped tidal foreshore, presumably the reason for the Shoregate being so named, and is shown as such on a manuscript of c. 1580 (British Museum: Cotton Augustus I ii 14). On John Speed's map of 1610 (Fig. 3) there appear to be two mounds, one on either side of the Shoregate, in the area. The same 'mounds' can be seen on maps drawn in 1725 and 1745. It is not clear whether they were natural or man-made features; they may perhaps have been mounds of ballast.

One eighteenth century commentator records that the river in front of the Shoregate '... is called the Ford, from the stones usually collected there by floods. Owing to these stones and any other rubbish the river is shallower here than in any other part of it below the bridge' (Fuller 1799, 409).

In October 1751 one Arthur Byram was given a grant of land below the eight-gun battery (i.e. south-east of the Shoregate) to begin a shipbuilding trade (Scott 1888, 228). By 1769 the area is shown to have been reclaimed (Fig. 4), and it seems clear that the reclamation took place either as a result of this grant of land, or immediately prior to it. In 1789 the same privileges for the site were granted to a Robert Gowan (Scott, *loc. cit.*). Fuller, writing at the end of the eighteenth century, also records the development of the quay stating that there was a ballast quay and two trading companies in the area (1799, 410). It is known that the Shoregate was rebuilt in the eighteenth century (MacIvor 1995, 13), presumably as a result of the reclamation work.

Wood's map of 1822 shows three separate sections to the south of the Little Dock comprising the Old Ballast Quay, a building dock and the New Ballast Quay. Comparison with the earlier maps shows that the Development Area had been extended southwards along the edge of the deep water channel. The plan also shows a comparative lack of structures in the area, a situation typical of eighteenth-early nineteenth century shipyards.

The first edition Ordnance Survey map of the area, produced in 1852, shows a slipway, probably constructed by Arthur Byram Gowan after 1825 (Scott 1888, 228). On this plan the road layout is largely as it is today, and several buildings are shown including a store house abutting the town wall at the northern end of the New Quay. Several buildings are shown in the area of the shipyard, much of which was subsequently occupied by the first electricity station in Berwick.

PREVIOUS ARCHAEOLOGICAL EXPLORATION

Despite the obvious historic importance of Berwick, little archaeological work has been undertaken in the area, reflecting the general absence of modern development within the town. Most of the work has concentrated on the defensive circuit (MacIvor 1965; Bishop

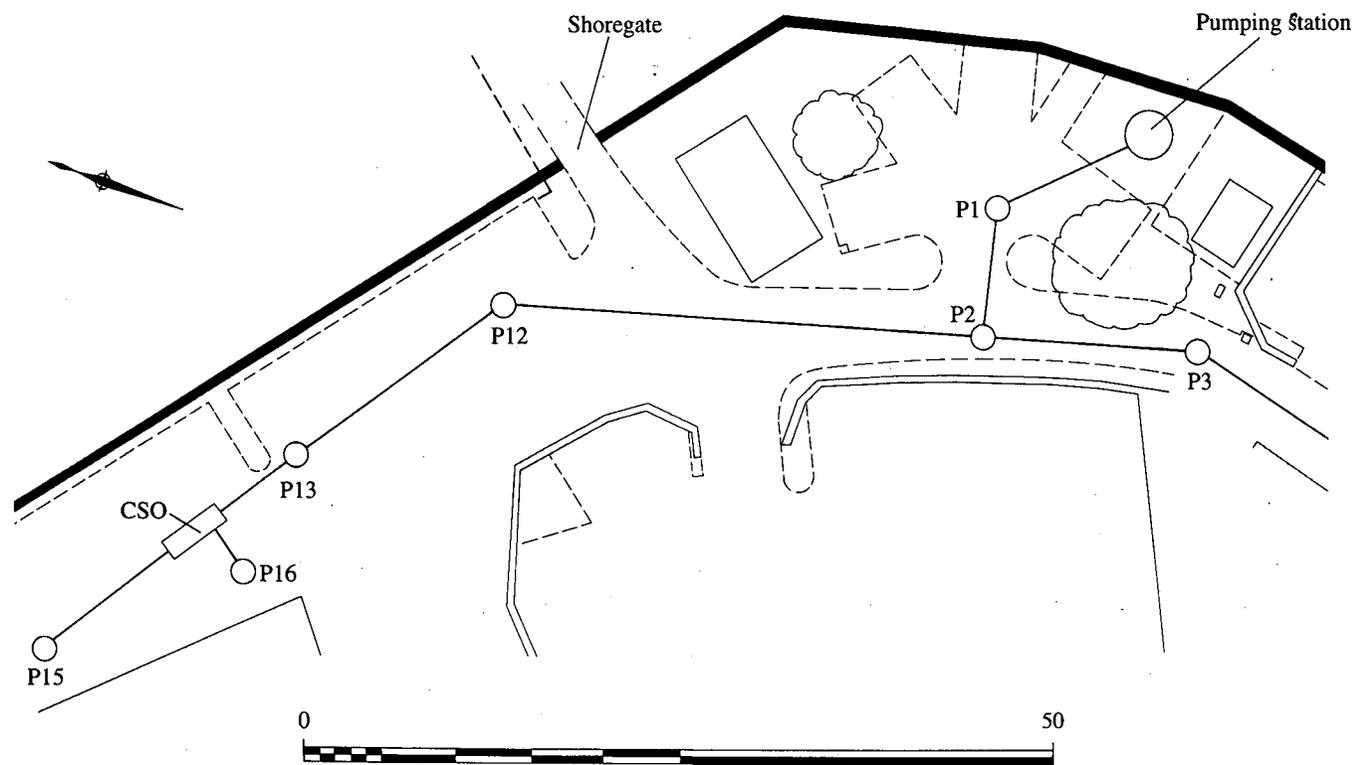


Fig. 2 Area of sewer line referred to in detail (Scale 1:500)

1992; Ryder 1992), although a series of small scale excavations was conducted within the town that revealed detailed stratigraphy (in the Ness, the area of the town adjacent to the Shoregate, reaching a depth of several metres), and excellent finds preservation (Hunter 1982).

Given the lack of previous work in the area, combined with the clear potential for preservation demonstrated for Berwick by Hunter's work and for the preservation of riverside areas generally (Milne 1987, 192), it was clear that any disturbance in the area of the quay-side should be carefully monitored. Prior to the current work two watching briefs had been carried out on the Quayside. Their results were as follows:

Winter 1993/4: Conducted by P.F. Ryder (1994) on repair works to the Old Quay and a drainage trench cut from the south-east of the Chandlery Building northwards towards Old Berwick Bridge. The main features located were two culverts and the south wall of the pre-1750s quay.

July 1995: Conducted by Tyne and Wear Museums Archaeology Department (TWM 1995) during the cutting of trial pits and boreholes in advance of the current project. The trial pits were cut for the most part against the Town Walls; none were deeper than c. 2.50m, and none reached the base of the walls. The sections indicated that the area had been reclaimed by raising ground levels.

THE 1996 EXCAVATIONS

The sewerage pipe works involved the creation of a new pumping station with pipeline and manhole shafts. In places the excavations for these works penetrated to a depth in excess of 6.00m below ground level. In addition to maintaining a detailed watching brief over all the works, more detailed archaeological excavations were conducted in manhole P1 and the site for a combined sewer overflow (CSO). The work soon established that the area had been subjected to considerable deposition, with primary(?) river bed silting encountered only in the deepest of trenches.

The unstable upper deposits needed shoring, which made detailed observation of the sections difficult. In some sections the lower deposits did not need shoring and it was possible to study these in more detail; however, continual water seepage within the trenches made it difficult to differentiate between deposits in places.

Apart from post-medieval culverts and the foundations of known nineteenth century buildings and surfaces no structural deposits were located. Instead three broad phases of deposition could be defined. Overlying the riverbed was a thick, mixed deposit consisting of layers of compacted semi-waterlogged gravels with some sandy and peaty lenses (Phase A). These contained finds of the thirteenth to sixteenth centuries. These deposits were sealed by dumps of almost pure sand between 1-2m thick (Phase B), within which a thin band of silting was observed in almost every trench. The sand was itself sealed by post-medieval make-up deposits, c.1.50m thick (Phase C).

Finds were recovered in one of two ways, either during the excavation and detailed observation work within the trenches, or from material removed from the trenches by mechanical excavator. Finds recovered from the machine-excavated material could however, given the distinct nature of the deposits involved, be assigned to the relevant phases. Nevertheless, separate context numbers were given to these mechanically excavated deposits in order to avoid any possible contamination with the firmly stratified contexts. Contexts assigned to the mechanically excavated deposits are indicated in this report with an *.

RIVERBED DEPOSITS

Within the trench cut for the pumping station, just 1.50m from the town wall, a firm grey clayey silt was observed at a depth of c. 6.00m (-0.34mOD) below ground level. It was also observed at a similar depth at the very base of the cut for manhole P1. The trench for the pumping station, cut within caisson rings, penetrated 0.50m into this deposit which contained no inclusions to indicate that it was

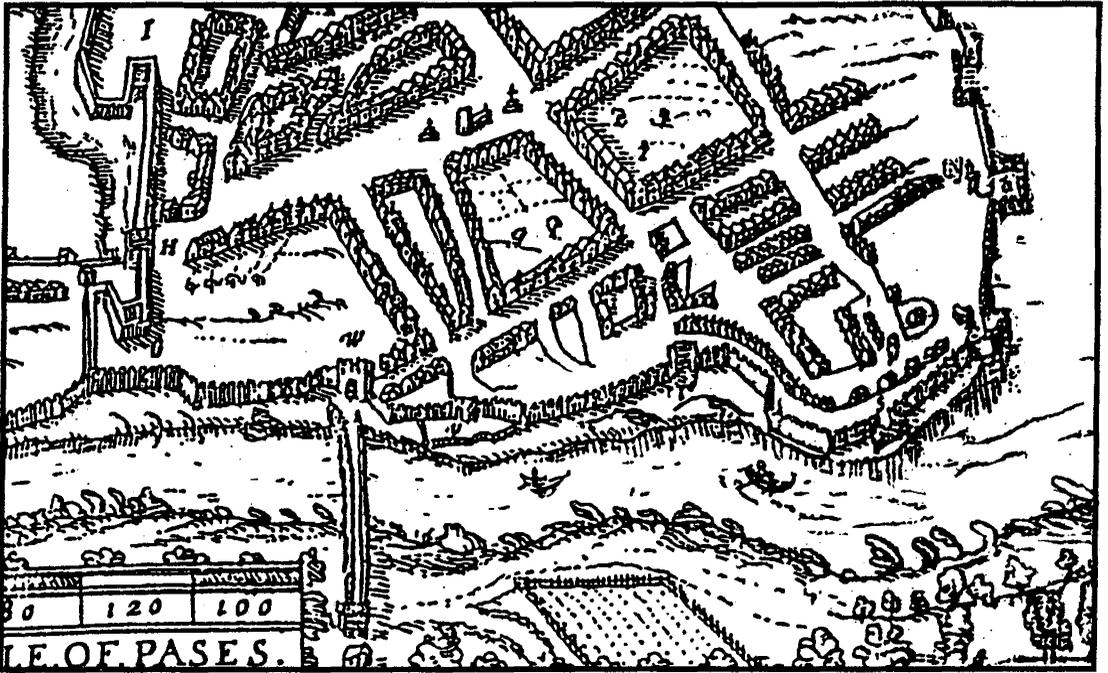


Fig. 3 Detail of Berwick's quayside showing foreshore area: John Speed's map of 1610

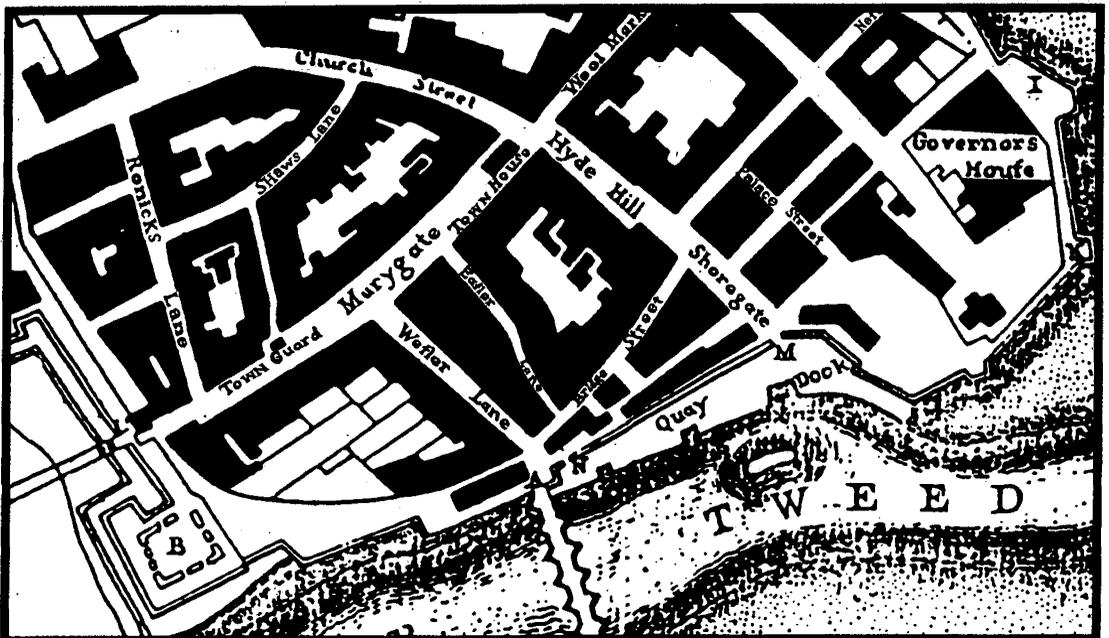


Fig. 4 Detail of Berwick's quayside showing reclaimed area: Armstrong's map of 1769

anything other than natural riverbed silting. Given that its depth puts it below the level of the river, even at low tide, it is assumed that it does not seal earlier occupation.

