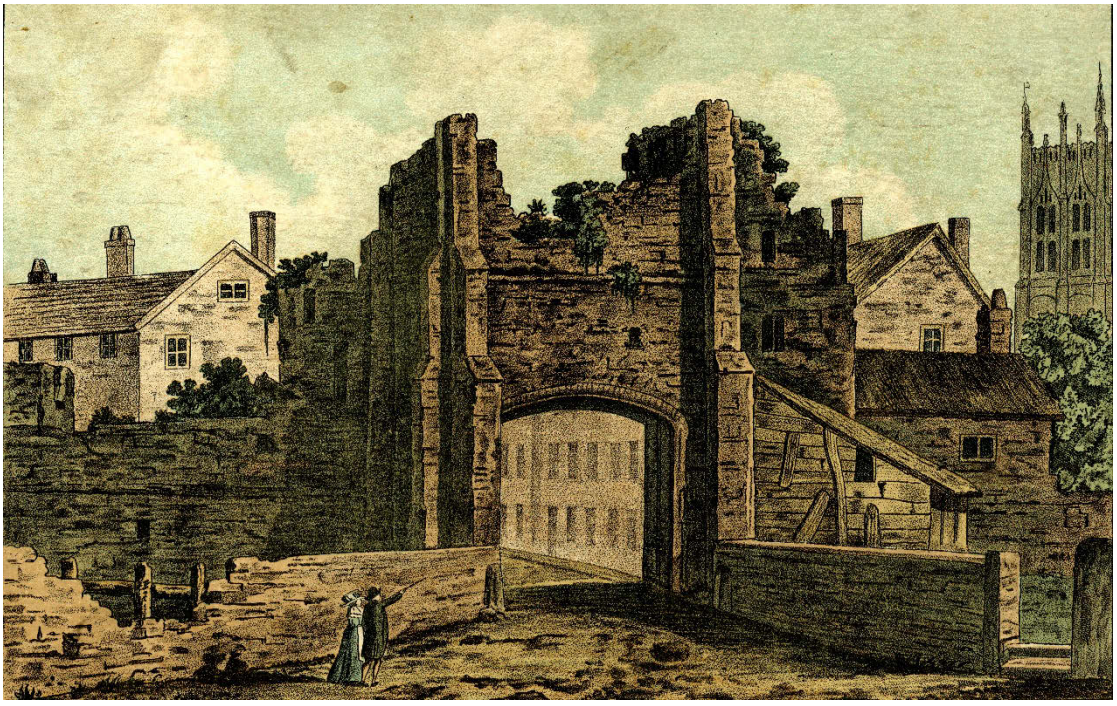

Excavations at the Beverley Gate, and other parts of the town defences of Kingston-upon-Hull

by D.H. Evans

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Hull
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Contents

Summary

The medieval and later town defences of Hull were amongst the strongest in Yorkshire, and were surpassed only by those of York itself. From 1321-4 until 1776 the town was surrounded on three sides by a substantial Town Ditch and bank, later fronted by a circuit of brick walls incorporating numerous gates and towers; the fourth side, opening onto the River Hull and the town's waterfronts, was protected by a boom chain slung across the entrance to the river. This paper examines the historical and archaeological evidence for the defences on the west bank of the River Hull, surrounding the Old Town; the better-known Henrician and Stuart military defences on the east bank of the river are a later addition, and are mostly beyond the scope of the current study. The great bulk of the walls were systematically dismantled to a set height between 1774 and 1809, as part of the works accompanying the construction of the Town Docks; the rest had largely been dismantled by 1817. The last remaining gateway through the walls (a postern on Little Lane) was demolished in the mid 1960s.

Archaeological investigation of the medieval Town Defences began in 1964 with small-scale excavations in Humber Street; this was followed in 1969 by the exposure of a small section of walling and a tower in North Walls, and in the early to mid 1970s by the very brief exposure of sections of walling in Humber Street and the High Street, and then by sections of the upper brickwork of part of the Myton Gate. However, the first major opportunity to investigate any of the Town Gates and the adjoining Town Ditch in any detail arose from proposals in 1986 to pedestrianise a large part of the Central Area at the west end of Whitefriargate. This prompted a programme of excavations which resulted in the exposure of the northern half of the Beverley Gate; the results of this fieldwork constitute a major part of this paper.

Those excavations revealed five main structural phases. The first is represented by a timber Gate, presumably contemporary with the erection of a clay bank-and-ditch defensive circuit in 1321-4. At some stage during the 14th century the timber Gate was rebuilt or refurbished in brick (Phase Ib) — presumably when this section of the main defensive circuit was rebuilt in brick — and this structure seems to have stood until the first half of the 16th century. The onset of Phase II (c. 1540-1600) was probably occasioned by the major review of the defences after the Pilgrimage of Grace. It follows the re-cutting and cleaning out of the Ditch. Documentary accounts suggest that there were substantial changes to the above-ground structure of the Gate; but, in archaeological terms, the principal remains are the footings for a new timber bridge erected in the second half of the 16th century. In Phase III (c. 1600-1700), new guardhouses were added to the rear of the Gate in the 1620s, and the upper part of the structure was completely remodelled. In the area beyond the excavations a new Outer Ditch was excavated in 1640, and provided with its own drawbridge; by the end of 1640, its approach was also defended by an outer hornwork. Possibly contemporary with this work was the cleaning out of the main Town Ditch, and the deposition of layers of upcast material against the walls of the new guardhouses. In Phase IV (c. 1700-1776) the defences were neglected and were falling into disuse. In 1735 parts of the Beverley Gate were so ruinous that its tower had to be taken down; a series of ad hoc buttresses and timber breastworks were erected in front of it to support the remaining structure. In 1776 both the Gate and the section of Town Wall to its north were levelled to a set height, in preparation for the

construction of The Dock (later Queen's Dock). Phase V (1776 onwards) marks the excavation of that Dock, and the covering of the former defences first with the upcast from that Dock, and then in 1826-9 with the excavation of the adjacent Junction Dock (later named Princes Dock).

Since 1990, small stretches of the northern part of the defensive circuit have been located in Little High Street in 1998, and within the grounds of Hull College in 2008. Part of the Humber Gate was located during excavations on the Bonus Electrical site in 2008, whilst a small section of the rear of the Hessle Gate was exposed in 2016.

Part I: Introduction

The town defences of Hull (Fig. 1; Pl. 1) were begun in the reign of Edward II, and by the end of the Middle Ages, were amongst the strongest in Yorkshire —being surpassed in the region only by those of York itself. They are schematically depicted on the Gough Map of *c.* 1390-1410 (see Delano-Smith *et al.* 2017, for the latest views on the chronology of this map), but the first detailed views of the walled circuit appear on two maps of *c.* 1538-9 amongst the Cottonian Manuscripts (see de Boer 1973, pls 10-11). These show a walled circuit around three sides of the town, with the fourth being formed by the River Hull, which hosted the town's waterfronts; the mouth of the River Hull, at its confluence with the Humber Estuary, was protected by a boom chain secured to a tower on the west bank of the Hull (Fig. 2).

John Leland in his famous *Itinerary* comments that, in the time of Richard II

> "the toune was wonderfully augmentid yn building, and was enclosed with ditches, and the waul begon, and yn continuance endid and made al of brike, as most part of the houses of the toun at that tyme was.
>
> In the walle be 4 principal gates of brike. The north gate having 4 wardes, bytwixt the which and Beverle gate be 12 touers of bryke, and yn one of them a postern. Ther be 5 toures of brike and a postern in one of them, as I remember, bytwixt Beverle gate and Miton gate. Ther be 3 toures of brike betwixt Miton gate and Hasille gate of 3 wardes. And from thens to the mouth of the Havin mouth be a 5 toures of brik, to the which the Humber se cummith, and in one of these is a posterne to the shore. And because that the waul from Hasilgate to this postern lyith strait as a lyne, there is much gabylle making and wynding of hempe for smaul cordes. From the mouth of Hulle ryver upper ynto the Haven ther is no waulle, but every marchant hath his staires even to the north gate. Suburbes in the out part of the toun be none" (Woodward 1985, 10).

Whilst some of his suggested dating is misleading and should not be taken at face value (see Part II, below), this is one of the first topographical descriptions of the walled circuit around the south, west and northern sides of the Old Town. As Leland indicates, the brick walls were strengthened at intervals by a number of towers of various shapes; early maps and drawings suggest that these included a mixture of circular, D-shaped and rectangular towers. Their precise number is unclear, but there would seem to have been between 25 and 31 individual towers and/or posterns; not all of these may have been medieval in origin, as an excavation off Humber Street suggested that at least one of

these was added in the 17th century. Leland's account describes 25, but he does qualify his description with the phrase "as I remember"; the *c.* 1538-9 maps show 30 towers, plus the chain tower (de Boer, *loc. cit.*); the *c.* 1638 Wenceslaus Hollar map shows 27 or 28 towers (Humberside County Leisure Services 1995, Map 4). A 1776 Map, sent by the Office of Ordnance to the Dock Company, shows 31 towers and/or posterns, *viz.*:

- 7 towers between the Humber Gate and the Hessle Gate
- 4 towers between the Hessle Gate and the Myton Gate
- 5 towers between the Myton Gate and the Beverley Gate
- 15 towers between Beverley Gate and the North Gate

[The above does not include the freestanding chain tower for the boom chain across the Hull.]

The four principal gates mentioned by Leland were the North Gate, the Beverley Gate, the Myton Gate, and the Hessle Gate; whilst these all opened onto roads leading into and out of the town, access to the Estuary, and to the Foreland (a small D-shaped spit of land projecting into the Estuary), was given by the Humber Gate. Lastly, at least four posterns had been constructed by the end of the Middle Ages (Allison 1969b, 413).

The documentary evidence for the Town defences is presented in more detail in Part II, below. The walled circuit survived (albeit in a dilapidated condition until it was progressively dismantled between 1776 and *c.* 1812, to make way for the construction of a succession of Town Docks, which approximately followed the line of the medieval Town Ditch around the northern and western sides of the Old Town. The historian John Tickell, writing in 1798, lamented:

> 'Before we conclude these annals, it may not be improper to observe, that this once famous fortress, considered formerly as the strength and safe-guard of the north, the walls and fortifications of which, joined to the flatness of its situation, and the great command of water about it, having rendered it a place considered as almost impregnable ever since the time of Edward II, is now an open town.
>
> To promote the convenience of the inhabitants, as a commercial port, the ditches have been filled up, and the walls and ramparts levelled; so that the next generation, and even many in the present one, will probably be at a loss to point out to the inquisitive enquirer, the place on which these strong and formidable bulwarks stood, of which the pick and spade has not (greatly to its advantage) left so much as a "wreck behind".
>
> Though the town of Kingston-upon-Hull, for several ages past, has been always esteemed the bulwark of the north, and its chief defence against foreign invasion; and though its fortifications in the reign of Charles I were of sufficient strength, during a long and vigorous siege, to baffle all the attempts of a brave and formidable army, yet mankind hath of late made such great improvements in the art of war, and the destruction of the human species, that, had they been suffered to remain, they would in all probability have afforded the inhabitants but little security against any future attack." (Tickell 1798, 659-60)

Parts of the defences feature prominently in a number of 17th- and 18th-century maps (e.g. by Speed, Hollar, Osborne, Phillips, and Thew), and topographical prints and drawings (e.g. by Gent, Buck, or Gale); however, very little survived late enough to be

accurately recorded on the more detailed maps of the first half of the 19th century, let alone the Ordnance Survey. Nevertheless, one of the very last elements of the Town Walls to survive was a postern at Little Lane, which remained standing until at least the mid 1960s (Pl. 2 and Fig. 11; see also Part II, below).

Despite the wealth of documentary and cartographic evidence for the defences, archaeological investigation of their remains began comparatively late, and, as such, does not figure at all in the discussion of the fortifications in the *Victoria County History* volume for Hull (Allison 1969a and b).

Archaeological investigations 1964-76

In 1964 Hull Museums, with local volunteers under the supervision of W.J. Varley, undertook a small excavation on a vacant plot to the south of Humber Street (immediately to the east of Queen's Alley; at national grid reference TA 1004 2830), and located an interval tower projecting forward from the Town Wall along the southern edge of the Town (Pls 4-5 and Fig. 12). The south side of this tower was formed by a massive brick wall, 0.91m thick, which survived to a height of 22 courses; the bricks were laid in English Bond, and measured 255 x 103 x 52mm in size. The wall had clearly been cut through rubbish deposits of both the 16th and later 17th centuries, which led John Bartlett to infer that this tower represented part of the substantial repairs carried out in the 1680s, following Sir Martin Beckman's recommendations. Augering suggested that the medieval Town Wall lay further to the north, under Humber Street itself (Bartlett 1971, 3-5).

In May 1969 a small excavation was undertaken in North Walls, in advance of the construction of the College of Art (Pls 6-7 and Figs 13-14) ; the work was undertaken by John Bartlett of Hull Museums, with assistance from Rod Mackey and Derek Brooks; three small trenches were intended to span the line of the wall, and the clay rampart to its rear. In Trench 1 (near the Technical College; at TA 1007 2898), an oblong interval tower was exposed, measuring externally 23ft 7 inches by 15ft in plan (*c.* 7.19m x 4.57m; Bartlett 1971, 13). Its walls were of brick, laid on top of a number of courses of large chalk blocks. The rear wall survived to a height of 36 courses, whilst the front wall (adjoining the moat) still stood 25 courses high, with the bottom 5ft (*c.* 1.52m) or so battered or raked outwards, to give greater stability and strength (*ibid.*, 6-8). Further east, part of the medieval Town Wall bounding the north-western side of the town, was found to still stand 20 courses of brickwork high. Here, the wall was 3ft 8ins (1.12m) wide at the top, and perhaps 4ft 6ins (1.37m) wide at the base; as with the interval tower, its front face was battered outwards at the base, whilst the rear face of the Town Wall was found to be built into the clay rampart behind it (*ibid.*, 11). In Trench 3 (further to the west, near Wilberforce Drive), the line of the wall was also established, but here it had been so severely robbed in 1774-6 that only the chalk foundations survived *in situ* (*ibid*., 13).

With this new information about brick sizes and wall dimensions, as well as the earlier evidence of the topographical prints and drawings to hand, Bartlett was able to calculate the likely height of the walls, both to their battlements and to the sentry walks; from this, he was able to estimate that the construction of the entire circuit would probably have needed approximately 4,700,000 bricks (*op. cit*., 21) — excluding the Gates, which, at that stage, were still an unknown quantity. [The documentary accounts mentioned that both stone and bricks were used in the construction of the Gates; and in 1971 it was not

known how much of these structures would be built of stone.]

The next opportunity to view any of the Town Wall came about purely by chance in 1973, when a section of walling was exposed in Humber Street during machine-excavations in the roadway. Few records have currently been located, but it is thought that this was during work by commercial builders, rather than any utility company (pers. comm. Peter Armstrong, February 2015). Two slides in the collections of Hull Museums suggest that one of its faces was exposed close to the edge of a pavement. Some 14 courses of brickwork are visible in the photographs (e.g. Pl. 8). We are hopeful that further records may at some stage be relocated within the Museum collections which may shed light on whereabouts within Humber Street these exposures lay; but, at the moment, the location of this machine trench remains uncertain.

In November 1975, workmen laying cables at the northern end of the High Street, near to where the eastern lock-pit of Queen's Dock once lay, unearthed what was thought by a local historian (Albert Royle) to be the western side of the medieval North Gate, and an adjoining section of Town Wall (*Hull Daily Mail*, 12th November 1975). The bricks were described as 10¼ inches long, by 5¼ inches wide by 2 inches thick – and "precisely the same as" examples previously excavated on other parts of the Town Walls. Although the newspaper article does not state the extent of brickwork which was exposed, Brian Ayers recalls being told that up to 22 courses of brickwork were seen in parts of the trench (pers. comm. February 2015. I am grateful to Peter Armstrong for drawing my attention to this discovery).

In 1976 work on the construction of the new South Orbital Road (what is now Castle Street) fleetingly revealed part of the foundations of the medieval Myton Gate at TA 0970 2845 (Pls 9-11, and Fig. 15. For a detailed report and description, see Ayers and Evans 2001). This discovery confirmed not only the position of its arched passageway, but also exposed the top of a drawbridge-pit directly in front of the Gate.

Excavations at the Beverley Gate 1986-89 (Pls 15-39, and Figs 16-23)
A major project to pedestrianise part of the Central Area between Whitefriargate, Queen's Dock Avenue, Alfred Gelder Street and Prospect Street gave an opportunity to locate and investigate one of the principal entrances to the Old Town —the historic Beverley Gate. Although it featured prominently in Hull's history (e.g. as the probable site where a Governor was hanged after the *Pilgrimage of Grace*, and where Charles I had famously been refused entry to the town in 1642), its precise location was unclear: a plaque in Whitefriargate placed it some 50m into the street, whereas historic maps suggested that it was more likely to lie to the west of Whitefriargate, in an area sandwiched between the Queen's Dock and Princes Dock, which at that time served as a taxi-stand; there was no guarantee that any of it would have survived the excavation of these two giant docks, and the lock-pit which lay between them, or the construction of the 1905 Monument Bridge close by. It was also thought that anything which did survive would have been severely truncated by the insertion of later services.

In 1986 a proposal to mount a small-scale investigation, in advance of the pedestrianisation scheme, was put together by David Crowther (then Keeper of Archaeology, Hull Museums) and Peter Armstrong. Fortunately, both Hull City Council and Humberside County Council agreed to fund a small evaluation, which was

undertaken by the Humberside Archaeological Unit, under the direction of Peter Armstrong: its objectives were 'to locate and expose any surviving remains of the Gate, with a view to their possible incorporation in plan form into the new paving design' (Hull City Council 1987, 2). Over a seven week period in the summer of 1986, three initial hand-dug trial trenches succeeded in locating a post-medieval guard chamber behind the northern half of the Gate, and an adjoining stretch of the medieval Town Wall; the initial trial trenches were quickly expanded into a small D-shaped open area, in which the archaeological remains were shown to survive in such surprisingly good condition (e.g. Pls 16-18) that the original intention of simply marking out the former positions of the Town Walls and Gate in the new paving scheme was dropped in favour of developing a proposal to put some of the remains on display.

In the spring of 1987 many of the redundant sewers and services which had been shown to overlie the northern half of the Gate in the previous summer were removed, and the excavated area was expanded to the north, to expose a larger extent of the medieval Town Wall, and the clay bank which lay behind it (see Pl. 15). This was the necessary first stage towards the design of what would subsequently become a large D-shaped amphitheatre, which would house the archaeological remains. The development of the design would progress over the following eighteen months, but this second campaign of archaeological excavation gave another opportunity to investigate the construction of the lower courses of the Town Wall, and the deposits which had accumulated against its base, and also on top of the clay bank which lay behind the Wall. [This amphitheatre was to form a large public space within the central pedestrianised area from autumn 1990 until late 2016; it was largely infilled in the first half of 2017, to create a much smaller public display area, in order to ease access into Whitefriargate.]

These first two seasons had shown that substantial parts of the Town Wall survived to a height of approximately 2.45m, and, as all of these remains had been buried beneath the upcast of the excavation of the late 18th- and early 19th-century Town Docks, any proposal to permanently display the archaeological structure would require a substantial coffer dam to retain the sides of the amphitheatre. In September 1988 work began on the construction of that coffer dam, with the insertion of substantial sections of interlocking sheet-piling around the sides of the arena (see Pl. 22). That work was carefully monitored by Philip Hampel of the City Planning Department. During the course of this watching brief, more brick- and stone-work was exposed at a lower level, beyond what Armstrong had initially interpreted as a "barbican" at the front of the Beverley Gate, and, in the section of the Town Ditch directly in front of the Beverley Gate, Mr Hampel also recovered a large number of substantial oak and elm timbers; from this new evidence it became clear that there were more structural remains surviving than had previously been assumed, and that there was also the possibility of a timber bridge or bridges surviving within the Town Ditch. To complicate matters even further, the construction work in early October revealed a number of brick and concrete foundations — which were the bascule pits and a rain chamber of the 1905 lifting bridge, known as the Monument Bridge — surviving at the western end of the proposed amphitheatre. These new discoveries clearly demonstrated that more extensive archaeological excavation would be needed, both to sort out the extent and significance of the sequence of archaeological structures and deposits, and also to inform the final decisions about what exactly would be placed on display, and how best to present these remains.

The Humberside Archaeological Unit was asked to undertake a campaign of open-area excavation in the area where the recent discoveries had been made; these works were undertaken under the supervision of the author, between December 1988 and late February 1989. They revealed the remains of the medieval Beverley Gate (which projected forwards from the Town Wall), and a substantial part of the Town Ditch adjoining the Gate; the Ditch incorporated the remains of various bridges and timber revetments (e.g. Pls 22, 28 and 32). This major campaign of works allowed the phasing and dating of the Gate structures to be more firmly refined, and offered the first archaeological opportunity to investigate any part of the Town Ditch — which previously had been known only from historical and cartographic sources. Following the conclusion of the archaeological fieldwork, construction work commenced in earnest on the amphitheatre, and the consolidation of the exposed brickwork for public display; this civil engineering project was completed in early 1990.

English Heritage had been involved in the project since October 1986 in an advisory capacity, regarding the plans for public display of the remains, and in April 1988 they agreed to fund the consolidation of the excavated brickwork. When the new discoveries came to light in October 1988, they began to be more closely involved in all aspects of the project (including how best to deal with the archaeology), and set up a programme of monitoring visits. Hence, when the City approached them for grant funding towards the costs of the archaeological works, they generously decided in December 1988 to retrospectively fund the costs of the first two seasons of excavations, and agreed in principle to fund the then ongoing works, once their full costs had been established.

Archaeological investigations elsewhere on the defensive circuit 1986-2016

David Crowther's original proposal of 27th January 1986 had envisaged trying to locate not only the Beverley Gate, but also the Hessle Gate, as the latter would also be potentially affected by another pedestrianisation scheme — this time, in Humber Dock Street. In mid August 1986 four small machine-excavated trial trenches were opened up by Peter Armstrong along the presumed line of the wall in Humber Dock Street and Humber Place; a small part of the wall was located in Trench 3, opposite the end of Blanket Row (Pl. 12, and see Part III, below). The line of the walls and the postulated positions of the main Gates and posterns were marked out in differently-coloured brick pavers within the new pedestrianised areas along both Humber Dock Street and Prince's Dock Street.

Also as part of these overall improvement works, a series of watching briefs were undertaken in 1987, and, whenever the construction work looked likely to result in the exposure of parts of the Town Walls, the Humberside Archaeological Unit was called in to record the remains. Between April and June 1987 four separate trenches were observed and recorded along the line of the defences where they crossed Alfred Gelder Street and ran into Guildhall Road / North Walls — three between the Beverley Gate and the tower investigated in 1969, and one immediately to the north-east of the latter (Pls 13-14). In the most successful of these investigations, the brickwork of the north side of the Town Wall was shown to survive to a depth of at least 10 courses, and the overall width of the wall was thought to be 1.10m; the top of the surviving section of wall was encountered within 0.75m of the modern street surface (Pl. 14, and see Part III, below).

In late 1994, in preparatory evaluations in advance of an abortive scheme to widen the

A63, the York Archaeological Trust excavated a small exploratory trench on the presumed line of the defences at the northern end of Humber Dock Street (at TA 0974 2841), and further north in Prince's Dock Street; however, they failed to find any trace of the Town Wall, and the character of the deposits encountered in Humber Dock Street suggests that their trench was actually located over the adjacent Town Ditch, whilst that in Prince's Dock Street may have encountered part of the clay rampart (York Archaeological Trust 1995, 3-10, Trenches 1 and 2; Evans and Steedman 2001, 118-19).

In July 1998 a small section of the Town Wall was revealed in a gas trench in Little High Street (at TA 1023 2905); the wall was approximately 1.2m wide and lay on an approximately east-west alignment. Two courses of brickwork were actually exposed, but the brickwork clearly continued downwards. The bricks measured 270mm x 135mm x 55-60mm, and are comparable to those recorded in other sections of the Town Wall (*ibid*., 119-21).

In August 2008 the former Birmingham Archaeology undertook some evaluations in the grounds of Hull College (at TA 10146 29070; for a draft interim account, see Mann 2008). Parts of the medieval Town Wall were located in their Trenches C and D, on the projected line of the course of the modern Guildhall Road (i.e. on a NE-SW alignment). In the more westerly trench (C), the wall had been truncated by later disturbance to a depth of 2.4m AOD, and could not be fully exposed. Here, its exposed base appeared to be between 1.2m and 1.4m in width, and constructed of red hand-made bricks, bonded with a lime mortar. A layer of black silty clay lay to its north. In Trench D, further to the north-east, the wall survived in much better condition, and still stood at least 21 courses (1.5m) high; the wall clearly continued downwards beyond the exposed depth of 2.48m AOD, but excavation stopped for safety reasons. At this point, the wall measured 1.15m in width, and was built of hand-made orange-red bricks, laid in English Bond; the individual bricks measured 280mm x 155mm x 55mm in size.

In 2008 an extensive programme of evaluations by Humber Field Archaeology on the former Bonus Electrical site resulted *inter alia* in the exposure of part of the Humber Gate. The rear of the Gate was located immediately to the north of Humber Street; its basal courses were battered and faced in places with ashlar (George, in prep.). Lastly, recent work by Humber Field Archaeology has taken place along part of Humber Dock Street and Humber Place in 2016 during preparatory works for the 2017 City of Culture festivities, and also for the construction of a new footbridge over the A63. Trial trenching at the northern end of Humber Dock Street revealed part of the Town Ditch (Jobling and Rowland 2016, figs 2-7 and pls 1-3), whilst much further south, near the junction with Humber Street, the rear part of the Hessle Gate was uncovered. All that remained of the Hessle Gate were the projecting brick buttresses of its north-east corners, the bases of which still stood some nine courses of brickwork high, capped with an angled course of brick coping; the rest of the former Gate, to the west of these two buttresses, appears to have been completely destroyed by the construction of the Humber Dock in 1809. [I am grateful to Ken Steedman and Richard George of Humber Field Archaeology for kindly sharing information and thoughts about these remains.]

Postscript, November 2017
The amphitheatre which was used to display the remains of the Beverley Gate and the

adjacent stretch of the Town Wall from autumn 1990 onwards was greatly reduced in size during the winter of 2016-17, with much of the space being infilled and remodelled, as part of the major townscaping works which were undertaken as part of the City of Culture programme. At the same time, the colours used to demarcate the outlines of the adjoining section of the Gate and the Town Wall within the surrounding paved area were also changed. At the time of writing, the former interpretation boards have all been removed, and it is not yet clear what is planned to replace these.

Published overviews of the Hull defences

Hull's royal origins and the national strategic role which it was to play throughout the period covered by this paper have helped to ensure that a great deal of documentation for its defences and fortifications survives within the national archives. A useful overview of the historical documentation was published in the *Victoria County History* volume for the City (Allison 1969b), but much more of the post-medieval evidence (particularly in relation to 16th- and 17th-century fortifications on the east bank of the River Hull) has since been made widely available thanks to the work of Colvin (1982) and, more recently, Audrey Howes (Howes and Foreman 1999). In addition, research into two of the major military engineers involved with the construction of this part of the town's defences – John Rogers and Martin Beckman – has thrown extra light on their work (see Shelby 1967; Foreman and Goodhand 1996; Howes and Foreman 1999). Some earlier historical studies are now heavily out of date, but may still contain useful plans and elevations, or other detail (e.g. Hirst 1913).

Two popular booklets were published as part of the Beverley Gate project (Hull City Council 1987; Evans and Sitch 1990). The first was only ever intended as an interim statement, and its interpretation of the remains was soon shown to be incorrect. The second contains some useful illustrations, but has been out-of-print for more than a decade.

Turner's survey of medieval town defences (1970) contains some useful information about the murage grants for Hull in her appendices; but, the first national survey of the archaeological evidence for medieval fortifications was presented in Kenyon 1990. This usefully summarises for a national readership key points from Bartlett's 1971 paper, and also highlights the early (1986) discoveries at the Beverley Gate (Kenyon 1990, 190, 192, 194, 197 and 209). A later overview of the medieval town defences is presented in Creighton and Higham 2005; although there are some minor inaccuracies (such as the attribution of a *c.* 1538-9 plan in the Cottonian Manuscripts, to Wenceslaus Hollar: p. 135), this major overview of town defences helps to place the remains at Hull within their national setting, and does present fairly some of the excavated results (*loc. cit.*, 162-3 and fig. 92).

A more comprehensive synthesis of the town's fortifications was presented in a volume of conference proceedings (Evans 2010); although subject to restrictions in length and illustration, it offered an overview of much of the grey literature from the previous 20 years relating to this topic. [This theme has recently been taken up and expanded in Evans 2018, which is now available online, and replaces that earlier paper.]

Part II: The historical background

A. General

Its strategic importance as a deep-water port on the Humber – one of England's major east coast river systems – was one of the principal reasons behind the foundation and development of Kingston-upon-Hull. Its predecessor, the borough of Wyke, had already emerged as a prosperous European trading port by 1290 (see Evans 1999), but it was Edward I's imminent need to secure a strong naval base in the north of England, in preparation for his planned war against the Scots, which prompted him to purchase Wyke in 1293, and to replace it with the "King's town" of Hull.

The new foundation lay at the confluence of two major rivers – the Humber Estuary, and the River Hull – and, from the very outset, these were to form the respective natural boundaries to the south and east of the town. The area around the mouth of the Hull was marshy land which was possibly liable to seasonal flooding, and, before the drainage of the river was improved in the early or middle years of the 13th century, the River Hull may have joined the Humber via a number of dendritic creeks; the original main course of the Hull appears to have joined the Humber at about 1km to the west of its modern extent, but, in the 1250s the river seems to have changed its course dramatically to enter the Humber by a more direct route through Sayer's Creek. This change of course led to the development of both the modern course of the River Hull, and subsequently the growth of the Old Town in approximately their current positions (see Evans 2016). Because of the low-lying and badly drained nature of the wetland on which the town was to develop, it would always be prone to flooding; this was to prove a major strength in planning its defence against attack from the landward sides, and it was to prove a decisive factor in the town being able to withstand two major sieges during the English Civil War (see below).

The town was set within the low-lying wetlands of the Lower Hull Valley, and, as the nearest higher ground lay some 5kms to the north and west, there were no other natural defences which could be utilised, other than the character of the immediately surrounding boggy ground, which as late as 1677 was described as 'a forsaken country' (Woodward 1985, 37). Most of the roads through this badly drained landscape were prone to flooding for several months of the year, and in bad weather could be washed away entirely. The only road from the north was along a narrow raised causeway (Beverley High Road), which restricted the range of options open for constructing any siege works in the adjoining areas. Hence, during the 1643 siege, the Royalist siege forts were mainly strung out along this road, and along the coastal approach to Hull from the west; the only exceptions were three forts or batteries alongside the River Hull upstream from the town (Howes and Foreman 1999, fig. 9).

In such a wetland landscape, the easiest way of transporting people and goods was by water, and so, whilst Hull had control of the river systems, and could continue to be supplied by sea, the defenders would always have the upper hand. Yet, this was also potentially its most vulnerable side, as Daniel Defoe astutely observed in *c.* 1720:

> "The greatest imperfection, as to the strength of Hull in case of war, is that lying open to the sea, it is liable to a bombardment, which is only to be prevented by being masters at sea….." (Woodward 1985, 56).

For this reason, the approach to the town from the River Humber has been a key consideration in terms of the defence of Hull for the best part of the last seven

centuries; it was usually the first part of the defences to be strengthened, and often incorporated the most sophisticated or strongly-built elements of the whole defensive circuit.

The medieval Town defences (Figs 1 and 6)

Unlike Edward I's new towns in Wales and Gascony, Kingston-upon-Hull must have seemed far removed from the nearest war zone in the early 1290s; as such, no provision was made at that stage for constructing any defensive circuit around the new foundation. However, within less than three decades, the situation was to change dramatically. The English campaigns in Scotland went badly under Edward II, and Robert the Bruce inflicted a humiliating defeat upon a much larger English army at the Battle of Bannockburn in 1314. Building on this momentum, marauding Scottish armies ranged deep into Yorkshire in 1318 and 1319, burning most of Knaresborough, pillaging large swathes of rural estates, and reaching as far south as Pontefract. Hull was fortunate to escape on these occasions, but the potential threat to the town, which was then serving as the principal supply port for the English armies in the north, was obvious. The reality of this threat was amply demonstrated in 1322, when the Scots came within 10 miles of Hull, and held nearby Beverley to ransom (Kent 1989, 178).

Documentary sources for the defences

As a Royal Borough, Hull is blessed with a substantial body of surviving documentation, both at national and at local level. That relating to the town's medieval defences falls into two main categories:

(a) Royal or State papers now preserved in The National Archives. This type of material typically includes grants of *licences to crenellate*, and royal *murage* grants (permission for the Borough to raise money locally to pay for the fortifications). Whilst such information can be very informative in indicating the possible onset of campaigns of construction work, one of the problems with using such grants and licences as historical sources is that they may simply indicate what was planned or envisaged, rather than necessarily what was enacted. Another problem is that they will have been drafted by court officials, who were often far removed from the actual work, and the wording of the documents may follow a standard pattern; hence, references to the building of "stone walls" at Hull should not be taken too literally – there was no readily available building stone in the immediate vicinity of Hull, and it is far more likely that the use of brick would have been intended from the outset.

(b) Local records relating to the Borough Corporation, now preserved in the City archives. Such material would include the detailed expenditure on the construction and maintenance of the defences (for example in the *Chamberlains' Account Rolls*, or in the *Bench Books*), and also detailed information relating to properties which incorporated parts of the defences (e.g. in the *Enrolled Deeds*). These types of records offer much more detail about the form of the defences, and, where they set out the expenditure on the construction or upkeep of the fortifications, are a much more reliable guide as to what was actually built at any one time. This category of material has been underused in some earlier historical works, which may help to explain why a number of misconceptions have been published in several of the standard histories of the town (e.g. claims that the walled circuit dates from the early 14th century, and had been completed by the

middle of that century; or that a great Ditch would have been dug around the town at its foundation in 1293).

The first defensive circuit: the great Ditch and palisade (Fig. 6)

On 27th July 1321 Edward II granted a "licence for the burgesses and commonality of Kyngeston on Hull to strengthen their town with ditches and a wall of stone and lime, and to crenellate the wall" (*Cal. Pat Rolls 1321-4*, 7). As noted above, the reference to a stone Wall should not be taken literally, given the shortage of any suitable building stone in the area. There is also no corroborating evidence – either from archaeological or documentary sources – that any *Wall* was built at this date; rather, this licence demonstrates that the King had given permission for such works to take place, should the community so wish. It is not certain whether the initiative to erect defences came solely from the King; there is at least a suggestion that the citizens of Hull had already petitioned the Crown to enclose the town, as an undated document (Public Record Office: *Special Collections* 8/14/693) refers to the safety that an enclosed perimeter would provide for the town's merchants (Allison 1969a, 21, n. 18).

The cost of the new defences was supposed to be met by a grant of *murage* for five years; however, the Hull *Chamberlains' Account Roll* for the period 1321-4 shows that the initial royal grant was so small that the town incurred a deficit of £113 14s 0d up to 1st January 1324 (Horrox 1983, 23 and 60; the total raised by this murage grant is said to have been £292; Turner 1970, 232). This local document also helps to correct the false impression given by the royal *licence to crenellate*.

Funds began to be raised in 1321, and actual work on constructing a defensive circuit had certainly begun by 1322. The new defences were ranged around the two landward-facing sides of the town and along the Humber foreshore, whilst the fourth side, facing onto the River Hull, was left open as this river frontage incorporated the town's main waterfronts and port facilities.

The initial circuit consisted of a clay Bank (a great *fossatum*) topped by a timber palisade, and a Ditch (*le mote* beside the great *fossatum)*. Substantial remains of this Bank and Ditch were found at North Walls in 1969 (Bartlett 1971, 11, and section drawings on pp 7, 10 and 11), and at the Beverley Gate in 1988-9 (Evans and Sitch 1990, 9-10; see below); the Ditch seems to have averaged about 12m in width and perhaps 6m in depth. The *Chamberlains' Account Roll* for 1321-4 records that £77 0s 15d was raised by a tallage in 1322 'for enclosing the town with a ditch', whilst a further £63 11s 10d was levied in October of the same year 'for enclosing the town with a palisade' (Horrox 1983, 53). The detailed accounts show that £58 4s 10d was spent on 'digging 205 rods of the great *fossatum* for the first time' [a rod / pole / perch corresponded to 5½ yards; hence, 205 rods = 1127.5 yds, or *c*. 1031 metres], and a further £8 17s 8½d was spent on 'raising 176 rods and 4 feet of the aforesaid *fossatum* for the first time' [*c.* 886m]. In addition, an outer earthwork — a second *fossatum* — was erected, at a cost of 16s 6d, 'outside the great *fossatum* at the Northgate towards the west, containing 32 rods' [176 yds, or *c*. 161m long. Horrox 1983, 58]. A further *fossatum* was erected 'at the Humber bank'. Much later maps show a small earthwork redoubt on the Foreland, in front of the Humber Gate; whether this 1321-4 reference alludes to an earthwork in this position, or whether it lay somewhere else along the foreshore, is uncertain. There is also a reference to yet another *fossatum* between the plots of Richard de la Pole and Alexander Coke, and

this mentions the repair of other *fossata* (*ibid.*, 58); this would suggest that the main circuit of Bank and Ditch around three sides of the town was supplemented by various short lengths of extra banks in those places where the defences were thought to be vulnerable.

It is interesting to note that the North Gate is the only Gate specifically mentioned by name in any of the published accounts for 1321-4, and is the only one to definitely merit the addition of an external forework or outer bank. This may suggest that at this date, the approach to the North Gate was considered the most important land route, and the one most likely to be taken by a potential attacking force; alternatively, it may indicate that this approach was thought to be where the town was most vulnerable. [The site of the North Gate is shown on several of the early historic maps of the town as lying at the northern end of the High Street; part of this structure may have been exposed in 1975 (see Part I, above).]

Further entries in these *Chamberlains' Account Rolls* show that £142. 6s. 8d. was spent on timber, boards and piles for the palisade, and on the wages of the carpenters, masons and labourers, between 1321 and 1324; this was in addition to £13 19s 2d spent on the iron nails and fittings used to erect the palisade. Lastly, the sum of £40. 6s. 7½d. was spent on stone, bricks and lime for the construction of 'the North Gate and elsewhere'; however, this is the only Gate which is specifically mentioned. The total for the excavation of the Ditch, erection of the Bank, palisade and Gate(s), and for all of the materials used in their construction came to £347 18s 5½d [this does not include the £32 5s 5½d incurred as expenses of the officials]. Confirmation that the bulk of the defensive circuit erected at this time was in timber, rather than in brick or stone, can be seen in the fact that the cost of the timber and carpenters constituted around 40% of the expenditure, whereas the amount spent on all masonry materials used anywhere in the circuit amounted to barely 11.5% of the total. Whilst some brick and stone was clearly used at the North Gate, even here parts of the Gate may have been in timber; the probability is that any other Gates, erected at this time as part of the defensive circuit, would have been built substantially of timber — just as their contemporary counterparts in nearby Beverley were, up until the early 15th century. Where brick and stone were used at this date would probably have been in the foundations, and, possibly also as selective strengthening or details.

Some of the materials came from Beverley – for example, the Archbishop of York gave the town six oaks, worth £2 17s 0d, for use in the construction work (Horrox 1983, 59). Many of the bricks used were probably made at the Corporation brickyard which at this date lay just outside the defences between the western end of Monkgate and the Humber (Brooks 1939; Horrox 1983, 171, n. 24); the *Chamberlains' Account Roll* shows that the existing brickyard (or 'tilery') was enlarged with the purchase of an additional piece of land at this date (Horrox 1983, 59) — presumably to cope with the extra work.

The construction work on this initial circuit was clearly still in progress in 1325, as the King granted a further three years of murage for completion of the work (*Cal. Pat. Rolls 1324-7*, 197). Unfortunately, the surviving local records, which might have given more detail as to what was actually achieved at this time, cover the period only up until 1st January 1324, after which there is a long gap. Nevertheless, as there are no further records of murage grants between 1325 and 1341, we may assume that the bulk of the

construction of the timber circuit was completed by 1330. Edward III visited the town in October 1332, and was said to be 'highly pleased with the excellent fortification of the place' (Sheahan 1866, 58).

The timber Gates
Excavations on the site of the Beverley Gate have shown that the earliest Gate structure was of timber, and most likely dated to the second quarter of the 14th century. It was a freestanding structure which projected forward from the line of the clay Bank with its timber palisade (Figs 6 and 16): in this respect, it was rather similar to the form of defences found at nearby Beverley, where freestanding timber Gate structures controlled access in and out of the town (one of these, which was rebuilt in brick in 1409, is still standing today: the North Bar at Beverley).

The second defensive circuit: the erection of the Town Walls (Fig. 6)
At some stage during the first half of the 14th century, the decision was taken to begin replacing the timber palisade with a brick Town Wall. The base of the new wall was set on a low chalk rubble foundation, cut into the front of the former clay rampart. Excavation has shown that substantial stretches of the Town Wall can still survive to a height of 20 courses, or more. Its full height would have been about 4.2m to the sentry walk, with an additional parapet 1.8m high. As with its timber predecessor, the brick circuit enclosed three sides of the town.

In its final late medieval form, it would have included five Gates, and perhaps as many as 31 interval towers and posterns; the brick circuit alone (excluding the Gates) is estimated to have incorporated at least 4,700,000 bricks – making this one of the major medieval civil engineering projects in England. Many earlier historians have assumed that a brick circuit was erected in the 1320s and substantially completed by the mid 1360s; and that later murage grants must relate to subsequent repairs. However, this is to ignore the practicalities of where to obtain such large quantities of bricks, and how to erect such a massive circuit, in such a short time. The documentary records of the Corporation brickyards show that up to 1356, the annual output of the first *tilery* fluctuated between 54,000 and 92,000 bricks, and that even after the opening of a new *tilery* in 1356, in most years its output ranged between 90,000 and 105,000 bricks; in some years it produced none at all (Brooks 1939; Allison 1969a, 57). In other words, even if the entire annual output of the Corporation brickyard had gone into the construction of the Town Wall, at an average of 100,000 bricks per year (which is more than it often achieved), it would have taken at least 47 years to complete; in fact, the incidence of murage grants suggests that construction work continued until about 1406.

Table 1. Incidence of documented murage grants and expenditure on defences at Hull

Date of grant or expenditure	***Amount***	***Length of grant***	***Source***
1321		5-year grant	*Cal. Pat. Rolls 1321-4*, 7
1321-4	£380 16s 7d		*Chamberlains Account Roll 1321-4*; Horrox 1983, 58-9
1325		3-year grant	*Cal. Pat. Rolls 1324-7*, 197
1341		5-year grant	*Cal. Pat Rolls 1340-3*, 128
1348		7-year grant	*Cal. Pat Rolls 1348-50*, 87
1353-4	*c.* 67,000 bricks		*Chamberlains' Account Rolls 1353-4*
1355		16-year grant	*Cal. Pat. Rolls 1354-8*, 155

1361-2	£48 9s 6½d		Turner 1970, 103, citing Corporation Records M.4
1376		5-year grant	*Cal. Pat Rolls 1374-7*, 274
1377		5-year grant	*Cal. Pat. Rolls 1377-81*, 18, 23, 58
1382		5-year grant	*Cal. Pat Rolls 1381-5*, 175
1391		5-year grant	*Cal. Pat. Rolls 1388-92*, 362
1396		5-year grant	*Cal. Pat. Rolls 1396-9*, 40
1399		4-year grant	*Cal. Pat. Rolls 1399-1401*, 119
1404		2-year grant	*Cal. Pat. Rolls 1401-5*, 471
1423-4	10,500 new bricks	Construction of a new postern	Gillett and MacMahon 1989, 38-9, citing *Chamberlains Accounts, 2 Henry VI*
1436		Tilers worked on the roof of the tower at the *Mamhole* (Little Lane) for 56 days	Gillett and MacMahon 1989, 38, citing *Chamberlains Accounts, 35 Henry VI*
1460		Extra temporary defences added at North Gate, Myton Gate and Hessle Gate	Gillett and MacMahon 1989, 66-7
1464-5	£2 2s		*Chamberlains' Account Roll 1464-5*; Horrox 1983, 100-1
1465		Permission to build a new postern for the Duke of Suffolk	Gillett and MacMahon 1989, 39, citing *Chamberlains Accounts, 2 Henry VI*, f.144b.
1468		Chain repaired at Beverley Gate	Gillett and MacMahon 1989, 38, citing *Chamberlains Accounts, 7 Edward IV*
1468-9	£40 grant by Edward IV	Money spent by mayor on upkeep of the walls	Gillett and MacMahon 1989, 69
1498-9	80 stones of lead (i.e. 10 cwt, or 0.5082 metric tons)	Repair of the roofs of the interval towers	Gillett and MacMahon 1989, 38, citing *Chamberlains Accounts, 14 Henry VII*

From the above, it can be seen that work on the defences was envisaged during most of the decades between 1321 and 1406 (a period of 85 years); although, in some years where *Chamberlains' Account Rolls* happen to survive (e.g. 1354-5 and 1394-5), we can see that no money is recorded as having been spent on them, despite a current grant of murage being in place (Allison 1969b, 413). Although some writers have suggested that the later 14th-century murage grants might have been for repairs or enhancement, rather than for the initial construction of a walled circuit, it is very noticeable that there are no further records of grants after 1404; as many other towns continued to receive such grants during the middle and later 15th century (see Turner 1970, Appendices B and C), this would tend to suggest that the grants to Hull were primarily intended to cover the main phases of construction of the Town Walls. This interpretation would seem to be supported by the fact that numerous repairs to the Walls and towers are documented as being carried out in the mid and later 15th century, without any further grants of murage.

The earliest reference to a Town Wall occurs in 1339, when Robert de Lichfield was given permission to build a house on part of 'the wall of the town towards the Humber' (Allison 1969b, 412); as the approach from the sea was one of Hull's most obvious

weaknesses, this may indicate that the south side of the defences was the first part of the circuit to be rebuilt in brick. There were no murage grants during the 1330s, so this work might have been carried out between 1325 and Edward III's visit in 1332. The impetus to improve the defences along the Humber may have come not only from fear of attack by the Scots, but also from 1324 onwards from the French; this latter threat may have contributed to ensuring that work progressed on the new construction.

Confirmation that the construction of a Town Wall was still in its early stages in the 1340s may be seen in the wording of the murage grants of 1341 and 1348, which state that the grants were to enable the inhabitants 'to complete a wall begun by them for the safety of the town and the parts adjacent on the water of Humber' (Allison 1969b, 412), whilst the 1355 grant was 'to finish their wall begun on the water of Humber' (*ibid*.). Surviving *Chamberlains' Accounts* for 1353-4 record the purchase of sand, lime and about 67,000 'waltighel' (i.e. bricks), along with the payments to masons and their labourers working on the Walls; this is one of the most useful surviving indications of the rate of progress on the construction of the walled circuit. This would have taken up about two-thirds of the annual output of the Corporation brickyard, and may help to explain why in 1356 a new *tilery* was under construction further north, opposite the end of Posterngate (Allison 1969a, 57).

By the mid 1370s the French under Charles V were enjoying a revival of fortunes, and there were fears of a French invasion (particularly in 1377). The lengthy grant of murage made in 1355 had run until 1371, and, after a five year pause, murage grants resumed in 1376; in the following year, not only did the King order a thorough survey of the Walls and Dykes to be carried out, and any repairs undertaken, but he also issued a licence for the recruitment of any workmen needed within five leagues of Hull (Allison 1969b, 413). Successive murage grants through the 1380s and 1390s show that major campaigns of construction were being carried out during the reign of Richard II; the likelihood is that however extensive the walled circuit may have been by the end of Edward III's reign the Walls in their final form (as shown on the *c.* 1538 views of Hull), with their many interval turrets, were completed in the later 14th and early 15th centuries.

Numerous repairs are documented as being carried out during the 15th century. Many of these relate to the various towers and posterns, and are detailed separately below, but some relate to the Town Walls. In addition to bricks, there are occasional references to the purchase of stone from Ellerker (near North Cave); this would have been oolitic limestone (Cave Oolite), and would have been used for footings or for dressing the facings of entrances (Gillett and MacMahon 1989, 38, citing *Bench Books* BB3A, f.69). The *Chamberlains' Account Roll* for 1464-5 shows that running repairs were needed during the Wars of the Roses, by which time some parts of the walled circuit would have been at least 125 years old. In that year £2 2s had to be spent repairing 'the town walls against the Humber' (i.e. the seaward-facing South Wall), and cleaning out some of the Ditch. Most of the work seems to have consisted of extensive re-pointing of brickwork, and repair of 'holes'. The itemised expenditure includes 11 cartloads of lime and sand, an additional four quarters of lime (i.e. a hundredweight, or *c.* 50kg), "two empty casks to be used as *weges*" [presumably wedges], two cartloads of *Thaks* (possibly thatch), and "a pump lying in le Dempyng"; the rest of the money was spent on the wages of the mason and his labourers, and for two *dykers* (i.e. men to clean out the Town Ditch;

Horrox 1983, 100-1). No new bricks were required on this occasion; hence, this was simply routine maintenance work, rather than any strengthening of the Walls. Damage to the Walls was not simply caused by poor maintenance: in 1488 Robert Brygge was caught stealing stones from part of the Wall (Gillett and MacMahon 1989, 39) — presumably these were loose footings.

The threat of an imminent attack during the Wars of the Roses prompted a series of emergency measures to be implemented in the autumn of 1460. An additional ditch was excavated inside the Walls at *Northgates*, whilst every man in the town was required to assist in the excavation of additional earthworks outside the North Gate, Myton Gate and the Hessle Gate (Gillett and MacMahon 1989, 66-7). Guns were placed on every staith (Allison 1969a, 24). The circuit of Walls did not completely close the small gap between the North Gate and the River Hull, so large barrels filled with stone were ordered to be placed at Bishop Lane, to block access into the town (Gillett and MacMahon 1989, 67). In November 1460 an iron chain was stretched across the entrance to the River Hull (Allison 1969a, 24; see below).

The earliest detailed depictions of the town defences are two views dating to *c.* 1538-9 (de Boer 1973, pls 10-11); these were probably commissioned as part of a survey of the defences undertaken for Henry VIII by the engineer John Rogers, following the capitulation of the town to the *Pilgrimage of Grace* in 1536-7. These clearly show the form of the Walls, and their various towers and turrets; whilst flights of steps can be seen at the rear of the North and West Walls, giving access to the wall-walks (see Fig. 2). Arrow-slits and gun-loops can be seen in both the Walls and in individual towers. Such embrasures are also mentioned in the town records as 'holes'; hence, rents for four holes in the Town Wall, and the decay of a fifth hole, are mentioned in the 1464-5 *Chamberlains' Account Roll* (Horrox 1983, 108 and 112), and a 1527-8 *Town Rental* records that four 'holes in the wall' by the Foreland were in decay (i.e. were unoccupied, and were earning no rent; *ibid.* 123). Nowhere is any further elaboration offered as to the exact meaning of what constituted a 'hole', but the context of these rentals suggests that these were rooms within the towers, with embrasures set into the wall faces – and that these rooms were rented out by the Borough Corporation, either for storage, or for accommodation.

Also visible on these two views of Hull is a D-shaped timber-revetted structure to the south-east of the Humber Gate (Fig. 2), in the position later to be occupied by the South End Fort (or the South Battery). Four cannon are depicted mounted on flat beds with low earthworks between them; immediately to the west, set into the Town Wall, is a round tower which contains artillery embrasures. Both are useful reminders of the importance that artillery had assumed in siege warfare by this date.

A number of excavation trenches have been cut across various parts of the Town Wall during the last 40 years, and these show that its dimensions and form are by no means consistent around the whole circuit; this is consistent with what can be deduced from the historical evidence – namely, that it was built in a number of campaigns spread out over a lengthy period, and that different gangs of workmen would have been employed on its construction. By far the best understood section of the Town Wall is that adjoining the Beverley Gate. It is set on a shallow foundation of chalk rubble, cut into the front of the rampart. The bottom 1.2m of the brick Wall rises in a gentle slope, or 'batter', with each

fresh course of brickwork set slightly back from that beneath (e.g. Pls 16 and 18-19). Above this height, the Wall rises vertically. [Similar evidence for an external batter on the basal courses of the brick Wall was observed at North Walls (e.g. Pl. 6 and Fig. 14): Bartlett 1971, 8, 11, and section drawing on p. 10.]

All of the bricks used in this construction were hand-made, and for this reason their sizes vary slightly, but the typical range is from 270 x 135 x 50mm to 275 x 140 x 55mm. They have been bonded with a lime-based mortar, and have been laid in 'English Bond': rows of bricks laid with their end to the wall face ('headers'), which alternate with rows lying with their sides to the face of the wall ('stretchers'). Occasionally, small half-bricks have been used to block up scaffolding (putlog) holes in the Wall.

The Gates

The four main Gates opening to landward were the North Gate (at the end of High Street: Fig. 8), the Beverley Gate (at the end of *Aldgate* or Whitefriargate: Fig. 9), Myton Gate (at the end of *Lisle Street*, or Mytongate), and Hessle Gate (at the end of Humber Street: Fig. 7). At the southern end of the town lay the Humber Gate, which gave access to the *Foreland* and the River Humber (Figs 2-3). In addition to these, there were also a number of smaller gates or posterns. The most northerly of these was Low Gate (set within the northern section of wall, slightly to the west of the end of *Marketgate*, or the modern Lowgate); it lay to the west of Lowgate itself, as it also served as an access to the De La Pole Manor complex. On the west side of the town, there were posterns at the end of Posterngate, and also of *Blackfriargate* (the modern Blanket Row). On the south side of the town, a small arched gateway, representing the remains of a postern, stood at the end of Little Lane until the mid 1960s (Pl. 2 and Fig. 11. Aldridge 1989, 63; Tuxworth 1991, 10). In addition, the various Borough Records contain references to new posterns being added during the course of the 15th century. Hence, in 1423-4, 10,500 new bricks were needed to construct a postern (Gillett and MacMahon 1989, 38-9), and in 1465 the Duke of Suffolk asked for a new postern to be built to give him a direct personal access to the Charterhouse; the Borough decided to allow him this request, provided he supplied the materials (*ibid.*, 39. Strictly speaking, this represented the re-opening of a blocked postern, rather than the creation of an entirely new one; Allison 1969a, 26; 1969b, 414). One of the last posterns to survive was a small arched opening onto Humber Street, which was still standing in 1905 (Pl. 3).

As noted above, the material used for constructing the earliest forms of all of these Gates and posterns is likely to have been timber. This was certainly the case at the Beverley Gate; however, subsequently, its timber base was encased in a chalk rubble raft, which was faced with a low limestone wall for the bottom four courses. Towards the end of the 14th century, the entire Gate was rebuilt in brick.

As with the earlier timber structure on this site, the new Gate took the form of a simple rectangular tower, enclosing a tunnel passageway. That this was a complete rebuilding is shown by the fact that the sawn-off stumps of the earlier timber uprights were sealed beneath the newly laid brickwork. This new Gate was two storeys high, and was topped by a steeple. The front of the central passageway was flanked on either side by projecting angle buttresses. It would have been very similar in size and general layout to the surviving North Bar at Beverley (which was built in 1409-10 at a cost of £96 0s 11½d); it is likely that the internal passageway would have been similarly vaulted.

As with most of the Gates, the Beverley Gate projected forwards from the Town Wall — giving the impression of a barbican projecting into the area of the moat, or Town Ditch. The Ditches were crossed by drawbridges. In 1468, a hundredweight of iron was used to replace one of the bridge chains at the Beverley Gate (Gillett and MacMahon 1989, 38). The roofs of the various Gates and larger towers were variously covered with tile or lead, and could require substantial maintenance. Hence, the repair of the roof of a large tower over the *Mamhole* (at Little Lane) took tilers 56 days in 1437 (*ibid.*), whilst 10cwt of lead was needed in 1498-9 to repair the roofs of the various interval towers (*ibid.*).

Part of the town's Myton Gate was briefly exposed in July 1976 (Pls 9-11), and was seen to comprise an arched passageway, approximately 4m wide internally, which was flanked on either side by brick walls, both of which had forward-projecting buttresses (Fig. 15); the medieval Town Wall was butted onto the rear of the Gate. The remains of a counterweight pit for a drawbridge lay immediately in front of the passage; but, the bricks used to construct this were thought to be of 17th-century date, suggesting that this was a post-medieval feature (Ayers and Evans 2001, 45-6, and fig. 1 and pl. 1).

In 2008 part of the Humber Gate was probably exposed, and its basal courses were shown to be battered and faced in places with ashlar (George, in prep.). In 2016, two of the rear buttresses at the Hessle Gate were also located (see Part I, above).

The turrets and towers

By the end of the Middle Ages a large number of interval towers and turrets formed an integral part of the walled circuit. The 16th- and 17th-century depictions of the defences show that some of these towers were rectangular, others were round or D-shaped – all of which suggests that these were not contemporary in conception, and had probably been added at different times (quite possibly as secondary features); the proportions suggested by these early maps would imply that these towers would have been about 9m high, compared with an overall height for the Town Walls of about 6m (including the parapet and horizontal battlements).

Whilst many of these may have been constructed by 1406, when the last murage grant expired, the *Chamberlains Account Rolls* show that at least two more were added during the course of the 15th century. Some had their own names (e.g. *Harry Ogle's Tower*); and several appear to have been rented out as storage space in times of peace (e.g. Horrox 1983, 106. 112, 123, and 178 n. 97).

One of the rectangular towers along North Walls was excavated in 1969 (Pl. 6), whilst another was partially uncovered during excavations at Humber Street (Pls 4-5) in 1964 (Bartlett 1971, 3-5; Evans and Sitch 1990, 13). The *c.* 1538-9 depiction of the town suggests that at least one of these towers had had gun-ports added to enable the use of artillery weapons.

The entrance to the River Hull would have been a substantial weak point in the circuit, as this led to the unprotected haven and the vulnerable wharves. To prevent any attacking force from entering these waters in times of war, a boom chain could be slung across the river mouth. At its western end this was anchored to a tall tower known variously as the *Ankerhouse*, or *Chain Tower* (see Fig. 3). This is first

mentioned in 1369, when it was described as 'le Towre apud the Foreland' (Horrox 1983, 172, n. 36). It stood at the Horsestaith, next to the *Toll Tower* or *Brogger's Tower* / *Broghouse*, which was occupied by the *Brogger* (or water bailiff), whose job it was to collect tolls on all water-borne goods entering the port. The *Chain Tower* remained standing until 1839, and is shown on a view included in Greenwood's 1835 *Picture of Hull*. The town appears to have purchased land on the opposite bank of the river in about 1380, on which to erect a tower to secure the other end of the boom chain (Allison 1969b, 413 and n. 20); this had been built by *c.* 1538-9, as one of the Cottonian maps shows a small, rounded or D-shaped tower projecting into the River Hull, a little further upstream from the *Anchor House* on the opposite bank (*ibid.*, 414, n. 29).

Mid 16th-century changes and the construction of the Henrician defences to the east of the town (Fig. 6)

Henry VIII embarked upon a series of expensive and lengthy campaigns against the French quite early in his reign. These did not go well, and by the 1530s there was a real fear of possible naval attacks by the alliance between France, Spain and the Holy Roman Empire (Crossley 1990, 107). Consequently, he decided to strengthen the defences around key strategic ports; this was part of a larger programme of building coastal defences, which began on the south and east coasts of England between 1538 and 1540, and resulted in the construction of such major structures as Deal, Walmer, Camber, Pendennis and St Mawes Castles. Having dealt with the most pressing threats to those parts of the coast nearest to France, Henry turned his attention northwards to Hull, which had played such a prominent part in the *Pilgrimage of Grace* in 1536-7 (Neave 1996a); both Hull and York had given into the rebels, and admitted them into their towns without putting up much of a fight. Though Henry had subsequently pardoned both towns, he clearly expected his northern strongholds to be prepared to offer much stiffer resistance to any potential attacking forces.

In 1541 he personally visited Hull twice and inspected the defences. In October of that year he ordered various improvements to be made to the existing circuit of defences, but also addressed the question of the undefended east side of the town and its approach from the river. The surveyor for the new works was to be John Rogers, who had been the King's master mason at Calais, and who had been responsible for such advanced military works as the castle at Guines in the Pas de Calais (Shelby 1967; 1969). To complete the strengthening of the town's defences, Henry also ordered a new gun battery to be established further downstream on the Humber at Paull.

A new bulwark was added at 'the Watergate' (probably the Humber Gate, rather than the Little Lane postern), and ordnance (i.e. artillery – possibly demi-cannon, serpentines or falconets) was to be placed here. The chain tower on the east bank of the Hull was to be 'enlarged to bear the chain and to beat the haven'. The North Gate and the corner tower at the north-west angle of the town were to be enlarged and strengthened. A barbican was to be added at the Beverley Gate, and the Town Ditch was to be scoured. The old clay ramparts were to be 'made up with soil', and all the posterns were to be strengthened. Lastly, all the sluices were to be renovated, so that if necessary the order could be given to 'drown about the town' (Allison 1969b, 414).

The new defences to be built on the east side of the River Hull were to consist of three new blockhouses to be connected by an 830m long and 3m thick curtain wall, topped with battlements. The central blockhouse, known as Hull Castle, commanded the port and waterfronts, whilst the North and South Blockhouses respectively protected the bridge across the River Hull, and the entrance to the Haven. [For details of the East Bank defences, see Howes and Foreman 1999, 6-20, and Foreman and Goodhand 1996. The following is simply a summary to place the works on the Town Walls into context.]

In common with many of Henry's other fortifications, the new North and South Blockhouses were intended to present a low silhouette to attacking artillery, had curved flanks and parapets to deflect cannon-balls, and were designed to allow batteries of artillery to be placed at varying heights. However, what is markedly different from the rounded style of earlier Henrician defences (e.g. Deal, Camber and Walmer Castles) is the pointed segmental bastions of the central blockhouse, Hull Castle (which echo some of his ideas from Guines Castle): this marks a development towards the more sophisticated Italianate angle bastions, which would characterise later Henrician fortifications such as Sandown, Isle of Wight, or Yarmouth (Crossley 1990, 109).

The new works were undertaken in 1541-3 and were to cost £23,144; over 500 workmen, 20 masons and 60 bricklayers are recorded as being employed on this project in February 1542 alone (Allison 1969b, 414). The new blockhouses and the adjoining curtain walls were built mainly of brick, and survive in reasonably good condition, to a height of up to 2.5m, buried beneath 19th-century and later overburden; a brick kiln was erected near the Castle, to manufacture at least some of the bricks needed for the new fortifications (*ibid.*). A thin facing of dressed stone was added to the walls facing towards the river, although this has often been removed by later robbing; the stone had been reused from the collapsed tower of St Mary's church in Hull, and also from the recently suppressed Cistercian monastery of Meaux Abbey (where 20 masons were busily dismantling the stonework).

The two end blockhouses were effectively gun platforms, comprising central square blocks surrounding a courtyard, to the exterior of which were added three semi-circular bastions, to produce a trefoil plan. They were two-storied structures, topped with crenellations; the upper platforms also mounted guns. The central blockhouse (Hull Castle) had a larger, more rectangular three-storey inner keep, to the east and west of which were added bastions of segmental plan; its outer walls were up to 6m thick, whilst those of the inner keep were about 2.6m thick. Platforms above the inner courtyard also carried guns.

Excavation at the South Blockhouse revealed that the external walls had a gentle batter, and were built of brick laid in English Bond – surviving to a height of at least 1m, and a width of at least 4.2m. Two sizes of brick were used in their construction – 200-220 x 100-105 x 50mm, and 245-60 x 130-150 x 50mm – and they were bonded with a hard, pale creamy lime mortar (Foreman 1997, 9). A series of gun-ports with splayed embrasures faced with either brickwork or limestone ashlar quoins, were built into the thicknesses of these walls, whilst other internal features included a recess for a possible lamp-locker. A rectangular gun-chamber, 2.40 x 2.14m in extent, was built into the thickness of a bastion wall. Internal floor deposits also survived. Sealed beneath later 17th-century deposits was the barrel and breech-chamber of a redundant

16th-century gun – a port-piece (Evans and Steedman 2001, pls 28-32 and figs 40-1); this was one of three such weapons to be were recorded as being held at the South Blockhouse in December 1547 (Kenyon 1982, 206).

Numerous small excavations have taken place around Hull Castle since 1970 (e.g. Cook 1971; Eddy 1976; Tomlinson 1988; Foreman 1996). The earlier work concentrated on locating parts of the south and east outer walls, inner keep, and eastern bastion; whilst some of the outer walls were found to have been partially robbed, the south wall survived in better condition than many of the other walls, and the internal floor surfaces were found to be well-preserved. In June 1996 a large portion of the south wall of the Castle was examined, exposing two hand-gun ports, a paved glacis, and an entrance, set at the midpoint of the wall, leading to a gallery running behind the wall (see Evans and Steedman 1997, pl. 17 and figs 23-4; Foreman 1996). The outer wall was found to be 2.2m thick, and comprised a core of mortared brick and stone rubble, faced on either side with coursed brickwork; the external face of the outer wall was laid in English Bond, but Flemish Bond was used on parts of the inner face. The size of the bricks used in the south wall was 210 x 110 x 50mm (Foreman 1996, 27), but, earlier excavations on other parts of the Castle reported the use of bricks of 210 x 100 x 50mm. Limestone facing was used on the splayed embrasure of one of the hand-gun ports. A gently sloping glacis, paved with half-bricks or fired-clay tiles, lay between the outer wall and an external moat. Inside the Castle, compacted mortar floor surfaces may originally have served as the bedding for paved floors, similar to those used for the external glacis; however, if this were indeed the case, the internal paving has subsequently been removed.

The Henrician Curtain Wall survives best immediately to the north and south of Hull Castle, along Tower Street; further north, parts of it have been removed or truncated by the construction of 19th-century docks and mills, whilst in the area to the south, some sections were slighted to enable the construction of the later 17th-century Citadel (see below). Excavated sections of the wall have shown that it was *c.* 3m wide, and constructed with a mixture of bricks and half bricks, laid in English Bond; this compares reasonably well with 17th-century surveys of the defences which describe this wall as being *c.* 3.96m high from foundation to parapet, and measuring *c.* 3.5m thick at the top and *c.* 4.26m at the base (the measurements have been transcribed into their metric equivalents; Foreman and Goodhand 1996, 177). In the section to the north of Hull Castle, the full bricks measured 265-70 x 125-30 x 50-60mm; however, to the south, a section examined in 1996 was constructed with identical bricks to those used in the south wall of the Castle – 210 x 110 x 50mm in size. This variation in size suggests that the Henrician defences were built in sections, and that different batches of bricks were employed on the various sections – perhaps with different teams of bricklayers; the range of sizes and the use of numerous half-bricks in the wall cores may also point to the reuse of brick, robbed from earlier structures (in the same way as the documented reuse of stone masonry in these defences). Where fully exposed, the lower parts of the Curtain Wall have been shown to have had two offsets on its western side, with coursed masonry at its base (Dennison and Tibbles 1990). In places, a ditch ran parallel to it, about 4m to its west (Evans and Steedman 1997, pl. 14 and fig. 22; Foreman and Goodhand 1996, 176-7 and fig. 16).

Cartographic evidence for any moats associated with the Henrician defences is conflicting. Town plans by Speed (1610) and Hollar (*c.* 1638: Fig. 4) suggest that there was a moat to the east of the Curtain Wall and the blockhouses, and this is also clearly shown in blue on a coloured plan of the town, drawn probably in January 1639 and signed by the Master of the King's Armouries (The National Archives, *Calendar of State Papers Domestic, Charles I, 1638-9*, p. 411). Archaeological evidence for this was observed at Hull Castle in 1970 (Cook 1971), although subsequent attempts to confirm its presence elsewhere to the east of these defences have met with more equivocal results (e.g. at Clarence Mill; Tibbles 2008). Some other plans, e.g. Joseph Osborne's 1660 *Plan of Hull* (reproduced in Evans and Sitch 1990, 21) appear to show a substantial water-filled moat to the west of the Curtain Wall and blockhouses — i.e. between these defences and the River Hull.

Later 16th- and early to mid 17th-century additions

Edward VI had granted the fortifications to the town in 1552, but the cost of maintaining them had become so great that by 1576 the Corporation had to petition the Privy Council for relief; major repairs were needed at the South Blockhouse (Howes and Foreman 1999, 17). A survey carried out in that year found that whilst the blockhouse outer walls were in good repair, the gun platforms ware badly decayed, the timberwork was collapsing, and the moat ditch had become infilled; a new jetty was also needed at the South Blockhouse to protect the latter from damage by tidal erosion (Allison 1969b, 415). Between 1576 and 1583, £624 was spent on repairs; a later law-suit includes the claim that the town had spent £2,893 in maintenance between 1552 and 1587 (this figure was then revised upwards as the claim dragged on for another 50 years. *Ibid*.).

Temporary works in the 1580s
Fears of a Spanish invasion in the mid 1580s led to some hasty strengthening of the Hull defences. The moat on the east bank of the Hull was scoured out, and a mud wall was ordered to be erected between the North Gate and the River Hull in 1585. In February 1588 the planks of the small bridges leading to the posterns in the Town Walls were ordered to be removed. A plan of *c.* 1588 by W. Browne (there is a copy in the collection held by the Hull History Centre) shows that a number of additional earthworks were proposed around the Henrician defences; but, as none of these is shown on any later plans of the town, it is quite likely that these were never built (Howes and Foreman 1999, 18).