PHASE A: THE MEDIEVAL ACCUMULATIONS

These deposits were encountered in the trenches from the pumping station to P2, and from P2 to the CSO, and all associated links. Although detailed observation of these deposits at times proved difficult due to water seepage, it was quite clear that they consisted of generally thin, interleaved bands of silty clayey sand/gravels with occasional deposits of a more peaty nature, a mixture of rubbish accumulation and riverine deposition.

In P1 where the full thickness of these deposits could be observed they were found to be c. 1.50m thick. Across the site the top of these deposits was located between c. 1.25 and 1.75m OD. Within P1 it lay at 1.96m OD, but sloped down to a depth of 1.72m OD in P2. On the whole it appears that the deposits tended to slope down away from the town walls. A large quantity of finds was recovered from these deposits, distributed evenly throughout the area. The finds were not heavily abraded implying that they had not been significantly disturbed following their being discarded.

The lack of evidence for vegetation associated with a foreshore area and the recovery of only limited numbers of fly puparia and insect remains (see Huntley, below) indicate that these deposits were formed from steady dumping which covered the deposited refuse fairly rapidly.

At the point at which the trench cut across the front of the Shoregate (at a distance of 12m from it) a layer of stone was struck at 4.60m below ground level (0.14m OD). As this level marked the bottom of the trench the deposit was not cut into, and rapid flooding and silting within the trench made it impossible to conduct more detailed observations, but it is suggested that this layer represented an early metallated access to the river, perhaps associated with the ford noted by Fuller (1799, 404-410). Another stone surface, 1.50m wide

and constructed of a single layer of micaceous sandstone slabs was observed at 2.14m OD, just below the top of the accumulation layers. It too appeared to be running out from the Shoregate, and is taken to represent a later rough surface for access to the river, perhaps an artificial beaching surface.

Dating Evidence

With the exception of a few fragments (Seventeenth century black glazed earthenware from 1015* and seventeenth century British redware from 1020*, which, being mechanically excavated, had the potential for contamination from later deposits) all the pottery from these deposits dates from the thirteenth to sixteenth centuries (see table 1 for the distribution of the various pottery fabric types across the phases). Of the other finds, the only fragment of glass was green bottle glass, probably post-sixteenth century in date, but recovered from the spoil heap (1016*), while none of the leather fragments that can be dated by style is later than the sixteenth century, most being of the thirteenth to fifteenth centuries.

The finds are not closely enough dated to allow for a detailed phasing or precise chronology. The laminate appearance of the layers in this deposit is taken to imply a steady build up of deposits in the area from the thirteenth to sixteenth centuries.

The following illustrations represent pottery recovered from this phase: fig. 5 nos. 1,2,4,7-11, 14, 15; fig 6 nos. 17, 18, 20, 21, 24, 27; fig 7 nos. 30 and 34.

PHASE B: THE SAND DUMPS

Overlying the medieval accumulations, and observed in the lowest levels of the trenches to the south of P2 were deposits of pure beige sand. The sands contained almost no finds and presented a laminated appearance in section, suggesting that they may have been wind- or flood-deposited and/or sorted. It is presumed that the sand was brought to the area as ballast, as is known to have been the case at Newcastle (Ridley 1962, 156). The practice was certainly established by the end of the eight-

eenth century, by which time the New Quay was known as a ballast quay, and harbour dues were levied on the movement of ballast both into and out of the Tweed (Fuller 1799, 411).

The sand was clearly not deposited as a single dump as in several parts of the site a c. 0.15m thick deposit of black gritty silt was noted within it. Within P1 this band lay at a depth of 2.36m OD, and across the CSO at c. 1.70m OD. Throughout the site it lay c. 0.50m above the base of the sands. Environmental analysis of this deposit in the area of the CSO (110, see Huntley, below) revealed that its matrix was formed from clinker and coal. Remains of plants such as nettles and hemlock were observed, suggesting that the deposit remained open for some time.

The upper level of the sand varied between 3.86m OD in P1 to 2.62m in P2, 2.96m OD in P12 and 2.73m OD in the CSO. The black band may well represent a period of abandonment when sand was not being deposited in the area.

Dating Evidence

The latest pottery recovered from the sand came from the upper levels of the deposit (113) in the CSO and is dated to the seventeenth century.

PHASE C: LEVELLING UP DEPOSITS AND NINETEENTH CENTURY ACTIVITY

Above the sands was a series of make-up deposits, again observed across the whole of the site, usually consisting of ash, sand and clay mixtures, with some gravel and sand ballast deposits. These dumps had been used to bring the site up to current ground level. Four culverts were located set into this material, representing drainage of the area throughout the nineteenth and twentieth centuries.

In the area of the CSO remains of a nineteenth century street and structure were recorded. The building had been situated between the street and the town wall and had been demolished in the 1980s. Further structural elements of the nineteenth century were located in the trenches to the south of P2.

Dating Evidence

The majority of both the pottery and the glass recovered from these contexts can be dated to the seventeenth century or later.

THE TOWN WALLS

The 1996 project did not involve any study of the town walls; however, it is relevant to record some observations made during the watching brief conducted in 1995. As part of this work two trial pits were cut against the face of the town walls in the area of the eight-gun battery. Both trenches confirmed the sequence of sand overlain by make-up deposits observed across the rest of the site, although neither was deep enough to encounter the earlier accumulation layers. Neither trench was deep enough to reach the foundations of the walls, but in both the stonework and mortar was similar to that on the still exposed sections of wall. Trench 1 was cut to a depth of 1.90m below ground level. Two offset courses were observed at 0.80 and 1.40m below ground level respectively. One area of repair work was noted where a large rectangular block had been inserted vertically; this overlay a void in the lower course of stones which probably represented a blocked culvert. Trench 3 was cut to a depth of 2.80m. Here the wall was constructed with an outwardly curving taper, becoming increasingly wider towards the base (TWM 1995, 2).

During the course of works to construct a concrete platform around the pumping station shaft that would abut the town wall, a small 0.30m wide culvert that sloped down to the south through the wall was observed, discharging immediately below modern ground level.

DISCUSSION

The archaeological stratigraphy in the area is remarkably uniform. The finds assemblage indicates that deposition in this area did not occur before the thirteenth century. It may perhaps be that this is associated with the con-

struction of the Town Walls by Edward I at the end of the thirteenth century, or at least with other developments, perhaps associated with the subsequent development of the old quay (Ryder 1993, 10). Such works could be responsible for either an alteration in the river's course or in deposition practices along its banks, or both.

Any of these works could have involved the reclamation of land on the north bank of the river, and effectively have turned the site of the New Quay from part of the river into a tidal foreshore, no longer affected by the scouring action of the main river stream. Certainly, the construction of the town wall will have restricted access to the river, with the perhaps inevitable result that much refuse discarded into the river would have been taken through the various gates and therefore accumulated around them; this is borne out by the finds and environmental evidence. Although it is difficult to be certain, it is assumed that the deposition was constant from the end of the thirteenth century through to the sixteenth or even early seventeenth. The mounds seen on seventeenth and eighteenth century illustrations of the area could represent this rubbish, but may rather indicate ballast mounds adjacent to the Old Quay.

Although Scottish pottery was only beginning to emerge in the twelfth century, it seems clear, given the importance of Berwick through the twelfth and thirteenth centuries, and the fact that the section of the town uphill to the east from the Shoregate is traditionally regarded as the older quarter (Hunter 1982, 73), that if the area of the New Quay had been a tidal foreshore at that time then finds from that period could be expected. It may therefore be that the earlier river foreshore in this area lies below or even within the defensive circuit (Ryder 1993, 10). This is supported by the findings of Hunter who suggests that ground level build up in the Shoregate area may be as much as 5 metres (*ibid*). This said, recent small-scale excavations within the town have failed to locate deposits earlier than the thirteenth century (Lees 1998, 8), and even the excavations of Hunter located twelfth century

deposits in only one trench (1982, 80), although that was the only trench located in the traditional old part of the town, the Ness, and the nearest to the area of the New Quay.

It is certainly clear that, by the seventeenth century, ground level had been raised in the area of the New Quay by c.1.50m, bringing it above the low tide level, and making the site much more suitable for reclamation. This sequence and its dating evidence fits well with the documentary evidence for the subsequent development for the New Quay outlined above.

As well as clarifying the development history within this area of Berwick, it is hoped that the finds assemblage (in particular the pottery types) will be of use in further highlighting the potential for preservation in Berwick, recorded in particular by Hunter (1982), and being observed generally in recent small scale assessments and evaluations in the town (Lees 1998, 8-9).

THE POTTERY

A. Jenner

INTRODUCTION

Berwick-upon-Tweed was important as an international port with documentary evidence of trade with Britain, Flanders and Germany. Despite this, excavation and subsequent detailed study of pottery has been limited in Berwick and its hinterland (Moorhouse 1982). Added to this no major type series is available for ceramicists and others working on pottery between Newcastle and Scotland, although there has been some publication of pottery from other sites, notably Holy Island (Bown, 1985).

The material archive from key reports for the medieval period (Moorhouse 1982) and post-medieval period (Ellison 1992) is not easily accessible for reference. This is not a problem confined to Berwick alone but one which has been noted previously in a report instigated by the Medieval Pottery Research Group and commissioned by English Heritage (Mellor 1994a, 29). One of the principal recommendations within this report is the establishment of regional type series (Mellor 1994a, 32). However, few kiln sites are known from the North East of England, the Borders and southern Scotland.

While pottery types recovered during this excavation appear to represent an uninterrupted sequence, the material comes from a series of deposits on Berwick's foreshore with no associated structures or other forms of corroborative dating. This means that any dates assigned to the pottery are merely "spot" dates (Orton *et al* 1995, 54, 63) based on those given to northern English, southern Scottish and imported local, regional and foreign types. This method, based as it is on typological similarities, is not ideal (Laing 1967) as it often leads to circular arguments which may not be based on firm ground.

The assemblage is small, consisting of 1,299 sherds, making any statistical analysis meaningless. It is therefore as a fabric type series that it seemed worthwhile to study.

METHODOLOGY

Fabrics and forms have been described broadly according to the system devised for the Museum of London (Orton 1978), derived from earlier work by Peacock (1977) and Sheperd (1956), and outlined in Orton *et al* (1995). Fabric descriptions can be found in full with the fabric archive. The letter codes for each inclusion and type/method of manufacture are recorded (Orton *et al* 1995, 241-2) and can be located using a version of Vaughan's fabric series number (FSN) which can be found in the text. Phase and context are listed for drawn examples. An overall breakdown of the distribution of the pottery through the phases is provided in table 1. The catalogue entries here give details of the FSN, date, figure number and phase/context number. Each context number is prefaced by the phase to which it belongs, A, B, or C. An * suffix denotes it as a mechanically excavated deposit.

MEDIEVAL POTTERY: LOCAL/REGIONAL WARES

Reduced green glazed wares "RGG" types 1-6
(Ellison 1981, 107-122; Bown 1988, 57-59)

FSN 3, type 1, thirteenth century, Figs. 5.8 (A/2020), 6.17 (A/1204*), 6.18 (A/2020), 6.19 (B/2015).

FSN 6, types 2 to 3, thirteenth century, Figs. 5.2 (A/1012), 5.3 (unstrat/2000), 5.4 (A/1020*), 5.5 (unstrat/1000), 5.6 (unstrat/1200) 5.7 (A/1204*).

FSN 7, type 3/4, mid/late fourteenth to fifteenth century

FSN 8, type 4, mid fourteenth to early sixteenth century, Figs. 5.12 (unstrat/100), 5.13 (unstrat/100), 5.14 (A/2023), 5.15 (A/2008*).

FSN 9, type 5, late fifteenth to late sixteenth century, Fig. 5.11 (A/2004).

Table 1 Pottery sherds by fabric and phase.

FSN	Phase A	Phase A*	Phase B	Phase C
3	21	159	1	1
4	16	66	5	
5	10	34	3	1
6	39	278	8	1
7	5	45		
8	15	21	11	1
9	2		5	
10	5	24	1	1
11	7	33		
12	1	9		
13		5		
14	1	2		
15	2			3
16	3	3		
17				1
20	1	5		1
21		9		
25		1		
26	2	3		
27		4	3	9
28		3		6
31				1
32				2
34				2
35				5
42	1	12	1	
43	1			
44	12	18		1
45	5			
46		1		1

NB unstratified sherds not included

One very coarsely gritted cooking pot is typologically possibly a twelfth to thirteenth century form in a similar fabric to reduced green glaze. Fig. 5.1 (A/1018*).

Buff wares (FSN 4, FSN 5)

Off white/buff/grey fabrics characterised by moderate rounded inclusions of black iron ore, which can be seen on the surface as blisters are dominant in late thirteenth/early to mid fourteenth century in the castle ditch at Newcastle (Ellison 1981p105). One sherd is sooted and has been re-used/mended as a hole has been pushed through the body after firing (Fig. 6.21). A similar jug form was thought to be re-used as a lamp in London-type ware (Pearce *et al* 1985).

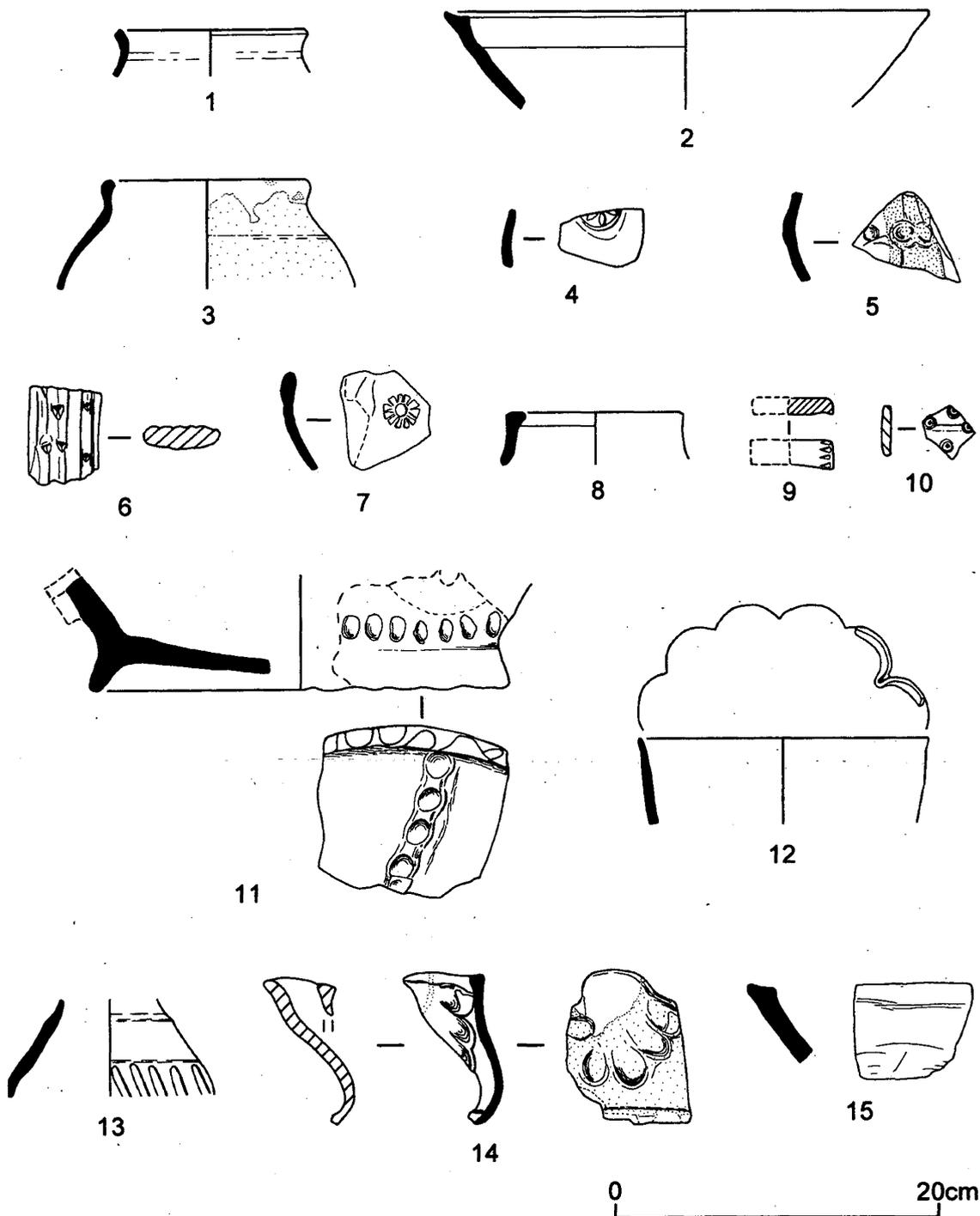


Fig. 5 Pottery, nos 1-15 (scale 1:4)

FSN 4 thirteenth to fourteenth century. Fig. 6.21 (A/2012*)

FSN 5 fourteenth century. Figs. 6.22 (unstrat/100), 6.23 (C/2014), 6.24 (A/1015*).

There are several variants of the above ranging from a possibly earlier coarser fabric to a finer type. The former often whiter with reduced grey/black core and abundant subrounded quartz but few if any black iron inclusions and the latter finer harder fired, with more rounded black iron and less quartz inclusions.

Northern gritty/coarse whitewares known as buff-white gritty wares (FSN 3)

A white fabric, with a low iron content and abundant ill-sorted quartz grits. Vessel forms include cooking pots, a frying pan sooted externally (A/2020) and plain jugs (A/1204*), incised strap and rod handles (A/1018* and A/1020*), face jug (Fig. 6.16 (unstrat/2000) with applied white clay strip for nose and red pellet for eye.

FSN 3 thirteenth century. Figs. 6.16 (unstrat/2000), 6.20 (A/117*).

Oxidised gritty wares (FSN 6.5)

Four types have been described in full from Queen Street, Newcastle (Bown 1988). One handle sherd (unstrat/100) has a very similar fabric to type 2b but has the pockets of burnt quartz sand and organics found in reduced green glazed ware (type 1). Similarities between reduced green glazed ware 1 and oxidised gritty ware 3 have been noted before (Bown 1988 p. 52). It is possible that oxidised gritty ware is therefore merely an oxidised version of the early reduced ware tradition. This is a hypothesis which could repay further investigation.

Industrial vessels (FSN 43)

A few body sherds of fine walled, coarsely gritted, brittle redware fabrics fired to a high temperature with margins consequently reduced to a dark brown/black colour (unstrat/100).

FSN 43. Fig. 6.25 (unstrat/1000).

Hard fired red fabric (FSN 10.1)

Sparse/moderate subangular/subrounded quartz 0.5 to 1mm across. Sparse small red rounded Fe ore 0.5mm. Glassy and milky quartz moderate smaller and more angular just visible at $\times 20$. Rough finely gritted internal surface with a splash glazed exterior. Moderate fine fabric with abundant tiny holes and sparse hollow calcite nodules/beach rock? Salmon pink colour.

Unknown (FSN 10.2)

A hard fired, fine matrix with reduced internal margins. The external surface is orange coloured with a lense of buff coloured clay below it. Inclusions are fine and not visible to the naked eye. They include abundant mica, moderate ill-sorted glassy and rose coloured quartz from 0.25 to 0.5mm. Occasional large quartz sand areas are approximately 3mm and sparse red iron ore and sparse white chalky inclusions up to 1mm. The walls are finely potted with a light covering of buff slip over the light grey reduced internal surface. The only vessel of this type has a thumbled base and spots of glaze with a more even coating under the base. It has pinched feet and is similar to a Hartlepool-type ware jug base with Hurst type 2 thumbing on the base (Addis 1976 fig. 16 no 125).

Micaceous fabric (FSN 10.3)

Sparse large rounded crystalline quartz up to 2mm across. Sparse rounded chalky substance up to 1mm across. Moderate red ferrous ore and black ferrous ore flecks. Moderate to abundant white mica. Finer harder sooted exterior, no glaze, subrounded coal like inclusions, sparse. Grey core red margins. Surfaces show evidence of smoothing and therefore less grits protruding. Mica particularly clear on surface.

Unknown/Orange buff ware? (FSN 10.4)

Possibly a fabric local to Berwick? A lid? (C/2014)

A brick red coloured matrix with abundant quartz including ill-sorted glassy quartz < 2mm, subangular white < 3mm, rounded rose coloured quartz < 3mm, sparse flecks of white mica, sparse subrounded white quartzite inclusions. It has an even yellowish brown glaze over both surfaces which is pitted due to the coarseness of the fabric.

Colstoun type ware (FSN 44)

Several fabrics have been grouped under this broad heading and are thought to emanate from several, as yet unknown kilns in the Border area (Brooks *pers comm*). The material from the Colstoun kiln site is also very varied in appearance (Brooks 1979-80, 366).

FSN 44, mid to late thirteenth century, Figs. 6.28 (A/2020), 6.29 (unstrat/100).

One handle sherd (unstrat/100) has a thin even watery yellowish green glaze. The fabric is soft and fine pinkish-red with the typical admixture of white clay common in the Colstoun products. It is possible that this is a local continuation of the Colstoun tradition (*pers comm* Val Dean) and is similar to Fast Castle handle type "D" and is also found at Coldingham Priory, Berwickshire (Laing 1972).

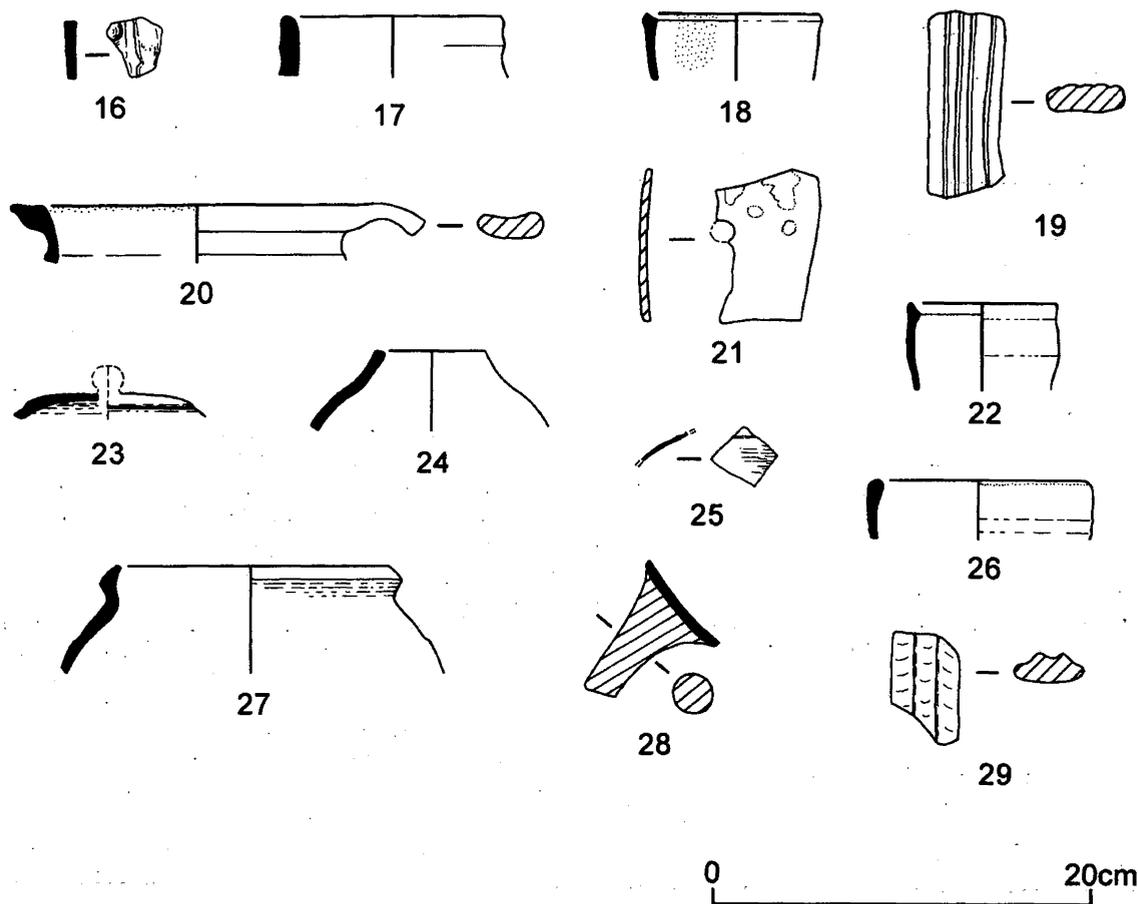


Fig. 6 Pottery, nos 16-29 (scale 1:4)

Tweed valley ware (FSN 46)

Moorhouse's type 1 (Moorhouse 1982). Bown suggests a late twelfth to thirteenth century date for similar wares from Lindisfarne (Bown 1985).

FSN 46, late twelfth to thirteenth century, Figs. 6.26 (c/2021), 6.27 (A/1015*)

The external surface is covered/self-slipped with a whitish buff clay, horizontal marks can be seen where grits have been dragged along while wheelthrown. Red/brown areas of slip have been brushed over this with diagonal brush strokes.

Leith type (FSN 45)

This type of pottery is thought to be common in Scotland (*pers comm* D Caldwell) and suggests perhaps an origin there. Similar sherds have been found at the Hirsell. The fabric is light grey and very hard with abundant rounded and subrounded black iron ore. Moderate subangular quartz less than 0.5mm, grey reduced core with lighter grey/buff surfaces. Occasional lenses of darker grey grog tempering. A similar fabric was found in the National Museum of Scotland's fabric series labelled "Leith

Haggarty". The only vessel forms are jugs with a very dark green, sometimes metallic glaze. One has a fine ribbed rod handle with even glaze blending from dark green to yellow. One tooled handle is possibly that forming the beard of a long-bearded face-mask jug (Rutter 1961, type 5) but is unfortunately too fragmentary to be sure. These were made in Scarborough and may have been copied in other industries/fabrics, for example in Scotland at Colstoun (Brooks 1979-80).

Scarborough type wares (FSN 11)

This is more similar to fabric II than I (Farmer 1979). Forms are mainly from highly decorated medieval jugs. One jug (Fig. 5.10) is decorated with applied strips and pellets in the form of a cross (Moorhouse 1982, fig. 20, no. 126).

FSN 11, thirteenth century, Figs. 5.9 (A/1017*) 5.10 (A/1015*)

This type of pottery has been found on a number of 13th century sites, mainly but not always distributed along the east coast of England and Scotland (Dunning 1963; Coutts 1966; Laing and Robertson 1970; Laing 1972; Laing 1973, 193-6).

MEDIEVAL IMPORTS

French pottery (FSN 12, thirteenth century)

A few small sherds of French mottled green glazed thirteenth century jugs have been found (A/1020*, A/1300*, A/2012*), some of which are decorated with applied strips. These are probably from the Saintonge region. One sherd represents a pegau (A/2012*).

Early stoneware FSN 14.1 (A/2012) (Beckmann 1974; Vince 1985)*

The collared rim form found here is very closely paralleled in Hurst's Langerwehe type I jugs (Hurst 1977 fig. 2 no. I.2, 227). It also shares the same type of complex chevron rouletted decoration in a horizontal band below the collared rim. The form can be seen at Siegburg (Beckmann 1974 fig. 11 no. 61, 212 period 3) and the late Brunssum/Schinveld kiln products.