The South End Fort, or South Battery
Following the accession of Charles I in 1625, diplomatic relations with Spain deteriorated so rapidly that there was a very real fear of a Spanish invasion in the later 1620s: the Privy Council gave orders in 1626 that Hull should be fortified against the Spanish, and it was reported in 1627 that 'several fortifications and bulwarks' had been built. One of these new fortifications was the South End Fort (a new fort on the *Foreland* at the southern tip of the Old Town; it was later known as the South Battery), whilst a battery of guns also seems to have been added near the South Blockhouse on the east side of the River Hull. Further improvements were made to the defences in 1629, whilst in the following year the gap between the North Gate and the River Hull was ordered to be closed with the construction of an earth wall, topped

by a fence, and faced with brick.

Excavations at the South End Fort (later known as the South Battery) have shown that the remains of the 1627 D-shaped fort survived in excellent condition underneath the concrete surround for a 19th-century graving dock (George 2005; 2007). The brick-faced ramparts survived up to a height of about 1.1m, and were some 4.5 - 5m thick; at least two phases of walling were present. In 1634 this fort is recorded as mounting 11 guns of various calibres. A number of gun-emplacements were identified in the excavations; internal buildings and cobbled courtyards were also found to be well-preserved. The whole structure was protected from tidal erosion by a massive brick river wall, which was 1.9m thick, and survived to a height of at least 3m (George 2007, 100, and pls 1-2).

The South End Fort consisted of a brick-faced earth rampart, with several angles and shallow re-entrants. The ramparts were between 4.5m and 5m wide, and had soil-filled cores, revetted at front and back by brick walls set on chalk-rubble foundations. The rampart was sub-divided into segments by angled returns of the inner wall, alternating with a series of vaulted brick gun embrasures; the latter were cut into the ramparts, and opened back into an internal cobbled courtyard (George 2005, 119). The floors of the gun embrasures were also cobbled (*ibid.*, 120). So far, four of the original seven gun-embrasures have been located, and have strengthened brick-linings – one having an external brick wall 1.25m thick, which is twice the width of the brick outer skin of the rampart (George 2007, 101). The bricks used in the outer wall and the internal walls of the Fort consistently measured 240-245 x 115-120 x 50-55mm (George 2005, 93), which is similar to some of those observed at the Beverley Gate, where the guard-chambers are thought to have been added at around this date (see below, Part IV); in contrast, the bricks used in the linings of the gun embrasures measure 233 x 110 x 55mm, and are thought to have been reused 16th-century bricks.

Changes made in the years leading up to the Civil War
In January 1638 the town's defences were examined by the Master of the King's Armouries, and various instructions for their improvement were given to the Mayor, as part of the preparations being made for the planned campaigns against Scotland as part of the Bishops' Wars. Consequently, the Town Ditch was cleaned out, and new drawbridges to three of the main Gates were added (Allison 1969b, 415; Howes and Foreman 199, 25). The King also lent the town six demi-culverins.

In 1639 the decision was taken to erect. half-moon batteries in front of the Beverley and Myton Gates, and in front of the Lowgate postern; these are shown faintly in outline on the January 1639 plan of the town. These were to be linked by breastworks to form a continuous outer perimeter. Although this was planned for 1639, construction did not actually begin until 1640, and was still underway in the September of that year (Howes and Foreman 1999, 25-6). By the construction stage, it had also been decided to add an Outer Ditch around the town, beginning at the Hessle Gate and working round to the North Gate; new drawbridges were built over this Ditch in front of the Beverley Gate and North Gate

Shortly before these new defensive works had been constructed, Wenceslaus Hollar produced a plan of the town, dating to *c.* 1638 (Fig. 4. Sheppard stated that a version of this plan was published in a 1638 edition of Daniel Meisner's *Libellus novus politicus*

emblematicus civitatum…), but the online version of this work shows a plan based on Speed's 1610 map of the town, rather than Hollar's. By this date, refurbishment is evident at some of the Gates – e.g. new guard-houses had been added to the rear of the Beverley Gate: these were almost certainly intended to cope with the additional demands imposed by the installation of artillery (a survey of 1660 shows that a *demi-culverin* and three *sakers* were kept at this Gate). Excavations at the Beverley Gate have shown that these new guard-houses had brick-vaulted ground floors, with a stairway (next to the passage) which gave access to the upper floors. Tall side chimneys depicted on the *c.* 1638 plan attest the presence of fireplaces on the upper floors.

The Civil War sieges of Hull, and the outlying siege- and defenders' forts and earthworks (Fig. 6)

The relationships between Charles I and Parliament had been deteriorating steadily throughout the 1630s, and by early 1642 had reached an all-time low: England was on the brink of Civil War. Preparations were being made by Charles I and Parliament for the inevitable conflict. Both sides realised the strategic importance of Hull as a port, as well as being the location of one of the two principal arsenals of weapons in the kingdom — the other being the Tower of London, which in January 1642 had been substantially depleted as a result of issuing arms for use in Ireland: in contrast, the Hull arsenal (which was kept in Hull Castle) was thought to contain enough arms and ammunition for 16,000 men at this date (Ryder 1989, 139).

In 1638 the Master of the King's Armouries, Captain William Legge, was sent to Hull to see if the town was adequately defended; his initial recommendations to refurbish the existing defences were accepted. Additional improvements to the town defences were also recommended in the following year, and implemented in 1640 (see above), under the then Governor, Sir Thomas Glenham, and the costs and disruptions caused by these works were clearly still a bone of contention two years later, as they are mentioned in a letter to Parliament from the townspeople (quoted in full in Ryder 1989, 142). On 11th January 1642 Parliament nominated Sir John Hotham as the new Governor of Hull. His instructions (on the next day) were "not to deliver up the town, nor its magazine, without the King's authority signified unto him by the lords and commons house of parliament". This last part was crucial, as it emphasised that without the consent of Parliament no-one could have access to these strategic assets. [The importance of Hull as a powerfully defended port should also not be forgotten, as its location would allow whoever controlled it to enjoy easy access to supplies and reinforcements by sea, and particularly, in the King's case, from the Continent.] The threat to seize the magazine was also real, as on the same day that Hotham was appointed by Parliament, the King had given a commission to the Duke of Newcastle to take over "the government of this town and his majesty's magazine here". In the ensuing weeks it was Hotham, with the help of his son and some 800 men of the East Riding's trained bands, who was to take control of the town.

In March 1642 Charles moved his court from London to York. On 23rd April, the King with up to 300 men rode to Hull with the intention of taking the town; but Hotham shut the Gates against the King. Charles arrived at the Beverley Gate, only to find the Gates barred, and that he was to be refused entry into the town. After a stand-off of some six hours, Charles and his men withdrew. [For a succinct and up-to date

summary of the events at Hull in 1642 and Hull's part in the Civil War, see Neave 1996b; for a more detailed but now dated account, see Reckitt 1952. For the events leading up to the outbreak of war, see Ryder 1989, and English 1992.]

The first siege, July 1642

In July 1642 the King unsuccessfully laid siege to Hull with an army of 3,000 infantry and 1,000 cavalrymen for a period of three weeks. Sir John Hotham was defending the town with a force of 1,000. Taking advantage of a high spring tide, he gave orders that the sluices on the Rivers Hull and Humber should be opened, and the banks of the Humber were to be breached, in order to flood the low-lying land around the town. In addition, in order to give clear lines of fire to the defenders, and remove any potential cover or vantage points for the attacking Royalists, he blew up the remains of the Carthusian Priory to the north of the town, and completely cleared away what was left of the settlement of Myton to the west.

The attacking Royalist troops in retaliation burnt down three outlying windmills, and cut the freshwater dike which brought water from Anlaby to Hull; the latter act was not as effective as the attackers might have hoped, as there were many wells within the town.

The Parliamentary forces had control of the navy, and so were able to send two ships to Hull to re-provision the garrison with corn and wine. Nevertheless, a Royalist ship sent from Holland did manage to get as far up the Humber as Keyingham, where it ran aground; its sailors unloaded eight guns which they towed across land, and set up a battery to the east of Hull. In addition, the Royalists built temporary forts at Paull and Hessle (respectively to the east and west of Hull), and also on the south bank of the Humber, in order to be able to fire at passing shipping.

During the three-week siege, the defenders launched various sallies from the town. At the end of the month a sally by 500 men routed the Royalist infantry, and caused their cavalry to retreat towards Beverley; shortly afterwards on 27th July, another sally resulted in the destruction of the Royalist magazine at Anlaby. These reverses prompted Charles to abandon the siege, and withdraw. [For more detail, see Broxap 1905.] This was the first incident of open hostility between the King and Parliament and set in train the events leading up to the onset of the Civil War; three weeks later Charles raised his standard at Nottingham (marking the official outbreak of the war).

The only certain evidence which we have for this siege is documentary. Neither the Royalist siege works, nor any evidence for the destruction of outlying structures by the defenders has been found.

The second siege, September 1643

By the end of 1642 both Hull and much of the East Riding were controlled by Parliament; York was the only major strategic asset to be held by the Royalists at that stage of the war. By the early summer Royalist fortunes in this area had significantly improved, and they now effectively controlled most of the East Riding, apart from Wressle Castle, Beverley, Cottingham and the major stronghold of Hull; Royalist cavalry mounted skirmishes at the gates of Beverley at the end of June, and the town finally fell on 28th August, when faced with an army of 16,000 men under the

command of the Earl of Newcastle.

The Parliamentarians under Sir Thomas Fairfax retreated to Hull. After sacking Beverley, and capturing Cottingham, the Royalists followed and laid siege to Hull on 2nd September. They built a series of siege forts to the north and west of the town at Newland, Stoneferry, Sculcoates, Wilmington, Hessle Cliffs, Dairycoates, Gallow Shore, and at three sites along the causeway to Beverley (now Beverley Road); from these positions, 18 guns of various sizes, including two giant weapons, named *Gog* and *Magog*, — one positioned near Sculcoates (north of the town), and the other near Hessle (to the west) — pounded the town for much of the next five and a half weeks. But, the town was well defended and could also be re-supplied from the sea, as Parliamentary ships controlled the Humber.

The Royalists once again cut off the main supply of freshwater to the town (a dike running from Springhead to the Beverley Gate), but this course of action had no more effect than it had had during the first siege the year before. On 14th September, the Parliamentarians opened the sluices outside the town to flood the surrounding lands (just as they had done in the first siege of Hull in 1642). An attempt to capture the Royalist headquarters at Anlaby was beaten off, but later in the month the Parliamentarians did manage to blow up the Royalist magazine at Cottingham. Hull sustained considerable damage from the bombardment, and on 16th September the North Blockhouse was partly destroyed when a careless gunner entered the powder store with a lighted fuse.

In early October 1643 the Royalists suffered a major setback when their forts at Paull and Barton on Humber were destroyed. Then, on 11th October the Hull garrison sallied forth and captured all the Royalist positions between Derringham (to the north) and the Humber. As this also coincided with news of the Royalist defeat at the battle of Winceby (Lincs.), the Earl of Newcastle abandoned the siege of Hull, and retreated to York — but not before once again pillaging Beverley on the way.

In addition to the main town defences described earlier in this paper, there were two outlying defenders' forts — one to the west of the Hessle Gate, and one alongside the River Hull, to the north of the North Gate. The besieging Royalist forces are known to have built 10 siege forts — three to the west, and seven to the north of the town — in addition to their main headquarters at Anlaby, and a gun battery at Hessle Cliffs. [For more detail of the historical sources, see Broxap 1905. For a location map showing the suggested positions of the forts of both sides, see Howes and Foreman 1999, fig. 9.]

In archaeological terms the main evidence for this siege so far consists of find-spots of cannon-balls and musket-balls both within the Old Town and around the positions where documented siege forts and defenders' forts are thought to have been. An attempt to locate a defenders' fort at The Mount (to the west of the Hessle Gate) did reveal a substantial deposit of pottery and clay pipes of this period, but failed to identify any surviving structures which might have been part of this fort. Of the various Royalist positions, nothing structural has yet been found.

The defences from 1645 to *c.* 1700 (Fig. 6)

A considerable amount of damage had been incurred during the two Civil War sieges: a survey of 1646 estimated that the cost of the repairs would be £6,605 (Allison 1969b, 416; Howes and Foreman 1999, 41-2). In April of that year trees were supplied for the repair of the Blockhouses and the rest of the defences. The work on the Castle and the Blockhouses on the east bank of the Hull included repairing the gun platforms, walls, brickwork, bridges and a jetty – costing £2,580 (39.06% of the entire costs). The other 60% was spent on repairs to the northern and western parts of the Town Walls and Gates; of these, by far the worst affected section adjoined the North Gate — presumably damaged by the bombardment from the Royalist siege forts to the north and north-west. Here, 52 retaining buttresses of brick, stone and timber were added behind the North Gate, at a cost of £2,600 (39.36% of the total). On the western side of the town, the stonework at the Hessle Gate had been damaged by the weight of the hornwork built against its exterior; whilst a 50yd (*c.* 46m) section of the Town Wall to the north of the Myton Gate had collapsed outwards, probably as a result of the defensive artillery placed here, the weight of the soil piled behind it, and the heavy rain. Additional earthen revetments were added behind the Walls between the Hessle Gate and Beverley Gate in 1645 and 1646, and similar work took place between Beverley Gate and North Gate in 1647. In addition, 40 new gun platforms were to be built against the Town Walls, at a cost of £300. Lastly, some of the damage had been inflicted by the garrison itself; hence, 600yds (*c.* 548m) of structural timberwork had been pilfered from behind the jetty, the lime kilns, and the hornwork in front of the Hessle Gate, by the soldiers for lighting fires — and this would all need replacing.

Excavations at the Beverley Gate in 1988-9 did reveal evidence for additional strengthening works at the front of the gate, and for new bridge timbers being sunk into the eastern side of the moat; however, dendrochronological evidence suggests that these probably related to repair works carried out after the end of the Civil War (see Part IV, below), and it seems likely that these were amongst the repairs suggested above.

Whilst the costs may have been quickly established, the implementation of these recommendations was much slower. Parliament approved the expenditure of £2,000 in June 1649, and a further £600 in 1652; this seems to have been spent exclusively on the repair of the South Blockhouse, and (in 1653) in making a boom to protect the mouth of the Hull. The latter was in response to the first Anglo-Dutch War (1652-4). In June 1655 further repairs were authorised at the Ropery, the Blockhouses, and 'breaches of the line'; again, as no Civil War damage had been reported previously at the Ropery (along the southern parts of the Town Wall), this suggests that priority was now being given to strengthening Hull's seaward defences, rather than the damaged landward-facing sections of the fortifications (which a 1657 survey shows still required £5,051 10s. 0d. of repairs). In 1658-9 the river bank was strengthened with new piling and various repairs were carried out at the Blockhouses. Other monies, previously voted for the repair of the fortifications, were diverted into paying for the repair or replacement of defective weapons; hence, in 1657 some of this money was used to pay for 157 firearms and 100 pikes to be sent from the Tower of London, and for the repair of decayed gun carriages. In the following year 40 large guns (cannon, demi-cannon and culverins) were ordered, along with new gun carriages.

An inventory of the town's artillery survives from 15th June 1660. Of the 71 guns listed, 39 (almost 55%) were concentrated on the east bank of the River Hull: 21 at the South Blockhouse, 10 at the North Blockhouse, and eight at the Castle. A further 19 (26.7%) were located at the South End Fort (later known as the South Battery), guarding the west side of the mouth of the Hull. The remaining 13 (18.3%) were based either at the various Town Gates, or at guardhouses and the Magazine: the Beverley Gate boasted three sakers and a demi-culverin, the Hessle Gate three sakers, Myton Gate had two sakers, the Main Guardhouse (in the Market Place) had two sakers, and the Magazine two demi-culverins. This was a major change from the practice during the Civil War, when the guns had been mounted on the medieval ramparts.

In 1658 the town had petitioned Parliament for additional relief to fund the repairs, but the response to this plea was both slow and piecemeal. In 1660 a review of the town's eastern defences had found that the South Blockhouse was in good repair, but both the Castle and the North Blockhouse were 'somewhat decayed' (Howes and Foreman 1999, 53). The Government directed in February 1661 that timbers should be supplied from Sherwood Forest for the repair of the fortifications, and ordered in August 1662 that £500 was to be released towards the costs; £300 was transferred to the Governor in June 1663. On 27th June 1663 the King granted approval to the Governor to sell some of the old lead and wood from the ruinous North Blockhouse to pay for the repair of part of the building (Sheahan 1866, 338). [Sheahan quotes verbatim from a document which is no longer extant; Howes and Foreman cite a similar warrant dated 27th July 1663 (*loc. cit.*, 53).] Unfortunately, 150,000 new bricks and 70 pieces of new timber purchased for the work in 1664 were said to have been misappropriated, and the Governor's deputy, Colonel Gylby, is alleged to have pocketed much of the proceeds of the sale (Sheahan 1866, 339-40). Looting of the former North Blockhouse continued in 1671-2. Evidence given to an enquiry in 1681 claimed that some of the money was used to repair the three batteries at the North Blockhouse, and its immediate environs, whilst the former Governor claimed that when he inspected the defences in 1666, he "found the place in a good condition of defence" (*ibid.*, 340-1).

Trading rivalries with the United Provinces of the Netherlands, and the restrictions of the Navigation Acts continued to cause friction between the two countries, and relationships deteriorated during the early to mid 1660s, leading to a second Anglo-Dutch war in 1665-7. In August 1665 the Duke of York (the future James II) visited Hull to view the fortifications. The Town Corporation advanced £200 to the Governor for "repair, etc., of the fortifications during the emergency of the Dutch invasion" in *c.* 1666 (this was minuted 15th October 1667. Stanewell 1951, 249, L.765; 352, M.320). The defences were inspected by Lord Fauconberg (Thomas Belasyse, Lord Lieutenant of the North Riding of Yorkshire) in 1667. The Corporation had earlier ordered that all the drawbridges leading into the town should be repaired in 1662 (Allison 1969b, 416, and n. 87); but it is uncertain as to how many of these bridges were actually repaired, as a subsequent Council document of 28th May 1667 records only that the Governor undertook "to repay the cost of the repair of the drawbridge at the Beverley Gates, advanced by the Mayor and Aldermen" (Stanewell 1951, 352, M.324), and a subsequent inspection of March 1670 "viewed the drawbridge and gates which are much in decay, and estimate that the repairs will cost £85" (Howes and Foreman 1999, 53).

In June 1667 the size of the garrison had been initially increased to 500 men, but then

depleted as detachments were moved to London (Howes and Foreman 1999, 50). It was to remain in this depleted state until May 1671 when, in preparation for the third and final Anglo-Dutch war (1672-4), it was increased to 560 soldiers (*ibid.*, 51). A visitor to the town in 1673 during this heightened state of emergency (Richard Blome) described it as "a place of exceeding great strength, being able to bid defiance both to a Navy, and a Land-Army, and that by reason of its strong Blockhouses, Castle, Walls, Forts, Trenches, and the Inhabitants and Souldiers within it, being at present a considerable Garrison of his Majesties…" (Woodward 1985, 28-9). Thomas Baskerville, writing in 1677, also gave a favourable account:

> "As to Hull, the great garrison of the North of Portsmouth in the South, 'tis seated on a level on the banks of the Humber, no hills being near it. Being now got to it, and ready to enter, we saw a draw-bridge and a broad and deep moat full of water surrounding this part of the town; leaving this behind us, we came to another deep moat of water with a drawbridge over it where is a strong gate-house, gates, and portcullis, and a strong wall on the inner bank surrounding this moat. Then allowing room for defence where men may stand and use their arms we came at length to another strong gate which let us into the town, with a wall surrounding their houses, both walls and gate-houses being well stored with guns to annoy the enemy whenever he shall come to attack it." (*ibid.*, 38).

Yet, despite these favourable impressions from occasional visitors, the condition of the defences was actually one of ongoing neglect, as only the most urgent repairs had been implemented since the end of the Civil War. In August 1674 estimates were prepared for repairs at the South Blockhouse, the Castle and the Storerooms (Howes and Foreman 1999, 53 and n. 41); but, as the war was now ended, it is doubtful whether these were enacted. Similarly, little money seems to have been spent on the repair and maintenance of the main Town defences before the mid 1670s, as the Corporation and the Crown were in dispute as to who should be responsible for the costs (*ibid.*, 53). A happy exception to this trend is represented by the repair of all the 'out-bridges' over the Civil War ditch in 1676 (Allison 1969b, 416 and n.86), whilst in 1679 a new Guardhouse was built in the Market Place (Howes and Foreman 1999, 54).

Beckman's work at The Citadel and on other parts of the Town defences 1681-90

The Anglo-Dutch naval wars, the appearance of the Dutch fleet in the River Medway in June 1667 and the success of their privateers and men-of-war off the Holderness coast in the war of 1672-4, all led to fresh concern about the state of England's coastal defences. In *c.* 1681 Bernard de Gomme, Charles II's Chief Military Engineer, drew up initial designs for a new 30 acre (12.15 ha) triangular fortification on the east bank of the river, to be known as The Citadel (Saunders 2004, fig. 8.4, upper); his design is undated, but may have followed a survey of the Hull defences which was carried out in May 1681 by his deputy, Major Martin Beckman. The latter went on to significantly improve upon de Gomme's original design (*ibid.*, 229-31 and fig. 8.4, lower; Foreman and Goodhand 1996, figs 3-4), and then to oversee its construction in the following years. The new fortress incorporated part of the earlier Henrician defences (particularly Hull Castle and the South Blockhouse), and served the dual function of protecting the approaches from the river, and of overlooking the town. [It is significant that some of the new gun ports pointed directly at the Old Town, with lines of fire commanding the principal Gates on its far side: Charles II evidently intended to avoid the humiliation that his father had suffered on being refused entry to the town.] By 1688 the earthworks of The Citadel

were substantially complete, but the accession of William of Orange to the throne effectively removed any further threat of an invasion by the Dutch, and the work was largely abandoned from 1690 onwards. The overall cost of the construction work up to this point is said by the late 18th-century historian, John Tickell, to have been upwards of £100,000 - which was considerably beyond Beckman's original estimate of £74,425 (Sheahan 1866, 344; Allison 1969, 416).

A detailed account of the constructional sequence at The Citadel between 1681 and 1690 is presented in Foreman and Goodhand 1996, whilst a comprehensive exposition of the surviving documentation and history of this fortress has been published in Howes and Foreman 1999; hence, there is no need to reiterate that material here. The southern third of the site is now protected as a Scheduled Monument, and so further detail is also readily available online, as part of the National Archive. The most recent archaeological summaries are those published in Evans 2010 and 2018.

Whilst Beckman's work at The Citadel is now much better understood, his work elsewhere on the defences has received much less attention. His initial survey of June 1681 found [in regard to the Town defences] that

> "The fortification in this place is come most to a total ruin, the moats about the town most grown up; the ramparts without parapets like a dyke on a sea side, the stone wall about the town all decayed, cracked, and ready to fall down, which it has in one part, but repaired by the town. It has not one inch of parapet nor a gun about the walls that can do service" (Howes and Foreman 1999, 58).

His recommendations included the rebuilding of five sections of the Town Wall (totalling 235yds or *c.* 215m), and the addition of new buttresses to the walls. Extra works were also required at the South End Fort, the Civil War batteries and breastworks, and on various Gates, drawbridges and guard-houses (Allison 1969b, 417).

Following this report, a royal warrant was issued to the King's Commissioners in August 1681 to oversee the recommended repairs, as well as build the new fortification (see above). The contract included the repair of the drawbridges leading to the North Gate, the Myton Gate, and the Beverley Gate, and all parts of the old defences. Most of the early works seem to have been concentrated on the construction of the new Citadel, but it is clear that some of Beckman's recommendations regarding the repair and strengthening of the Town defences were also being implemented. Hence, in 1683 a locksmith was paid for "a great lock for Myton Gate, a hanging lock for Beverley Gate, and a lock for sally ports" (Howes and Foreman 1999, 111). Quite how much of the recommended rebuilding of the damaged sections of the Town Walls was ever implemented is uncertain, but an observation by the 19th-century historian, Joseph Sheahan, suggests that at least parts of the walls were rebuilt to a similar standard to that carried out at the Citadel:

> "In 1827 the workmen employed in excavating the Junction (now Prince's) Dock, laid bare the foundations of the town wall from the site of Beverley Gate to that of Myton Gate; and of two of the square towers that flanked it. From beneath one of the towers, the piles were drawn perfectly sound" (Sheahan 1866, 353n).

An early account of Prince's Dock, clearly citing a contemporary source, adds a little more detail about the piles:

> "Prince's Dock was opened on the 1st June 1829, little more than 2½ years after the start of the work. During the construction of the Prince's Dock, part of the old fortifications or town walls on the east side was cut through and taken down and from their antiquity they were not unworthy of notice. The walls are said to have been originally built of stone in the time of Edward II but repaired and strengthened with bricks in Richard II's reign, when the art of brickmaking was revived in this country. The bricks were about 11" long, 5¾" wide and 2½" thick. The foundations were 8 or 10 feet under high water and in some parts were on small piles, the rest being on natural ground. The piles were 5 or 6 feet long and 6 to 7 inches in diameter, some of oak, some of fir and the hearts of both kinds were quite sound and blackish in colour but the sap was much decayed."

The use of piles beneath the medieval walling has not been observed in any of the other parts of the defensive circuit, but, this was a feature of Beckman's work elsewhere on the east bank of the Hull. Similarly, the use of fir for some of the piling indicates a probable post-medieval date for this work.

Nevertheless, it is clear that most of the recommended repairs had not taken place by late October 1688, when the imminent arrival of William of Orange was feared, for Beckman had to urge imminent works to be carried out on the north side of the town, at a cost of £5,000 (Howes and Foreman 1999, 129): on 10th November instructions were given to complete the clearance of moats for lodgements, and to continue works on a half bastion in front of the North Gate and the North Bridge (*ibid.*, 129 and 79). These works came too late in the day to protect Hull from the perceived threat, and it was seized peacefully on 3rd December by William's forces, under the command of Sir John Hammer.

Beckman was still pleading the case for completion of The Citadel as late as December 1690, but his entreaties fell upon deaf ears (Howes and Foreman 1999, 139).

The defences *c.* 1700-1864

The Citadel, although never completed as a fortress, continued in use variously as a barracks, supply base and prison until its demolition in 1863-4; its internal buildings were largely demolished, and its perimeter walls were demolished to a set height. Part of the site became a railway marshalling yard for the adjacent Timber Dock, whilst other riverside sections became shipbuilding and ship-repair yards. A few new streets were laid out across its interior. Most of the site was covered by up to 1m of later overburden, leaving the remains of both the Henrician walls and the Citadel ramparts largely protected, and forgotten, until the later 1980s. A housing estate and a school have since been erected inside the area enclosed by the ramparts, but the latter have been kept clear of development.

The North Blockhouse was largely demolished in 1803, and building materials recovered from it were sold for £820 at public auction (Allison 1969b, 417). The Curtain Wall to its south had a more variable fate. Sections of it adjoining St Peter Street have been found to survive in good condition (e.g. Dennison and Tibbles 1990); other parts were clearly removed to permit the construction of the 19th-century Timber Dock. Yet others appear to have been reduced almost to its foundation stonework (e.g. at Clarence

Mill; Tibbles 2008, pls 6 and 7, and fig. 2), in order to allow later structures to be built over its top.

Routine repairs were regularly carried out on the defences and drawbridges during the 18th century, as they became more dilapidated. The celebrated local historian, George Hadley, records that in 1735, "the tower over Beverley Gates, being ruinous, and likely to fall, were ordered to be taken down, and an arch made over the Gates, if necessary, and the Town's Husband was to take care thereof" (Hadley 1788, 307). In 1761 the Hessle Gate was also unblocked; but, in truth, the Town Defences had outlived their usefulness. This was increasingly apparent to visitors to the town; earlier visitors had often been relatively complimentary, but from the 1720s onwards, in those cases where the defences are mentioned, the comments are critical. An anonymous visitor to Hull in August 1724 noted that "The Fortifications are old and decay'd & little store of Arms, 18 new Cannon, some Mortar peices &c." (Crowther 1992, 12). Another anonymous account in 1733 noted that "The Citadel is its best defence, having a double Tier of Guns, a wide Ditch before it, and what is more terrible, a Company of Invalids within. This was once accounted the strongest Fortress in England; but now the Walls are tumbling down, and the Ditches a common Lay-stall…." (*ibid*., 14). In 1752 John Wesley wrote "I was quite surprised at the miserable condition of the fortifications, far more ruinous and decayed than those at Newcastle, even before the rebellion. It is well there is no enemy near" (*ibid.*, 16). There was also clearly a major problem with encroachments upon the Town Walls, now that their defensive role had largely been abandoned. The draft notes for a speech by H. Etherington (a future mayor) in 1764 complain:

> "a great part of the said [Town] walls are and have been from time to time lett out by some of the Officers of the Garrison to different Persons upon Building Leases and several Dwelling Houses (and Shops and places for keeping Piggs and other Noxious uses) have been erected thereon, scarce a year passes but the number of Houses &c. are increased by new Building Leases, some have very lately been granted and Built upon the said Walls which being much higher than the Town prevents the Circulation of fresh Air and is highly detrimental to the health of the Inhabitants of the said Town which is very Close built and the Streets narrow and very Populous, and if the practice of building upon the Town Walls in their present state is not timely prevented it may prove fatal in time of any Contagious Sickness but if the said walls were level'd and Motes fil'd up their Situation wd. be lower than ye Town and Consequently the Buildings that might be erected thereon wd. be no impediment to the Circulation of Fresh Air nor risque the health of the Inhabitants on that Acct…….not only the Walls but some parts of the Ditches are let out for Workshops, keeping Piggs &c……the Walls are become quite indefenceable and have been so time out of mind insomuch that in a time of Danger — viz.. — the Rebellion of 1745 — upon a view of those who were appointed the Repairation of the Walls was judged impractical & we apprehend they are judged so at present by their being let out to build upon as private property" (MS in the Museum Archives, cited in Bartlett 1971, 8).

Moreover, the medieval Town Walls and Gates were a major constraint to the development of the town, and the Gates were too narrow for the volume of wheeled traffic which needed to pass through them. Accordingly, they were largely removed to

permit the construction of a series of new docks around the north and west sides of the Old Town. The earliest of these was The Dock (later Queen's Dock, which was opened in 1778), followed by the Humber Dock (1809), and finally the Junction Dock (later renamed Princes Dock; opened in 1829). Demolition of the Walls and adjoining Gates began in 1776, and continued in progressive stages into the 1820s; however, in most cases, the Walls were simply razed to a set height, and were then buried beneath the upcast of the excavation of the new docks — often leaving substantial sections of walling safely sealed from damage by later developments.

The first section of the Town Wall to be taken down was that between North Gate and Beverley Gate; the latter was demolished in 1776, and the Wall to its north, alongside the new Dock (later Queen's Dock) had been taken down by 1778 when the new Dock opened — this is clearly shown on Thew's Map of 1784. The next section of the defences between Beverley Gate and the Myton Gate was removed between 1784 and 1791. The remainder of the West Wall to the Hessle Gate, and much of the South Wall had been cleared away by 1800. The frontispiece to Tickell's *History of the Town and County of Kingston upon Hull* is a view from the Humber by Benjamin Gale, and shows a substantial length of the South Wall still standing, but in ruins, and with trees growing out of it (Tickell 1796, frontispiece); but, just four years later, Lumsdon and Davis's plan of 1800 shows *Harry Ogle's Tower* and a short stretch of the adjoining South Wall to its west, as the only parts still standing (see Brigham 2009. fig. 12). The remainder of the medieval southern defences were mostly removed between 1800 and 1809, in preparation for the opening of the Humber Dock. This left only the South Battery standing on the west bank of the Hull (see below), and the Citadel on the east bank — as both were still in use as military installations. Contemporary newspaper accounts mention demolition taking place in the late 1820s on parts of the defences adjoining the future Junction Dock (then under construction), but these probably relate to the removal of parts of the footings, as the walls in much of this area had been reduced to a set height in the 1770s and early 1780s.

The progressive dismantling of sections of the Town Wall and Gates is charted in a series of historic maps, ranging from an anonymous map of *c.* 1775, through Thew (1784), Hargrave (1791), Gale (1796), Lumsdon and Davis (1800), Anderson (1814), and Craggs (1817), to an anonymous map of 1829 which still shows 'the precise position of the old fortifications in their relation to the docks' (Sheppard 1911, 110. Several of these maps are readily available in facsimile, in Humberside County Council Leisure Department 1995). A contemporary eye-witness (Strother) writing in 1784-5 commented:

> "Beverley Gates are now taken down and a fine free passage left. Myton Gates are still remaining, built of brick within the earthen ramparts, from whence on either side extends a wall built of the same, the greater part of which is in ruins, as is the square tower wherein the gates are fixed, and which flanked the walls. The walls are about 3 feet 6 inches thick.
>
> Hazael Gates are the entirest buildings yet remaining, consisting of two towers, east and west. The east tower is a square of 6 yards each way, and had 2 gates in it, and a room over them, but are now taken away.
>
> Thirty yards westward stands the west tower, of the same length and breadth, and

> eight yards high, within the walls, and the arch yet remaining, which forms the chamber floor. The whole is of brick, about two feet in thickness, and joined to the east tower by a wall one foot thick" (Crowther 1992, 26).

The old South End Fort already needed major repairs in the late 17th century, but its renovation did not begin until 1709. By 1699 it had been renamed the South Battery, and it was extended in 1728. In 1843 its usefulness as a gun battery was severely compromised, when a new graving dock was allowed to be built immediately adjacent to it; yet, it remained standing until 1855, when its site was sold for redevelopment. Its buried ramparts and cobbled courtyards survived in good condition until recently; part of it has since been built upon (in 2015).

Both the Citadel and the South Battery had become largely redundant by the 1850s. Improvements in naval gunnery and armaments meant that Hull would now be vulnerable to any attacking ships long before they came into range of the guns of these fortifications. If the town and port were to be adequately defended, then it would be necessary to extend their defences much further down the Humber Estuary, so that attacking vessels could be checked, and hopefully destroyed, long before they came in range of the town. Accordingly, in 1864 a major new fort was built at Paull, about 6 miles to the east of Hull. The following century would see the defences moved ever eastwards, with gun batteries at Sunk Island, and then the construction of the fort at Spurn Point (at the mouth of the Estuary), and the adjacent battery at Kilnsea. Finally, in 1918, two forts were built actually in the mouth of the Humber Estuary at Bull Sands and Hale Forts (for details of all of these, see Dorman 1990, which also contains an extensive collection of plans and photographs).

B. Additional specific historical references to the Beverley Gate

As noted above, there is relatively little reference to named Gates or posterns before the second half of the 15th century, when parts of those Gates were leased to third parties. Nevertheless, as all were clearly in existence long before the 1460s, the absence of documentary references cannot be assumed to imply that they were not planned from a very early stage within the development of the defences.

A certain amount of documentation relating to the Beverley Gate has already been set out in the preceding section, to which the reader is referred. The following paragraphs contain additional information only.