It is not possible to distinguish which production centre these wares were made at without chemical analysis. By the fourteenth century Langerwehe and Siegburg industries both started to make fully fused stonewares. Before this and shortly before production stopped at Brunssum/Schinveld in the mid-fourteenth century near stonewares are thought to

have been made at all of these centres.

Hurst's Langerwehe type I collared rim vessels are dated to the mid-fourteenth century. At the Edinburgh High street excavations (Schofield 1975-6) this type was not present but thought to be earlier than 1375-1475 (Hurst 1975-6, 21). Of Hurst's three sizes, which he suggests might be for functional reasons e.g. storage, decanting and drinking, the rim of the Berwick sherd falls into the largest (4" diam).

POST-MEDIEVAL POTTERY

Stonewares

Siegburg/Beauvais (FSN 14) (A/1020*), (unstrat/100), (A/2017), Langerwehe (FSN 15) and Raeren (FSN 16) (A/2023), (unstrat/1200) jug sherds are probably of fourteenth to sixteenth century. One Langerwehe jug sherd (A/2019), probably of type II.2 (Hurst 1977), is decorated with vertical rouletting and is similar to one found in Southampton datable to the first half of the fourteenth century (Platt and Coleman-Smith 1975). These earlier types are replaced by Frechen jugs (FSN 17) in the sixteenth to seventeenth centuries.

Redwares (FSN 20, fourteenth to sixteenth century Low Countries; FSN 27, seventeenth century British).

Redwares are common across Britain in late-medieval and post-medieval contexts from the fourteenth to the seventeenth centuries (Hurst *et al.* 1986, 136) and it is not always possible to tell British and Dutch apart.

FSN 27 Figs. 7.30 (A/1020*), 7.31 (C/2021), 7.32 (unstrat/1000), 7.33 (unstrat/100).

Most of the redware sherds represent cooking vessels and are sooted indicating use for cooking and heating.

Slip decorated redwares (FSN 20 & 27)

Two fabrics can be seen, one representing metropolitan type wares (C/2021 and C/2014) the other possibly representing a source closer to Berwick (unstrat/1000 and A/1020*).

FSN 27 seventeenth century. Figs. 7.36 (C/2014), 7.37 (C/2014), 7.38 (C/2021) – see below.

Berwick type? (Fig. 7.38)

Sparse long streaks of quartz sand with sub-angular quartz grains < 6mm long, sparse angular quartz grains, red and black rounded iron ore barely visible

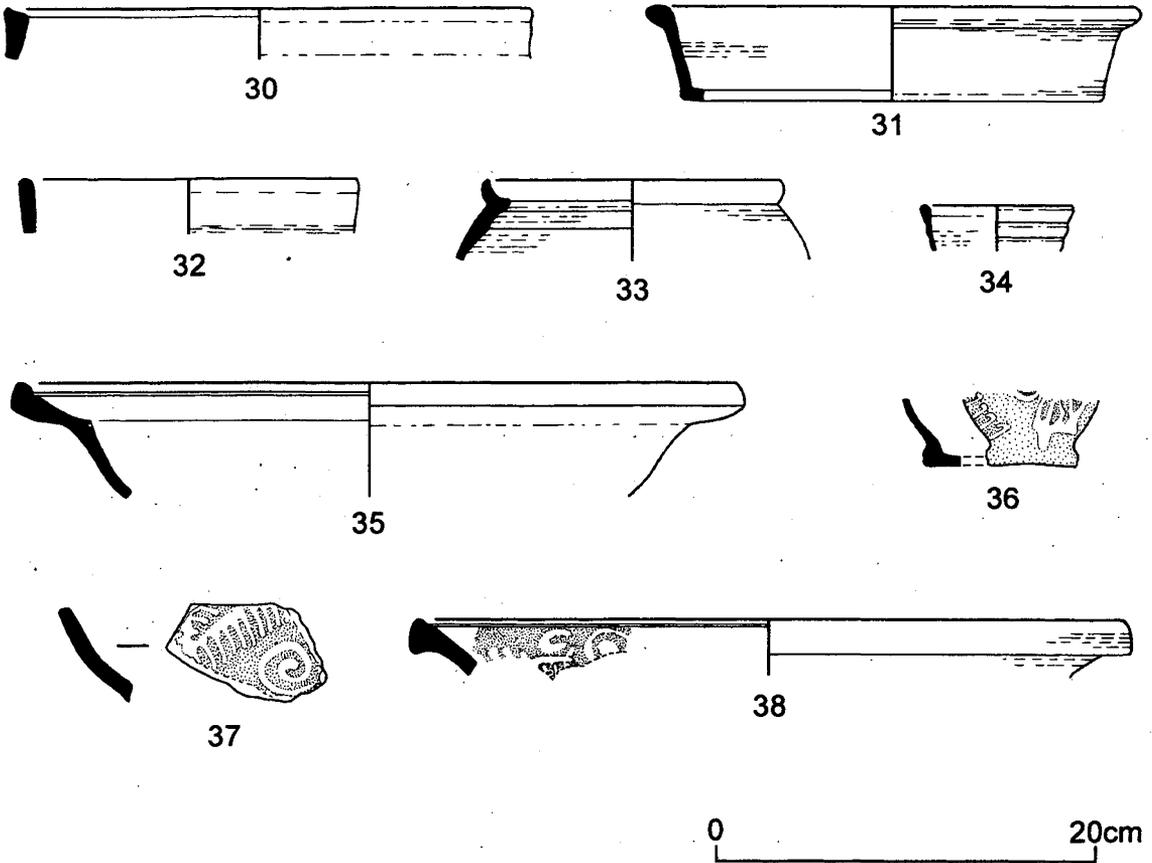


Fig. 7 Pottery, nos 30-38 (scale 1:4)

at $\times 20$ and sparse sub-rounded black inclusions, possibly basalt and sparse white mica. It has a fine pinkish/red matrix and soft soapy feel. It has a crude slip decoration and was made with a mixture of white and red clays seen in the production of other more local wares to Berwick e.g. Colstoun and the Tweed valley.

Low Countries greywares (FSN 21, fourteenth to seventeenth century)

Made in the Low Countries from the fourteenth up to the seventeenth century (Hurst 1986). Similar wares are found on many British sites including Berwick (Moorhouse 1982 type 4, 113).

Black glazed wares (FSN 25 seventeenth to nineteenth century)

Black glazed earthenwares are found from the sixteenth to nineteenth century in Newcastle (Ellison 1983) and are common by the seventeenth century. These are represented by mug/tankards (unstrat/100) and (A/1015*) similar to one from the castle ditch, Newcastle (Ellison 1981, fig. 34, no354) and possibly Brears' type 6 (Brears 1971) and a finer, probably later, deep sided bowl (unstrat/1000).

English whitewares (FSN 26)

Surrey whitewares (Pearce et al 1988, 5) including Tudor green wares, thought to be late fifteenth century, and later sixteenth and seventeenth century Surrey-Hampshire products. Forms include dishes and goblets.

FSN 26 Figs. 7.34 (A/1021*), 7.35 (unstrat/100)

Metropolitan type (FSN 27)

Metropolitan ware was made at Harlow, Essex (Newton and Bibbings 1960) and also at Potter-spury, Northamptonshire (Mayes 1968, fig. 30, no 4). It has a harder, darker, brick red matrix and is finer, with fewer inclusions than the Berwick type. However, sparse mica, individual sub-angular quartz grains and small rounded black and red iron can be seen.

Mynard suggests that examples including a bowl with "fir-tree" and spiral decoration from Dover castle (Mynard 1969, 41-2, fig. 13, no 35), similar to one from Berwick (C/2014), imply its distribution by sea from Essex to this east Kent area. It is interesting that this type is found as far north as Berwick and this perhaps reinforces the idea of sea trade along this coast. The Berwick pot was lightly sooted on the base alone, suggesting its use on a hearth for keeping contents warm rather than cooking.

Tin-glazed wares (FSN 28)

Sherds of maiolica dishes (C/2014) with a mixture of lead and tin externally may be seventeenth century or later. Others with a light blue glaze externally are likely to be later still (C/104).

Nottingham and Staffordshire brown glazed stonewares (FSN 31.1)

Eighteenth century stonewares (unstrat/1000).

White salt glazed stonewares (FSN 31.2)

Small sherds (unstrat/100), (C/104), (unstrat/1000) represent dish/bowls. These are common in the eighteenth century (Jennings 1981).

Later glazed redwares (FSN 32)

These wares are probably the utilitarian products of the potteries in Newcastle and Sunderland known as "brown wares". They were intended for cooking and storage vessels mainly (Baker 1984, 29). They are found in eighteenth and nineteenth century deposits in Newcastle and Sunderland (Nolan 1990).

Transfer printed wares (FSN 33)

Sherds representing a bowl and jug (unstrat/1000)

may well be from the Tyneside area but are too small to be certain.

White earthenwares (FSN 34)

Made from the eighteenth to the twentieth century.

Modern stonewares (FSN 35)

Nineteenth century stoneware bottles; (C/109), (C/4001).

DISCUSSION

The material from the foreshore represents a range of types from the thirteenth to twentieth centuries. However, due to lack of both a sufficiently large sample and dating evidence the following comments must be viewed as merely speculative.

It is interesting to note that no Cistercian wares, indicative of the late fifteenth century are present here. A similar absence has previously been used to indicate an earlier date for the Oil Mill Lane material from Berwick (Moorhouse 1982, 103); however, the absence of particular types may be indicative of lack of a representative sample or be attributable to other influences including fashion, preference and trade routes/networks.

Mercantile trade is documented with Britain, Flanders and Germany (Fraser 1981, Hunter 1982) and the pottery types described above appear consistent with this. Pottery also appears to be coming in small quantities from the Saintonge region of France; such types are commonly found in thirteenth century British contexts. The Low Countries are represented by grey wares of the fourteenth to seventeenth century and possibly by later redwares from the fourteenth to sixteenth century. German imports probably begin with late thirteenth to fourteenth century proto-stonewares and end with Frechen types of possible sixteenth to seventeenth century date. There are no Westerwald stonewares which one might expect to see from the seventeenth century onwards.

The majority of the pottery appears to be made up of buff and reduced wares resembling those from the North East of England and in particular the area around Newcastle, although similar wares may also have been manufactured in Scotland. Wares thought to emanate from the Tweed valley and southern Scotland, probably from the thirteenth century onwards, are present but in smaller quantities. Perhaps surprisingly London does not appear to be a source for medieval pottery at this site but wares from the Surrey-Hampshire Borders are pre-

sent; these types are thought to range from the fifteenth to seventeenth centuries. It is highly likely that a trade route along the east coast brought them to Berwick. Certainly several others working on ceramics along the east coast of Britain have noted the existence of sea trade along this coast.

It is possible that ceramics were "piggy-backing" on other trades (Mellor 1994b) with, for example, ceramics being used as ballast on ships otherwise coming back empty. It is known from their records that religious houses in southern Scotland used the port of Berwick for trade exit of hides and wool (Fraser 1981, Hunter 1982); perhaps pottery was brought back. It is not unlikely that these houses would have created a demand for such products. However, without detailed study of documentary sources including customs records we cannot be sure.

However, many of the forms represented here are utilitarian and many are freshly sooted cooking vessels suggesting that they were used and discarded close by, whether used on board ship or on the fore-shore. Their fragmentary nature and lack of abrasion implies rubbish dumping rather than new cargo.

It is hoped that by creating a library of sherds which would be available for reference the thinking behind the fabric groups characterised here, and their potential sources, could continue to be of use well after the snapshot that this report might provide.

OTHER FINDS

A. Rowntree

The catalogue entries provide identification and dimensions, followed by the small finds number; the first part of this number represents the context number, which is prefaced by the phase. The site archive contains a full catalogue of all the finds.

BUILDING MATERIALS

Most of the material consisted of roof-tiles, with a few floor-tiles and only a single example of a brick.

Roof-tiles

The accumulation deposits contained a number of pantile fragments. Pantiles appear in the north of Britain in the early fourteenth century and continued in use throughout the medieval period and later. A tile fragment with red fabric, sanded on the underside and glazed dark green on the surface could be an example of a glazed roof tile (unstrat/100).

Floor-tiles

There were five fragments of glazed floor-tiles from the accumulation deposits, none of which were complete. The fabrics included dark grey reduced fabric underside and core with red margins and glazed green over a white slip on the upper surface (A/1012); a reddish-orange fabric with a yellow glaze over a white slip (A/1018*, A/2012*) buff fabric with a green glaze over a white slip (A/123) and buff fabric with a green glaze trailed over the surface (A/1203). No patterns or designs were visible on any of the pieces. Glazed floor tiles were popular from the mid-thirteenth century and throughout the rest of the medieval period.

Window glass

There was a single piece of window glass, with evidence of a grozed edge, (C/2021). Late sixteenth century onwards (Sherlock 1994, fig.33, nos. 163-5).

SMALL FINDS

Leather (Figs. 8-14)

1. Shoe sole (L:220mm W:68mm). A/2017.2. Very narrow at the waist. Almost complete. Date: 1360-1470 (Allin 1981, 145). Also (not illustrated):
 - 1.2. Shoe sole (L:125mm W:40mm) A/1015*.6. Narrow waist. Two opposing sides stitched.
 2. Shoe sole (L:240mm W:80mm). unstrat/2000.3. Narrow waist. Tunnel stitching.
 3. Shoe sole. (L:265mm W:100mm). A/2020.4. Tunnel stitching.
 4. Shoe sole (L:115mm W:70mm). A/2017.1. Transverse seam. Separate forepart and heel-seat method of construction. One strap still remaining. Fifteenth to early sixteenth century.
 5. Shoe sole. (L:80mm W:55mm). A/1020*.1. Transverse seam.
 6. Shoe sole. (L:120mm W:60). Unstrat/2000.4. Transverse seam. Also (not illustrated):
 - 6.2. Shoe heel. (L:67mm W:60mm). A/2018.1. Transverse seam.
 - 6.3. Shoe sole. (L:90mm W:56mm). A/2020.5. Transverse seam.
- A characteristic of shoes from the period 1360-70 is a very narrow waisted sole, for example numbers 1, 1.2 and 2. There is some evidence of shoes being 'translated' or cut up

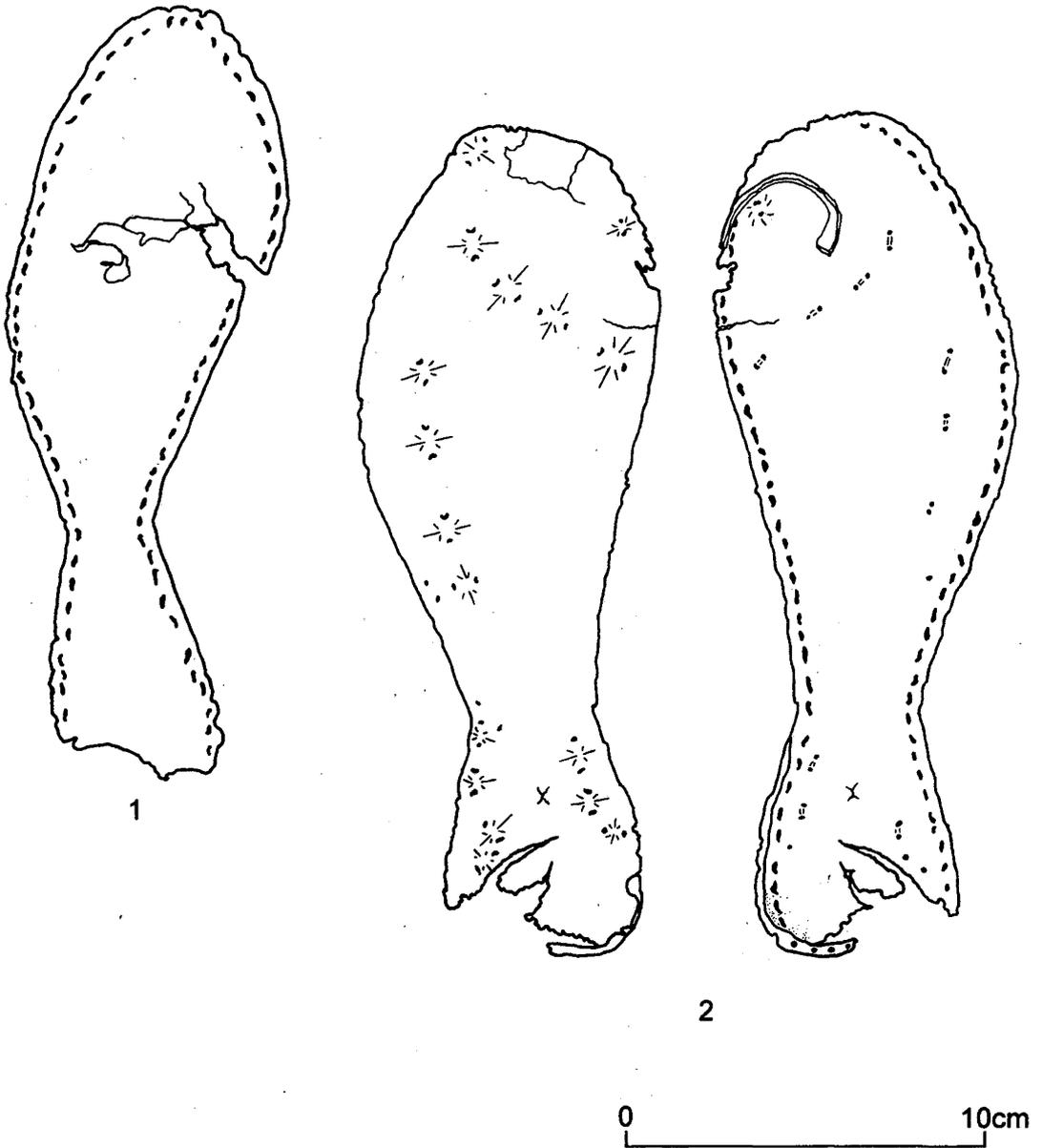


Fig. 8 *Leather soles, nos 1-2 (scale 1:2)*

to repair other shoes (A/2012*.12, A/1012.1). Cobblers specialised in the repair of old shoes or remade old shoes for sale during the twelfth to late fourteenth centuries, rather than making new shoes, the latter being done by *corvesers* and *cordwainers*.

A common economical method of construction during the late thirteenth to early fourteenth centuries was to make the shoe sole out of two or three pieces of leather. In this way it is easier to repair a shoe sole because if one end has worn away it can easily be replaced. Evidence

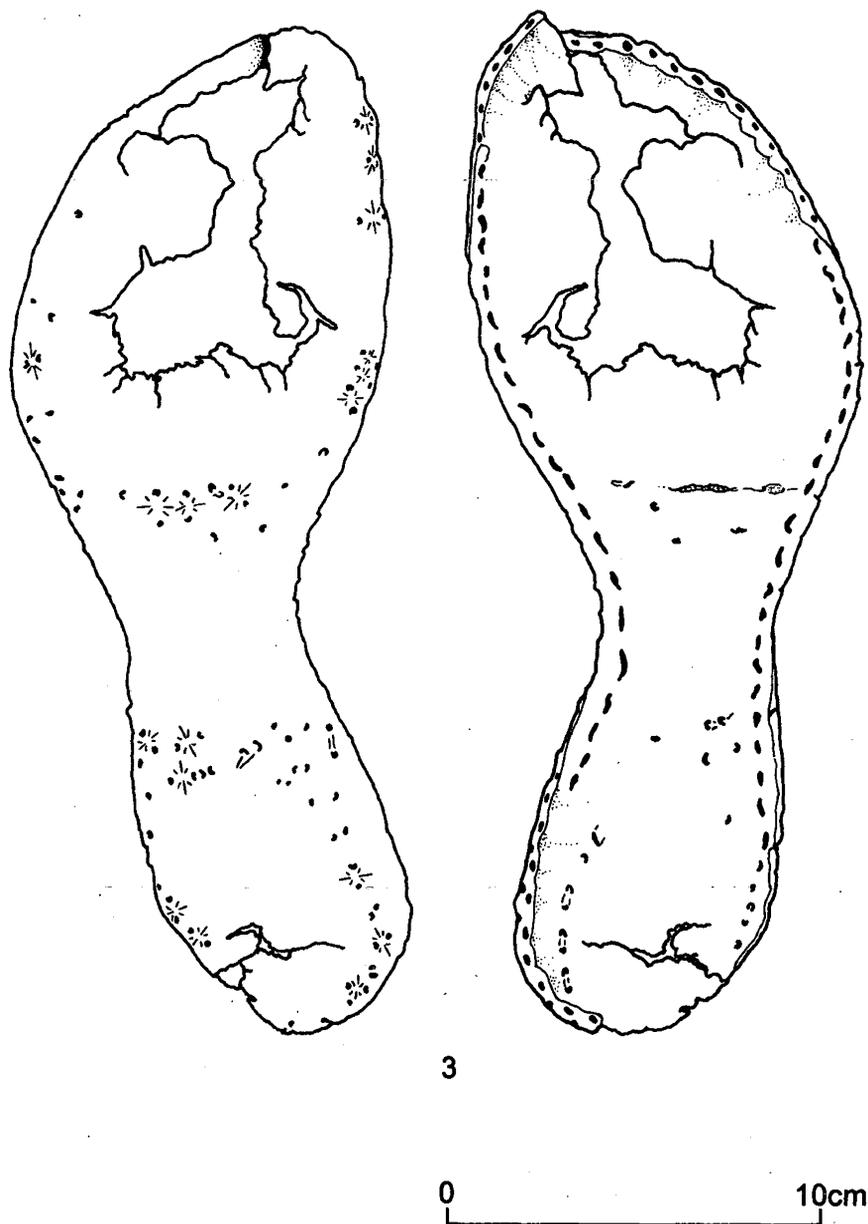


Fig. 9 Leather sole no 3 (scale 1:2)

of a transverse seam (e.g. no. 5) indicates this separate forepart and heel seat method of construction and tunnel stitching the method of attachment (Nos 2 and 3).

7. Turnshoe upper (L:245mm W:106mm). A/1015*.5.

8. Fourteenth to fifteenth century.
Turnshoe upper (L:180mm W: 140mm).
Unstrat/2000.1.
Fourteenth to fifteenth century.
9. Shoe sole (L:150mm W:85mm) and rand
(L:105mm W:6mm). A/1201.1,1201.2.

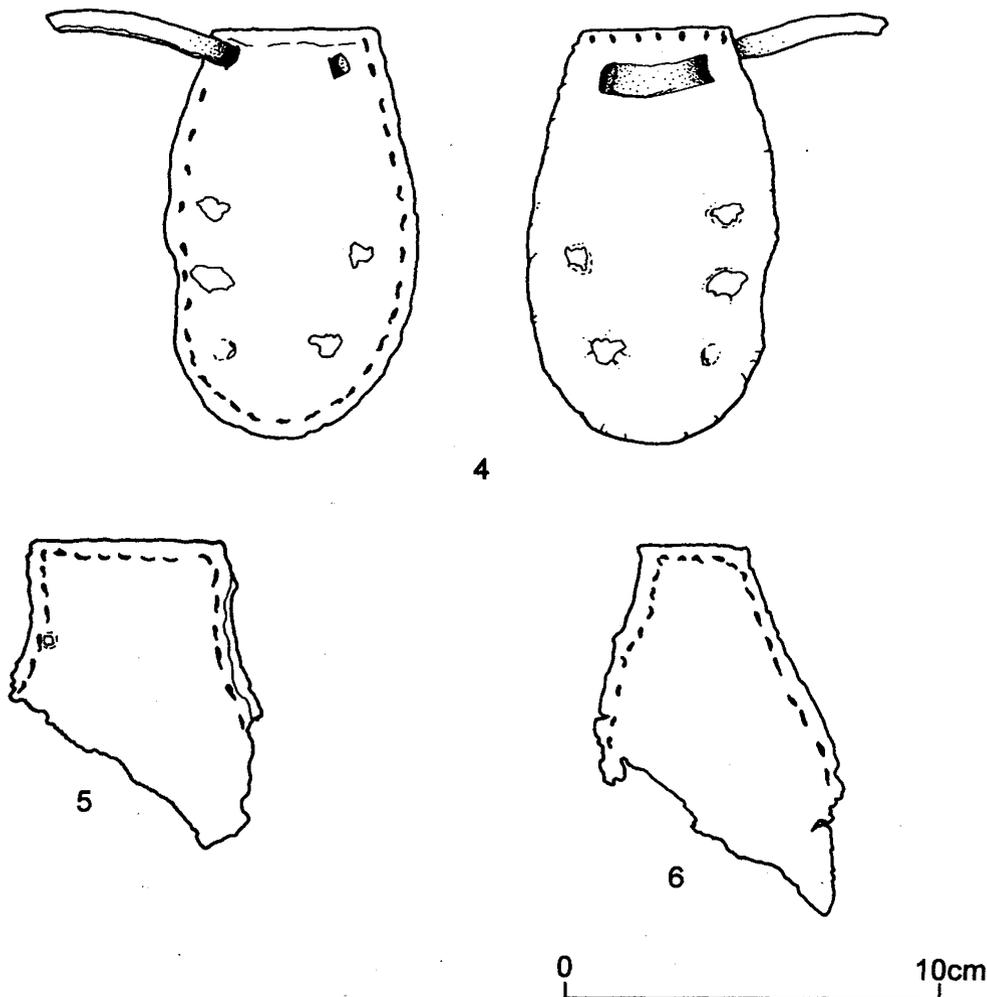


Fig. 10 Leather soles, nos 4-6 (scale 1:2)

The date of this type of footwear covers the thirteenth to fifteenth centuries. Turnshoes with a rand were made up until approximately 1500, then the welted method was used. The turnshoe method of construction consisted in the upper, which had been turned flesh side out, being lasted onto the sole and joined to the edge by an edge or flesh seam. The shoe was then turned inside out so that the grain side was outside. A rand was sometimes introduced to produce a stronger, more waterproof join. The turnshoe was replaced by the welted method of construction introduced about

1500. Thread was made from flax or hemp yarn rolled with beeswax, although nothing is left of the binding threads in the assemblage from Berwick.