In 1464-5 John Rome was paid 2s. for keeping the Beverley Gates during that year (Horrox 1983, 96). In the 15th century a lighted beacon was mounted over the Beverley Gate — perhaps on the spire — and was maintained by the Guild of Holy Trinity. Hence, entries for a nominal rent for this beacon begin to appear in the *Town Rentals* from the mid 15th century onwards. The 1465 *Town Rental* records that the Alderman of the Trinity light over the Beverley Gates paid 4d rent, whilst in 1527-8 the same rent was 2d (*ibid.*, 115, 130, and n.103).

Following the suppression of the *Pilgrimage of Grace*, Sir Robert Constable (who had briefly held Hull for the rebels) was hung in chains, probably outside the Beverley Gate, as a discouragement to others (Allison 1969a, 92 and 414); another leading rebel, John

Hallam, was arrested near to the same Gate.

The *c.* 1538 plan shows a spire on top of the Beverley Gate (Figs 2 and 44). This feature disappeared, when the guard-chambers were added to the rear of the Gate in the early 17th century, and thus is not shown on the Hollar view of *c.* 1638 (Figs 4 and 45). In 1606 two rooms at the Gate were let by the Corporation to the keeper of the gates — one of these rooms was over the Gate; in the following year this room was leased to several trade companies (Allison 1969b, 414).

Part III. The investigations on the northern defences and in Humber Dock Street 1986-7

A. Humber Dock Street and Humber Place, August 1986 (Pl. 12)

As noted above, some limited trial trenching took place in this area in mid August 1986, in an attempt to locate the line of the Town Wall and to see whether anything survived of the Hessle Gate; this work was carried out in advance of another pedestrianisation scheme. Four small machine-excavated trial trenches were opened up by Peter Armstrong along the presumed line of the wall in Humber Dock Street and Humber Place; these were about 2m wide, and varied between 8m and 15m in length. A plan of this work survives, along with a summary of the main findings, but much of the original field archive is currently missing.

Trench 1 was a dog-legged trench, sited opposite nos 3-4 Humber Dock Street, and aligned mainly east to west (centred on TA 0981 2828). It was designed to pick up the Town Wall alignment between the Blanket Row postern and the Hessle Gate. The only structural remains encountered were part of an east-west aligned brick culvert. Most of the trench fill comprised a re-deposited dump of brown alluvial clay; the excavator thought that this represented the upcast from the excavation of the Humber Dock in 1809.

Trench 2 was aligned south to north, and was set across the presumed rear section of the Hessle Gate (centred on TA 0985 2824); it was cut across the extrapolated width of Humber Street, midway between the Dock wall and the road, within the channel in which hydraulic pipes lay. The trench section revealed a dump of sterile, re-deposited brown clay, which changed in colour to a blue-grey clay at a depth of *c.* 2.50m below the concrete surface (i.e. in the upper layers the clay was oxidised, but, lower down, in more waterlogged conditions, it became anoxic). A horizontally-laid timber, bearing a mortise-hole, lay within the brown clay in the southern part of the trench; this timber had been fashioned from a lopped trunk with a pale heartwood, and was not thought to be *in situ*. A timber upright, apparently squared, was noted at a depth of between 2.10m and 2.20m below the concrete. It was associated with a blue-grey clay deposit occurring within the brown clay; incorporated within this deposit were jumbled bricks, which included some of the same sizes previously seen in other sections of the Town Wall. A thin skin of dirt was visible in this clay, running upwards and southwards; this suggested that this deposit was an infilled hollow in the brown clay. Late 18th- or 19th-century pottery was recovered from this deposit. The excavator concluded that the excavation of the Humber Dock in 1809 had completely removed all remains of the Hessle Gate in this area.

Trench 3 lay almost opposite the entrance to Blanket Row (immediately north of the presumed site of a postern; at TA 0979 2834). The trench revealed similar stratification to that seen in Trenches 1 and 2, with 2.50m of re-deposited alluvium. However, this was found to seal the western face and part of the Town Wall, close to the roadside at the eastern end of the trench. A portion of the Wall, 1.4m wide, still stood to a height of 0.5m, and was exposed at a depth of 2.5m (Pl. 12). Two different wall widths were visible within the trench, juxtaposed on a north-to-south alignment; Armstrong felt that these might have indicated a blocked opening, with a brick straddling the junction between these two parts. The wider part of the wall lay to the north, and its rear (east) face had been roughly rendered with mortar, in contrast to the neat brickwork face of the narrower wall to the south. The bricks used in the construction of this wall were noticeably larger than any other Town Wall brick types recorded up to 1986. To the east of this structure was a smelly black organic deposit with a gritty texture; this incorporated sherds of post-medieval pottery. This sealed an underlying layer of sticky grey clay, containing fragments of brick. The west side of the wall appeared to be natural clay. The west face of the wall bore a concreted clay skin, similar to that noted on some of the Beverley Gate wall faces.

Trench 4 lay further north on Humber Dock Street, close to its junction with Castle Street (at TA 0974 2842). Here, excavation extended into the pavement area, to a total depth of 3.50m; but, this revealed nothing but brown clay overlying an indurated grey clay – similar to that seen in Trench 2.

B. Investigations in Alfred Gelder Street and Guildhall Road, April to June 1987 (Pls 13-14)

Following on from the initial work at the Beverley Gate in 1986 [see Part IV, below], a series of watching briefs was undertaken in 1987 in the area to the north and north-east, as the Council proceeded not only with the pedestrianisation scheme, but with associated street improvements. This offered the opportunity to trace more of the course of the Town Walls as they continued northwards and then turned north-eastwards to run parallel with the line of the later Queen's Dock. Some of the works were monitored by Grant Cairns and Peter Hicks; others by Peter Armstrong and David Tomlinson. Whenever the construction work looked likely to result in the exposure of parts of the Town Walls, the Humberside Archaeological Unit was called in to record the remains. Between April and June 1987 four separate trenches were observed and recorded along the line of the defences where they crossed Alfred Gelder Street and ran into Guildhall Road / North Walls — three between the Beverley Gate and the tower investigated in 1969, and one immediately to the north-east of the latter. In the most successful of these investigations, the brickwork of the north side of the Town Wall was shown to survive to a depth of at least 10 courses, and the overall width of the wall was thought to be 1.10m; the top of the surviving section of wall was encountered within 0.75m of the modern street surface.

Alfred Gelder Street/Guildhall Road, 9th April 1987

Part of the pedestrianisation scheme involved the remodelling of a former taxi-rank area at the western end of Alfred Gelder Street and Guildhall Road, adjoining what is now a large circular garden area laid out around a fountain. During the course of the civil engineering works in preparing the new line of this part of Alfred Gelder Street, parts of the Town Wall were revealed by their commercial excavations at TA 0972

2877, and then archaeologically investigated and exposed as far down as the start of the external projecting batter. A total of 1.05m of flush-faced vertical brick courses survived above the batter, to as close as 0.75m of the existing road surface (as measured to the gully level on the eastern side of the existing road leading into the Queen's Gardens circular fountain area. Pls 13-14). Here, the exposed section of wall comprised 16 courses of brickwork, overlying at least three courses of projecting batter, but this clearly continued downwards beyond the limits of excavation. On the outer (i.e. north-west facing) face, seven course of bricks above the batter were very badly eroded and weathered. The excavator considered that this was ancient damage, which was covered partly by a deposit of dirty dark grey soil that had accumulated against the wall, and partly by a dump of sandy clay (possibly upcast from the excavation of the Dock in 1774-6?), which characterised the deposit to the north of the wall. [Its counterpart to the south of the wall was a stiffer brown clay.] Above these damaged courses of brickwork, the wall was quite regular and tidy, and pointed with a strong mortar, which was often smeared beyond the joints: i.e. the upper nine courses of the wall had at some stage been rebuilt and re-pointed, and this new work extended up to the top of the surviving brickwork.

Just to the north of the Beverley Gate, the walled circuit surrounding the town turns sharply, and then heads north-eastwards towards the North Gate. This particular exposed section of walling did not follow a straight alignment, but represented the end of a curve as the wall turned at this north-western corner of the town's perimeter, before straightening to head off to the north-east; the latter continuation follows a line along the southern side of Guildhall Road. This conclusion is based upon the evidence of three exposures of the wall along the course of Guildhall Road (at around TA 0980 2882); in the western part of the road a length of about 3m was uncovered, whilst further east two narrow square cuttings exposed the top of the wall. The central of these cuttings did not pick up the full width of the wall, as its inner (i.e. south-eastern facing) face had been truncated at this point by the insertion of a modern service pipe. The most recent disturbance had been caused by the excavation of the concrete foundations for a lamp-post, which stood in an island in the road.

The engineering works in this area of Guildhall Road were confined to removing the overburden to a depth of *c.* 0.75m, and then laying stone hardcore; therefore, no further disturbance to the underlying wall was anticipated.

Junction of Alfred Gelder Street and Guildhall Road, 11th-13th May
Road preparation in the area to the south-east of the gardens surrounding the fountain (i.e. directly east of the area examined in April, and in the road, pavement and flower beds in front of what is now the Wilson Centre, at the western end of the block of properties between Alfred Gelder Street and Guildhall Road (at TA 0975 2877), involved the removal of the modern street surface to a depth of about 0.8m. This revealed a chalk foundation, which was only two courses deep, set within a brown plastic clay that appeared to be the medieval town rampart; this crossed Guildhall Road as it joined Alfred Gelder Street. The south side of this chalk foundation for the most part had a good straight face; but, the northern side was slightly lower and tipped downwards. A layer of mortar, brick dust and rubble extended northwards from the northern side, and dropped down to deepen considerably, before thickening into a deposit of general brick and mortar rubble. At a point between reference station 3 on

the north, and the western edge of the shrub-land in the pavement opposite to the south, the plastic clay recorded to the west gave way to a 0.3m thick layer of light brown sandy clay, typical of dock upcast. The latter deposit sealed a layer of mortar rubble incorporating bricks of typical Town Wall size — including some large pieces of collapsed walling still mortared together, but tipped in at an angle, as though badly disturbed. Three east-west cast-iron pipes ran side by side through the area; at least one of these pipes could be seen to have been inserted *after* the wall had been disturbed in this way. There was also a main sewer on the same alignment, to the north of these old services. These relatively modern features had mainly resulted in the truncation of the uppermost deposits, such as the sandy clay.

Junction of Alfred Gelder Street and Guildhall Road, 18th May
The excavation of a deeper service trench in the same area as was examined earlier in May (see above) revealed a 2m – 2.5m length of the Town Wall, next to the kerb on the south side of Guildhall Road, outside what is now the Wilson Centre.

The highest surviving courses of the wall were encountered at a depth of 1.45m below the kerb level, whilst the deposits below 1.67m appeared to be largely undisturbed. The northern face of the wall was evident at the north trench edge, and 10 courses of brickwork were traced and exposed, before the cramped conditions made further excavation impractical. The excavator thought that the south side of the wall would have lain below the pavement, and probing suggested a width of 1.10m. This part of the wall appeared to have subsided, with the whole structure tilting slightly down to the south-east. The bricks had been laid in English Bond (alternating courses of headers and stretchers), and were bonded with a yellow mortar. The bricks fell into three main sizes:

255mm x 135mm x 45mm
280mm x 140mm x 50mm
275mm x 135mm x 45mm

In the north face of the trench, rubble and general disturbed ground overlay the highest surviving courses. Below this was a brown, plastic clay, which was level with the top two courses of walling. Mortar and brick rubble lay opposite the next two courses, and below this was a gritty, silty, grey-black deposit.

It was not possible to continue the exposure of the wall to the west beyond the limits of the service trench, whilst to the east the line of the wall was cut by a more recent brick wall footing, set at right-angles to it; however, a small hole cut further to the west did expose the north edge of the wall, although its alignment was different, appearing to be set slightly further to the north. By eye, the alignment of the wall appeared to be heading towards a point one-third of the way along the southern frontage of the Technical College (i.e. towards the indentation in the front of the building), and towards the eastern end of Monument Buildings, to the west.

Part IV. The excavations at the Beverley Gate 1986-89

The three seasons of excavations at this site revealed a lengthy sequence of structures and deposits, reflecting intensive activity from the early 14th to the mid 19th

centuries. Five main phases were defined:

Phase I, c. 1321-1540	*The erection of a bank-and-ditch defensive circuit around the town, and the construction of a timber Gate. In Phase Ib (later 14th century) a brick wall was erected in front of the clay rampart, and the timber Gate was rebuilt in brick.*
Phase II, c. 1540-1600	*A new timber bridge was built across the Town Ditch in front of the Gate; dendrochronology suggests the timbers were felled sometime after AD 1580. Parts of the counterweight pit for a drawbridge were uncovered.*
Phase III, c. 1600-1700	*New guard-chambers were added to the rear of the Gate – probably in the late 1620s. Dumps of soil over the berm in front of the Town Wall and the guard-chambers probably resulted from the cleaning out of the Town Ditch, either in the lead up to, or in the early stages of the Civil War. Elsewhere, a new outer circuit of ditch was excavated around three sides of the town, and external hornworks were erected.*
Phase IV, c. 1700-1776	*The defences were neglected, and in 1735 the tower over the Beverley Gate was so ruinous that it had to be taken down. A make-shift retaining buttress was constructed against the front of the Gate walls, to support the rest of the structure, reusing old bricks and timbers. Large dumps of rubbish were allowed to be made and to accumulate within the now-largely redundant Town Ditch. The Phase II drawbridge-pit was infilled.*
Phase V, 1776 +	*The Town Wall between the Beverley Gate and North Gate was systematically dismantled to a set height. The Town Ditch here was widened and deepened to form the new Dock (later Queen's Dock) in 1776, and the upcast buried the remains of the medieval Wall. In 1826-9 the immediately adjacent area of the Town Ditch to the south was similarly used to create the Junction Dock. On the western side of the site, a new Monument Bridge was erected in 1829 over the lock between these two Docks. This bridge was rebuilt in 1905, and its brick-lined bascule pits still survive in situ. The archaeological sequence at the site is characterised by some massive dumps which accumulated over parts of the Town Ditch in front of the new lock.*

Prior to excavation, the site was covered with a taxi-stand and parking area at the western end of Whitefriargate, set opposite what was then the Town Docks Museum (the former late 19th-century Docks Office; now the Maritime Museum). This part of the City Centre is quite low-lying, with the modern pavement and road surfaces ranging in height between 4.5m OD and 4.9m OD. The excavation revealed *inter alia* that the Town Walls had been dismantled to a set height, when the post-medieval Docks had been built, and that the remains of the lower parts of the Walls survived underneath the upcast of the excavation of the Docks, and had been capped by modern overburden and make-up (e.g. Pl. 16). The Gate itself was centred on TA 0972 2872.

The top of the archaeological sequence was encountered at varying heights between 3.4m and 3.96m OD; the tops of the rampart and the Town Wall were sealed by between 0.80m and 1.20m of overburden, beneath the present-day street surface.

The Town Wall was still standing here up to 3.415m OD (20 courses of brickwork) — although the front buttresses of the 17th-century guard-chambers at the Gate itself stood 2.45m high (34 courses of brickwork, or 3.96m OD: e.g. Pls 16-18). The Town Ditch lay in front of the Wall, and deposits here clearly extended to a much greater depth. This feature was formerly water-filled for at least part of its depth: in the post-medieval period the Bush Dyke emptied freshwater into the Ditch at the Beverley Gate, to provide part of the Town's water-supply. It was not possible to investigate much more than the upper fills of the Town Ditch — both because of problems of water ingress, and because of the logistics of taking away spoil for off-site deposition. Excavation ceased mainly in the earlier post-medieval fills (at -0.879m OD).

Phase I *c.* 1321-*c.* 1540 (Figs 16 and 17)

The earliest activity on the site is represented by the creation of a bank-and-ditch defence (Figs 6, 16, and 23, S14). The bank itself was formed from the upcast of digging the ditch, and comprised a fairly clean, plastic, light brown clay (contexts **13**, **15**, **121**, **129**, **318** and **342**). At its highest point, behind the later Town Wall, it survived to at least 2.45m; in contrast, at the front of the Wall, it was exposed to a depth of *c.* 1m. The dump which formed this bank was largely sterile, but incorporated within the clay were occasional fragments of flat roof tile, brick and a little charcoal. Its lower fills were composed of indurated bluish-black clay (contexts **51**, **107**, **122**, **131** and **343**) which oxidised to a medium brown on exposure (e.g. contexts **34** and **47**). It was difficult to ascertain where precisely the base of the bank stopped and the underlying natural estuarine alluvial clay began, as there was no obvious Old Ground Surface: evidently the ground had been completely cleared prior to work beginning on the construction of the new defences. Final confirmation that the clay beneath the Town Wall was indeed an artificial dump (rather than a natural deposit) was provided in October 1989 when the contractors' machine-cut sections through the bank both directly in front of and immediately behind the Wall revealed numerous tile fragments incorporated in the bank at levels far deeper than the base of the Wall itself.

Post-medieval maps of the town suggest that the section of ditch in front of the Beverley Gate was about 40ft (13m) wide. The portion of it which lay within the excavated area continued to dip down to the west, and was evidently not fully bottomed. The initial slope of the bank was comparatively gentle, but it then began to pitch sharply down beneath fill **52** (Fig. 23, S14): the probability is that the ditch profile had either a gently sloping or flat base — the great width (extending to perhaps 60ft or 18.50m) suggests that a V-shaped profile is unlikely. The topmost 1.60m of ditch deposits, together with the eastern lip of the ditch were investigated.

The finds associated with this construction included fragments of Siegburg stoneware and Humberware from the lower fills of the bank (layers **107**, **123** and **343**); its upper fills (layers **13** and **121**) contained fragments of Saintonge ware and Humberware. The latter included Humber type 4 ware, which is usually considered to be a 15th-

century fabric, and which may thus be intrusive. Numerous fragments of Type 1A roof tiles and bricks of types 4A, 8A, 8B and 10 were found throughout the bank (layers **121**, **342**, **51**, **122** and **107**).

Possibly contemporary with the erection of the bank-and-ditch defences was the construction of a timber Gate at the end of *Aldgate* [the original name for what is now Whitefriargate]. Its remains consisted of a rectangular framework of ground sills, the northern half of which was formed by three enormous sole-plates (**55**, **65** and **72**. Fig. 16). The base of sole-plate **72** lay at 0.811m OD; its top was exposed at 1.031m OD. The sequence of construction is best demonstrated at the north-eastern corner of the Gate, where the junction of its principal cross-members was exposed during civil-engineering works after the main excavation had finished. The east-west sole-plates (**55** and its southern counterpart) were the first to be put in place (Pls 25-7), and were then overlain by the main north-south sole-plates (**65** and **72**); if the junction of plates **55** and **72** was typical (Pl. 27), then the plates were joined by face-to-face lap joints. Vertical members were then tenoned at intervals into these plates, and the structure was strengthened by diagonal braces which were set in chase mortises (Fig. 21, S8). All of the verticals and diagonals were locked into their mortises by one or more pegs or dowels (e.g. Pl. 26).

The west side of the Gate was formed by plate **65**; this would formerly have extended the full width of the structure, but it had been sliced through by the insertion of the coffer dam at the onset of the excavation. The surviving fragment was 3.80m long, and had been fashioned from a piece of oak measuring 0.33m by 0.26m in section; as with all of these beams, it had been squared on the four main faces, but chamfered slightly on the underside. It had been broken in the middle of a mortise which extended through the full width of the timber; unfortunately, there is nothing to show whether this was a conventional mortise for an upright, or whether it was a chase mortise for a diagonal brace leaning to the north. The mortise was 0.10m wide and at least 0.13m long; a 0.04m diameter peg-hole indicated the former presence of at least one locking dowel. The northern side of the Gate was formed by sole-plate **55** (Pls 25-7). This has been fashioned from a 7.20m long section of oak which was slightly skewed at its eastern end; it measured 0.20 x 0.30m in section, and had been finished in a similar way to plate **65**. Its eastern junction with beam **72** was exposed after the completion of the main excavations, but the greater part of its western end was sealed beneath the later stonework of the Phase 1b Gate (see below). The latter had not only obscured the junction of beams **55** and **65**, but had also left unresolved the precise nature of their relationship to posts **75** and **76**: these were two uprights which were encased within later brickwork, and hence were identified at a much higher level than the sole-plates into which they were presumably fixed (the positions of their post-sockets are shown projected onto these plates in Fig. 16, but as the later brickwork was left undisturbed, their junctions with the underlying sole plates could not be examined). Timber survived in poor condition in both sockets, but it was not possible to recover a decent cross-section through either post without beginning to dismantle the surviving Gate structure; accordingly, the only measurements which can be offered for these posts relate to their rectilinear encasing post-sockets. Post-socket **75** measured 0.28 x 0.40m, whilst its western counterpart (**76**) measured 0.26 x 0.38m. These posts presumably supported the front superstructure of the timber Gate, and would have been joined to the rear of the Gate by additional horizontal members at a

higher level. The main evidence for this assertion consists of a diagonal back-brace (**73**) which was anchored into a chase mortise in sole-plate **55** (Pl. 25), with two wooden dowels 0.03m in diameter. This brace was set slanting towards the west at an angle of about 65°, and probably served to strengthen the north-west corner of the Gate. The bottom 0.70m of the brace was all that had survived (it had been encased in later stone walling: Pl. 25, Fig. 21 S8), and it is possible that this brace was formerly curved (cf. the corner braces at the medieval bridge at Hall Garth, Beverley: Youngs and Clark 1981, Pl. XVIII): if this were indeed the case, then brace **73** could possibly have been jointed directly into the north-west corner of the Gate, but another option is that it was slotted into a horizontal member at a level higher than the surviving brickwork. The eastern (or town-facing) side of the Gate was formed by sole-plate **72**, which overlay the east-west plate (**55**) with a face-to-face lap joint. Plate **72** was formed from a massive length of oak, measuring 0.25 x 0.28m in section, with chamfered undersides. Like its southern counterpart (**65**), it would formerly have extended across the full width of the Gate, but it had been sliced through by the steel coffer dam, leaving a 1.25m length of its northern end exposed within the excavated area.

A number of smaller braces and posts were associated with these timbers. A diagonal brace (**73**) was mortised and tenoned into sole plate **55** (Fig. 21, S8). It was 0.26m wide, and survived to a height of 0.70m (Pls 25-7). Further west, two more verticals were presumably also jointed into this sole plate (**75** and **76**). These have survived as rectilinear post sockets, within the later brickwork of the medieval Gate; the sockets measured respectively 0.40 x 0.28m, and 0.36 x 0.26m. The easternmost sole plate (**72**) similarly had a diagonal brace (**71**) mortised and tenoned into it. Both **73** and **71** were retained in position by transverse wooden dowels through the mortise-and-tenon joints. Brace **71** survived to a height of 1.511m OD. The weight of later stonework had pushed the south end of **72** downwards. To the north lay the stump of another upright (**338**), 0.30m square; this was exposed for a height of 0.30m, but its socket was lined with faced limestone blocks. It presumably was jointed into **72**.

Probably relating to this bridgework were two vertical posts set inside the line of the north sole plate. Post **64** (Pl. 28) measured 0.12m x 0.14m in section. Post **77** measured *c.* 0.20m square, and was cut off and sealed by the later brickwork of the Gate (Pl. 30). Both survived to a height of at least 0.90m. Their relationship to the main sole plate was never established.

Phase Ib (Fig. 17)

The main east-west and north-south sole-plates were subsequently embedded in stone banks (Pls 23 and 25-7; Fig. 21, S8). These were neatly faced on their south and west faces only; no comparable faces survived to the north and east, where they were represented by a rubble core piled onto the earlier clay bank. This gave a structure *c*. 7.6m deep and 5.60m wide with an internal width of 3.8m — similar in size to the North Bar at Beverley. Sole-plate **55** was covered by five courses of roughly-faced oolitic limestone blocks (**78**: Pls 25-7) surviving to a height of 0.75m. These revetted a mixture of limestone and chalk boulders 1m wide. Sole-plate **72** was similarly topped by four courses of roughly-faced limestone 0.70m high (**74**; Pl. 24). This revetted a similar bank of limestone and chalk boulders, 1.45m wide. In both cases

the earlier diagonal braces were encased by the new walling — i.e. they were still in use when the wall was built. Plate **65** was covered by limestone rubble or walling (**79**) at its northern end. The remains of comparable walling may have existed beneath the south side of the later passageway and its side walls; however, only the top courses of walls **354** and **353** were exposed, and these were in brick. Problems with later service trenches prevented full exposure of this foundation.

Subsequently the area of the internal passage through the Gate was infilled with light brown plastic clay (**15**), topped by a compact layer of chalk packing (**48**: Pl. 28), 0.20m (or one or two courses) deep. This was packed firmly against the wall faces, sealing the tops of the beams. This was the first of many layers of levelling (Fig. 23, S13); it by no means covered the entire space in between the walls, nor did it present a level surface for a trackway. By the end of the Middle Ages, the ground level within the passageway had been raised by 0.85m (*ibid.*), thereby sealing the entire extent of limestone walling. At the west end of the gate-passage, layer **48** was covered by a 0.20m thick dump of brick rubble and mortar (**39**). A comparable tip of medium brown clay of similar depth (**38**) was deposited against the south side of wall **78**; this did not extend across the whole trench. Sealing both of these was an extensive dump of dark gritty, blue-black clayey loam (**35**), which was up to 0.58m in thickness. It contained fragments of Humberware. This was topped by a 0.15-0.20m thick layer of clean, plastic, light blue-grey clay (**29**). This included a complete Humberware jug (**24**. Pl. 29; Fig. 24, no. 1), which was found at a depth of 1.462m OD. Two small disturbances in the top of this (**32** and **33**) may represent little more than slight variations in the deposit.

None of these layers appears to represent a surface in use through the passageway. The largest deposit (**35**) is homogeneous in character and would seem to represent a single levelling dump. Moreover, the layer of clay (**29**) which tops it contained a complete jug which was unbroken until its discovery: another indication that these are unlikely to be road surfaces as such. The Humberware from layers **29** and **35** is likely to belong to the same date range, *c.* 1350-1475. This suggests that later parts of Phase Ib dated from the late 14th or 15th centuries. It is possible that this represents a refurbishment of the defences from the time of Richard II, or in the face of threats during the 15th century either from the French, or from baronial unrest during the Wars of the Roses.

The Curtain Wall

Following the rebuilding of the Gate in stone, the clay rampart and timber palisade were replaced with a brick Town Wall (**327**; Pls 18-19). A construction trench was cut back into the rampart, and the Wall was built upon a layer of chalk rubble footings, which lay at depths of between 2.10m and 2.20m OD (cf. Fig. 23, S15). These footings comprised chalk blocks measuring *c.* 0.35 x 0.30 x 0.15m in size, and appear to have been laid about one or two courses deep. They also projected beyond the front face of the wall (Pl. 19), and hence would have been covered. This was similar in nature to layer **48** within the Gate itself, and thus could well have been contemporary. The upcast from the construction trench was piled on top of the earlier clay rampart; here, the re-deposited dump of brown plastic clay (**108**) was over 0.70m thick, and was separated from the original rampart by a lens of crushed brick fragments.

Fragments of Humberware were incorporated in this lens. At its base the Wall was 1.60m wide; this narrowed to a width of 1m higher up, as the bottom 18 courses of the front face (i.e. the west side) were battered in an offset (Pls 17-19). The inner face (i.e. to the east) was vertical (Pl. 21). Two or three courses of flush vertical brickwork survived above the batter; thereafter, the Wall had been deliberately levelled. The fifth course of batter was set slightly wider than the rest — perhaps indicating a string course.

Part bricks were used in the core of the Wall, laid east-west: but the outer faces were made up of full bricks, to give a bond of alternate headers and stretchers (English Bond; see Fig. 23, S15; Pls 15 and 19); the size averaged 277 x 145 x 56mm. A white mortar was used throughout; this also covered the top of the Wall.

The construction trench for the Wall (i.e. on its east side) was backfilled as the Wall was raised. This is shown by lines of brick dust and mortar, in **318**, running up to the inside face of the Wall; a mortar skin was found in a similar position, 12 courses from the top.

The fact that the chalk footings projected at the front of the Wall, suggests that the lower courses of this offset may well have been covered when the Wall was in use (see Pl. 19).

The front of the Gate (Fig. 17; Pls 22 and 32-3)

Two or three courses of limestone flags were laid over the top of the Phase Ia sole plates, in order to form a bed for a brick superstructure. The stone footings projected noticeably at the north end (Pls 32-3). In its final form, this brickwork was clearly of more than one period: hence, the topmost brickwork is shown on plan as belonging to Phase II (e.g. **353** and **354**). Nevertheless, the basic form of the Gate structure was probably determined in the later 14th century. The front of the Gate was encased in angle buttresses (**6**, **66**, **345** and **347**). The projecting arms of these are battered on all three sides, but the front face of the Gate consisted of flush vertical brickwork (Fig. 20, S1). The batter was most pronounced on the north face of the northern arm (where it was 13 courses deep: **6**. Fig. 22, S12); whilst on the east face it was only eight courses deep (the bottom five courses being almost flush: Fig. 20, S1). The west face of the arm appears to have once sported a very slight batter, but had been badly damaged in the 18th century. The southern arm (**66**) had at some stage been extended, making the entrance narrower. This is confirmed by the fact that the four base courses overlying sole-plate **65**, are simply butt-jointed to the main brickwork. Above this height, they were bonded into the fabric.

The base of the Phase Ib brickwork lay at 0.957m OD, whilst the medieval courses above it survived to a height of 2.161m OD. The bricks averaged 0.27 x 0.14 x 0.045m in size, and were bonded with a soft white mortar. Small trial trenches on the south side of the Gate revealed that here too the brick survived in good condition (e.g. **353** and **354**) — presumably it was similarly laid on top of stone foundations; however, the presence of numerous modern services restricted access, and it was not possible to expose the walls to their foundations. The bricks averaged 260 x 130 x 60mm in size.

During the later 15th or very early 16th centuries a massive dump of material, up to 1m in thickness, was piled against the front of the Town Wall. It is probable that much of this originated from the cleaning out of the Town Ditch, as the bulk of the deposit consisted of clay. However, a substantial layer of brick-and-mortar debris in this suggests that this refurbishment of the Ditch was probably carried out at the same time as fresh building work either on the Gate or on the Wall itself. The lowest layer (**340**) consisted of indurated blue-grey silty clay; incorporated in this dump were fragments of a Skipton-on-Swale drinking jug and a Saintonge pégau. Above this was a 0.03-0.12m thick lens of brick and mortar (**341**; Fig. 23, S14) which contained fragments of Saintonge pottery. The main part of the dump consisted of grey-brown clay with inclusions of brick and mortar (**106**, **120**, **124** and **337**; *ibid.*); these varied in thickness between 0.50m and 0.88m, and incorporated fragments of Humberware, a Langerwehe jug, a Langerwehe/Raeren drinking mug, Low Countries Redware, Saintonge pégaux and a Skipton-on-Swale drinking jug. On pottery evidence, this dump is unlikely to be any earlier than the third/last quarter of the 15th century [and may actually be of very early 16th-century date].

Phase II *c.* 1540-1600 (Fig. 17)

It seems almost inevitable that at least some work was carried out at the Beverley Gate following Henry VIII's extensive survey of the Hull defences; however, this presumably must have been confined to those parts of the structure which were above ground, as no evidence was found for any activity whatsoever below ground. It is of course possible that the re-cutting and cleaning out of the Ditch which has been described above at the end of Phase I, in fact dates to the period 1541-3; however, if this were indeed the case, then almost all the pottery which was incorporated in these deposits (with the possible exception of the Raeren stoneware in layer **120**) must be regarded as residual.

It has been presumed that Henry VIII's surveyors' recommendation to add a barbican to the gate "where Constable hangeth" must apply to the Beverley Gate (*L and P Hen. VIII*, xii(2) p.97: e.g. Dodds and Dodds ii, 220-1). However, no archaeological evidence for any such structure was found; nor is there any obvious sign of such fresh building work on any of the later engravings. If an outwork was added, then it presumably lay on the other side of the Ditch: an alternative explanation is that the Henrician surveyors were in fact referring to the Hessle Gate (cf. Allison 1969, 414, n.31).

In archaeological terms, the one major new addition during Phase II can be assigned not to the Henrician works, but rather to the very end of this period. It consisted of the building of a new bridge across the moat. Four major uprights of its eastern pier were located just in front of the Gate, and have been dated by dendrochronology. They were felled sometime after AD 1580. Small peg- or dowel-holes in the sides of these timbers make no particular sense in their present positions: either the timbers have been reused, or these holes represent temporary pegs fixed in place whilst the timbers were hauled into a vertical position.

The four uprights consisted of substantial squared beams made from quartered (e.g.

57 and **56**) or halved (e.g. **11**) oak timbers. They were set in a north-south line, forming one half of a trellis 1.40m long (Pl. 31; Fig. 21, S5), and were presumably either driven into the underlying clay, or anchored into a horizontal sole-plate set well down in the Ditch. One of these timbers (**56**) was exposed to a depth of over 2.20m (to -0.879m OD), but was still firmly anchored, and obviously continued much further down; auguring for a further 2m failed to locate the plate. Moreover, a large edge-and-face joint to receive a 0.24m wide horizontal brace across the front of the upright was found low down on its western side: once again, this would seem to imply that the timbers survived to a much greater depth. When newly constructed, they would presumably have continued upwards to at least the height of the carriageway (their full height is shown by post **11** to the south: Fig. 21, S5); however, the northern three had been foreshortened in Phase IV, when they were incorporated in a coffer dam (see below).

The most northerly of the timbers (**56**) was fashioned from a quartered oak trunk. It measured 0.18 x 0.16m in section, and had an edge-to-face rebate, and a peg-hole in one side. The adjacent timber (**57**) had also been quartered, and was probably cut from the same tree; both timbers were felled after AD 1580. Beam **57** measured 0.25 x 0.22m in section, and was exposed for a length of at least 1.08m. A pegged mortise on its south side served no obvious function in its present position: this may imply that the timber was reused. Immediately to its south lay a third upright (**58**). This measured 0.28 x 0.18m in section; a 0.68m length of this timber was exposed. Its upper part had been sawn off at a lower height than the other timbers. This may imply that this was an original timber, which had been replaced during the life of the bridge by one of its neighbours. The most southerly upright (**11**) was also the most massive. It measured 0.33 x 0.38m, and appeared to have been fashioned from a halved oak. A 1.59m length of this was exposed. The top of the beam bore a 0.08m wide and 0.75m deep mortise in the top to receive the tenon of another timber; part of this tenon remained broken *in situ*, and was held in position by four dowels. A chase mortise, 0.18 x 0.06m in size, on the south side of the timber would have held a diagonal brace, angled downwards.

It is possible that this structure was part of a fixed bridge; alternatively, a central section could well have been lifted, to turn this into a drawbridge. There is very little independent dating evidence for its construction, apart from the dendrochronological dates. The dark grey, silty, waterlogged clay (**69**) in which the timbers were actually encased contained very little material: and what there was was by no means securely stratified: a single pipe stem and some Brown Glazed Coarseware could well be intrusive, or might indicate that this construction was early 17th-century in date. A similar black silty clay, to the west (**68**) contained Purple-Glazed Humberware, Hambledon ware and Dutch-type Glazed Red Earthenware — all of which are characteristic of the 16th century. It incorporated at least one limestone block, which might indicate that the construction of the bridge was accompanied by additional building work on the adjacent Gateway, or perhaps on a drawbridge-pit in front of it. Support for the latter suggestion may be found in the presence of an enigmatic brick structure (**54**) sealing layer (**68**), immediately in front of these timbers. It consisted of a course of bricks set on edge, overlain by a second course, laid flat, in English Bond. An area of 1.45m by at least 1m of this floor was exposed, but it appeared to continue further west underneath the excavation balk. It was edged on the south by wall **26**,

which survived for a length of 0.74m and to a height of 0.82m (11 courses); thereafter, it had been robbed. It was two bricks wide (0.28m), and was laid on a mortared foundation of brick, tiles, chalk, and cobble. This ran up to the south side of the vertical timber **11**, which thus formed the SE corner of a rectangular brick feature, for the east wall of this structure was set flush against the north side of timber **11**. An 0.14m (single brick width) long stretch of this survived, 10 courses high, between uprights **11** and **58**, whilst a second section of bonded brickwork (**44**), 1.20m to the north, had tipped sideways. This was two bricks wide and four courses high. It was originally underpinned by two large, partly-dressed stones. Here no obvious traces of mortar survived, but the bonding of the bricks suggests that this too formed part of the east wall of this brick-lined pit.

On analogy with a brick-lined pit observed in a similar position at the Myton Gate in 1976 (Fig. 15; Pls 9-11), it is suggested that this may have been a pit for the counterweights of a drawbridge. It was obviously closely linked to timber uprights **11**, **56**, **57** and **58**, and, like them, its upper parts had been used in the Phase IV strengthening measures adopted to shore up the front of the Gate; however, it seems reasonable to suggest that its original construction was contemporary with the erection of the timber bridge in the late 16th or very early 17th centuries (Phase II). The only finds recovered from the top of floor **54** date to the second quarter of the 18th century, and probably represent rubbish thrown into a *disused* structure which was by then redundant and ruinous.

In the area to the south of the bridge trellis, the equivalent deposit to layer **68** on the former edge of the medieval Ditch was a layer of black peaty clay, 0.08m thick (**14**), which contained amongst other things a shoe sole. Incorporated in this deposit was a discarded timber (**19**). This was 1.15m long, and 0.18 x 0.20m in section, with a large pegged tenon at one end. It lay upside down, propped diagonally against the Phase I stonework. With the bridge in position, this would have been hidden from view, beneath the main carriageway; it could have been dropped and left during construction work, or, alternatively, may have been discarded during a later refurbishment of the bridge.

Phase III *c.* 1600-1700 (Fig. 18)

As already discussed above, the period 1639-40 was to see the construction of extra-mural half-moon batteries on the approaches to the Beverley and Myton Gates and to the Lowgate postern, followed by the excavation of an extra circuit of ditch around three sides of the town (Fig. 6; see above). Hence, there is clear documentation for extensive works within the vicinity of the Beverley Gate in the years immediately preceding the Civil War; however, all of these works would have lain outside the area of the present excavations, The outline of the external hornwork in front of the Beverley Gate, as shown on the 1725 Phillips Map, would pass under the present footprint of the Maritime Museum (cf. the Historic Towns Trust 2017).

At the Beverley Gate itself, the onset of Phase III is somewhat earlier, and is marked by the construction of two large guard chambers at the rear of the medieval Gate. The precise date of their erection is uncertain, but they are clearly depicted on Wenceslaus Hollar's view of Hull in *c.* 1638 (Figs 4 and 45), as two-storied towers, with tall side

chimneys and small narrow windows lighting the staircase to the first floor. It is quite possible that these were built in the later 1620s, at the same time as the South End Fort — in response to a perceived threat of a Spanish invasion — as bricks of similar size were used in both fortifications.

During the current excavation only the northern chamber was excavated. Prior to its construction, a stretch of the medieval Town Wall flanking the Gate had to be dismantled: this left a very obvious scar at the back of the wall (Pl. 36). The new chamber measured *c.* 3.50 x 3.20m internally. Its front was formed by a massive new wall (**328**), 4.20m long and 0.86m wide. In order to take the thrust of the new structure, its foundations were set substantially lower than the old Town Wall, onto two courses of chalk and limestone foundations (Fig. 23, S15). Above these were six courses of battered brick plinth, topped by at least 26 courses of brickwork (standing to a height of 2.20m; or 3.96m OD). The bricks used in this structure varied in size from 250 x 120 x 50mm to 270 x 140 x 70mm, and were laid in English Bond. A whitish mortar had been used not only in the bonding, but also as an external rendering. At either end of this wall were two square buttresses, projecting 0.53m outwards from the face. The upper part of the south buttress had been largely removed by the insertion of a large sewer pipe in *c.* 1900 (Pl. 16). At the south end of the new chamber, its footings were seen to overlay the Phase Ib stone footing of the original Gate (Archive Plate BEG 88.11.43).

The back of the chamber was built directly onto the top of the rampart. It is possible that the great difference between this and the depth of the footings prompted the builders to opt for a massive front wall, which was set even deeper than the old Town Wall. The south wall of the chamber (**331**) was 4.63 long and had been almost completely robbed, but its line showed clearly as a Phase IV robber trench (**332**); the one remaining section was at the south-east corner of the room. Here, the wall was 0.92m wide. The corner was flanked both internally and externally with buttresses. A third of the way along the wall lay a rectangular internal setting of chalk footings (**339**), two courses high, and 0.70 x 0.80m in extent. It is suggested that this supported the base of the stair serving the upper floor: presumably the entrance into the chamber would have been adjacent to this footing.

The east wall of the chamber (**330**) survived up to eight courses high (Fig. 21, S4). It was formerly 5.28m long and 0.63m wide. Internal and external buttresses (**331**) were sited at its south end, but the north end had been destroyed by the insertion of a sewer pipe which ran diagonally across the interior of the guard chamber. The north wall of the chamber (**329**) poses problems. It may have been planned originally on a much larger scale then was ever executed, or it may have been rebuilt. The principal evidence for this can be seen in its junction with the front wall (**328**). Projecting courses of brickwork have been left in the eastern face of **328** for a much wider wall, which should have extended 0.51m further to the south (Pls 33-4); instead, wall **329** is a mere 0.54m wide. Another possibility is that an internal buttress (matching that in the SE corner) was contemplated here, but never built. Support for this last interpretation may be seen in the fact that the western 0.80m of the wall footings have been set at a deeper level (*c.* 0.25m) than the rest of the wall (Fig. 21, S3). If comparable buttresses had existed at the NE and SW corners, these would have been completely removed by the insertion of a 19th- or early 20th-century sewer pipe (see

below, and Pl. 16). It is suggested that these would have supported a brick vault at first-floor level. Midway along the wall, more brickwork projects inwards, but this appears to break the line of the wall and is probably a later alteration associated with a brick-lined soakaway extending to the north.

No contemporary floors survived within the guard chamber, and it is probable that these were completely removed at the time of the final dismantling of the Gate in 1776, leaving only the below-ground remains. However, immediately to the north, a grey-brown clay deposit (**323**) overlay the former rampart, and probably represents the trampled surface which was in use during Phases III and IV. It incorporated pieces of charcoal, brick, tile, and a clay-pipe stem. Pottery fragments from this layer could be of 16th-century date, but may well be residual. No pottery was firmly associated with the construction of the guard chamber, but the Phase IV robber trench (**332**, layer **324**) contained an assemblage of Humberware Type 5, Raeren stoneware and clay-pipes which suggests an early 17th-century date. The likelihood is that this is pottery disturbed from the original construction trench or from the occupation layers through which the robber trench had been cut.

Post-dating this structure, but assigned to Phase III are two successive dumps of soils against the front wall of the guard chamber (Fig. 23, S14). They probably mark the further cleaning out of the Town Ditch, and may well relate to the refurbishment of the defences in the troubled period 1639-1642. Another possibility is that they mark an attempt to clear out debris at the end of the Civil War. The lower layer (**336**; *ibid.*) was a dump of greyish-brown clayey soil which varied between 0.06 and 0.20m in thickness. It incorporated large quantities of mortar and a certain amount of rubble — indicating that substantial building work (whether construction or demolition) was taking place nearby. The finds within this deposit were a mixed assemblage, as would be expected from cleaning out the Town Ditch: there was some late medieval pottery, but there were also fragments of a Martincamp Type III flask and a clay-pipe of *c.* 1630. Sealing this material was layer **335** (*ibid.*), a dump of dirty grey silt containing large amounts of charcoal, rubble and mortar. This varied in thickness between 0.04m and 0.18m, and incorporated an assemblage of mid 17th-century pottery and clay-pipes. Fragments of window glass in both are probably contemporary, but a small amount of 18th-century pottery is probably intrusive. Further north, a similar cleaning out of the Ditch has resulted in the dumping of clay layers **104** and **105** onto the berm in front of the Town Wall. The lower dump (**105**) comprised a 0.30m thick layer of soft, plastic, light grey clay containing some mortar and brick fragments. Pottery incorporated in this dump included a single sherd of blackware, together with other fragments which could have been earlier in date. Capping this deposit was layer **104**, an 0.25m thick deposit of soft, plastic medium grey clay; once again this incorporated quantities of mortar and brick debris, reflecting the nearby presence of building or demolition work.

Phase IV *c.* 1700-1776 (Fig. 18)

The 18th century saw a gradual deterioration of most of the Hull defences, and this is represented at the Beverley Gate by the campaign of works associated with the dismantling of the ruinous tower in 1735. The Gate appears to have been in danger of collapsing into the Town Ditch, so an *ad hoc* system of buttresses and clasping

timbers was erected in front of the Gate, accompanied by massive tips of soil and rubbish in the by now largely redundant Ditch. This appears to have solved the immediate problem, as the Gate was still standing 40 years later, when in 1776 it was dismantled to make way for the new Queen's Dock. Both the Gate and the adjacent stretches of the Town Wall were demolished to a uniform height.

The northern guard chamber continued in use throughout this phase. In the area immediately to its north, a gravel track (**128**) was laid onto the top of the medieval rampart. It consisted of a 0.11m thick layer of metalling, up to 1.10m wide, 2m behind the Town Wall; it was delineated on its west by a shallow gutter or drain (**125**, **311**), formed by two closely-set lines of cobbles pressed into the top of the gravel. Lying parallel to this gutter but 0.20m to its west was a brick-lined culvert (**109**/**111**/**312**; see Pl. 15). A 6.50m stretch of this was exposed, but it presumably ran the full length of this part of the Wall, with periodic outlets to take rainwater off the top of the rampart. It consisted of a brick-built conduit, 0.12m square, capped with more bricks, and set in a clay-, mortar- and rubble-filled trench, 0.60m wide and 0.26m deep. The bricks used in its construction measured 230 x 100-115 x 55-65mm; they were bonded with a soft white mortar. This culvert presumably once ran right up to the north wall of the north guardhouse, and was probably fed by guttering leading down from the roof; however, its relationship with the guardhouse had been destroyed by the insertion of a Phase V sewer (**333**). No finds were made inside drain **109**/**111**/**312**, which was lined with a 0.04m thick deposit of soft grey silt.

The area between this drain and the Town Wall was occupied by a 1.40m square structure built against the Wall. It was defined on its north and south sides by insubstantial brick foundations (**127** and **316** respectively). The former consisted of a strip of brickwork laid end to end, 0.58m long and a single brick wide (0.135m); it survived two courses high, and was bonded with a pale buff mortar. Foundation **316** was of similar build, and survived for a length of 0.50m. In both cases, the junction with the Town Wall was marked by a brick foundation placed at right-angles to the strip; the southern one (**315**) survived three courses high. It is suggested that these formed the base of the side walls of a hut or sentry-box built against the Wall. The east side of the structure was delineated by a rectangular brick platform (**126**), measuring 0.60m x 0.66m in extent. This was carefully built of bricks variously laid flat, on edge, and on end. The main brick size used was 260 x 110 x 50mm, but half bricks were also employed; they were bonded with buff and white mortar.

This platform was covered with a deposit of firm brown and black ash, suggesting that fires had been lit on it — perhaps lending support to the notion of a sentry-box? The main dating evidence for this structure is provided by the layers sealed beneath it. Wall **316** was laid on a 0.02m thick layer of soot, mortar and brick dust (**317**). This in turn rested on a 0.14m thick construction dump of dirty grey clayey soil (**314**), over the top of the medieval rampart. Incorporated in this construction dump were fragments of Ryedale ware, which show clearly that this structure was of post-medieval date — though whether it should be assigned to the later part of Phase III or Phase IV is at least debatable. On its south side, an east-west drain (**313**) ran from the Town Wall towards drain **109**/**111**/**312**. Unlike the latter, it was an open, brick-lined culvert, edged with bricks on edge. This was laid on a foundation of two courses of half-bricks bedded in white mortar. It survived for a length of 1.30m, and was simply

butted against the other drain. One interpretation is that it was served by a gutter leading down from the parapet top; however, the fall of the drain appeared to run from east to west, so it is possible that this actually served to take water from the main north-south drain, and to feed it through a channel in the thickness of the Wall into the Town Ditch beyond. Support for this latter interpretation is provided by a grey mortary silt in its fill at the western end. [This may relate instead to the Phase V drain, **115**, which lay to the west of the Wall: see below.]

In the passageway through the Gate a succession of road surfaces gradually raised the level of the road surface by over 1.50m during this century. The lowest levels (**5**, **351** and **216**) consisted of an 0.80m thick deposit of grey clay and light gritty grey loam containing masses of household debris, which incorporated brick and stone, fragments of wine-bottles and glasses, window glass, Staffordshire-type slipware and clay-pipes. This deposit was sealed by a layer of soft brown plastic clay (**215**), which formed the base for an 0.07m thick layer of crushed chalk (**214**). Above this was a succession of spreads of orange sandy clays, sands and gravels (**201-213** and **344**). Of these, layer **344** contained fragments of pottery dating to the period *c.* 1720-50.

The passageway not only provided access into the Town for pedestrian and wheeled traffic: it also served as the main point of entry for the Town's water supply. The remains of two successive elm water-pipes were found buried in layer **351**. The lower of these (**349**) was 0.30m wide and 0.22m deep: it presumably had once been circular, but had been flattened by the weight of soils above; it was filled with grey silt, when found. Its replacement (**350**) lay 0.32m higher. Once again, this had been made of wood, though most of this had rotted as it was sealed in more aerated soils; however, one of the iron collars which joined sections of piping together still survived with mineralised wood adhering. It was 0.30m in diameter, and had a loose silty soil fill.

The west end of the passageway was characterised by concentrations of building debris mixed into layer **5** — brick and stone fragments, and large quantities of white mortar. Also present were two discarded oak boards (**12**), lying at a 45° angle, propped up against the brickwork. This material almost certainly emanated from the building repairs which were carried out on the front of the Gate to stop it from collapsing into the Town Ditch. The first stage of this involved the erection of a strong timber shuttering across the front of the northern half of the Gate (there may well have been a similar structure in front of the southern half, but as this lay outside the area of excavation, this must remain uncertain). The enclosed area between the shuttering and the front of the Gate tower was then infilled with rubble and rubbish, thereby creating an additional *ad hoc* clasping buttress to the footings of the NW corner of the Gate. The archaeological evidence relates solely to works carried out at and below ground level, but it is inconceivable that such a massive programme of works was not accompanied by similarly extensive repairs to the above-ground structures. In fact, it seems reasonable to suggest that these ground-works accompanied the taking down of the ruinous tower above the Gate in 1735.

The tops of the Phase II timbers, **56** and **57**, were sawn off, and new tenons were fashioned onto their stumps (Pl. 31). These were to carry a massive oak beam (**9**), at a depth of 1.321m OD (Fig. 21, S5). This was a 1.87m length of reused timber, 0.18m square; old peg-holes and empty rebates on its side and at one end testified to its

previous use. Two mortises in its underside fitted over the tenons of **56** and **57**, whilst its southern end was tenoned into the north side of timber **11**. This provided a sufficiently robust framework to hold this beam in place without an additional supporting timber beneath its northern end. Instead, it itself provided a support for a second beam (**8**) which completed the northern side of the somewhat trapezoidal shuttered area. Beam **8** was laid almost diagonally across the angle of the projecting buttresses of the medieval Gate, at a depth of 1.388m OD (Pls 37-8). Its western end was secured to the top of beam **9** by an oblique scarf joint, and an 0.28m long wooden dowel, 0.03m in diameter. Its eastern end was dropped onto the projecting foundations of the Phase Ib northern buttress (**6**). In order to achieve a level seating for this end of the beam, the new builders chipped the Phase Ib brickwork back for a width of some 0.40m. This beam, like no. **9**, was fashioned out of a reused piece of oak, 1.80m long, and measuring 0.16m x 0.18m in section. Its eastern end had been left crudely broken off from whatever structure it had been originally salvaged, whilst two long thin rectangular areas of dark brown ferruginous staining along its southern side betrayed the former presence of iron fittings (possibly clamps?).

These two substantial horizontal members formed the main framework for the new shuttering. Broad reused lengths of oak planks, with one end sawn into a point, were then driven vertically into a bed of light greenish-grey mortar (**22**), which was laid underneath beam **8** and the northern end of beam **9**. Incorporated in this mortar bed were fragments of a Staffordshire slipware posset pot. The four planks (**42A-D**; Fig. 21, S7; Pls 37-9) revetting the rear of beam **8** varied in length between 0.95m and 1.26m; all were 0.23m wide, whilst their thicknesses varied slightly between 0.05m and 0.07m. Dendrochronological assay of plank **42C** showed that it had a felling date of AD 1620-1665. There was a slight gap between the easternmost plank and the medieval brickwork, as a flush finish could not be achieved because of the external batter on the Phase Ib buttress. At the western end of the beam, however, a flush fit was achieved with plank **46**, another vertical finished in identical style. This was much broader (0.45m), but had been fashioned from a 1.75m length of 0.08m thick oak planking. Once again, iron staining on its upper part betrayed the fact that it had been reused. The absence of a substantial vertical post at the junction of beams **8** and **9** meant that this form of vertical plank shuttering had to be extended around the corner with plank **46**; but, thereafter, large horizontal planks could be set on end against the rear of the Phase II bridge timbers. Accordingly, the rest of the west side of this retaining framework was shuttered with four massive horizontal planks (**43A-D**; Fig. 21, S5; Pl. 39). The bottom two (**43C** and **43D**) were 2.20m long and 0.40m wide, and extended the full distance from plank **46** to beam **11**. The upper two (**43A** and **43B**) were shorter, at 1.30m, as they were partially encased in a new clasping buttress around **11** (see below). All of these fragments had been cut from reused lengths of 0.05-0.07m thick oak planking: the remains of old bolt-holes in these planks testified to their reuse. Dendrochronological assay of plank **43B** gave a felling date of after AD 1596. It seems likely that the planks used for both **42** and **43** had been salvaged from the same source. If major refurbishment was taking place inside the building, as well as outside, it is possible that planking from the upper part of the building (e.g. the now ruinous tower) was being ripped out, and, where serviceable, was reused in these shoring works; however, this is pure speculation, as there would doubtless have been no shortage of perfectly usable seasonal timber in the 18th-century port — either from old buildings, or from ship-repair yards.

All of these new timbers were liberally coated with a light brown, sticky, sterile clay (**18**), which formed a packing of up to 0.26m in thickness. The space in between this clay and the mortar bed (**22**) beneath was infilled with various construction dumps. The northern side of the shuttering beneath beam **8** was infilled first with a gritty black loam (**41**), and then topped with a light grey-brown clayey loam (**40**) which incorporated large quantities of brick and two large stone blocks. Meanwhile, a bank of dark grey to black, gritty, silty loam (**20**), incorporating enormous quantities of demolition debris, was piled against the outside of this framework. A similar process was carried out on the west side, where a light grey-green clay (**69**) was packed around the backs of timbers **57** and **58**, topped by a dark black gritty loam (**21**) around and beneath beam **9**. Next, the space between the shuttering and the medieval Gate was infilled with a dump of black gritty loam (**3**), incorporating large quantities of brick-and-tile rubble and broken pieces of wood. Finally, the whole framework was made even more stable by encasing the top of beam **11** in a clasping brick buttress (**10**) which abutted the front wall (**7**) of the medieval Gate. The new buttress had a clay base which enclosed the tops of beam **9** and planks **43A** and **43B**. On top of this was placed a layer of bricks set on edge, and capped with broken roof-tile fragments. These formed the base for a top layer of bricks, laid flat in English Bond. The whole structure was bonded with a very hard, pinkish-white mortar, which incorporated large quantities of broken chalk and brick fragments. It measured 0.95m x 0.68m in extent, and was joined to wall **7** by a single butt joint. It survived to a height of 0.23m, and was flush with the top of the dismantled medieval Gate brickwork — i.e. it may once have extended much higher up the wall. The same hard, pinkish-white mortar was also daubed around the upper courses of the Phase II wall (**26**), and the tops of timbers **58** and **11**, thereby strengthening the junction of all of these features.

The presence of large quantities of demolition debris amongst these construction deposits points to the fact that all kinds of material found their way into this *ad hoc* shoring, and this is mirrored in the finds, where a very strong element of old rubbish was present alongside more contemporary material. Here, we find medieval pottery, together with 16th- and 17th-century finds, in many of these layers. However, there are enough 18th-century finds to show quite conclusively that these works date to the second quarter of that century, rather than to its predecessor (as might at first have been suggested by some of the clay-pipes in these layers). Staffordshire-type slipwares are present in layers **22**, **20**, and **41**, and in the packing around beam **9**; Nottingham stoneware is present in layer **40**, Staffordshire-type red stoneware (Elers Ware) in layer **20**, and Staffordshire white salt-glazed stoneware in the packing under beam **9**. Supporting evidence may be found in a William III half-penny of 1695-1702 in dump **20**, an apothecary bottle in **21**, and in numerous wine-bottles and bottle-stoppers in layers **41**, **40** and **3** — all of which would be consistent with a date in the first half of the 18th century.

On the east side of buttress **6**, the space between the medieval Gate structure and the back of the old Town Ditch was infilled with a light blue-grey gritty soil (**4** and **352**), which was full of brick fragments. Whilst this could conceivably date from the initial construction period of the Gate, this seems unlikely given that the footings of the medieval Gate were finished with an elaborate external batter which was surely meant to be seen and admired. It seems a far more plausible suggestion that this space was

infilled during Phase IV, at the same time as the western side of this structure was being made more stable.

The immediate task of stabilising the front of the Gate was thus completed; however, in order to make doubly sure that the same problem did not arise again, the Ditch was narrowed by infilling the section both immediately in front of and upstream from the Gate. By the 1730s, any defensive role for the Town Ditch had largely passed, and it seems likely that the increasing volume of commercial traffic passing through the Gate would have argued persuasively for the old drawbridge arrangement to be replaced by a fixed bridge more suitable for carrying the ever-increasing tonnage both into and out of the Town. Certainly, by the time of Gale's engraving of the Gate (Fig. 9), such a bridge had been built: it seems quite likely that its construction may have dated back to the 1730s.

A new retaining bank (**31**; Fig. 23, S14) extended north-north-westwards from the shuttering around the front of the Gate, and effectively created a new eastern edge to the former Town Ditch. A 2.25m length of this bank was exposed during the excavation. It stood 0.90m high and was 1.50m wide; its base lay at 0.492m OD and its top at 1.422m OD. It was composed of a massive dump of water-worn cobbles, brick fragments, mortar, and midden material, bound together with a very gritty, pink and black clayey loam. Its western edge was marked by two oak posts (**59** and **60**) driven into the ditch fills. Both were fashioned from roundwood, but **59** was slightly squared on one face. Post **59** was at least 1.31m long and 0.10m in diameter, whilst post **60** was at least 0.84m long and 0.15m in diameter; the top of post **60** was exposed at 1.142m OD. A probable explanation is that they formed part of a line of marking-out posts for the new bank, set at 1.50m intervals. The area to the east, between the old and new banks, was then reclaimed by a massive dump of midden material. This was represented by a layer of dark grey to black sticky organic loam (**1**), which was up to 0.65m in thickness. It incorporated large quantities of demolition debris (such as mortar and hand-made bricks). The finds assemblage from both this and layer **31** included a very substantial quantity of 17th-century material (notably clay-pipes), alongside Staffordshire-type slipwares, Nottingham stoneware, and Staffordshire white salt-glazed stoneware. One of the more curious items recovered from this deposit was a chopping-block made from a whale's vertebra (Pl. 40). The section drawing (Fig. 23, S14) suggests that bank **31** was in fact secondary to dump **1**, but the sequence on the ground was nowhere near so clear-cut; in most of the other places where the relationship between the two was examined, they were found to lie against one another in a manner which suggests more or less contemporary deposition, as part and parcel of the same infilling process — the main difference being that the heavier rubble element was always deposited on the west side.

A second line of posts extended westward from post **59** for at least 2.40m. This was represented by posts **61** and **62**, the intervals between them being 1.0m and 1.50m respectively. Once again, these were oak roundwood posts, 0.13m in diameter. It is suggested that they formed a marking-out line for the northern line of a causeway or infilled section in front of the Gate: whether this went right across the ditch, or merely made a substantial inroad into it, remains uncertain. What is clear, however, is that a major campaign of land reclamation then took place to the south of this new fence-line. The walls of the former drawbridge-pit (**54**) were pulled down, and its site was

liberally covered with rubbish. Pottery recovered above its brick floor included Nottingham stoneware, Staffordshire-type slipware and Staffordshire white salt-glazed stoneware. This in turn was sealed by a 0.08m-0.12m thick deposit of black, gritty, clayey loam (**27**/**67**), followed by a 0.32m thick layer of heavy demolition rubble (**70**). Quite why the pit was not simply infilled is not clear, but no trace of its north wall remained — even at foundation level — whilst most of the south wall (**26**) had disappeared. It is possible that the walls had started to collapse inwards with the same pressures of land slip which were causing the Gate itself to become unstable. Alternatively, it may have been necessary to demolish the structure, in order to effect the bracing works to the front of the Gate immediately to its east. Be that as it may, there was no trace of any robber trench for either the north or the south walls left at the time of excavation (although it is possible that any robber trench for the south wall had been disturbed by mechanical excavation, prior to the erection of a steel coffer-dam on the site in early autumn 1988).

In the area immediately to the north of the drawbridge-pit was a large dump of black organic midden material (**45**), varying in thickness between 0.25m and 0.30m. This contained large quantities of leather (including several shoes), fragments of Staffordshire-type slipware, Nottingham stonewares, wine-bottles and window glass, as well as the seemingly inevitable residual component of 16th- and 17th-century pottery and clay-pipes. Further east, the new shuttering (**9**, **43**, etc.) and the medieval brickwork were partially covered with a dump of dark brown clayey loam (**23**), incorporating massive amounts of charcoal and timber fragments, as well as a fired-clay bottle-stopper. Possibly cut into layer **70**, but perhaps representing little more than a localised dump in a sequence of progressive infilling, was layer **52**. This comprised an 0.28-0.32m thick deposit of heavy chalk rubble, bricks, tiles and cobbles; it incorporated fragments of wine-bottles, and was sealed beneath the Phase V dump (**2**; Fig. 23, S14).

Further north and east, concomitant with all of this activity, there is evidence for a certain amount of dumping taking place against the Town Wall (Fig. 23, S14). The finds suggest that this belonged to much the same period as the works around the Gate. It may represent the upcast from the scouring out of the Town Ditches in 1745, when the Town magistrates contributed £1,900 towards the costs. In the area adjacent to the northern guard chamber, a dump of loose, dirty grey silty clay (**322**) was allowed to accumulate. It varied in thickness between 0.10m and 0.38m, and included substantial quantities of brick and tile fragments (i.e. demolition debris). Finds from this layer were similar to those around the front of the Gate: there was a mixture of later 17th- and early 18th-century pipes, a pottery assemblage of the second quarter of the 18th century, whilst the glass included wine-bottles, apothecary bottles and Wrythen bottles. However, earlier material incorporated in this assemblage (including a French jeton of late 14th- /early 15th-century date) shows that part at least of this deposit consisted of old rubbish brought onto this part of the site from elsewhere. Further north, the equivalent layer accumulating against the Town Wall consisted of a 0.50m thick deposit of soft, plastic, dark grey clayey silt (**123**), incorporating significant quantities of brick rubble. Here, the finds included Staffordshire-type slipware, Staffordshire black-dipped wares and mottled slipwares, wine-bottles, window glass and a glass bottle-stopper.

Phase V *c.* 1776+

The Jacobite rebellion of 1745 proved to be the last occasion when an external threat prompted any further repairs to the defensive circuit around the Town, and by the second half of the 18th century the Walls and Ditches were proving to be more of a nuisance than an asset: they restricted the physical growth of the town, and the narrowness of the Gates caused constriction to the flow of commercial traffic, whilst the encroachments of buildings onto the now ruinous Walls were posing both a physical and an environmental health hazard. In 1774 this section of the defences extending from the Hessle Gate to the North Gate was granted to the Dock Company by the Crown under the Docks Act, and during the next four years the entire section between North Gate and Beverley Gate was systematically dismantled to allow the construction of the new Dock. The actual Beverley Gate was reputedly demolished in 1776 (Tickell 1796, 347; Allison 1969, 417 and n. 18). There is physical evidence on the site for the brick defences being taken down to a set height, and for the Inner Ditch being largely infilled at the same time. Work began on the construction of an additional dock (the Junction Dock) immediately to the south of Beverley Gate in 1826, and this was completed in 1829. It was accompanied by the construction of a bridge over the Lock pit between the two docks, directly in front of the site of the former Beverley Gate. The clay upcast from the excavation of these new structures was spread over the adjacent area, thus providentially preserving the remains of the medieval defences from much further damage. Thereafter, the only works to affect this monument were the laying of service trenches either in and out of Whitefriargate and Princes Dock Street, or to serve the two successive Monument Bridges which were erected on this site. [The first of these bridges, which were sited over the lock pits between Queen's Dock and Princes Dock, opened in 1829, whilst its larger successor (opened in 1905) was intended to cope with the City's trams.]

The Town Wall was dismantled to its present surviving height (between 3.4m and 3.96m OD). This left a vertical cut for its robber trench in the clay rampart (**308**) to its rear (i.e. on its east side), which was infilled with a massive dump of firm grey clay and demolition debris (**103**). This layer included complete bricks, as well as copious amounts of mortar and brick rubble; incorporated within it were fragments of Nottingham stoneware and Staffordshire-type slipware. The net effects of this dump were to level the former site of the Wall, and to cover its remains to a depth of *c.* 0.30m. It also extended over the former site of the Inner Ditch, where it became much thicker (0.50-0.60m). Possibly contemporary with it was a capping layer of greyish-brown sandy silt (**102**), which also contained large quantities of demolition debris. This was present only within the Ditch, in areas adjacent to the actual Wall; it varied in depth between 0.30m and 0.60m. Further north, the comparable Ditch infill was a 0.36m dump of purplish-black greasy ash and cinders (**116**), full of demolition rubble. Whilst in front of the guard-chamber, the upper part of the Ditch was infilled with an 0.20m thick layer of grey silty soil and demolition rubble (**321**). Incorporated within this deposit were early examples of factory wares and clay-pipes of the Westerdale family; the latter are most likely to be the products of Mary Westerdale, and to date to the period 1815 to 1821. These dumps were capped with a 0.40m thick deposit of dirty grey clay soil with a high rubble content (**319**/**320**), which actually overlay the Town Wall and infilled the former robber trench.

The greater part of the Inner Ditch to the north of the Gate was to be destroyed by the excavation of the 1774-8 Dock, which now lies beneath Queen's Gardens; however, a small length of this Ditch remained intact, albeit considerably infilled, until the 1820s. It seems probable that the ground level still sloped gently down into a dip in front of the former Town Wall. Probably contemporary with the deposition of layer **102** to the east, was the infill of most of the Ditch to the west of bank **31** with a similar deposit, layer **2** (Fig. 23, S14). This was a massive dump of very gritty, light greyish-brown mortary soil, containing large quantities of demolition rubble (mortar, crushed chalk fragments, and large water-worn cobbles). It averaged 0.40m in depth in the excavated portion of the Ditch, but may well have been much deeper over its centre. Incorporated within it were a number of large sections of pine planks (e.g. **28**, **30** and **37**) and an oak beam (**36**). Pottery fragments from this dump included Staffordshire white salt-glazed stoneware and examples of early creamware. The area directly in front of the Gate was also levelled with further deposits. The former site of the northern drawbridge-pit was capped with a deposit of mottled light brown and dark greyish-green greasy clay (**25**). Possibly also contemporary was the infilling of another dip in the Ditch, slightly to the north-west, with an 0.10m thick deposit of black greasy silt (**50**) incorporating large quantities of wood shavings. Pottery in the top of this last deposit included examples of 19th-century wares, so it is possible that this layer belongs to the later phase of infilling associated with the 1826-9 works; alternatively, these wares could simply be intrusive from the overlying deposit (**17**).

Following this demolition, a new north-south drain (**115**) was laid parallel to the former Town Wall, but lying just to its west on top of the lately infilled Inner Ditch (over layer **116**). A 2.30m long stretch of this drain was exposed at the northern end of the excavation, but it presumably continued much further to the north. It consisted of bricks laid end to end, two courses wide, and one course deep. Its southern end terminated in a soakaway. The bricks used in its construction varied in size between 235 x 118 x 50mm and 240 x 120 x 60mm. Whilst it could be argued that this drain related to a Phase IV drain (**313**), set at right-angles to this on the other side of the Wall, one would have expected the line of the latter drain to have been continued across the Town Wall, and to have remained *in situ*, sealed below later Phase V dumps; however, no trace was found of any such continuation. Drain **115** does not appear to have had any side lining, and was set in a flat-bottomed construction-cut, 0.70m wide and 0.40m deep. This was filled by a layer of damp, loose, grey-brown loam (**114**), which incorporated quantities of demolition debris.

The area adjoining the former site of the Beverley Gate appears to have been largely left open and undeveloped for much of the first 50 years of Phase V, with the former Town Wall covered by a thin skin (of perhaps 0.30m) of deposits, and the site of the Inner Ditch still recognisable as such, where the levelling material had settled; however, with the excavation of the Junction Dock immediately to the south, all this was to change.