10. Strap (L:70mm W:31mm). A/1015*.3.
11. Strap (L:136mm W: 30mm). A/2008*.1.
Strap with bumps where holes might be made with buckle pin. Stitching around edges. Rounded ends.
12. Strap (L:95mm W:17mm). A/1016*.1.
13. Strap (L:180 W:20mm). A/2017.4.
These could have come from sandals, pattens or galoches. The latter are first mentioned in

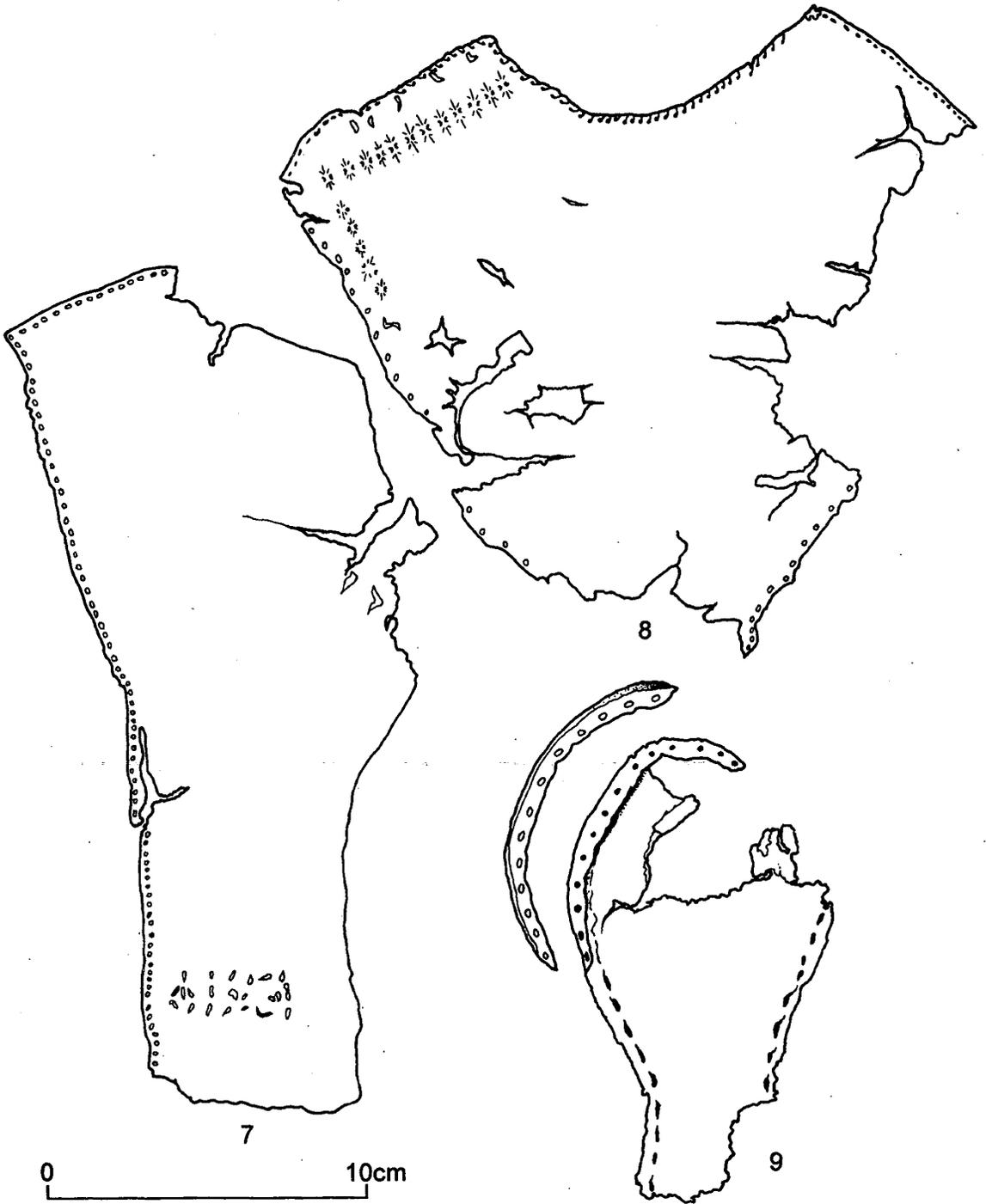


Fig. 11 Leather turnshoe uppers, nos 7-9 (scale 1:2)

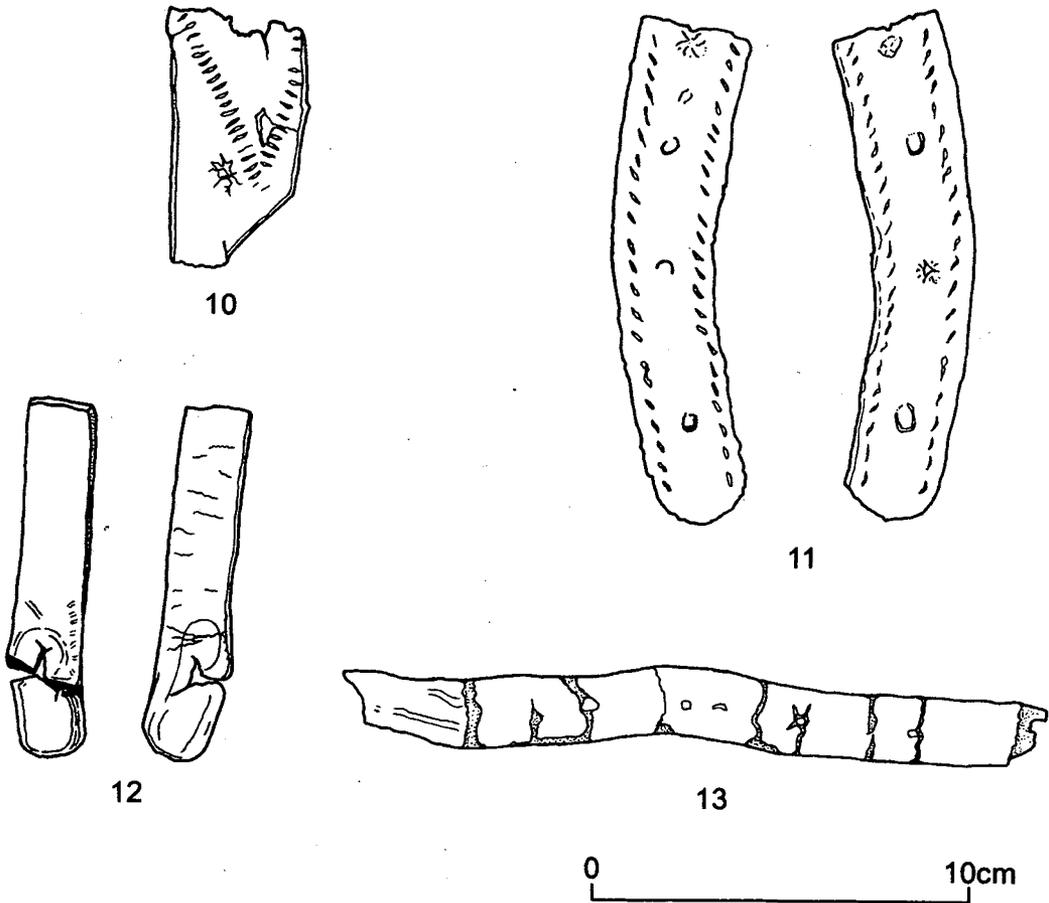


Fig. 12 Leather straps, nos 10-13 (scale 1:2)

1306. They were kept on by a leather band, or more commonly in the fifteenth century with leather straps fastened with a buckle (Blair and Ramsay 1991, 311).
14. Belt (L:120mm W:44mm B:5mm). A/2020.1. Decorative stitching at both edges. Perforation for belt tooth.
15. Patterned belt (L:56mm W:102mm). A/1015*.2.
16. Belt (L:175mm W:48mm). A/2012*.1. Six holes extant.
Also (not illustrated):
- 16.2. Belt (L:270mm W:15mm). Unstrat/2000.2. Rows of slashing are evident on some examples and may be decorative cuts made

with a knife. These may have contained thread or perhaps even bronze wire (Allin 1981, 51).

17. Number not used.
18. Sheath (L:385mm W:50-70mm). A/2017.3. A folded strip, possibly a knife sheath. When unfolded measures 90-115mm.
Also (not illustrated):
- 18.2. Sheath (L:152mm W:140mm). A/1015*.7.

Wood (Figs. 15, 16)

19. Comb (W:95mm L:22mm B:7mm). B/2015.1. Incomplete wooden comb, square or H-shaped and double sided. Nine small teeth and three large teeth remaining. In the medieval

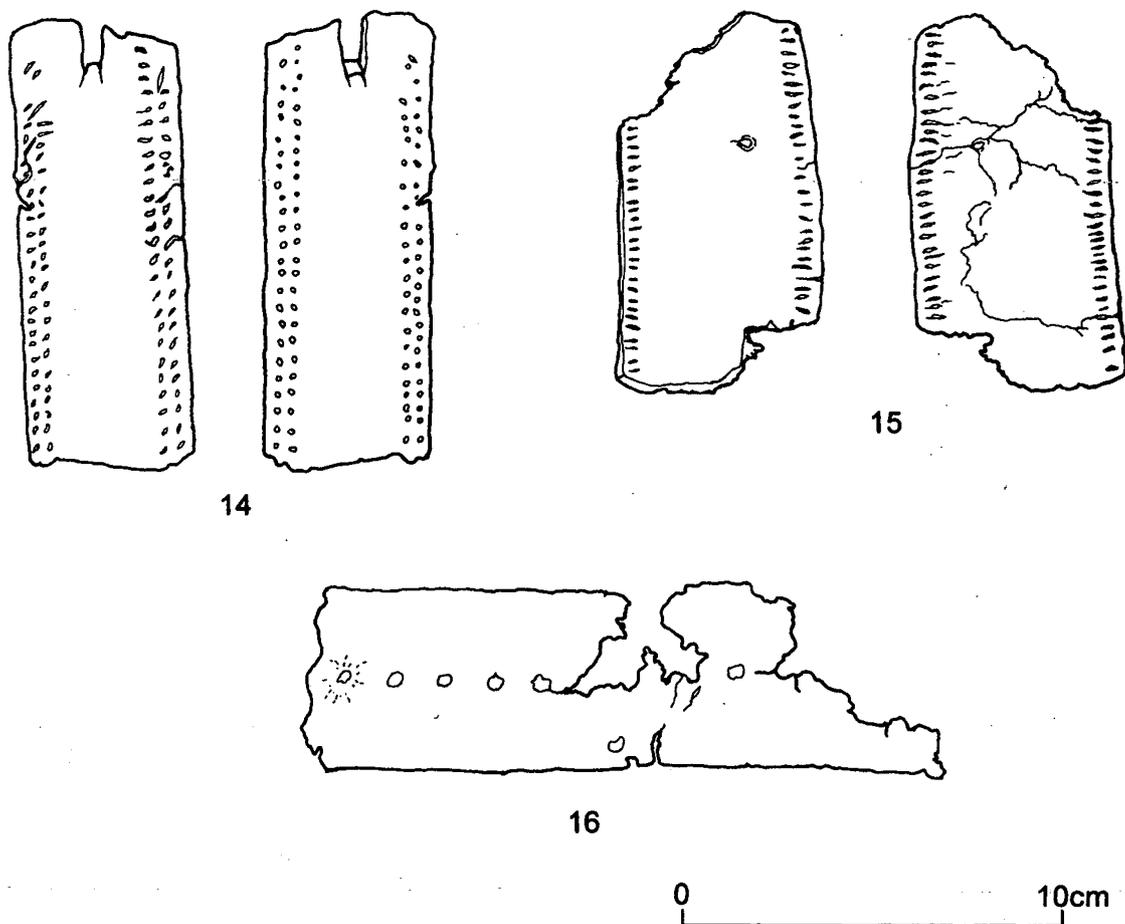


Fig. 13 Leather belts nos 14-16 (scale 1:2)

period, wooden combs were generally made from boxwood. Straight-edged combs appear in at least the twelfth century and continue to the seventeenth century. (Egan and Pritchard 1991, 374, Margeson 1993 67-8).

Parallels:

London, c.1350-c.1400, Egan and Pritchard 1991, fig. 248, no 1728.

Norwich, 1600-1700, Margeson 1993, figs. 33-34, nos 416-421, 423.

20. Handle (L:85mm W:20mm B:5.5mm). A/2012*.1.

Incomplete wooden cutlery handle. Cross-section not possible because of its fragmentary condition. Binding mark visible on shaft.

21. Pin (L:110 mm D:6mm). A/117*.1.
Complete wooden pin with a plain, shallow conical head and a smooth finish.
22. Pin (L:118 mm D:6mm) A/1019.1.
Complete wooden pin with a plain, shallow conical head and a smooth finish.
23. Pin (L:108mm W:6mm B:4mm). A/2008*.1.
Incomplete wooden pin of roughly oval cross section. The shank is faceted from trimming.
- Also (not illustrated):
- 23.2 Pin (L:73mm W:7mm B:6mm). A/1016*.1.
Flat head.
- 23.3 Pin (L:103mm W:5mm B:4mm). A/2004.1.
Flat head.