The central portion of the Inner Ditch was first levelled with a 1.60m thick deposit of clear, plastic, light grey-brown clay, containing a certain amount of rubble (layer **17**). Pottery in this dump included not only Staffordshire-type wares, but also products of the local Bellevue Pottery, which was in production from the 1820s until 1841. Bellevue wares were also found in the top of layer **50**, which this layer overlay. A

localised pocket within layer **17** was a semi-circular patch of black gritty loam, 0.50m in diameter and 0.045m deep (**49**). The finds from this layer included a transfer-printed teapot lid and two fragments of a broad-brimmed felt hat of a type popular in the late 1820s. Further north, a pine plank (**63**) was discarded on the top of layer **17**. Capping this deposit was a second massive dump of clean, plastic, light grey-brown clay (**16**: Fig. 23, S14), varying between 0.26m and 0.42m in thickness. This was similar in appearance to layer **17** beneath, but it was much cleaner, and lacked the more obvious rubble component. It is suggested that the lower layer (**17**) represented upcast from the initial excavation of the Junction Dock, whilst the upper layer (**16**) largely represented re-deposited dumps of clean, natural, estuarine alluvium disturbed from the base of the new Dock. Finds incorporated in this deposit included clay-pipes of *c.* 1830.

Further east, in the portion of the Ditch adjoining the Town Wall, the late 18th-century levels were first overlain by a 0.35m thick layer of soft, gritty, plastic, dark grey clayey loam (**119**), which contained a mixture of demolition rubble. Incorporated within this layer were a George III penny of 1805 or 1806, and fragments of Staffordshire-type slipware and transfer-printed ware. This in turn was sealed by a 0.65m thick dump of soft, plastic, grey-brown clay (**118**); this was similar to layer **16** to the west, but contained an occasional lens of ashy material and some brick fragments. Further north, the sequence of infilling was represented first by a 0.40m dump of soft, plastic, grey-brown clay (**117**). This was overlain by a second layer of firm, brown clay (**113**), topped with a thin skin of plaster dust, and brick and mortar fragments. This in turn was capped by an 0.60m thick dump of soft, plastic, bluish-grey silty clay (**112**).

Following the infilling of the Inner Ditch, the former site of both it and the Town Wall were buried beneath a layer of soft, yellowish-brown, sandy clay and silt (**101**), which ranged in thickness between 0.20m and 1.20m. The whole sequence of dumping from the 1826-9 excavations thus involved burying the site in up to 2m of clays and silts. Similar deposits (e.g. **301-7**) were to be found to the east of the Wall, overlying the former medieval ramparts to a depth of some 0.60m.

Thereafter, the only features to disturb the earlier remains were various service trenches for water supply, sewerage or bridge-operating mechanisms (features **325-6**, **333-334**, **345**, **348** and **355**). Full details of these may be found in the site archive.

Part V: The Finds Reports

The Pottery
by Andrew Sage

Introduction

This report records and discusses the pottery excavated by the former Humberside Archaeological Unit on the site of the Beverley Gate between 1986 and early 1989. Beverley Gate was the northwest Gate into the Old Town, which was erected probably during the 1320s and stood until 1776, when it was pulled down in order to

construct the first of the town docks.

Methods of recording

The entire assemblage was laid out according to phase and fabric type. Then, sherds from the same vessel were grouped together, and recorded vessels which had sherds from more than one context were placed in the earliest context. The complete pottery catalogue is held in the archive.

Once all the pottery had been recorded, each form group, from within each fabric type in each context, was weighed. An attempt has been made at establishing Minimum Vessel Counts; however, the material from this site is very fragmentary, with some fabric/vessel types being represented by single undiagnostic sherds — this is the result of the majority of the material coming from secondary deposits, the implications of which are discussed below. Minimum Vessel Counts have been established by taking only the bases and rims recorded into account. Where these were not present for a form or fabric type, body sherds were used to indicate the presence of these fabrics or forms in the assemblage.

Description of pottery types present

Banded Slipware

Phase I	Phases II and III	Phase IV	Phase V
-	-	-	0.35

Fabric: Fine white earthenware.
Glaze: Clear lead glaze over bands of slip in varying shades of brown and black.
Frequency: Banded slip-decorated Pearlware developed only in the late 18th century, and is therefore rare at Beverley Gate.
Kiln/Source: Banded Slipwares were produced at all the major pottery factories in Liverpool, Staffordshire, Derbyshire, Swansea and Yorkshire (Draper 1984, 51; Jennings 1981, 227).
Date: Post-1774.
Vessel Forms: Mainly jugs and other hollow forms.

Beauvais Sgraffito Earthenware

Phase I	Phases II and III	Phase IV	Phase V
-	-	-	0.35

Fabric: Hard-fired off-white to cream/pale grey. Smooth with no prominent inclusions.
Glaze: Lead glaze over green and/or brown slip with Sgraffito decoration which appears yellow/white under lead glaze.
Frequency: Present in small quantities on many of the post-medieval sites in Hull (Watkins 1987, 136; 1993, 103).
Kiln/Source: Beauvais, Northern France.
Date: 16th century
Vessel Forms: Dishes

Blackware

Phase I	Phases II and III	Phase IV	Phase V
-	-	0.56	0.35

Fabric: Hard-fired brick-red, normally inclusion-free.
Glaze: Thick glossy black.
Frequency: Found in small quantities at many post-medieval Hull sites (Watkins 1987, 121-2; 1993, 93).
Kiln/Source: A large number of sites across central England (including the Harlow kilns in Essex) produced Blackware (Watkins 1987, 122; Harbottle 1981, 159); closer to Hull, Blackwares were produced at Wrenthorpe (Moorhouse and Roberts 1992). At Hull, the classification includes 18th-century developments of Blackware, specifically Jackfield Ware, produced in Staffordshire during the 1750's (Watkins 1987, 120; Godden 1974, 33).
Date: 17th and 18th century.
Vessel Forms: Mainly cups/mugs but also jars, an extraordinary example of a multi-handled posset pot, and a Jackfield Ware tea/coffee pot.

Border Ware (Yellow and Green Glazed)

Phase I	Phases II and III	Phase IV	Phase V
4	-	-	0.35

Fabric: Hard and quite smooth, pale grey to pinkish-buff.
Glaze: Copper glaze which varies from pale to dark green.
Frequency: Not common at Hull, but small quantities have now been recognised at a number of sites.
Kiln/Source: Four production centres have been identified in the Surrey/Hampshire Borders: Farnborough, Hawley, Ash and Cove.
Date: Late 16th to late 17th century.
Vessel Forms: Flatwares, tripod cooking pots, and candlesticks have been identified in these assemblages. A much wider range of products were produced overall however.

Chinese Porcelain

Phase I	Phases II and III	Phase IV	Phase V
-	-	-	0.7

Present At: the Beverley Gate
Fabric: Fine white/pale grey porcelain fabric
Glaze: Decorated externally in blue with complete cover of clear glaze.
Frequency: Rare in Hull
Kiln/Source: South China
Date: Late 17th to 18th century
Vessel Forms: Tea bowls.

Cistercian Ware

Phase I	Phases II and III	Phase IV	Phase V
-	-	1.39	2.1

Fabric: There is a great range in the fabric; at Hull, it is predominantly hard, ranging in colour from brick-red to dark red, with some reduction to grey.
Glaze: Dark brown – purplish-brown/black with a *tenmoku* finish. Decorated vessels have applied lines/pellets of white clay which appear yellow under the glaze.
Frequency: Uncommon on the site, although it is common in 16th-century contexts in Hull (Watkins 1987, 114-15; 1993, 92).
Kiln/Source: Two major production centres have been identified in Yorkshire at Wrenthorpe and Potterton; the former is probably the main source of supply for the vessels found in Hull (cf. Moorhouse and Roberts 1992).
Date: Late 15th to mid 16th century.
Vessel Forms: Mainly cups but also single example of larger vessel which may be jars or jugs.

Creamware

Phase I	Phases II and III	Phase IV	Phase V
-	-	-	3.15

Fabric: Fine white/pale cream, moderately hard fabric.
Glaze: Clear
Frequency: Very common in mid 18th – 19th century contexts throughout Britain, although it forms only about 2% of the total pottery excavated from post-1776 contexts at Beverley Gate. [Cf. Watkins 198, 124)]
Kiln/Source: Creamware was produced at factories in Staffordshire, Yorkshire, Derbyshire, Liverpool, Swansea, Bristol and Newcastle.
Date: 1730 onwards.
Vessel Forms: Mainly flatwares at this site, but a possible jug was also recorded here. Nationally, a large range of forms was produced.

English Stoneware (Brown)

Phase I	Phases II and III	Phase IV	Phase V
-	-	2.23	3.15

Fabric: Grey/Pale buff stoneware
Glaze: Brown salt glaze. These vessels are decorated with rilling, and Staffordshire products with rouletting. There is also one example of relief decoration, possibly a hunting scene, as was common on later vessels from Nottingham.
Frequency: Fairly common in 18th- and early 19th-century levels in Hull (Watkins 1987, 123; 1993, 93).
Kiln/Source: Brown stonewares were produced at a number of the sites across the Midlands, and the vessels at Beverley Gate can be attributed to Nottingham and Staffordshire. Similar vessels were also produced in Derbyshire.
Date: Late 17th century – early 19th century.
Vessel Forms: Predominantly mugs, tankards and cups, but some examples of bowls and dishes (Watkins 1987, 123)

English Stoneware (White)

Phase I	Phases II and III	Phase IV	Phase V
-	-	1.39	6.29

Fabric: White/pale grey stoneware
Glaze: White salt glaze
Frequency: Generally rare on Hull sites, where less English White Stoneware is found during excavations than English Brown Stoneware (Watkins 1987, 123; 1993, 93). At Beverley Gate, however, the proportions are roughly equal.
Kiln/Source: Staffordshire, Yorkshire, Derbyshire and Liverpool.
Date: 1720s to 1770s.
Vessel Forms: Small bowls (tea-bowls), cups, dishes and jugs

English Stoneware (Fulham type)

Phase I	Phases II and III	Phase IV	Phase V
-	-	0.84	0.35

Fabric: Varied cream/buff to grey, stoneware with small black inclusions.
Glaze: Clear salt glaze over a brown iron wash.
Frequency: Rare at Beverley Gate. Fulham Stonewares have been recorded on other excavations in Hull, but they are not common in late 17th- or 18th-century layers.
Kiln/Source: Fulham, Woolwich, Vauxhall.
Date: 1675 – 19th century.

Vessel Forms: Mainly jug/bottles.

English Stoneware (Other)

Phase I	Phases II and III	Phase IV	Phase V
-	-	0.28	0.35

Although this category was developed in order to take account of a variety of (mainly) Staffordshire stonewares produced in the 18th century, the only two vessels included in this section are red stonewares.

Fabric: Red stoneware.
Glaze: Either unglazed or clear.
Frequency: Rare
Kiln/Source: Staffordshire and Yorkshire.
Date: 1690s to 1770s
Vessel Forms: Teapots and mugs.

Frechen/Cologne Stoneware

Phase I	Phases II and III	Phase IV	Phase V
-	-	1.11	1.05

Fabric: Varied; reduced grey to cream/buff stoneware.
Glaze: Salt-glazed, often over a brown iron wash.
Frequency: Common on Hull sites of the 17th century (Watkins 1987, 139).
Kiln/Source: Cologne up to the late 16th century, then Frechen (see Gaimster 1997, 191-223).
Date: Early 16th to late 17th century.
Vessel Forms: Mainly Bellarmine type jugs/bottles, also mugs and drinking-jugs.

Brown/Green Glazed Coarse Redware

Phase I	Phases II and III	Phase IV	Phase V
16	31.25	32.59	27.86

Fabric: Very varied. Generally medium- to hard-fired, but there are softer examples. Colour can range from orange to dark brick-red/brown. Reduction is not common, but does occur. The fabric tends to be slightly sandy.
Glaze: Clear; this appears brown on oxidized vessels, and green on reduced vessels. Green-glazed examples have been classed as Green Glazed Red Coarseware.
Frequency: Very common at Beverley Gate, representing about 30% of the total. On other Hull sites, it represents on average between 20% and 60% of 17th- and 18th-century assemblages (Watkins 1987, 114-17; 1993, 92-3).
Kiln/Source: Brown-glazed coarse wares were produced all over Britain during the 17th and 18th centuries; over 30 kiln sites have been identified in Yorkshire alone, and there are various records of potters working in the Hull suburb of Sculcoates from the middle of the 18th century (Watkins 1987, 115).
Date: Because of the number of production sites, which went in and out of use at different times, it is hard to date Brown Glazed Red Coarsewares precisely, but they were produced from the early 17th century onwards. The Metropolitan Slipware producing kilns are thought to have been in operation from 1600 to 1680 (Cooper 1968, 26).
Vessel Forms: Jars, jugs, bowls, large bowls/pancheons, dishes/plates, mugs, skillets, Tripod cooking pots, colanders, cisterns, chamber pots, lamps and candlesticks. Also sherds from very large vessels, possibly with an industrial use.

Brown Glazed Fine Redware

Phase I	Phases II and III	Phase IV	Phase V
-	-	1.39	1.05

Fabric: Hard-fired red earthenware with no visible inclusions.
Glaze: Clear
Frequency: Uncommon.
Kiln Source: Predominantly Staffordshire, but there were probably other sources.
Date: 18th century.
Vessel Forms: Mainly tea wares.

Iron Speckle-Glazed Redware

Phase I	Phases II and III	Phase IV	Phase V
-	-	1.39	0.35

Fabric: Similar to Brown Glazed Coarse Redware.
Glaze: Contains iron. This gives a black/brown/purple speckled/streaked effect.
Frequency: Rare.
Kiln Source: Currently unidentified, but likely to have been produced at a variety of sources in Yorkshire that were also producing Brown Glazed Coarse Redware.
Date: Late 17th to 18th century.
Vessel Forms: Hollow forms; possible jars, bowls, mugs and jugs.

Vitrified Brown-Glazed Redware

Phase I	Phases II and III	Phase IV	Phase V
-	-	0.28	0.35

Fabric: Very hard-fired red coarseware fabric.
Glaze: Clear
Frequency: Very rare
Date: 18th century
Vessel Forms: Unidentified hollow form.

? Hamburg/Rouen Faience

Phase I	Phases II and III	Phase IV	Phase V
-	-	-	0.35

Fabric: Orange/brick-red fabric, with few inclusions
Glaze: White tin glaze internally, clear glaze externally appears purple.
Frequency: Very rare in Britain
Kiln/Source: Either Hamburg or Rouen
Date: Mid to late 18th century
Discussion: Rouen faience was also produced with a buff/yellow fabric, and, in addition, in red fabrics. This may be Hamburg faience, which is also red-bodied. Rouen faience fabrics are very rarely found in England, although some have been found in Southampton, and are common on French-Canadian sites (pers. comm. the late Alan Vince).
Vessel Forms: Bowl.

Humberware Type 1 (Cowick Type)

Phase I	Phases II and III	Phase IV	Phase V
52	43.75	6.96	3.15

Fabric: Hard-fired, fine, sand-tempered fabric. Colour varies from orange/buff to grey/black. Grey margins are common under glazed areas (Watkins 1987, 98).
Glaze: Mainly olive-green, generally applied to the exterior of jugs from rim to mid body.
Frequency: The predominant fabric in mid 14th- to early 16th-century contexts. Cf. Watkins 1987, 98; 1993, 76-8.
Kiln/Source: West Cowick and Holme-upon-Spalding-Moor (cf. Watkins 1987 and 1993); other

possible source in North-East Lincolnshire (Hayfield 1992, 40-41; Jennings 1992). There is also now evidence for production of certain forms at Walmgate, York (Mainman and Jenner 2013, 1257-65).

Date: Mid 14th to 16th century.

Vessel Forms: Predominantly jugs, but also jars, bowls and cisterns.

Humberware Type 4 – Purple-Glazed

Phase I	Phases II and III	Phase IV	Phase V
4	-	0.56	0.35

Fabric: See Humber Type 1.

Glaze: Dark Purple/Black.

Frequency: Uncommon on this site, but common on other Hull sites (Watkins 1987, 106; 1993, 78 and 90).

Kiln/Source: West Cowick.

Date: Late 15th to 16th centuries.

Vessel Forms: Jugs at this site; but, cisterns were also produced.

Late Humberware (Type 5)

Phase I	Phases II and III	Phase IV	Phase V
4	-	7.8	5.94

Fabric: Hard-fired with few inclusions (some slight sand tempering and occasional small grits). Colour varies from orange brick-red to grey.

Glaze: Varies from olive- to dark green, sometimes both internally and externally.

Frequency: Common on post-medieval sites in Hull, up to 33% in some cases. [See Watkins 1987, 106; 1993, 90.]

Kiln Source: Produced at a wider range of sites than earlier Humberwares. Brears defined Late Humberware as part of the larger Northern Reduced Greenware tradition, which was produced widely in Yorkshire (Watkins 1987, 106).

Date: 16th to 19th centuries.

Vessel Forms: More varied than earlier Humberwares; jars, bowls, large bowls/pancheons, cisterns, chamber pots and jugs.

Langerwehe

Phase I	Phases II and III	Phase IV	Phase V
-	6.25	1.39	0.35

Fabric: Cream to grey stoneware.

Glaze: Iron wash, which can appear brown or matt purple, over which is sometimes applied a salt glaze.

Frequency: Langerwehe appears to have been the most common Rhenish import during the later 14th and 15th centuries in Hull (2-4% of the total). [See Watkins 1987, 137-8; 1993, 109.]

Kiln/Source: Langerwehe (see Gaimster 1997, 186-90).

Date: Early 14th century to early 16th century.

Vessel Forms: Jugs.

Low Countries Greyware

Phase I	Phases II and III	Phase IV	Phase V
-	-	0.28	-

Fabric: Medium hard, dark grey sandy fabric.

Glaze: Usually unglazed; some vessels have a few splashes.

Frequency: Uncommon at Hull (Watkins 1987, 145-6; 1993, 109).

Date: 14th to 17th centuries (Hurst *et al.* 1986, 136).
Vessel Forms: Tripod cooking pot.

Low Countries Redware

Phase I	Phases II and III	Phase IV	Phase V
-	6.25	1.39	-

Fabric: Moderately hard, orange, sandy, micaceous fabric.
Glaze: Orange. Also, one example of copper glazing internally, and orange externally.
Frequency: Common at Beverley Gate, and ubiquitous on other sites in Hull from the mid 14th to the early 17th centuries. In Hull, the imports of Low Countries Redwares were relatively steady, and continued uninterrupted through much of the 17th century (Watkins 1987, 140-5; 1993, 109).
Kiln/Source: There are a number of sites across the Low Countries, however, the Hull vessels seem most likely to have originated from the western and coastal areas (Watkins 1987, 141; Ellison 1981, 130; Hall 1933. Baart 1994; Brown 2002, 32-3).
Date: Early 14th century to 17th century; though Baart (1994) has argued for production beginning in the 13th century, the appearance of these wares in Hull is in the early to mid 14th century.
Vessel Forms: Largely tripod cooking-pots and single-handled chamber-pots (*grapen*), with fewer numbers of bowls, frying-pans and dishes.

North Holland Slipware

Phase I	Phases II and III	Phase IV	Phase V
-	-	0.28	0.7

Fabric: Similar to Low Countries Redware fabrics.
Glaze: Brown lead glaze; vessels are decorated with white slip, which is sometimes painted with copper green paint.
Frequency: Sparse on sites in Hull (Watkins 1993, 109).
Kiln/Source: None has been identified, but it is thought to have been produced in the southern area of the province of Noord Holland.
Date: Mid 16th century to early 18th century (Hurst *et al.*1986, 154).
Vessel Forms: Bowls, dishes and tripod cooking-pots.

North Yorkshire Whiteware – Hambleton Type

Phase I	Phases II and III	Phase IV	Phase V
-	-	0.84	1.05

Fabric: Sandy, pale grey/buff fabric.
Glaze: Medium to dark green copper glaze.
Frequency: Common on Hull sites during the 14th century (Watkins 1987, 107-9; 1993, 90).
Kiln/Source: North Yorkshire
Date: Late 13th to late 16th century – *floruit* in 14th and 15th centuries (Brooks 1987, 159. Mainman and Jenner 2013, 1283-6).
Vessel Forms: Unidentified hollow forms.

Martincamp – Type 3

Phase I	Phases II and III	Phase IV	Phase V
-	-	0.28	0.35

Fabric: Hard-fired red earthenware.
Glaze: Unglazed.
Frequency: Sparse, but occurs regularly in small numbers on sites from the 16th and 17th

centuries in Hull (Watkins 1987, 135).
Kiln/Source: Martincamp (near Dieppe), France
Date: 16th and 17th centuries (Hurst *et al.* 1986, 104. See also Brown 2002, 29-30).
Vessel Forms: Flasks

Orangeware/Beverley Type 2

Phase 1	Phases II and III	Phase IV	Phase V

Fabric: Smooth, hard, slightly micaceous, orange fabric.
Glaze: Orange-brown lead glaze. Normally only the upper parts of jugs are glazed.
Frequency: Very common in late 13th to early 14th century contexts. Cf. Watkins 1987, 82-92; 1993, 76.
Kiln/Source: Probably Beverley (Watkins 1991, 90-96; Didsbury and Watkins 1992, 114-17).
Date: Pre-1275 to mid – late 14th century.
Vessel Forms: Jugs

Pearlware

Phase I	Phases II and III	Phase IV	Phase V
-	-	-	0.35

Fabric: Fine white earthenware.
Glaze: Very light blue.
Frequency: Common during late 18th and 19th century (Watkins 1987, 124).
Kiln/Source: Produced at all the major Creamware factories
Date: 1779 onwards.
Vessel Forms: Dish/Bowl

Raeren

Phase I	Phases II and III	Phase IV	Phase V
-	6.25	1.67	0.7

Fabric: Dark grey stoneware.
Glaze: Salt-glazed, often over a brown iron wash.
Frequency: Very common in mid 15th- to mid 16th-century deposits on sites across Britain. In Hull, it is considered to be residual after the mid 16th century (Ellison 1981, 150; Watkins 1987, 138; Watkins 1993, 109).
Kiln/Source: Raeren and Aachen (see Gaimster 1997, 224-50).
Date: Mid 15th to mid 16th century.
Vessel Forms: Mugs and jugs.

Ryedale Ware

Phase I	Phases II and III	Phase IV	Phase V
-	-	0.28	0.7

Fabric: Moderately hard-fired, open fabric, light grey/buff fabric with oxidized margins on unglazed areas (Didsbury, pers. comm.).
Glaze: Pale olive-green, with orange blooms where fabric is oxidized.
Frequency: Common on late 16th- and 17th-century sites in Hull (Watkins 1987, 113-14; 1993, 90).
Kiln/Source: Howardian Hills, North Yorkshire
Date: Late 16th century to early 18th century (Brooks 1987, 162; Watkins 1987, 118; Jennings 1992).
Vessel Forms: Jugs and bowls.

Saintonge – Plain

Phase I	Phases II and III	Phase IV	Phase V
8	6.25	0.84	0.35

Fabric: Smooth, fine and micaceous fabric, usually cream or buff in colour.
Glaze: Mainly unglazed, but where glaze occurs, it is pale green or yellow with flecks of copper green.
Frequency: Ubiquitous on sites in Hull.
Kiln/Source: Saintonge, South-West France (Brown 2002, 26-7)
Date: Mid 13th century to 16th centuries (Watkins 1987, 127; 1993, 102-3)
Vessel Forms: Jugs and pégaux.

Saintonge – Post-Medieval

Phase I	Phase II and III	Phase IV	Phase V
-	-	0.28	-

Fabric: Off-white or pale grey/buff micaceous fabric.
Glaze: Yellow
Frequency: Present in small numbers at most 16th-century sites in Hull.
Kiln/Source: Hard to identify, because of lack of excavated kiln sites. However, chafing-dishes seem to have been produced at a number of locations in west and central France (Hurst *et al.* 1986, 78; Watkins 1987, 134; Watkins 1993, 103).
Date: *c.* 1550 to 1650.
Vessel Forms: Chafing-dishes

Green-Glazed Siegburg Stoneware

Phase I	Phases II and III	Phase IV	Phase V
4	-	-	-

Fabric: Grey stoneware.
Glaze: Glossy copper green external glaze
Frequency: Rare in Hull
Kiln/Source: Because stoneware was fired at a temperature too high for the application of lead glazes, these wares were fired twice. Excavations have revealed that this second firing took place in the Low Countries in Redware kilns; Siegburg stoneware sherds have been found in kilns at Utrecht and 's-Hertogenbosch (Hurst *et al.* 1986, 129).
Date: 15th century.
Vessel Forms: Jugs

South Yorkshire Gritty (Rawmarsh, Firsby Type)

Phase I	Phases II and III	Phase IV	Phase V
-	-	0.56	-

Fabric: Hard-fired light grey/buff fabric, tempered with large-grained sand and grit.
Glaze: Pale green/brown. Purple, when reduced.
Frequency: Present in small quantities at a number of sites in Hull (Watkins 1987, 117-18; 1993, 93).
Kiln/Source: Rawmarsh and Firsby have been identified, but there may have been others.
Date: 15th and early 16th century.
Vessel Forms: Jugs

Staffordshire Slipwares

Phase I	Phases II and III	Phase IV	Phase V

4	-	11.43	11.89

Staffordshire slipwares account for around 10% of the total assemblage from the Beverley Gate. For purposes of classification, they have been broken down into seven smaller sub-groups, based on fabric and decoration; however, they were all produced in the North Staffordshire area during the late 17th and early 18th centuries. The most common categories are the yellow-glazed and red slip-decorated earthenwares (Staffs 1), and the Iron-stained slipwares (Staffs Fe1), with only occasional examples of the other types.

Staffordshire Iron-Stained Slipware

Phase I	Phases II and III	Phase IV	Phase V
-	-	2.23	2.45

Fabric: Hard-fired, cream or pale buff earthenware.
Glaze: Lead glaze speckled with manganese and iron oxide.
Vessel Forms: Mugs, tankards, cups and bowls

Staffordshire Iron-Stained Stoneware

Phase I	Phases II and III	Phase IV	Phase V
-	-	0.28	1.05

Fabric: Pale buff stoneware.
Glaze: Lead glaze speckled with manganese and iron oxide.
Vessel Forms: Jugs and chamber-pots

Staffordshire Slipware – General

Phase I	Phases II and III	Phase IV	Phase V
4	-	6.96	6.29

Fabric: Hard-fired off-white to buff fabric.
Glaze: Yellow, often over trailed lines of red slip, which have been feathered together; this appears brown under the glaze. Also included in this group are the slipware dishes produced in Staffordshire, with trailed and impressed decoration (cf. Watkins 1987, 122; 1993, 93).
Vessel Forms: Dishes, cups, posset pots, and jars.

Black-Dipped Staffordshire Slipware

Phase I	Phases II and III	Phase IV	Phase V
-	-	0.56	0.7

Fabric: Hard-fired off-white to buff fabric.
Glaze: Yellow internally, but exterior is coated with red slip, which appears black when glazed; trailed white slip decoration appears yellow.
Vessel Forms: Posset pots.

All-Over Black Staffordshire Slipware

Phase I	Phases II and III	Phase IV	Phase V
-	-	0.56	0.35

Fabric: Hard-fired off-white to buff fabric.
Glaze: Internally and externally coated with red slip, which appears black under the glaze.
Vessel Forms: Unidentified hollow forms.

White-Dipped Staffordshire Slipware

Phase I	Phases II and III	Phase IV	Phase V
-	-	0.84	0.35

Fabric: Moderately hard-fired pink/red fabric.
Glaze: Yellow over white slip.
Vessel Forms: Dishes, ointment pots, lids (cf. Watkins 1987, 123; 1993, 93).

Staffordshire Stoneware

Phase I	Phases II and III	Phase IV	Phase V
-	-	-	0.7

Fabric: Buff stoneware
Glaze: Dull yellow/olive.
Vessel Forms: Unidentified hollow form.

Tin-Glazed Earthenware

Phase I	Phases II and III	Phase IV	Phase V
-	-	12.26	10.15

Tin-glazed earthenwares represent between 7% and 8% of the site assemblage, and have been divided into seven sub-groups defined by the type of decoration, which were then further sub-divided by origin. There are two fabric types: the most common is a fine, friable to hard-fired buff/yellow fabric. The second type is far less common, and is a medium hard, pale pink fabric. Tin-glazed earthenwares were produced in the Low Countries from the late 15th century, and in England from the late 16th century until the mid to late 18th century. English and Dutch fabrics and decoration are very similar (especially prior to the mid 17th century), and, as a result, vessels were classified as English, only when they could be accurately identified as such.

Tin-glazed earthenwares were produced at a number of sites across the Netherlands. In England, production was focused on London during the 17th century, with kiln sites in Vauxhall, Southwark and Lambeth. By the mid 17th century, tin-glazed earthenware was also being produced at Brislington, near Bristol, and during the 18th century factories were established in Liverpool and Glasgow (Draper 1984, 26).

Unidentified Tin-Glazed Ware

Phase I	Phases II and III	Phase IV	Phase V
-	-	0.56	0.7

This category includes sherds, which as a result of burning or bleaching, can no longer be ascribed accurately to any decorative group.
Vessel Forms: Albarello Jars, flatwares and hollow forms.

Malling-Type Tin-Glaze – Anglo-Dutch

Phase I	Phases II and III	Phase IV	Phase V
-	-	-	0.35

Glaze: White, speckled with cobalt blue and/or manganese purple.
Frequency: Rare at Beverley Gate, and at other sites in Hull.
Source: It was once thought that these were made in Kent, but a north-west European origin seems more likely; most specialists would favour a Low Countries origin (Hurst *et al.* 1986, 126). ICPS analysis of two Malling jugs has been published; one sample was thought to be consistent with production in Antwerp, the other could not be closely matched to any known

clay sources (Vince and Brown 2002, 469).
Date: Mid 16th to late 17th century (Hurst *et al.* 1986, 126); an example from Southampton may be earlier (Brown 2002, 34).
Vessel Forms: Mugs, cups, posset pots and dish/bowls

Blue and White Tin-Glaze – Anglo-Dutch

Phase I	Phases II and III	Phase IV	Phase V
-	-	3.62	3.15

Glaze: White, with blue-painted decoration.
Frequency: Common.
Date: Early 17th to late 18th centuries (Archer 1997, 29).
Vessel Forms: Mainly dishes, but also tea bowls, bowls and albarellos.

Blue and White Tin-Glaze – English

Phase I	Phases II and III	Phase IV	Phase V
-	-	1.67	1.05

Glaze: White, with blue-painted decoration.
Frequency: Uncommon at Beverley Gate.
Date: Early 17th to late 18th centuries.
Vessel Forms: Mainly dishes (including a moulded/scalloped example), also mugs, porringers and bowls.

Polychrome Tin-Glaze – Anglo-Dutch

Phase I	Phases II and III	Phase IV	Phase V
-	-	1.67	1.75

Glaze: White, with polychrome decoration.
Frequency: Common in 17th- and 18th-century layers
Date: Mid 16th century onwards.
Vessel Forms: Predominantly dishes, in addition to jars, albarellos, and bowls.

Polychrome Tin-Glaze – English

Phase I	Phases II and III	Phase IV	Phase V
-	-	-	0.35

Glaze: White, with polychrome decoration.
Frequency: Rare.
Date: Early 17th to late 18th century.
Vessel Forms: Dish.

Plain/White Tin-Glaze – English

Phase I	Phases II and III	Phase IV	Phase V
-	-	4.74	1.4

Glaze: Plain white.
Frequency: Common.
Date: Early 17th century onwards.
Vessel Forms: Dishes, jugs, vases, albarellos, mugs, porringers and bowls.

Blue-Tinted Tin-Glaze – Anglo-Dutch and English

Phase I	Phases II and III	Phase IV	Phase V
-	-	-	0.35

Glaze: Plain, blue-tinted tin-glaze.
Frequency: Rare
Date: 18th century.
Vessel Forms: Flat and hollow forms

Other Tin-Glazed Ware

Phase I	Phases II and III	Phase IV	Phase V
-	-	-	0.35

Glaze: Polychrome.
Frequency: Rare
Date: Early 17th to late 18th century.
Vessel Forms: Albarello, dish.

Toynton-type Ware

Phase I	Phases II and III	Phase IV	Phase V
-	-	0.28	-

Fabric: Dark grey, abundantly sand-tempered fabric.
Glaze: Dark olive-green.
Frequency: Very rare (Watkins 1987, 118-19; 1993, 93).
Kiln/Source: Possibly Toynton.
Date: Late 13th to early 14th century.
Vessel Forms: Jug

Trailed Slipware

Phase I	Phases II and III	Phase IV	Phase V
-	-	0.84	2.45

Fabric: Like Brown-Glazed Coarse Redware, the fabric is very varied. Mainly it is a medium to hard, orange to brick-red fabric, but there are softer, pink examples.
Glaze: Clear over white trailed decoration, which appears yellow under the glaze. There are a few examples from Beverley Gate that have a complete internal coating of white slip, with trailed red slip decoration.
Frequency: In Hull, trailed slipwares represent no more than 5% of assemblages dated later than *c.* 1650 (Watkins 1987, 117; 1993, 93).
Kiln/Source: The majority of slipware vessels were produced near Harlow in Essex. Other centres producing very similar forms included Wrenthorpe, Yorkshire (Moorhouse and Roberts 1992), and Potterspury, Northamptonshire. Vessels with a complete internal cover of white slip were produced in Staffordshire and at sites across Yorkshire (Watkins 1987, 117, 123; Jennings 1981, 97; Cooper 1968, 31).
Date: Trailed slipwares were being produced at Harlow from 1615 to about 1680, at Potterspury from the 1640s to 1660s, and at Wrenthorpe from the 1640s until the mid to late 18th century.
Vessel Forms: Dishes, bowls, large bowls/pancheons, cups, mugs, jars, candlesticks and chafing-dishes.

Transfer-Printed Ware

Phase I	Phases II and III	Phase IV	Phase V
-	-	-	0.35

Fabric: Fine white earthenware.
Glaze: Clear glaze over blue print.
Frequency: Very rare prior to 1780, then common (Watkins 1987, 124).
Kiln/Source: Transfer-printed wares were manufactured across Britain; Newcastle, Middlesbrough, Sunderland, Leeds, Sheffield, Liverpool, Swansea and Staffordshire were major centres of production.
Date: 1760 onwards (Poole 1995, 92; Copeland 2000, 8-9).
Vessel Forms: Teapots and plates

Unglazed Red Earthenware

Phase I	Phases II and III	Phase IV	Phase V
-	-	0.56	1.75

Fabric: Medium hard orange, to brick-red fabric.
Glaze: Unglazed.
Frequency: Uncommon at this site
Kiln/Source: Large numbers of potteries were producing these types of vessels alongside flower-pots.
Date: 18th and 19th centuries.
Vessel Forms: Bowls and jars, but mainly unidentified.