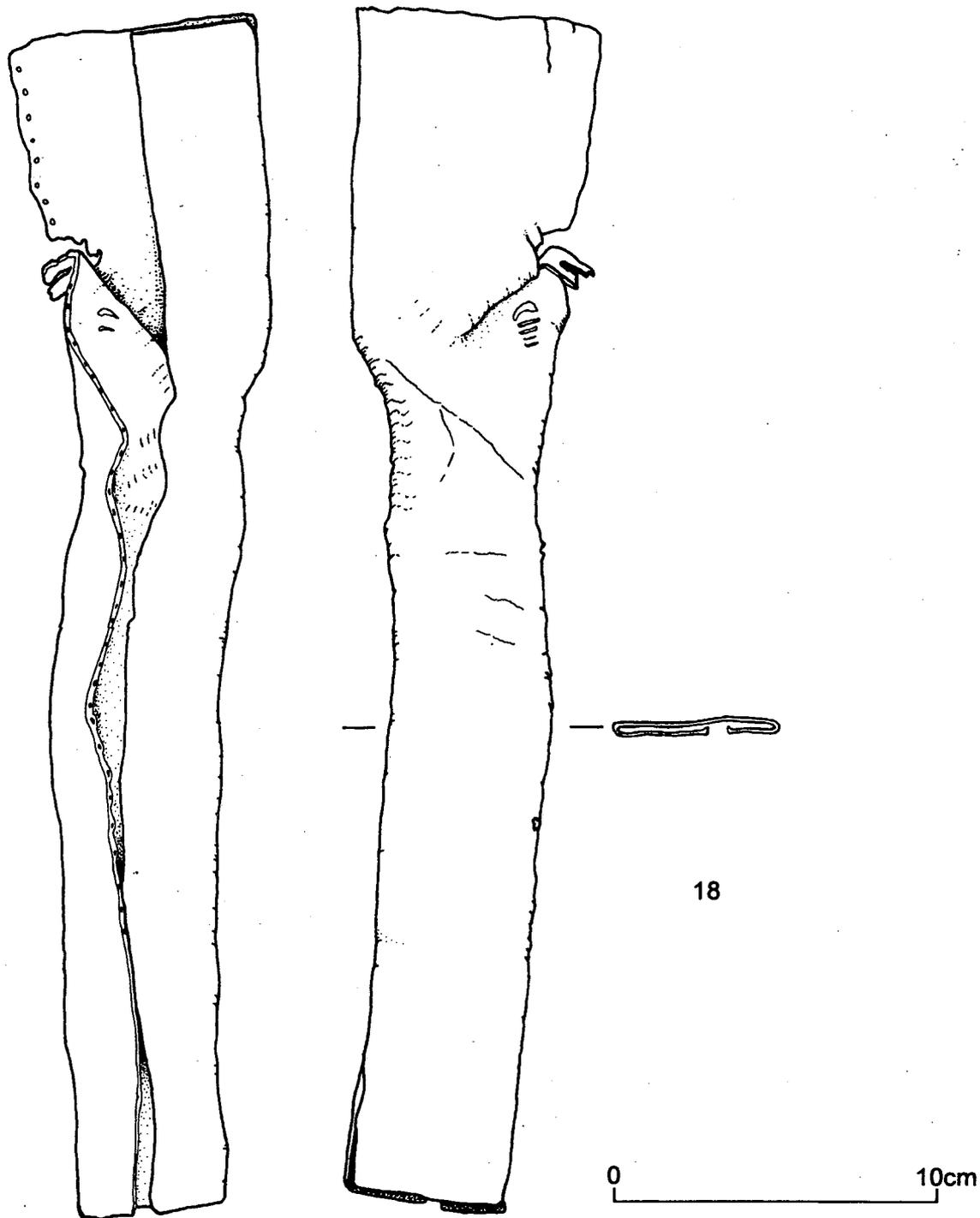


Fig. 14 Leather sheath no 18 (scale 1:2)

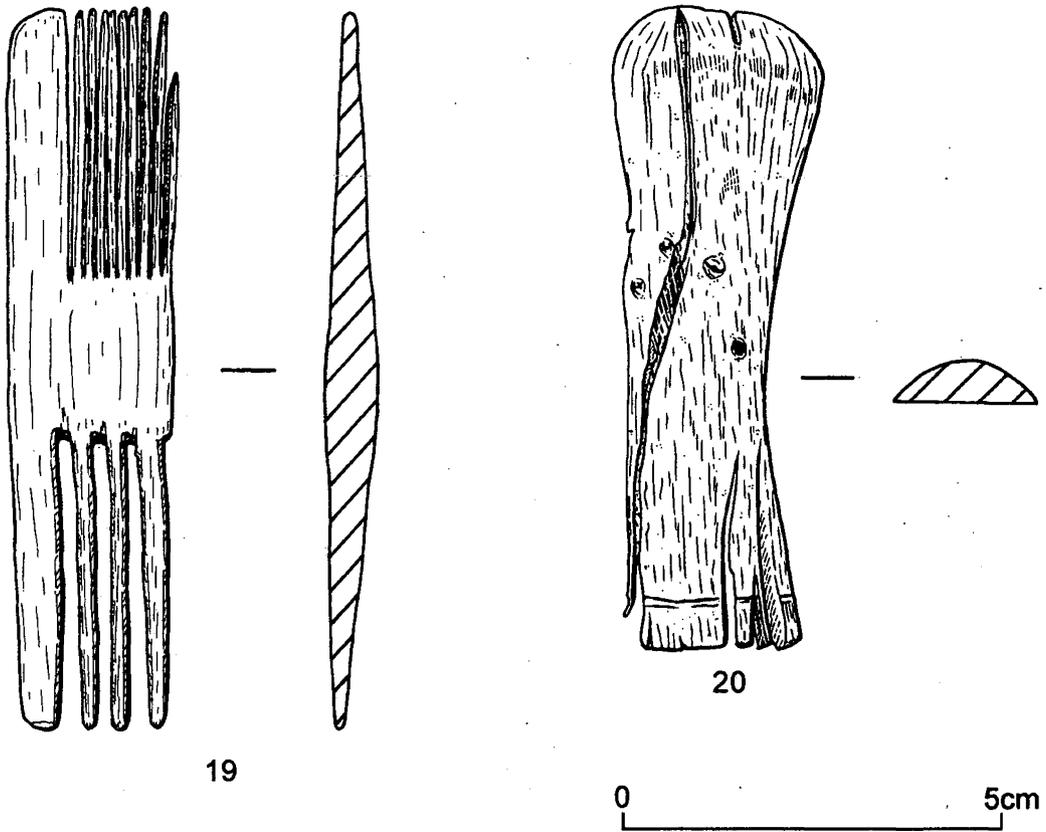


Fig. 15 Wooden artefacts, nos 19-20 (scale 1:1)

- 23.4 Pin (L:90mm W:6mm B:5mm). Unstrat/2000.1. Incomplete.
 23.5 Pin (L:673mm W:8mm B:6mm). unstrat/100.1. Incomplete.
 23.6 Pin (L:73mm W:7mm B:6mm). A/2018.1. Incomplete.

Such simple pins could have had a number of purposes, such as for pricking or perforating resistant material such as leather, or as needles for knitting (Herteig 1985, 86, 98).

Glass

24. Flask. C/2014.1 (not illustrated).
 One body sherd of milky green metal, blown and transparent, is probably an example from the transitional phase between the potash-lime glass of the early medieval period and the glossy variety of the late sixteenth century. Possibly from a flask. c.1500 (Charleston 1991, 258).

25. Wine bottle/spirit flask. C/4000.1, 1650-85 (not illustrated).

The commonest glass vessel in the assemblage is the bottle. English 'Green Forest' glass, although manufactured throughout the medieval period and beyond, was improved from the late sixteenth century onward. Thin, glossy and more resistant to weathering than the previously poor quality potash-lime glass which is susceptible to weathering when exposed to damp conditions. The only example of glass recovered from the accumulation layers was one fragment (A/1016*.1) of post-sixteenth century green bottle glass which is most probably intrusive (Haslam 1994, fig. 68, no. 642 and fig. 77, nos. 720-725).

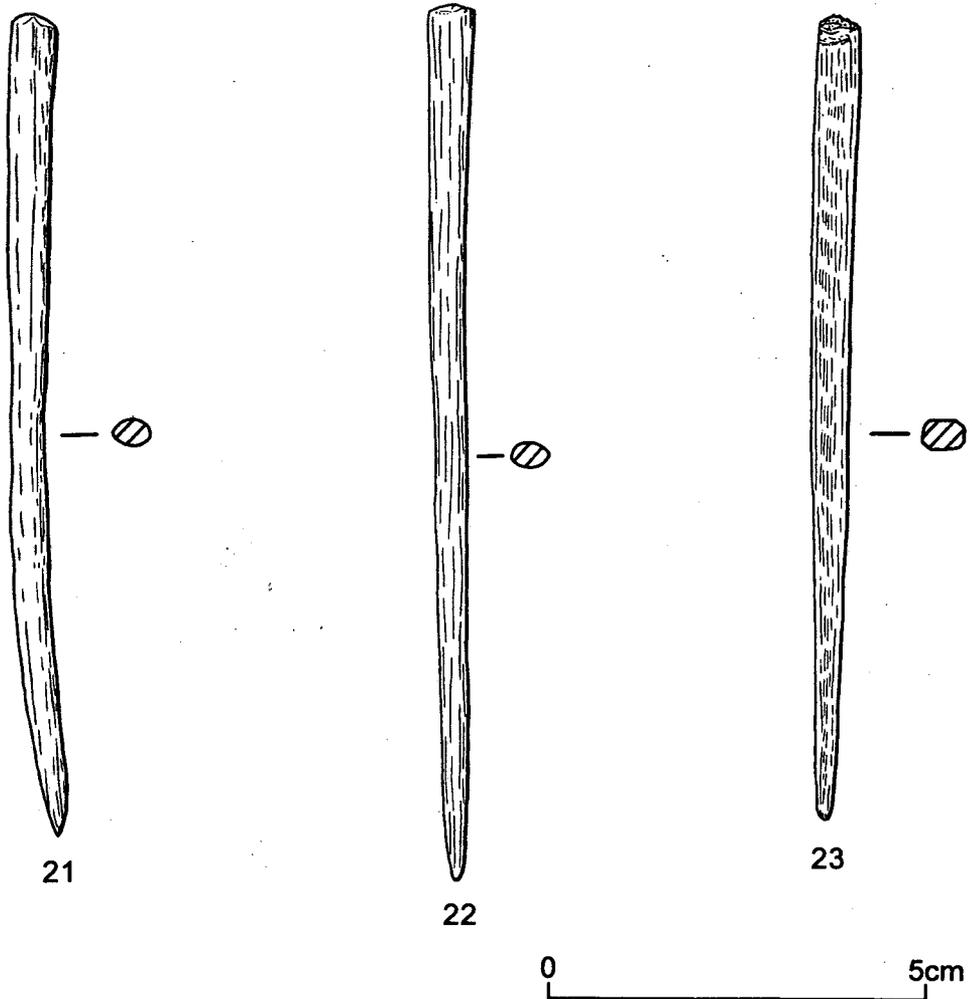


Fig. 16 Wooden pins, nos 21-23 (scale 1:1)

THE ANIMAL BONES

L.J. Gidney

INTRODUCTION

Only the animal bones from the accumulation layers (Phase A) were studied in detail. They were recovered by hand and are in excellent condition, reflecting the benign, waterlogged burial environment. The bones appear to have been deposited in fresh condition with no prior exposure to sub aerial weathering. Butchery marks and gnawing marks are

clear. Very few fragments were seen with any degree of abrasion to suggest that they had been redeposited. This assemblage has not been subject to preservational bias acting against the less robust and immature elements.

To reduce over-recording of the more robust bones from the larger species, only those fragments of cattle, sheep/goat and pig bones with 'zones' were catalogued. The zones used are those defined by Rackham (1987). The term sheep/goat was used for recording but no goat bones were identified and all the more diagnostic elements were unequivocal.

Table 2 Fragment counts for the species present in Phase A.

Cattle	36	Oyster	55
Sheep/Goat	44	Mussel	2
Sheep	1	Cockle	3
Pig	3	Winkle	11
Horse	12	Whelk	1
Dog	1	Limpet	2
Roe deer	1	Crab	1
Large Ungulate	18	Fish sp.	11
Small Ungulate	5		
Fowl	3		
Goose	4		
Total	128		

Table 3 Relative proportions of the domestic mammals from fragment counts.

Cattle & Large Ungulate	54	45%
Sheep/Goat & Small Ungulate	50	42%
Pig	3	3%
Horse	12	10%
	119	

cally from sheep. All the identifiable fragments of the other mammal and bird species present were recorded. Estimates were made of the numbers of mollusc shells represented by fragments.

SPECIES

Table 2 shows that this small assemblage is dominated by bones of the domestic species used for food: cattle and sheep. The bones have been butchered and broken in a manner indicative of food use, including marrow extraction. Some 70% of the cattle and 36% of the sheep bones had unequivocal chop marks on them. Also clearly chopped were the roe deer bone, two pig bones and two horse bones. There was no evidence of waste from craft working other than two cattle horn cores chopped from the skull. Knife marks were confined to two goose sternum fragments, which had been carved both parallel to, and at right angles to, the breast bone. This corresponds with the instructions given to *Reare the Goose* by Murrell (1638 facs):

'cut off the belly piece round, close to the lower end of the breast: then lace her downe with your knife cleane thorow the breast, on each side your Thumbs breadth from the bone in the middle of the breast'. Overall, cattle and sheep bones are present in almost equal numbers, though the cattle bones represent a greater quantity of usable meat. Of particular interest is the very low representation of pig and unexpectedly high proportion of horse bones in Table 3. On this site, the relative proportions of these two species is the reverse of that normally encountered. Even when much pig meat is consumed as preserved bacon or boneless sausage and the like, a higher proportion of ham and trotter bones is to be expected.

Cattle

Of note, given the excellent preservation, is the total absence of bones from juvenile animals less than a year old. Teeth were rare, the few found derive from young adult or mature animals. The presence of two horn cores indicates that horned cattle were kept.

Sheep

The tooth wear shows a total absence of first year lambs, a clear peak of third molars coming into wear from animals aged about two years old and very few more aged animals. This could indicate that the dumping of waste took place within a very brief time span when no spring lamb was available, but this is at odds with the finds and environmental evidence, and may instead represent some form of depositional bias. One sheep skull fragment was present from which the horn had been chopped; this was either a ewe or a wether. Two complete metapodials give estimated withers heights of 0.57m and 0.54m, well within the range for medieval sheep (Gidney 1991, 30).

Pig

All three pig bones found are from the hind leg, the more valued end with the lowest ratio of bone to meat and often cured as ham.

Horse

Two of the twelve horse bones had been clearly chopped. This need not indicate an unscrupulous butcher passing off horse meat as beef, though this is believed to have happened on occasion (Serjeantson *et al* 1992, 12). Butchery of horse carcasses

for dog food is well attested (Wilson and Edwards 1993), and two more of the horse bones had been gnawed. No selection was apparent among the elements deposited; half the horse bones are from meat bearing limb bones and the other half are from the extremities of the head and feet. One jaw had all the permanent teeth heavily worn, indicative of advanced age at death, and canine teeth present, indicating it was a male. Two metapodials were intact and measurable, from these withers heights of 1.28m and 1.35m were estimated using the factors given in Driesch and Boessneck (1974). All the horse bones found were of equivalent size, suggesting that the standard equine was a pony of about 13 hands. Deposits of horse bones in similarly water-logged deposits, with comparable levels of butchery and gnawing have been recovered from Kingston upon Thames (Serjeantson *et al* 1992) and Windsor (Bourdillon 1993), suggesting that this was a widespread method of disposal for inedible faunal waste. The Kingston horses were also elderly, the majority were estimated at less than 13 hands and were interpreted as working rather than riding animals.