Weser Ware

Phase I	Phases II and III	Phase IV	Phase V
-	-	-	0.35

Fabric: Fine, hard-fired, pink/buff fabric.
Glaze: The surface of vessels is covered with a complete white slip, which is then decorated with red and a white slip containing added copper, which, when covered with a clear glaze, appear yellow with green and orange-brown slip trailing.
Frequency: Never common on, but present in very small quantities on a number of sites in Hull (Hurst 1981, 144; Watkins 1987, 140; Watkins 1993, 109).
Kiln/Source: There were a number of production centres in Germany, possibly over 100 kiln sites, spread throughout the area between the Weser and the Leine. It was marketed through Bremen, and is commonly found in the Low Countries.
Date: Late 16th to early/mid 17th century (Jennings 1981, 82; Hurst *et al.* 1986, 251).
Vessel Forms: Dishes and bowls

Westerwald Stoneware

Phase I	Phases II and III	Phase IV	Phase V
-	-	0.84	1.05

Fabric: Grey, or light grey stoneware
Glaze: Clear salt glaze over cobalt blue or manganese purple painting.
Frequency: Present, albeit in relatively small numbers, in most 17th- and 18th-century levels in Hull (Watkins 1987, 139-40); common on many sites in Britain.
Kiln/Source: The towns of Grenzau, Hohr and Grenzhausen in the Westerwald area of the Rhineland (see Gaimster 1997, 252-71).
Date: Late 16th century onwards.
Vessel Forms: Jugs, mugs and tankards on this site; chamber-pots are also found on other sites

Discussion of pottery by phase

Phase I *c.*1321 – *c.*1540

Sherd count	% of total sherd count	Pot weight	% of total pot weight	Average sherd weight
106	6.31	3774g	9.12	33.69

Fabric	*Sherds*	*MVE*	*% of Sherds*	*% of MVE*
Border Ware*	1	1	0.94	3.22
Post-Med Humberware*	1	1	0.94	3.22
Staffordshire Slipware*	1	1	0.94	3.22
Unatt. Medieval Fabric	1	1	0.94	3.22
Siegburg (Green Glazed)	2	1	1.88	3.22
Saintonge	3	2	2.83	6.45
Langerwehe	1	1	0.94	3.22
Raeren	2	1	1.88	3.22
GRE*	9	5	8.49	16.12
Humberware	85	17	80.19	54.83
Total	**106**	**31**		
* Intrusive	12	8	11.32	25.80

As the summaries show, only a very small percentage of the pottery excavated from the Beverley Gate came from any of the first three phases. However, the pottery discovered in the Phase I deposits tended to comprise larger sherds, and, in one case, a complete Humberware jug. This suggests that the deposits from at least Phase I are either primary, or have not been significantly re-worked; however, 12 of the sherds recorded from the Phase I levels (22.8%) are likely to have been intrusive —, most likely as a result of later disturbance.

The earliest pottery from the excavation stratigraphically is from the bank created from the digging of the Town Ditch in 1321-4 (Contexts **13**, **51**, **107**, **121**, **122**); in addition to occasional building rubble, there were fragments of medieval pottery throughout this bank. Context **13** contained mainly Type 1 Humberware jugs, but also body sherds from a green-glazed Siegburg stoneware jug and a Saintonge jug.

The second group of pottery came from various levelling dumps to build up the road surface through the gateway in Phase Ib (Contexts **24**, **32**, **35**). The only pottery type from these deposits comprised Humberware jugs, including a complete vessel (**24**).

In the later 14th century, the earlier bank-and-ditch defences were replaced in this area with a brick Town Wall. The upcast from the foundation trench for the Curtain Wall (**108**) contained Humberware sherds. In the later 15th or first half of the 16th century, a massive dump of material was piled against the front of the Town Wall; much of this may have been derived from the cleaning out of the Town Ditch. Context **120** includes a Raeren vessel, which would provide a *terminus post quem* of *c.* 1475 for the deposition of this part of these dumps; it was associated with Humberware and

some Langerwehe. Other parts of these dumps (layers **340**, **341**), contained Skipton-on-Swale type drinking jugs, and a single sherd of Yellow Border ware; the latter (if it is not intrusive) would suggest that the accumulation continued into at least the early part of the 16th century— in which case, at least part of these dumping layers may belong to Phase II, rather than Phase I.

Phase II/III *c.*1540 – *c.*1600/*c.*1600 – *c.*1700

Sherd count	% of total sherd count	Pot weight	% of total pot weight	Average sherd weight
18	1.07	500g	1.21	27.77

Fabric	*Sherds*	*MVE*	*% of Sherds*	*% of MVE*
Langerwehe*	1	1	5.55	10.0
Low Countries	4	1	22.22	10.0
GRE	6	4	33.33	40.0
Humberware*	7	4	38.88	40.0
Total	**18**	**10**		
*Residual	8	5	27.77	50.0

Phases II and III contained only a small amount of pottery —1.07% of the total excavated (based on sherd count). The majority of this came from a Phase III deposit (**105**), which represents the upcast from cleaning out the Town Ditch, probably during the Civil War period; this layer contains a Low Countries Redware tripod cooking-pot, as well as residual fragments of Humberware jugs.

Phase IV *c.*1700 – *c.*1776

Sherd count	% of total sherd count	Pot weight	% of total pot weight	Average sherd weight
838	53.7	20800g	55.57	24.82

Fabric	*Sherds*	*MVE*	*% of Sherds*	*% of MVE*
N.Holland Slipware*	1	1	0.12	0.28
Ryedale	1	1	0.12	0.28
Toynton Type Ware*	1	1	0.12	0.28
Martincamp*	2	1	0.24	0.28
Post-Med Saintonge	2	1	0.24	0.28
Unatt. Stoneware	2	2	0.24	0.56

UGRE	3	2	0.36	0.56
S.Yorks Gritty*	5	2	0.60	0.56
?N.Yorks Whiteware*	3	3	0.36	0.84
Trailed Slipware	5	3	0.60	0.84
Westerwald	5	3	0.60	0.84
Unatt. Post-Medieval Fabric	4	4	0.48	1.11
Frechen/Cologne	5	4	0.60	1.11
Saintonge*	6	4	0.72	1.11
Langerwehe*	4	5	0.48	1.39
English Stoneware (White)	7	5	0.84	1.39
Unatt. Medieval Fabric*	8	6	0.96	1.67
Raeren*	11	6	1.32	1.67
Blackware/Cistercian*	27	7	3.23	1.95
Low Countries*	31	9	3.71	2.51
English Stoneware	19	12	2.28	3.34
Tin-glaze - Anglo/Dutch	27	21	3.23	5.85
Tin-glaze – English	35	23	4.19	6.41
Post-Med Humberware	100	28	11.98	7.80
Humberware*	107	36	12.81	10.03
Staffordshire Slipware	70	41	8.38	11.42
GRE	344	128	41.20	35.65
TOTAL	**835**	**359**		
*Residual	206	77	24.67	21.45

Phase IV produced by far the largest amount of pottery from the site, nearly one-quarter of which was residual, highlighting the fact that many of the Phase IV deposits were re-worked midden material, rather than primary dumps. This is also shown by the lower average sherd weight.

The first major group of pottery comes from a number of fills and levelling deposits (**5**, **208**, **216**) forming the road surface through the medieval gateway. These deposits are the earliest to include significant quantities of Late Humberware and Brown-Glazed Coarseware, as well as residual sherds of Type 1 Humberware. There are also other new fabrics which date from the later 17th and early 18th centuries, including a few sherds of Tin-glazed (Delft) ware, Staffordshire slipware dishes, and sherds from a Jackfield Ware teapot.

The second group of pottery from Phase IV comes from deposits and fills associated with the construction of a timber revetment in front of the Gate; it is suggested that this represents temporary shuttering to stop the crumbling gateway from collapsing into the Ditch, and that it may have been contemporary with the taking down of the ruinous tower over the Gate in 1735. This temporary shoring involved the construction of timber shuttering alongside the base and foundations of the Gate; the area between the shuttering and the front of the Gate was then filled with demolition rubble and other midden deposits. The lowest levels of this feature are a mortar bed (**22**) and a layer of packing (**21**) for the timber shuttering. The packing layer contained numerous pottery sherds, in addition to an apothecary bottle and clay-pipes. The assemblage was dominated by Brown-Glazed Coarsewares and Late Humberware, but the remaining fabrics were all residual – including Langerwehe and Raeren

stonewares, Low Countries Redwares, and Type 1 Humberware. The packing around a large oak beam (**9**), which formed part of the framework for this shuttering, incorporated a pottery group composed exclusively of post-medieval fabrics — including significant proportions of late 17th- and 18th-century types, such as Staffordshire slipware and English White Stoneware. The majority of the pottery found in association with this structure came from the numerous packing fills, which were used either to fill the void between the shuttering and the gateway (**3**, **40**, **41**), or piled up against the outside of the shuttering (**20**), probably to consolidate it. All these fills contained large quantities of building rubble. Layers **40** and **41** contained numerous broken wine-bottles and bottle-stoppers, all dating to the first half of the 18th century; layer **20** incorporated, in addition to two pieces of lead shot, a William III ½d. of 1695 – 1702. While all four of these layers were similar in nature, in that they contained significant quantities of building rubble, it is clear from the pottery that layer **3** came from a different source from the other three. While layers **20**, **40** and **41** contained mainly contemporary material, the pottery in layer **3** was almost entirely residual medieval material, with large numbers of Type 1 Humberware sherds, in addition to Saintonge and Raeren sherds. Layers **20**, **40** and **41** were dominated by post-medieval coarsewares, but also included Staffordshire wares (both trailed slip, and iron-stained vessels), and fine red earthenware, glazed to imitate the more expensive Chinese Yixing porcelain; this is sometimes mis-identified as Elersware. The difference in the pottery assemblage of these construction deposits illustrates how old midden deposits were being used for these works.

By far the largest deposit of material during Phase IV is the dump of material (**1**, **31**) created during the construction of a new retaining bank to the north of the Gate, infilling part of the former medieval Town Ditch. A new retaining bank was constructed (**31**) from a very large dump of water-worn cobbles, demolition rubble and midden material; the area between this new bank and the old bank was then infilled with a massive dump of midden material. Both these layers contained similar pottery assemblages, which, while containing some residual material, were dominated by post-medieval and 18th-century fabrics. Of the residual fabrics present, Type 1 Humberware was by far the most prevalent, whilst other common residual fabrics included Cistercian, Rhenish stonewares, and Low Countries Redwares. Less common, but still residual, were South Yorkshire Gritty Ware, Metropolitan-type slipware, North Yorkshire Whiteware, Ryedale ware and North Holland Slipware. Brown- and Green-Glazed Coarseware, and late Humberware dominated the post-medieval and 18th-century fabrics present. However, later post-medieval fabrics are also more common in these fills than in previous layers; several sherds of English stoneware, including sherds of Elersware, and white stoneware; Westerwald stoneware; several Staffordshire products, including Black-dipped ware, in addition to slip-decorated wares and iron-stained vessels, were all present. Numerous sherds of Tin-glazed earthenware were in layer **1**. Most of this is English, but some is almost certainly Dutch, and one vessel may be Portuguese in origin; of the English products, only one was possibly attributable to any known source — namely, a small dish, which was probably produced at either Bristol, or Wincanton.

The final group of Phase IV deposits containing any amount of pottery came from the layers associated with the collapse and infilling of the Phase II drawbridge-pit. This seems to have occurred at some time following the major reclamation discussed

above. The walls of this drawbridge-pit were pulled down, and the site became used as a rubbish tip. The lowest layer of this pit (**54**) contained English Brown Stoneware cups, Brown Glazed Coarseware jars, and Staffordshire dishes, as well as fragments of English White Stoneware and Late Humberware. Subsequent layers then filled the pit. Layers **27** and **67** were brown gritty loams, containing mortar, chalk and brick fragments, as well as small amounts of Brown Glazed Coarseware, Late Humberware and Staffordshire ware. Elsewhere within the Town Ditch, broadly contemporary layers included a deposit of demolition rubble (**52**), which contained fragments of English White Stoneware vessels. To the north of the drawbridge-pit was a large dump of black organic material (**45**), which contained large amounts of midden material, including a notable amount of leather, as well as wine-bottles, clay-pipes, animal bone, window glass and glazed floor tiles. The deposit contained fragments of Tin-glazed earthenwares, Staffordshire vessels, Late Humberware, an English Brown Stoneware tankard, Brown-Glazed Coarseware dishes, jars and colander, and a post-medieval Saintonge Chafing-dish with a yellow glaze.

Phase V *c.*1776+

Sherd count	% of total sherd count	Pot weight	% of total pot weight	Average sherd weight
570	37.11	12359g	33.02	21.68

Fabric	*Sherds*	*MVE*	*% of Sherds*	*% of MVE*
Beauvais*	1	1	0.18	0.35
Borderware*	1	1	0.18	0.35
Langerwehe*	1	1	0.18	0.35
Hamburg/Rouen Faience	1	1	0.18	0.35
Martincamp*	1	1	0.18	0.35
Transfer Printed Ware	1	1	0.18	0.35
Unatt. Stoneware	1	1	0.18	0.35
Weser Ware*	1	1	0.18	0.35
Saintonge	2	1	0.35	0.35
Chinese Porcelain	2	2	0.35	0.70
Low Countries*	2	2	0.35	0.70
N.Holland Slipware*	2	2	0.35	0.70
Unatt. Post-Medieval Fabric	1	1	0.18	0.35
Banded Slipware	3	2	0.53	0.70
?N.Yorks Whiteware*	3	3	0.53	1.05
Frechen Cologne	3	3	0.53	1.05
Post-Med Saintonge	3	3	0.53	1.05
Unatt. Medieval Fabric*	3	3	0.53	1.05
Raeren*	4	3	0.70	1.05

Ryedale	5	3	0.88	1.05
Westerwald	9	3	1.58	1.05
UGRE	9	5	1.58	1.75
Trailed Slipware*	5	7	0.88	2.45
Creamware/Pearlware	13	10	2.28	3.50
Blackware/Cistercian*	14	10	2.46	3.50
Humberware*	20	10	3.51	3.50
Tin-glaze – English	15	11	2.63	3.85
English Stoneware	17	11	2.98	3.85
English Stoneware (White)	23	18	4.04	6.29
Tin-glaze - Anglo/Dutch	29	18	5.09	6.29
Post-Med Humberware	49	19	8.60	6.64
Staffordshire Slipware	105	34	18.42	11.89
GRE	221	94	38.77	32.87
Total	**570**	**286**		
* Residual	57	48	10	16.78

Phase V produced the second largest quantity of pottery from the site; nearly one-third of all the phased pottery came from Phase V. As was also the case with the Phase IV assemblage, the small average sherd size highlights the re-worked nature of the deposits. In contrast to Phase IV, the level of residuality is considerably reduced; however, this figure must be viewed with some caution, as the Phase V deposits all date to the very late 18th or 19th centuries, and may include early Staffordshire wares, 17th-century Brown Glazed Coarsewares and Tin-glazed wares which cannot be classed as residual. Phase V is also typified by the appearance of new fabrics in the pottery assemblage; in particular, Chinese Porcelain (which was imported on a large scale from 1715 onwards), the new factory wares, Creamware, Pearlware and Transfer-Printed Ware. Also visible in Phase V is the decline of Late Humberware and Tin-glazed wares (which were being replaced in many homes by more durable products, such as English White Stoneware and Creamware).

The earliest deposit from Phase V is the infill of the robber trench (**308**) created by the dismantling of the Town Wall in 1774-8 by the Dock Company. This cut contained a huge amount of demolition rubble, in addition to several sherds of post-medieval pottery; the latter was exclusively confined to common fabrics — Brown-/Green-Glazed Coarseware, Late Humberware, and Staffordshire slipware.

Nearly all the remaining deposits from Phase V are associated with the infilling of the Inner Ditch and drawbridge-pit. The first of these layers (**116**) contained large quantities of demolition rubble, and is probably contemporary with the demolition of the Town Wall; this layer contained quantities of Brown-Glazed Coarseware (bowls, dishes, jars and a colander), Anglo-Dutch Polychrome Tin-glazed ware (dish and ginger jar), Staffordshire slipware (dishes and possible posset pot), and a Brown English Stoneware bowl. This and subsequent layers were capped by a thick clay deposit (**319**/**320**), again containing a large amount of rubble, as well as a good range of pottery that included residual sherds (Type 1 Humberware, North Holland Slipware, Frechen and Raeren stoneware, and Cistercian), amongst the 18th century fabrics, such as Brown-/Green-Glazed Coarseware, Staffordshire slipware, and Tin-

glazed ware. Whilst the latter may have been the main fabrics which were present, several new fabrics also stand out: these include a Creamware bowl and dish, and a Rouen or Hamburg Faience bowl (see above for the fabric description).

The majority (nearly two-thirds) of the pottery in Phase V came from a single context. This was a huge deposit of light grey-brown soil, incorporating large amounts of demolition rubble (**2**), which filled most of the former medieval Town Ditch. This large deposit contained several different residual fabrics, including some not seen elsewhere on the site; these included residual sherds from a Yellow Border Ware candlestick, a Beauvais dish, bichrome Low Countries Redware, and a Martincamp flask, in addition to Type 1 Humberware and Ryedale ware. The contemporary pottery in this deposit was dominated by Brown-/Green-Glazed Coarseware, Staffordshire slipwares, Late Humberware, and Tin-glazed earthenwares (including a small plate of Liverpool origin); however, other notable vessels included Westerwald mugs and tankards, a Chinese Porcelain tea bowl, and a range of English White Stoneware vessels, including bowls, cups/mugs, small jugs, plates and an unidentified vessel with scratched blue decoration. Other layers (**25**, **50**, **17**, **119**, **118**), which filled and levelled the drawbridge-pit, contained a similar balance of pottery types. Included amongst layer **17** was a separate deposit (**49**), which contained the remains of a felt hat commonly worn during the late 1820s, and part of a lid from a Transfer-printed teapot. The topmost of these fills comprised clean plastic clays, which incorporated little or no pottery. These were disturbed only by various service trenches, or by the footings of later 19th- and early 20th-century lock bridges, which again contained very little pottery.

Conclusion

The pottery assemblage from the excavations at the Beverley Gate is important, in that it provides an all too rare body of evidence for studying 18th-century ceramics from Hull, very few of which have been previously published from the city; however, it suffers from several deficiencies in other areas. Although a considerable amount of medieval pottery came from the site, much of this was recovered from residual contexts, and, as a result, comparatively little of the medieval and early post-medieval material has a stratigraphic relationship to the site. Additionally, because of the level of residual material in many contexts, care must be exercised when using the pottery to date deposits on this site.

However, the relative scarcity of published 18th-century pottery assemblages from Hull means that this assemblage opens a window on understanding patterns of ceramic consumption in Hull during the late 17th and early 18th centuries, especially when looked at in conjunction with other excavated sites. The assemblage highlights the conservative development of ceramic consumption in the city during the 17th and into the 18th century, with the dominant fabrics — Brown-/Green-Glazed Coarseware and Late Humberware — having developed from essentially medieval ceramic traditions and production sites, and being marketed to the town in a way which had changed little since *c.* 1500. Imports, such as Low Countries Redwares or Metropolitan Slipwares, seem to have had little impact on this market during the 17th century (although few deposits can be attributed to the 17th century, there was a markedly low level of such fabric types, which were prolific elsewhere on the East

Coast, in Phase IV deposits – despite these containing high levels of residual fabrics); however, it needs to be emphasised that relatively little pottery was recovered from the 17th-century levels at this site (the combined deposits of Phases II and III, spanning the 16th and 17th centuries, yielded only 1.07% of the entire pottery assemblage).

It is not until the end of the 17th century that new fabrics began to appear on this site. Importantly, these new fabrics were being produced from new sources, and marketed in new ways within the sprawling hinterland that Hull served; Staffordshire slipwares and stonewares and Nottingham stonewares led the way in developing non-traditional patterns of ceramic consumption.

Table 2. Pottery quantification by wares

Fabric	*Total Sherds*	*% of Sherds*	*Min. Vess.*	*% of Min. Vess.*	*Total Weight*	*% of Weight*	*Average %*
?Frechen	2	0.12	1	0.13	19	0.05	0.10
?Humber1	1	0.06	1	0.13	260	0.63	0.27
?LCRed	1	0.06	1	0.13	16	0.04	0.08
?N.Yorks Whiteware	6	0.36	6	0.80	82	0.20	0.45
?Raeren	1	0.06	1	0.13	10	0.02	0.07
?Ryedale	1	0.06	1	0.13	172	0.42	0.20
?Saintonge5	1	0.06	1	0.13	9	0.02	0.07
?Unatt.whiteware	1	0.06	1	0.13	22	0.05	0.08
Banded Slipware	3	0.18	2	0.27	7	0.02	0.15
Beavais	1	0.06	1	0.13	21	0.05	0.08
Blackware	16	0.95	4	0.53	811	1.96	1.15
BordG	1	0.06	1	0.13	31	0.07	0.09
Bordy	1	0.06	1	0.13	3	0.01	0.07
Chinese Porcelain	2	0.12	2	0.27	6	0.01	0.13
Cistercian/Lt.Blackware	4	0.24	1	0.13	1	0.00	0.12
Cistercian	28	1.67	12	1.60	369	0.89	1.39
Creamware	15	0.89	13	1.74	73	0.18	0.94
Eng.s'ware1	33	1.96	22	2.94	421	1.02	1.97
Eng.s'ware2	33	1.96	25	3.34	182	0.44	1.92
Eng.S'ware3	7	0.42	6	0.53	149	0.36	0.44
Eng.S'ware4	3	0.18	2	0.27	39	0.09	0.18
Fr.Cologne	8	0.48	7	0.94	283	0.68	0.70
Greb1	534	31.79	204	27.27	15541	37.57	32.21
Greb2	16	0.95	8	1.07	160	0.39	0.80
Greb3	16	0.95	13	1.74	379	0.92	1.20
Greb4	2	0.12	2	0.27	114	0.28	0.22
Greg	51	3.04	20	2.67	1093	2.64	2.78
Humber1	220	13.10	55	7.35	7752	18.74	13.06
Humber1/5	17	1.01	12	1.60	454	1.10	1.24
Humber4	4	0.24	4	0.53	53	0.13	0.30
Humber5	168	10.00	48	6.42	4772	11.54	9.32

Langerwehe	7	0.42	5	0.67	98	0.24	0.44
LCGrey	4	0.24	1	0.13	88	0.21	0.19
LCRed	30	1.79	9	1.20	783	1.89	1.63
LCRed B	1	0.06	1	0.13	1	0.00	0.07
LCRed/Greb1	5	0.30	3	0.40	84	0.20	0.30
LCWhite	1	0.06	1	0.13	27	0.07	0.09
Lt.Blackware	2	0.12	2	0.27	27	0.07	0.15
Martincamp	3	0.18	2	0.27	17	0.04	0.16

Table 2 (cont.)

Fabric	*Total Sherds*	*% of Sherds*	*Min. Vess.*	*% of Min. Vess.*	*Total Weight*	*% of Weight*	*Average %*
Med. Sandy ware	4	0.24	3	0.40	27	0.07	0.23
Med. Unatt green glz. Ware	1	0.06	1	0.13	23	0.06	0.08
N.Holland Slipware	3	0.18	3	0.40	25	0.06	0.21
Orange2	1	0.06	1	0.13	187	0.45	0.22
P/M white slip	1	0.06	1	0.13	27	0.07	0.09
Pearlware	1	0.06	1	0.13	16	0.04	0.08
Raeren	19	1.13	10	1.34	239	0.58	1.02
Ryedale	5	0.30	3	0.40	239	0.58	0.43
S.Yorks Gritty	7	0.42	4	0.53	335	0.81	0.59
Saintonge1	11	0.65	7	0.94	221	0.53	0.71
Saintonge1/5	3	0.18	3	0.40	12	0.03	0.20
Saintonge5	1	0.06	1	0.13	27	0.07	0.09
Sand tempered p/m fabric.	1	0.06	1	0.13	26	0.06	0.09
Siegburg (G)	2	0.12	1	0.13	18	0.04	0.10
staffs(Fe1)	42	2.50	18	2.41	470	1.14	2.01
Staffs(Fe2)	11	0.65	5	0.67	119	0.29	0.54
staffs1	124	7.38	52	6.95	1317	3.18	5.84
Staffs2	7	0.42	4	0.53	152	0.37	0.44
Staffs3	3	0.18	3	0.40	10	0.02	0.20
Staffs4	8	0.48	5	0.67	92	0.22	0.46
Staffs5	2	0.12	2	0.27	17	0.04	0.14
Tinglz?	6	0.36	5	0.67	210	0.51	0.51
Tinglz1e	1	0.06	1	0.13	23	0.06	0.08
Tinglz2a/d	2	0.12	1	0.13	30	0.07	0.11
Tnglz3a/d	36	2.14	25	3.34	465	1.12	2.20
Tinglz3e	15	0.89	9	1.20	210	0.51	0.87
Tinglz4a/d	16	0.95	13	1.74	266	0.64	1.11
Tinglz4e	1	0.06	1	0.13	10	0.02	0.07
Tinglz5e	31	1.85	21	2.81	318	0.77	1.81
Tinglz6a/d	2	0.12	2	0.27	15	0.04	0.14
Tinglz6e	2	0.12	2	0.27	14	0.03	0.14
Toynton type Ware	1	0.06	1	0.13	4	0.01	0.07
Tr.Slip	10	0.60	7	0.94	684	1.65	1.06

TransferP	1	0.06	1	0.13	9	0.02	0.07
UGRE	19	1.13	8	1.07	688	1.66	1.29
Hamburg/Rouen Faience	1	0.06	1	0.13	19	0.05	0.08
Unatt s'ware	3	0.18	3	0.40	31	0.07	0.22
Unatt. Med Fab.	4	0.24	4	0.53	158	0.38	0.38
Unatt. Orangeware	2	0.12	2	0.27	15	0.04	0.14
Unatt. P/M Fab.	3	0.18	3	0.40	35	0.08	0.22
Unatt.med grey fab	1	0.06	1	0.13	13	0.03	0.07
Unid. Rhenish S'ware	1	0.06	1	0.13	7	0.02	0.07
Weser	1	0.06	1	0.13	7	0.02	0.07
Westerwald	14	0.83	6	0.80	105	0.25	0.63
Total	**1680**		**750**		**41364**		

Catalogue of illustrated vessels (Figs 24-6)

1. Complete Humberware Type 1 jug; it bears a stacking-scar from the rim of a second vessel on its base. Fabric typical of West Cowick products: hard-fired, sand-tempered, iron-rich body, with a reduced light grey core, with whitish margins under the externally glazed areas. The exterior surfaces have fired to an orange-buff or reddish-brown, tending in places to a pale purplish-brown: the internal surfaces have fired to a reduced pale grey. Upper part of exterior covered with an unevenly applied pale olive-green lead glaze; interior is completely unglazed, but is covered with a white (?) lime-scale deposit. Slight pouring-lip, opposite handle, formed by pinching out a small section of rim, and then creating a shallow groove within that lip. Rod-shaped handle springs from the upper neck, and is joined to the belly of the jug – in both cases with thumb-pressed junctions. Three parallel horizontal girth grooves scored into the upper belly, just above the lower junction of the handle, presumably with a comb, and overlapping where the circuit has been completed. The base is slightly sagging, but stability is provided by three small finger-pinched and pulled "feet", spaced equidistantly around the basal circumference. This jug was found lying horizontally in the passage through the Gate. Context 24; Phase Ib.
2. Humberware Type 1 jug rim with simple pulled spout, and broken strap-handle. Dirty buff-brown fabric, with reduced grey core in places. Buff exterior, covered with a partial, dull, pale olive-green lead glaze. Reduced grey interior, covered with an off-white lime-scale deposit. Heavy thumb-presses on either side of strap-handle junction. Context 120; Phase Ib.
3. Humberware Type 1 jug rim and strap-handle. Coarse, hard-fired, sand-tempered buff fabric with light grey core; a few voids showing in the surfaces of the handle. Orange-buff exterior; pale, light greyish-brown interior. Shiny, olive-green lead glaze on exterior of handle, and in places around the rim. Ribbed strap-handle, with deep thumb-presses on either side of handle junction. The spout is conjectural. Unstratified.
4. Cistercian ware small jar rim and upper body fragment. Hard-fired, near-vitrified, purple-grey fabric, fired in reducing conditions. Both surfaces covered in a lustrous, smoky, dark brown lead glaze. A wheel-thrown, thin-walled vessel, with an everted, and carefully shaped rim. At Wrenthorpe, this

is a form which is more commonly recorded in Blackwares or Yellow Wares. Context 319; Phase V.

5. Brown Glazed Redware pancheon. Orange-red fabric, with paler margins under glaze; a few small spheroidal voids can be seen on the exterior (ranging between 1mm and 1.5mm in size). Red-brown exterior. Even, lustrous, chestnut-brown lead glaze on interior and on the rim top, and also a few small glaze spots on the exterior surface; a 4mm wide band or stripe painted in white slip on the top of the rim – close to its inner edge – has fired yellow under the glaze. A wheel-thrown form; the external edges of the rim have been shaped with a former. Context 50; Phase V.
6. Brown Glazed Coarse Redware jug. Medium-hard brick-red fabric. Glossy brown glaze internally and externally. Context 319; Phase V.
7. Frechen Stoneware jug. Grey stoneware with salt glaze over brown iron wash. Context 119; Phase V.
8. Blackware jar. Hard-fired dark red fabric, Thick glossy black glaze internally and externally. Contexts 1, 2 and 119; Phases IV and V.
9. Brown Glazed Coarse Redware jar. Contexts 1, 2 and 119; Phases IV and V).
10. Brown Glazed Coarse Redware jar/cooking pot. Medium-hard, brick-red fabric. Brown/purple glaze internally. Sooted externally. Context 1; Phase IV.
11. Late Humberware, ? cistern. Hard-fired, brick-red fabric, reduced to grey under glazed areas. Internal olive-green glaze. Context 1; Phase IV.
12. Brown Glazed Coarse Redware bowl. Orange-buff, sand-tempered fabric. Olive-brown glaze internally and around rim. Sooted externally. Context 21; Phase IV.
13. Ryedale bowl. Pale grey, open fabric with light red margins under unglazed areas. Pale olive-green internal glaze with splashes on exterior. Context 2; Phase V.
14. Brown English Stoneware bowl. Cream stoneware. Clear salt glaze over brown iron wash. Context 2; Phase V.
15. Westerwald tankard. Pale grey stoneware. Internal and external clear salt glaze over cobalt-blue decoration externally. Context 319; Phase V.
16. Brown English Stoneware tankard. Cream, near-stoneware fabric. External salt glaze over brown iron wash. Probably a Nottingham product. Context 45; Phase IV.
17. Iron Stained Staffordshire Slipware tankard. Buff earthenware. Internal and external glaze, which is speckled/streaked with iron. Context 2; Phase V.
18. Tin-Glazed Earthenware – Malling Type (?) cup. Soft cream fabric. White glaze internally and externally, which is speckled with manganese externally. Context 319; Phase V.
19. Hamburg/Rouen Faience bowl. Medium-hard, red/orange fabric. White tin glaze internally, clear externally, which appears dark red/purple. Context 319; Phase V.
20. Chinese Porcelain tea-bowl. Hard white porcelain with blue decoration. Context 2; Phase V.
21. Blackware posset pot. Hard-fired, dark red fabric. Thick glossy black glaze. Handles surround exterior in groups of one, two or three. Context 40; Phase IV.
22. Staffordshire Black-Dipped Slipware posset pot. Hard-fired cream fabric. Red slip coating and white slip decoration on exterior, appears yellow and

brown/red under the glaze. Contexts 123 and 2; Phases IV and V.

23. Staffordshire Slipware – general dish. Hard-fired cream fabric. Clear/yellow internal glaze over red-brown trailed slip decoration. Context 1; Phase IV.
24. Brown Glazed Coarse Redware dish. Medium-hard-fired, brick-red fabric. Glossy brown glaze. Contexts 119, 20 and 116; Phases IV and V.
25. Staffordshire Slipware – general dish. Hard-fired pink fabric, internally coated with white slip, which is decorated with red slip; this appears yellow and brown under the glaze. Contexts 1 and 103; Phases IV and V.
26. English Tin-Glazed Earthenware – Other, plate. Medium-hard, cream fabric. White tin glaze, decorated in blue, with purple manganese-speckled borders, and brown rim (Chinese figure seated under flowering tree). Possibly Liverpool, mid 18th century. Context 2; Phase V.

The clay tobacco pipes from the Beverley Gate and the Town Ditch

by the late Gareth Watkins, with a major contribution by S.D. White

[Editorial note: the following account is based on a draft text prepared by the late Gaz Watkins during the early stages of the post-excavation programme. Unfortunately, he died before having any opportunity to update it, or to augment it with additional contextual information; hence, some of those tasks have been undertaken by the editor. In 2002 S.D. White examined the 17th- and 18th-century component of the assemblage in detail, as part of the groundwork research which she was then carrying out for her PhD; she has very kindly supplied details from her database relating to this particular site. The present text attempts to combine these two studies into a single paper.]

General introduction

Although the assemblage of clay pipes contributes little to the interpretation of the Beverley Gate site *per se*, the material itself is of some considerable interest because very little information is available about the range and variety of the types of pipes which are to be found in Hull (Sheppard 1912). Although the major series of sites excavated in the Old Town area in the 1970s are now all published, no account of the clay pipes was included in any of those reports. The present writer has published a typology for the types thought to have been manufactured in Hull (Watkins 1979), but the occurrence of non-Hull pipes was not considered in that article. The Beverley Gate material provides an opportunity to redress the balance, and to present information on the overall range of pipes that were in use in this major East Coast port.

The quantity of material recovered from the site was not particularly large (a total of 1,044 fragments: 65 bowls without stems, 905 stems without bowls, and 74 bowls with stems), compared with some published from other historic towns, but it was more extensive than those from many other Hull sites. The groups recovered from the stratified deposits were small, though some do help with the dating of those contexts. The larger groups were of 18th- and early 19th-century date —from the Phase IV and V dumps in the Town Ditch (contexts **1** and **2**), but even here the quantities are small — 49 bowls and 227 stems from Context **1**, and 30 bowls and 182 stems from Context **2**.

The bulk of the assemblage was recovered from dumps and layers within the Town Ditch, both directly in front of the Beverley Gate, and in front of the adjacent Town Wall to its north. Hence, the assemblage is dominated by a substantial component of 18th- and early 19th-century material, when the Town Ditch was effectively being used as a rubbish dump, once its defensive role had passed out of use. As much of this material was recovered from waterlogged deposits, it is perhaps of no great surprise to note that many of the groups of pipes included water-worn pipes (i.e. they were deposited at a time when there was still water in the Town Ditch).

The date-range of the material extends significantly later than that from any of the excavations previously published in the Hull Old Town Reports series from the 1970s and early 1980s; this may reflect the fact that the later post-medieval deposits on other sites had either been severely truncated by later building work (e.g. cellarage), or were removed with comparatively little recording in order to expose the tops of the medieval sequences. Hence, the Beverley Gate assemblage offers the opportunity to examine an excavated sequence of 18th- and 19th-century material from the town. Although Hull Museums holds vast quantities of Hull tobacco pipes (cf. Sheppard 1912; Watkins 1979), these are mostly chance finds from building sites, or represent donations from individual members of the public; many of these were acquired in the 19th century, or during the decades pre-dating the outbreak of the Second World War (e.g. there is a particularly large group from King Edward Street, where late 17th-century rubbish was disposed of in clay pits dug for brick manufacture: Sheppard 1912, 3 and 8).