Dog

One dog bone was found. A more general presence of dog is indicated by chewing marks on some 7% of the cattle and 10% of the sheep bones found. This level of damage is consonant with bones being fed to household dogs but subsequently gathered up for disposal rather than left for further canine damage and dispersal.

Roe Deer

Roe deer was the only wild, hunted mammal found. In such a small assemblage, this bone is of interest as indicating the presence of one household of sufficient status to afford venison.

Poultry

Both domestic fowl and goose are represented by similar numbers of bones, though the geese will have provided more meat. All the bones are from meat bearing parts of the body and therefore suggest the disposal of table waste, possibly from one more well to do household.

Fish and shellfish

The fish bones have not been identified but are all large specimens. Seven types of shellfish were recovered, though only the oyster appears to have been at all commonplace. Fish bones were also

recovered from sieved deposits (see Huntley, below), although again they were not observed in large quantities. Thus the extant evidence suggests that all types of sea food made little significant contribution to the diet of the householders dumping the rubbish here. However, this picture may be slanted by the comparative lack of sieved deposits as against the hand recovered sample.

DISCUSSION

This small assemblage of animal bones appears to derive from domestic refuse originating within the town of Berwick and brought to the waterfront for disposal. There are similarities with other small collections of animal bones from Berwick examined by Stallibrass (1997a, 1997b, 1998). Preservation is good on all three sites so absences from the species identified may be a product of small sample size but not a product of differential survival. Cattle and sheep bones are generally present in similar numbers in medieval deposits. Pig, horse and poultry bones are not present on every site. Butchery and gnawing marks imply the disposal of domestic debris. Oyster shells are most common with other shellfish also present. The comparative lack of evidence for sea food contrasts with other sites in the area which have produced abundant fish bones.

The majority of the meat consumed in medieval Berwick appears to have been beef and mutton. Similar numbers of bones does not equate to a similar quantity of meat, beef was the mainstay of meat consumption. The scarcity of pig bones suggests either that pork and bacon were not favoured or that most pork was cured as bacon and procured off the bone. Horse bones are generally rare. This is to be expected in deposits of domestic kitchen and table waste. The high proportion of horse bones from the site is particularly striking in this respect. Poultry bones are generally infrequent. This is the only site to produce both fowl and goose bones in the hand-recovered finds. This could be a product of the larger sample size or, like the roe deer bone, an indicator of the status of the source of the refuse. It is evident that sieving is essential to understand the contribution of maritime resources to the household food consumption within Berwick. It is nonetheless unlikely that the sum of all the other faunal remains represents a greater quantity of meat than the beef bones. The renowned fisheries of Berwick do not seem to have been as important to the meat supply of the city as the pastoral farmers of its hinterland.

ENVIRONMENTAL SAMPLES

J. Huntley

Five samples were assessed, four from deposits in the accumulation layers, and one from the dark silt band within the sand. Details of the remains recorded from them are presented in tables 4 and 5. All were bulk samples and processed by manual flotation with both flots and residues retained upon 500 micron mesh.

DEPOSITS FROM THE ACCUMULATION LAYERS

Context 116

This was the lowest recorded deposit in CSO and consisted of a compact grey gritty gravelly sand becoming more organic and lighter with depth (where it became context 118). 50% remained after processing and was mostly coal and clinker with some organic material. All of the latter was coarse and probably the remains of wood. It was not possible to determine whether this had been structural material, wattling or natural river debris. Heather shoots and wood, mostly waterlogged but a little charred, were the most abundant remains present. Otherwise the taxa represented were typical

arable weeds and ruderals of the period. The few fig pips recovered could indicate an element of domestic rubbish. A selection of fish bones and shells were recovered from the residues. At least some of the fish were large gadid type – cod family. Bone was generally well preserved although only the occasional piece was present.

Context 2004

A peaty deposit from the medieval accumulation layers immediately below the sand dump in P2. Although the processed sample consisted largely of clinker there were, in addition, considerable amounts of organic material – wood, amorphous organic, moss/bryophyte fragments and charcoal. There were, however, no sign of insect remains or fly puparia suggesting that the material was not foul or had been left around lying and festering for any length of time. About 30% of the sample remained after processing. The residue contained shell fragments as well as some bone and a few fragments of calcined bone. Skull fragments of possibly cow were recorded but in low numbers. Vertebrae and head bones of large fish were present in low numbers and probably reflect disposal of a deliberate catch rather

Table 4 Environmental sample processing details and matrix components.

Context Number	110	116	2004	2011	2019
Volume processed (ml)	3000	4000	3000	2000	4000
Volume flot (ml)	200	400	300	500	600
Weight processed (g)	3261	4910	3232	2843	4447
Weight residue >500 micron (g)	1015	2528	1189	1393	1557
Matrix components (1-5 score)					
Clinker/cinder	5	4	4	1	
Coal	4	4	3	2	3
Peat/coarse organic	2	2	3	4	3
Wood fragments	1	1	2	1	4
Charcoal fragments	1		2	1	1
Bryophyte fragments			2	2	2
Amorphous organic material				5	3
Mammal bone				1	1
Fish bone				1	
Fly puparia				1	
Insect fragments				1	
Monocot fragments					1
Charred plant remains (counts)					
cc Avena grain (oats)		1	1		
cc Triticum aestivum grain (bread wheat)			2		
cs Culm nodes (cereal straw)			1		
ch Calluna vulgaris wood (heather)		1			

Table 5 Plant remains preserved through waterlogging (numbers = scores: 1-rare, 5 – super-abundant).

Context	Number	110	116	2004	2011	2019
we	<i>Ficus carica</i> (fig)	1	1	2	1	
wr	<i>Conium maculatum</i> (hemlock)	3		1	1	
wa	<i>Agrostemma githago</i> (corn cockle)		1	1		1
wa	<i>Chrysanthemum segetum</i> (corn marigold)		1	1	1	1
wx	<i>Ranunculus repens</i> -type (buttercups)		1	1	1	1
wr	<i>Rumex obtusifolius</i> -type (docken)	1	1		1	1
wa	<i>Chenopodium album</i> (fat hen)		1		1	
ww	<i>Montia fontana</i> ssp(p). chondr. (blinks)		1	1		
wa	<i>Polygonum persicaria</i> (redshank)		1			1
wh	<i>Calluna vulgaris</i> shoots/twigs (heather)		3			1
wt	<i>Corylus avellana</i> nut fragment (hazelnut)			3	1	
wa	<i>Fallopia convolvulus</i> (black bindweed)			1	1	
wr	<i>Raphanus raphanistrum</i> pod frag. (radish)			1	2	1
wr	<i>Rumex acetosella</i> (sheep's sorrel)			1	1	
wr	<i>Lapsana communis</i> (nipplewort)				1	1
wc	Cerealia/large Gramineae (large grass)				1	1
wr	<i>Reseda luteola</i> (weld)			1		1
wr	<i>Urtica dioica</i> (stinging nettles)	2		1		
ww	<i>Carex trigonous</i> (sedges)	1			1	
wa	<i>Galeopsis tetrahit</i> (hemp nettle)	1			1	
wa	<i>Stellaria media</i> (chickweed)	1				1
wr	<i>Atriplex</i> sp(p). (orache)	1				
wa	<i>Urtica urens</i> (annual nettle)	1				
wx	<i>Lamium undiff.</i> (dead nettles)	3				
ww	<i>Carex</i> (lenticular) (sedges)		1			1
wg	<i>Rumex acetosa</i> (sorrel)		1			
wa	<i>Polygonum aviculare</i> (knotgrass)		1			
wa	<i>Polygonum lapathifolium</i> (pale persicaria)		1			
wh	<i>Calluna vulgaris</i> flowers (heather)			1		
wt	<i>Rubus fruticosus</i> (blackberry)			1		
we	<i>Anethum graveolens</i> (dill)			1		
wr	<i>Raphanus raphanistrum</i> (radish)				1	
wg	<i>Potentilla erecta</i> -type (tormentil type)					1
ww	<i>Carex rostrata</i> (bottle sedge)					1
wg	<i>Linum catharticum</i> (purging flax)					1

w/c = waterlogged/charred preservation

a = arable, c = cereal grain, e = exotic, g = grassland, h = heathland, r = ruderal, s = cereal straw/ear,

t = tree/scrub, w = wet ground, x = broad habitat/not closely definable.

than dead fish being washed up. Two charred grains of bread wheat and one of oats were present as was a single culm node, the “knobbly” part of cereal stems.

Waterlogged seeds were quite varied in type but not particularly abundant. Figs, blackberry, radish, dill, hazelnut shell and corn cockle all suggest some food disposal although the latter is a poisonous weed of crops and not directly deliberately eaten. Its seeds are large and not easy to separate from

cereal grain by sieving. Thus it was often removed by hand at a late stage in processing. Most of these corn cockle seeds were entire which is quite unusual. It suggests that they were indeed removed from a cereal crop prior to the grain being ground. More often than not these seeds are recovered in a highly fragmentary state indicating that some at least had been ground with the corn. No evidence for cereal bran was recorded.

Context 2011

This sample was from a context below 2004 within P2. It consisted of a brown-orange sandy loam. About 50% was lost after processing but what did remain was highly organic. Considerably less was coal or clinker. The organic material was mostly fairly fine and indeterminable with wood and bryophyte fragments not abundant. Fly puparia and insect remains were present in low numbers as were fish and mammal bone fragments. There were surprisingly few seeds in such an organic deposit and more or less no charcoal. Waterlogged seeds included fig pips, radishes and hazelnut shell again but otherwise the taxa represented were more ruderal to waste ground in their habitat requirements. Again there were no strong indications of a maritime or aquatic environment. Overall the botanical suite was rather similar to that of 2004 with the exception of charred material being absent from 2011.

The residue contained some well preserved fragments of bone (mammal and fish), occasional fragments of teeth and some limpet and periwinkle shells.

Context 2019

A waterlogged peaty deposit recovered from the trench linking P2 and P12. A dark brown to black peaty silt. About 30% remained after processing and consisted of a wood and fine organic flot with the occasional intermode of barley. Coal was moderately abundant but other mineral material absent. Fly puparia and insect remains also absent. The residue produced occasional fragments of well preserved bone including cattle ribs and a skull fragment. Oyster shell was recorded.

Seeds were not abundant; most were from taxa characteristic of ruderal habitats again with a little evidence for grassland and arable cultivation.

DEPOSIT WITHIN THE SILT BAND IN THE SAND

Context 110

This was a silt band within the CSO lying at c. 1.70m OD and consisted of dark-brown to black silt (10YR 4/3) with sandy inclusions. The matrix after processing was nearly all clinker and coal with very small amounts of organic material. About 30% remained after processing. The coarse residue contained occasional fragments of oyster shell, periwinkle shell and mammal bone. The fine residue was also clinker and coal with occasional bone and shell fragments. Surprisingly no charred remains were recorded in the scan. The rather limited plant

assemblage was dominated by seeds of hemlock, nettle and dead nettles with a selection of other ruderal to weedy taxa. There were no strong indications of marine influence as might be expected from a foreshore site. The dominants are all plants of nutrient enriched ground which has lain around for some time, they are generally not characteristic of recently disturbed ground although some of the dead nettles may be since they are annuals.

CONCLUDING REMARKS

It is clear that most of these deposits represent some sort of dumping although there is no evidence for natural vegetation which could be expected on a foreshore area. It is inferred therefore that the deposits are all dumps and that they were reasonably rapidly covered. This is also in accord with the limited numbers of fly puparia or insect remains which would be expected in festering organic material lying around for any length of time. The relatively few numbers of food plant remains also suggest only limited disposal of kitchen waste or cess material although the bones do suggest some kitchen midden type debris. Bones may be the result of dumping of butchery waste however (see Gidney, above).

The bread wheat and the corn marigold remains tie in with a medieval data but, again, there are no strong indications of crop processing debris being dumped here. This could perhaps indicate this was a town to which processed cereals were brought. The few figs and dill seeds provide limited evidence for trade since they are taxa not readily growing and fruiting in these northern latitudes although figs could have fruited if grown against southern facing walls and dill could have been grown in pots.

The relatively high values of heather shoots in context 116 could represent disposal of thatching or bedding material.

This assemblage has produced a rather typical suite, of ruderal taxa with some food plants, for a medieval urban site. It is very like the deposits encountered elsewhere on the Quayside (Huntley 1998) where material was rapidly covered again. The present site lies closer to the City Walls overall and confirms the presence of well preserved organic material along much of the New Quay.

ACKNOWLEDGEMENTS

The project was funded by North Tyneside Council Sewerage Agency on behalf of

Northumbrian Water. Thanks are due to Andy McLaren (North Tyneside Council Sewerage Agency), Sara Rushton (County Archaeologist) for assistance during the establishment of the scheme, and to Peter Ryder for supplying information on his previous work in the area. Thanks are also due to Owen Graham and Jim McNeil of Dorin Construction Ltd, and Tom Darling, Engineer with Berwick Borough Council, for assistance during the course of the works. The excavation and watching brief were conducted for Tyne and Wear Museums by the author, assisted by Margaret Snape, Barry Donaldson and Graham Hodgson. The illustrations were drawn by Paul Carrick, Graham Hodgson, Roger Oram, Michelle Taylor and David Whitworth. Derek Cooper and Stuart MacPherson were responsible for much of the data processing for the pottery study. Alexandra Croom managed the production of the finds reports, and the project as a whole was co-ordinated by Steve Speak. The author is grateful to Paul Bidwell for his comments on an earlier draft of this paper.

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