Marked pipes

Whilst the bulk of the pipes are of local manufacture, there are a small number of London pipes, one or two Dutch pipes, and examples from other centres such as Nottingham, and possibly East Anglia. The Dutch pipes are of particular interest, in that they are amongst the first to be recognised from an excavation in Hull, as opposed to unstratified examples amongst the collections of Hull Museums; previously, Sheppard illustrated a fine example found in building work at *Ye Olde White Harte* in Silver Street (Sheppard 1912, 21), and, more recently, White has published an important group from the 1905 demolition of *The King's Head* in the High Street (White 2004, 152-7 and fig. 10.9), and presented the evidence for Dutch clay pipes in Eastern Yorkshire (*loc. cit.*, tables 5 and 10.8, and fig. 10.8). In more recent years, Dutch pipes have also been recognised at other sites, such as Queen Street, and Blanket Row (Didsbury 2011, fig. 33, no. 3). There is also an example of a stem bearing a Midlands-style border.

The site produced 13 examples of pipes marked with the maker's initial mould — imparted either on the heel of the pipe, or the sides of the spur. IR with stars may be East Anglian, and GD is possibly a Nottingham product; but the remainder are probably all local. Whilst the contexts in which these were found date to the 18th century and later, the strong component of residual material amongst this assemblage means that the series of marks begin in the later 17th century. Five of the stamps were found on the heels of the pipes, and comprise sets of initials —: viz. GC, NT, IE, RF, IC; one of the sets of initials flanking a spur is accompanied by a symbol (a star). Lastly, there is a single example of a pipe with a wheel stamp on its heel, in context **1**.

The groups of initials present include:

RB – A RB stamp (from layer **1**) was found on a Hull Type 4 pipe, datable to 1700-1770. This may be attributed to one of the following: Robert Bell (admitted 1701, died 1734), Robert Burrill the Elder (admitted 1683, died 1735), or Robert Burrill the Younger (admitted 1727, still alive in 1774). A second example (from layer **123**), which is unclear, might be an RB.

GC A GC stamp was recorded in a heart-shaped stamp on the heel of a pipe from context **1**. For a similar example found in High St, see Sheppard 1912, 14. A number of examples of this stamp have been recorded from sites in Beverley, and as far north as Newcastle upon Tyne.

IC An IC stamp was recorded on the heel of a Hull Type 4 pipe, dating from 1680 to 1710, in context **2**. This could be attributed to John Chapman I, who was a freeman in 1670, and was working in 1683. For other IC stamps, see Watkins 1979, fig. 3, nos 8-15. He appears to have been one of the most prolific of the Hull pipe-makers of the later 17th and very early 18th century, if the finds of pipes bearing his mark are a true reflection of his output.

RC: A RC stamp on the spur of a pipe dating from 1680 to 1710, in context **2**, may be attributed to Robert Chapman (admitted 1681, alive in 1711 and probably much later; his last apprentice was admitted in 1740).

GD: A GD stamp was recorded on the back of a pipe bowl of 1660 to 1680, from context **1**. If this were a Hull pipe, then this might be John Dalton the Elder (admitted 1695, dead by 1723) or John Dalton the Younger (admitted 1723, alive in 1724). This is the only example within the assemblage of a stamp on the back of a bowl, and it is not known as being a Hull technique. Susie White has suggested that this is possibly a Nottingham product. A possible candidate is George Doughtie of Nottingham, whose wife died in 1653, and whose *floruit* is believed to have been 1653-4 (see Oswald 1975 p. 48; p. 49 fig 6 (M1) for information. Examples of his pipes have been found in Lincolnshire – Wells 1979, 164).

IE: The author noted these initials within a circular stamp on a pipe from context **1**; a. similar stamp, in a circle, is published in his typology of Hull pipes (Watkins 1979, fig. 3, no.21): John Ellicar, or more probably John Eggleston. The latter was admitted as a freeman in 1679, whereas the former became a freeman in 1691.

RF A RF stamp was found on the heel of a pipe dating from 1660 to 1680 from layer **322**. There are no known Hull makers with these initials, but this is a well-known local stamp (e.g. Stothard in *SCPR News* no.**5**, p. 38).

IG (or SG): A stamp ending in G, and appearing to be IG, was found in context **322**. If the initials are IG, then this could be John Goldwell the Elder (admitted 1707, died 1743), or John Goldwell the Younger (alive in 1774). If they are SG, then this could be Samuel Goldwell (admitted 1745, alive in 1776 and probably much later; last apprentice admitted in 1802).

DK? The initials D and possibly a K appear on the spur of a Hull Type IV pipe of 1680 to 1710 from context **1**. There are no obvious candidates with these initials. If this were DU, then it could be Daniel Ufhay (bound as an apprentice to Robert Burrill I in 1685. If it were DS, then it might be David Stather (bound as an apprentice to Henry Norman II in 1702).

WK A WK stamp was found on a pipe dating from 1700 to 1770 in context **322**. This could be attributed to William Kite (admitted 1700, died 1722).

WM: A WM stamp was found on the spur of a pipe dating from 1700 to 1770 in context **54**. This has not previously been published as a local mark, but a number of examples have been found in the Beverley area (inf. Peter Rayner). A William Mowbray was bound apprentice to Henry Norman of Hull in 1679, but there is no record of him completing his apprenticeship. [A number of WM stamps are also known from York (Lawrence 1979, figs 3-4, nos 51-60), but these are attributed to William Moore, who was working from 1662 to *c.* 1670 (*ibid.*, 77), and are probably too early for this particular pipe.]

WP: A WP stamp was recorded on a pipe dating from 1700 to 1770 in context **1**. Four local pipe-makers with these initials are known - William Palmer (admitted 1721, alive in 1724); William Pattinson (admitted 1700, but no further information known); William Potter the Elder (who was working outside the town in Sculcoates in 1709); and William Potter the Younger (admitted 1717, still alive in 1754). This could be any of these.

*I*R: An *I*R stamp was recorded on the spur of a pipe dating from 1700 to 1770 in context **322**. Local makers with these initials are John Reed (admitted 1727, alive in 1754) and John Robson (an apprentice in 1720; admitted to the freedom in 1723, alive in 1754), but the mark has an additional star-shaped design which is not characteristic of Hull makers, but was used in Norwich.

NT A NT stamp in a heart was recorded on the heel of a pipe similar to a Hull Type VII of 1680 to 1710 from context **322**. This would be one of the Tarboton family — most likely Nicholas Tarboton I [who came to Hull in about 1682 or 1683, having served his apprenticeship in Selby; he established himself at Sculcoates, and took up his freedom in 1689-90 (Sheppard 1912, 15-16), and was dead by 1709]; Nicholas Tarboton II took the freedom in 1720, and which is perhaps slightly too late for this particular shape of pipe. For previously published stamps bearing the initials NT, see Watkins 1979, fig. 3, nos 40-6.

RT: A RT stamp was recorded on a Hull Type 7 pipe, dating from 1700 to 1770, in context **1**. This could be attributed to Richard Tock the Elder (working in 1719 and 1725), or one of his sons, Richard the Younger (admitted 1739), or Robert (admitted 1746).

WW Two WW stamps were recorded from layer **1** on the site (one definite, and one where the first letter is obscure; both date to the period from 1700 to 1770, and one of these is on a Hull Type 7 pipe). Both can be attributed to the well-known local pipe-maker, William Westerdale (working in 1754 and 1774; he had

apprentices in 1764- ?, 1767-74, and 1772 - ?). For examples of WW initials flanking a spur, see Watkins 1979, fig. 3, no. 68. [There are also two Westerdale bowls bearing a Wild Man design from layer **321**, but this may have been made by Mary Westerdale.]

Two of the pipes (of 1670-1710) have decorated stems bearing fleurs-de-lys within lozenges. These are of Dutch origin, and can be paralleled in the fine group from *The King's Head* Inn in the High Street (see White 2004, 152-7 and fig. 10.9). Another Dutch pipe (of 1650-80) has moulded pellets on the right-hand side of the bowl, and traces of a heel stamp.

As well as the above 17th- and 18th-century pipes bearing initials, there are also five later decorated pipe bowls — mostly in either the Phase V contexts (i.e. after 1776), or amongst the unstratified material. There are examples of three designs only. Two of the bowls are decorated with scallops, and with the Prince of Wales feathers; a third bowl has wheatears; and there are two examples of a design accompanied by a name — both Wildman pipes (one bears the name Westerdale, and the other name is obscure). For many more examples of pipes bearing the Prince of Wales feathers, see Atkinson in *SCPR News* **2**, 2-7.

Bowls

None of the bowls would appear to be any earlier than about 1630-50 (a bowl from context **336**) on typological grounds, with most being of 1640 or later. Many of the pipes are Hull products, and there are examples here of Hull Types 1, 1b, 1c, 2, 2a, 2b, 2e, 2f, 4, and 7 (see the typology published in Watkins 1979); there are also bowls which are similar to, but not identical to his Hull Types.

A number of bowls are similar to various London products. These are similar to London Types 10, 11, 15, 18, 22v, and 26. Although there are no indisputable examples of stamped London pipes amongst the assemblage, the close trading connections of the two ports make it highly likely that London products were reaching Hull and were in use here — particularly in the first half of the 17th century, before the Hull industry had established itself.

Pipe usage and manufacture in Hull

The types of pipe used in Hull can be divided into four main phases:

1. Pre-*c*. 1650, there is no evidence for manufacture in the town, so small quantities of London and Dutch pipes tend to dominate.

2. *c*. 1650-1700 represented the peak years for the newly established Hull pipe-making industry. Hull pipes were traded in quantity to other parts of the East Coast.

The earliest firm evidence for the production of clay pipes in Hull is for the year 1644, when Hugh Atkinson purchased his freedom (for the sum of £2) and established himself in the town. The next generation trained as apprentices to Atkinson (or his wife Elizabeth). The onset of manufacture was probably related to the loss of the monopoly of the London Guild, and the immediate spread of pipe-making across the country.

York was slightly earlier than Hull, in producing the characteristic Yorkshire bulbous shaped bowls. Non-Hull types were also present (e.g. barrel shaped).

3. *c*. 1700-75. The local industry continued to thrive, but the shapes produced were now standard nationally — horn-shaped, with mould-imparted initials on the sides of the spur. The earliest examples of this type made in Hull appear to be those of Benjamin Bell, so he may have introduced the new fashion to the town.

4. *c*. 1775-1860 represented the period of manufacturing decorated pipes. Because this period coincides with the pulling down of the defences, these types of pipes are relatively scarce at the Beverley Gate site. The construction of the Junction Dock (which opened in 1829) sealed the majority of the deposits with 2m of sterile clay. A few cuts subsequent to this related to the construction of the 1905 Monument Bridge, or to the laying of service trenches into Whitefriargate from *c.* 1866.

Stems

There are five decorated stems (two with fleurs-de-lys in lozenges (paralleled at *The King's-Head* Inn: see above). There are three rouletted stems, but none with any names or makers' initials. See Sheppard 1912, 15 (in groups of 7).

Only one example of a glazed stem tip was noted. Lastly, there is a stem from context **322** which still holds part of the copper-alloy boring-rod; this is quite clearly a waster fragment, as it could never have been smoked. Once again, this is confirmation that much of the material which was dumped on the site, and into the Town Ditch was rubbish, derived from other parts of the town.

The contexts of the material

A small amount of material was recorded from medieval contexts (Phase I), and is clearly either intrusive (e.g. the single stem from Context **51**), or has resulted from mislabelling on site (e.g. one finds tray has been labelled **123**, which should have been the Phase I clay bank, but the finds actually came from a Phase IV dump set against that bank).

Small amounts of material were recovered from Phase III (17th-century contexts). There is a bowl of *c.* 1630-50 from context **336**, and a stem decorated with stamped fleur-de-lys in lozenges from **335**; the latter is typical of Dutch clay pipes. There is insufficient pipe material present to be able to date any of these contexts with any certainty to the events of either the Civil War itself, or the previous decade.

An extensive range of material was recovered from Phase IV (*c.* 1700 – 1776) contexts; as this includes substantial quantities of pipes from the mid and later 17th century, there is clearly a very heavy residual component in these groups — which presumably represents the movement of old rubbish, disturbed from earlier contexts, and then its discard in the Town Ditch. This process would appear to have continued throughout Phase IV, as early material continues to be recorded, even within the very late layers and dumps of this phase.

The latest material in the road surfaces within the Phase IV passageway (contexts **216** and **5**) could date to *c.* 1700, but most of the associated pipes were clearly old rubbish, and were perhaps incorporated in cartloads of building material brought in to create this surface.

Material associated with the timber revetment erected in front of the Gate clearly incorporated large amounts of reused timbers and old rubbish. The latest pipe bowls in the associated dumps (e.g. **22**, **40**, **41** and **20**) date to perhaps 1710, but documentary evidence suggests that this timber buttress was put up in about 1735.

A new retaining bank (**31**) was then erected in front of the Gate, and the area to the east was reclaimed with a massive dump of sticky organic loam (context **1**). The pipes show that both of these deposits incorporated large quantities of old rubbish, which had been derived from elsewhere in the town. Hence, the date-range of the pipe bowls in bank **31** is 1640 – 1700, whilst that in context **1** is from as early as 1630 to possible as late as 1770; the latest definite date is represented by marked pipes of William Westerdale (who is known to have been working from at least 1754 to 1774), which suggests that the upper parts of dump **1** were still accumulating in the third decade of the 18th century.

The deliberate collapsing of the sides of the Phase II drawbridge-pit (**54**) contained a pipe bowl of 1700 to 1770, but other material, including the associated midden layer (**45**), incorporated a heavy residual (if not archaic) element, and is of little help in refining the dating of this phase. A late dump, **322**, accumulated close to the northern guard chamber; but, whilst this included demolition debris, it also included archaic rubbish (such as a 15th-century jeton). This is similarly reflected in its clay pipes, which included a range of material from 1660 to 1770 (e.g. a pipe of Nicholas Tarboton I, who is known to have worked up until 1709).

The onset of Phase V began with the construction of The Dock (later Queen's Dock) to the north in 1776, the infilling of what was left of the medieval Town Ditch in front of the Beverley Gate, and the spreading of the upcast from the excavation of the new dock. The Ditch was infilled with dumps of old rubbish (**116** and **321**), capped by a massive dump of soil (layer **2**); all of these layers contained mixed deposits of old rubbish plus demolition debris. The range represented was mostly from 1640 to 1770, and in the case of a single stamped stem from layer **2** and two decorated pipes from layer **321** (see below), possibly as late as the early 1820s. The presence of stamped and decorated Westerdale pipes (with decoration associated with the Battle of Waterloo) in layer **321** would certainly suggest that these dumps continued into the period 1815-21.

Other late Phase V activity would be represented by the dumping of levelling layers **17** and **16**, and comparable layers to the north and east (e.g. **118-19**, **117**, **113** and **112**); other finds (e.g. a coin of 1805 or 1806, and transfer-printed ware) take these well into the first three decades of the 19th century, and whilst the pipe groups contain a great deal of residual material, and are consistent with a date of at least 1800, some of the material in layer **16** is perhaps as late as 1830.

The catalogue (Figs 27-30)

(Fig. 27)

1. Pipe bowl of 1630-50; incised line below rim; round heel. Context 336, Phase III.
2. Pipe bowl of 1640 -60; rouletted band below rim. Similar to a London Type 10. Context 31, Phase IV.
3. Pipe bowl of 1640-60; incised line below rim; round slightly ovoid heel; highly fired. Context 1, Phase IV.
4. Pipe bowl of 1640-60; incised line below rim; cut mark on heel. Context 2, Phase V.
5. Pipe bowl of 1640-60; incised line below rim. Context 216, Phase IV.
6. Pipe bowl of 1640-60; incised line below rim; ovoid, almost heart-shaped base. Context 2, Phase V.
7. A possible Dutch pipe bowl of 1650-80; incised line below rim. Traces of an impressed heel stamp survive on a round heel; moulded pellets on right-hand side of bowl. Context 2, Phase V.
8. Pipe bowl of 1660-80; incised line below rim; ovoid, slightly heart-shaped heel. Context 216, Phase IV.
9. Pipe bowl of 1660-1700; bulbous bowl with incised line below rim; rounded heel. Context 216, Phase IV.
10. Fragmentary pipe bowl of 1660-90; spur form. Context 216, Phase IV.
11. Pipe bowl of 1660-80; incised line below rim; ovoid heel. Context 1, Phase IV.
12. Part of a pipe bowl of 1660-80; incised line below rim. Context 1, Phase IV.
13. Pipe bowl of 1660-80; incised line below rim; heart-shaped heel. Context 45, Phase IV.
/
(Fig. 28)
14. Pipe bowl of 1660-80; incised line below rim; spur form. Context 1, Phase IV.
15. Pipe bowl of 1660-80; incised line below rim; spur form similar to London Type 15. Context 1, Phase IV.
16. Pipe bowl of 1660-80; incised line below rim. Context 2, Phase V.
17. Pipe bowl of 1660-80; incised line below rim, and short spur. Context 2, Phase V.
18. Pipe bowl of 1660-80, ovoid base. Context 322, Phase IV.
19. Pipe bowl of 160-80; short spur. Context 2, Phase V.
20. Pipe bowl of 1740-70; plain bowl, with short spur. Context 116, Phase V.
21. Pipe bowl of 1680-1710; spur flanked by initials RC. This can be attributed to Robert Chapman, who was admitted as a freeman in 1681, and was working in 1711. Watkins notes that his marks nos 52-3 have previously been noted on pipes of Hull Types IVb and VIId (Watkins 1979, 109). Context 321, Phase V.

(Fig. 29)
22. Pipe bowl of 1660-80; similar in size to a Hull Type IIb, and with a slightly ovoid heel; incised line below rim. Highly burnished finish, and with a brownish patina under the burnish on the front and sides of the bowl. It bears a circular stamp on heel; stamp shows in relief the initials R.F flanking either side of a tobacco plant, set within a raised circle. Watkins published a similar stamp on a Hull Type IIh bowl (Watkins 1979, fig. 3, no. 31); Sheppard illustrated yet another variant (1902, 19, no, 32). There are no known Hull makers with these initials, Context 322, Phase IV.
23. Pipe bowl of 1660-80, with short spur; incised line below rim. Burnished. Small circular relief stamp on back of bowl, bearing the initials G.D. Possibly a Nottingham product; a possible candidate is George Doughtie of Nottingham, whose *floruit* is believed to have been 1653-4. Context 1, Phase IV.
24. Pipe bowl, with incised line below rim. Heart-shaped stamp on base of heel, bearing the initials G.C. For a similar example found in the High Street, Hull, see Sheppard 1912, 14. Context 1, Phase IV.
25. Hull Type II pipe bowl. Context 322, Phase IV.
26. Hull Type II pipe bowl, with incised line below rim. Circular relief stamp on heel, bearing the initials I.E flanking either side of a tobacco plant. For a similar stamp from Hull, see Watkins 1979, fig. 3, no. 21. Possibly John Eggleston, who was admitted as a freeman in 1679, or possibly John Ellicar. Context 1, Phase IV.
27. Base of pipe bowl with short pointed spur – possibly a Hull Type VIII; burnished. The initials I.G flank the spur; the letter "I" has a central serif. If the initials have been read correctly, them this could be John Goldwell the Elder (admitted 1707, and died in 1743); or it could be John Goldwell the Younger (who was alive in 1774). Watkins illustrates a similar set of initials which were found on a Hull Type VIII bowl (Watkins 1979, fig. 3, no. 59). Context 322, Phase IV.
28. Base of Hull Type IV pipe bowl of 1700-1770, with small round spur. Mould-imparted initials R.B. on either side of the spur. Watkins suggests a number of possible attributions: Robert Bell (admitted 1701, died 1734); Robert Burrill the Elder (admitted 1683, died 1735); Robert Burrill the Younger (admitted 1727, still alive in 1774). Context 2, Phase V.
29. Hull Type IVa pipe bowl of 1680-1710, with small round spur; traces of a thin incised line survive

just below the rim, in places. Highly burnished. Initials I.C stamped onto the base of the spur. For similar stamps, see Watkins 1979, fig. 3, nos 8-15. Watkins suggested that this was John Chapman I, who was a freeman in 1670, and was working in 1683. Context 2, Phase V.
30. Hull Type IVd pipe bowl of 1680-1710, with small round spur. Mould-imparted initials D.(?) K on either side of the spur. Context 1, Phase IV.

(Fig. 30)
31. Pipe bowl of 1680-1710; a thin-walled bowl, similar in profile to the front of a Hull Type VII, but not as broad. Burnished. Relief stamp on heel: the initial N.T within a heart-shaped stamp. This is most likely to be a pipe made by the Tarboton family – perhaps Nicholas Tarboton I, who came to Hull in about 1682-3, took up his freedom in 1689-90, and was dead by 1709. Watkins illustrates a number of his stamps (Watkins 1979, fig. 3, nos 40-45) and Sheppard illustrates yet another (1912, no. 10a); but this present stamp does not seem to have been previously published from the city. Context 322, Phase IV.
32. Hull Type VIIc pipe bowl of 1700-1770. Burnished. Mould-imparted initials W.P. on either side of the spur. The same stamp has previously been recorded on a Hull Type VIIc bowl (Watkins 1979, fig. 3, no. 63. Watkins notes that there were four known Hull pipe-makers with these initials during this period – William Palmer, William Pattinson, William Potter the Elder, and William Potter the Younger. Context 1, Phase IV.
33. Pipe bowl of 1700-1770, broadly similar in shape to a Hull Type VIIb. Burnished. Mould-imparted initials *I.*R on either side of the spur. Watkins illustrates three other I.R stamps flanking the sides of pipe bowl spurs (1979, fig. 3, nos 64-6), but none is accompanied by a star, and in one case the letter "I" bears a central serif; hence, this is a different stamp. The use of stars alongside the initials is not a characteristic trait of Hull pipe-makers, but has been recorded in Norwich. Context 322, Phase IV.
34. Pipe bowl of 1680-1710. Mould-imparted initials R.C on either side of the spur. Watkins suggests that this is Robert Chapman, who was admitted in 1681, and was still alive in 1711, and probably much later, as his last apprentice was admitted in 1740. Similar stamps have previously been recorded on Hull Type IVd and VIIb bowls (Watkins 1979, fig. 3, nos 52-3). Context 2, Phase V.
35. Hull Type VII pipe bowl of 1700-1770. Mould-imparted initials W.K on either side of the spur. Watkins suggests that this could be William Kyte, who was admitted in 1700, and died in 1722. Same or similar stamp previously recorded on a Hull Type VIIc bowl (Watkins 1979, fig. 3, no. 60). Context 322, Phase IV.
36. Hull Type VII pipe bowl of 1700-1770; burnished. Mould-imparted initials R.T on either side of the spur. This stamp has previously been recorded on a Hull Type VIIc bowl (Watkins 1979, fig. 3, no. 67). Watkins suggests that this can be attributed to one of the Tock family: candidates include Richard Tock the Elder (working in 1719 and 1725), Richard Tock the Younger (admitted 1739), and Robert Tock (admitted 1746). Context 1, Phase IV.
37. Hull Type VII pipe bowl of 1700-1770; burnished. Mould-imparted initials W.W on either side of the spur. For similar examples of these initials flanking the spurs of Hull Type VIIb and VIIc bowls, see Watkins 1979, fig. 3, no. 68. This can be attributed to William Westerdale, who was working in 1754 and 1774. Context 1, Phase IV.
38. Hull Type VII pipe bowl fragment of 1700-1770; burnished. Mould-imparted initials W.W on either side of the spur. For similar examples of these initials flanking the spurs of Hull Type VIIb and VIIc bowls, see Watkins 1979, fig. 3, no. 68. This can be attributed to William Westerdale, who was working in 1754 and 1774. Context 1, Phase IV.
39. A decorated Hull pipe of probable early to mid 19th century date. LHS: an upright Wild Man, naked except for a head-dress, holding a paddle; beneath this motif is a horizontal band bearing the name WESTERDALE. RHS: ditto. Back of bowl: the Arms of Prussia. The design is well-known, and was produced in a number of places (cf. Watkins 1979, fig. 6, no. 46). It has been suggested that the depiction of the Prussian Arms refers to the decisive role the Prussian army played at the Battle of Waterloo, and so these pipes should therefore post-date 1815. In addition to the mid 18th-century William Westerdale (see above), three later members of this family are known to have worked as pipe-makers in Hull: Thomas Westerdale (recorded in 1784 and 1786), Michael (attested in 1798, and died 1812), and Mary Westerdale (attested in Finkle Street, Hull, in the 1814 and 1823 Directories). If the assumption that this is a post-Waterloo design is correct, then an attribution to Mary Westerdale seems the most likely, and this would also fit the date of the context. Context 321, Phase V. [The illustrated bowl can no longer be found, but there are fragments of two additional bowls with this design from the same context; one of these has a large lump of slag adhering to the right-hand side of the bowl.]

40. A decorated Hull pipe of probable early to mid 19th-century date. Front of bowl decorated with prominent broad fluting; miniature fleurs-de-lys spring from the tops of the fluting. Back of bowl: Prince of Wales feathers. For a pipe of 1790-1810 from Lincoln, bearing a combination of fleurs-de-lys and fluting, see Mann 1977, fig. 16, no. 180; though different in the detail of the decoration, this is probably of broadly similar date to this Hull example. Context 321, Phase V. [There is another bowl with the same design, from layer 103.]

Table 3. The incidence of clay pipes by context

Phase	*Context*	*Bowls only*	*Bowls and stems*	*Stems only*	*Notes*
I*	051	0	0	1	Clearly intrusive
III	336	0	1	0	
	335	0	0	2	1 dec stem (fleur-de-lys)
IV	316	0	0	1	
	216	4	4	15	
	005	0	0	12	
	324	0	0	1	
	344	2	1	33	
	009	0	0	8	
	008	0	0	1	
	022	0	0	2	
	041	0	1	15	
	040	0	0	8	1 dec stem (fleur-de-lys in lozenges)
	020	3	1	24	
	021	1	0	2	
	003	0	1	5	
	031	3	0	33	
	001	23	26	241	spur initials WP (drawn 7365); spur initials ?W (drawn 7366); spur initials WW (drawn 7354); spur initials ?D (drawn 7363); spur initials RB (not drawn); spur initials ?RT (drawn 7359); wheel stamp on heel (not drawn); GD stamp on back of bowl (drawn 7358); IE stamp on heel (drawn 7351); GC-in- heart stamp on heel (drawn 7353)
	054	0	0	8	1 stem has spur with initials ?WM
	027	0	0	3	
	067	0	0	4	
	045	0	1	16	
	025	0	1	5	
	052	0	0	7	
	322	3	5	159	spur initials ?SG or IG (drawn 7357 as IG); spur initials WK (drawn 7356 & 4079); heel stamp NT in heart (drawn 7360); stem with bore rod; spur initials

					I*R* (drawn 7362); heel stamp RF (drawn 7364 & 4076); also drawn is 4075 a type II bowl without stamp
	123	2	1	7	Spur initials ?B (?RB)
V	103	0	2	1	1 dec bowl (scallop + Prince of Wales feathers, no name: not drawn but see no.4078, same design)
	102	0	0	2	dec stem (rouletted)
	116	1	1	2	
	321	3	4	39	1 Wild Man WESTERDALE bowl (drawn 4077), 1 Wild Man name obscure, 1 spur with ring stamp, 1 scroll & Prince of Wales feathers (drawn 4078, same design in BEG88.103)
	319	0	0	3	1 dec stem, 1 glz stem
	002	16	14	168	IC stamp on heel (drawn 7349); Spur initials RB (drawn 7355); spur initials RC (drawn 7350); dec stem
	050	0	0	1	
	016	0	1	2	
	119	1	2	10	
	118	1	0	6	
	307	0	0	1	
	326	0	0	2	
	334	0	0	4	
U/S	U/S (1988)	5	6	43	1 dec bowl - 3 ears of wheat
	U/S (1986)	0	0	2	
	100	0	1	6	
Totals		**65**	**72**	**905**	

Table 4. Detailed notes on the contexts which produced 17th- and 18th-century clay pipe bowls [data from S.D. White]

Phase	Context	B/S	Date1	Date2	H/S	B64	Bur	BX	M4	Rim	Cname	Sname	Other	P	T	M	Fig	Comments
III	336	B	1630	1650	H	6	0	-	0	B							01	
IV	216	B	1640	1660	H	-	0	0	0	B							05	
	216	B	1640	1680	H	7	0	-	-	-								Heart-shaped heel only
	216	B	1660	1675	H	7	0	0	2	B								Hull Type 2
	216	B	1660	1675	-	-	0	-	0	B								Hull Type 1; no heel
	216	B	1660	1680	H	7	0	0	0	B							08	
	216	B	1660	1700	H	6	0	0	0	B								Hull Type 2
	216	B	1660	1700	H	7	0	0	0	B							09	
	216	B	1660	1690	S	8	0	-	-	-							10	Spur form
	344	B	1660	1700	H	8	0	-	0	B								Hull Type 2
	344	B	1660	1700	H	-	0	-	0	1B								Hull Type 2; no heel
	344	B	1660	1700	H	6	0	-	-	-								Heel only
	344	B	1660	1700	H	6	0	-	-	-								Heel only
	322	B	1660	1690	-	-	-	-	-	B								
	322	B	1680	1710	-	-	G	0	0	B	N	T		H	R	S		Drawn by HAP (7360)
	41	B	1660	1680	H	7	0	-	0	B								Similar to 1548
	40	B	1660	1700	H	5	0	-	-	-								Heel only
	40	S	1670	1710	-	7	F	-	-	-			Fleur de lys	SX	R	S		Dutch
	20	B	1660	1680	-	8	0	0	0	B								London Type 18
	20	B	1660	1680	S	-	0	0	0	B								Similar to 1557
	20	B	1660	1700	H	6	0	0	0	B								Hull Type 2e
	20	B	1660	1700	-	-	0	0	0	B								
	20	B	1660	1700	H	6	0	-	-	-								Heel fragment
	21	B	1640	1670	H	5	0	-	0	B								Similar to 1548

	31	B	1640	1660	H	-	0	0	0	B								Similar to 1564
	31	B	1640	1660	H	-	0	0	3	B							02	Similar to London Type 10
	31	B	1660	1675	H	7	0	0	0	B								Hull Type 1b
	31	B	1660	1700	H	7	0	0	0	B								Hull Type 2
	31	B	1660	1700	H	7	0	-	-	-								Heel fragment
	31	B	1660	1700	H	8	0	-	-	-								Heel fragment
	1	B	1630	1650	H	7	0	0	0	B								Heart-shaped heel
	1	B	1640	1660	H	7	0	0	2	B								Heart-shaped heel, patinated to give the appearance of a white slip on a red fabric
	1	B	1640	1660	H	7	0	0	0	B							03	Highly fired
	1	B	1640	1660	-	6	0	0	0	B								
	1	B	1640	1660	-	6	0	0	0	B								
	1	B	1640	1670	H	7	0	0	0	B								Heart-shaped heel
	1	B	1660	1675	H	6	0	0	0	B			Cut H mark					Hull Type 1, cut mark on heel
	1	B	1660	1675	H	7	0	0	0	B								Hull Type 1
	1	B	1660	1675	H	6	0	0	0	B								Hull Type 1
	1	B	1660	1675	H	8	0	0	0	B								Hull Type 1
	1	B	1660	1675	H	-	0	0	-	-								Similar to Hull Type 1; no rim
	1	B	1660	1680	S	6	0	0	0	B							15	Spur form similar to London Type

																		15
	1	B	1660	1680	S	7	0	0	0	B							14	Spur form
	1	B	1660	1680	H	6	0	0	0	B							11	
	1	B	1660	1680	H	-	0	0	0	B							12	
	1	B	1660	1680	-	5	0	0	0	B	G	D		BF	R	S		Possibly Nottingham product, drawn by HAP (7358)
	1	B	1660	1680	S	7	0	-	0	B								Spur form similar to London Type 15
	1	B	1660	1680	S	8	0	0	0	B								Spur form as 1552
	1	B	1660	1680	S	-	0	0	0	B								Spur form
	1	B	1660	1680	H	-	0	0	0	B								Hull Type 2
	1	B	1660	1680	H	-	0	-	2	B								Hull Type 2
	1	B	1660	1680	S	-	0	-	0	B								Spur form as 1552
	1	B	1660	1680	H	6	0	0	/	B								Hull Type 2
	1	B	1660	1680	H	-	0	0	0	B								Hull Type 2
	1	B	1660	1680	-	-	0	0	0	B								Similar to London Type 18
	1	B	1660	1690	H	-	0	0	4	B								Hull Type 2b
	1	B	1660	1690	-	-	0	-	0	B								Bowl fragments
	1	B	1660	1690	-	-	0	-	0	B								Bowl fragments
	1	B	1660	1690	-	-	0	-	0	B								Bowl fragments
	1	B	1660	1700	H	6	0	0	1	B								Hull Type 2
	1	B	1660	1700	H	6	0	0	0	B								Hull Type 2
	1	B	1660	1700	H	6	0	-	0	-								Hull Type 2, patinated to give the appearance of

																		a white slip on a red fabric
	1	B	1660	1700	H	6	0	0	4	B								Hull Type 2
	1	B	1660	1700	H	8	0	0	-	-								Hull Type 2a or 2b; no rim
	1	B	1660	1700	H	6	0	0	0	B								Hull Type 2
	1	B	1660	1700	H	7	0	0	0	B								Hull Type 2
	1	B	1660	1700	H	7	0	-	0	B								Hull Type 2
	1	B	1660	1700	H	6	0	0	0	B								Hull Type 2
	1	B	1680	1710	H	6	0	-	0	1B			Wheel (15)	H	1	S		Hull Type 4
	1	B	1680	1710	H	6	0	-	2	1B	D	?K		SH	R	M		Hull Type 4, drawn by HAP 7363
	1	B	1680	1710	H	6	0	0	/	B								Hull Type 4
	1	B	1680	1710	H	-	0	-	-	-								Hull Type 4
	1	B	1700	1770	H	6	0	0	-	1?	R	B		SH	R	M		Hull Type 7, drawn by HAP
	1	B	1700	1770	H	5	0	0	0	1C	W	P		SH	R	M		Drawn by HAP (7365)
	1	B	1700	1770	H	5	0	0	0	C	R	T		SH	R	M		Hull Type 7, drawn by HAP (7359)
	1	B	1700	1770	H	6	0	0	0	W	W	W		SH	R	M		Hull Type 7, drawn by HAP (7366)
	1	B	1700	1770	H	5	0	-	-	-	W	W		SH	R	M		Drawn by HAP (7354)
	54	B	1700	1770	H	5	0	-	-	-	W	M		SH	R	M		
	45	B	1660	1680	H	7	0	0	0	B							13	
	45	B	1660	1700	H	6	0	0	-	-								Heel only
	25	B	1660	1700	H	6	0	0	0	B								Similar to 1556
	322	B	1660	1675	-	8	0	0	0	B								
	322	B	1660	1680	H	7	0	0	0	1B							18	
	322	B	1660	1680	H	7	G	0	2	B	R	F		H	R	S		Drawn by

																		HAP 7364
	322	B	1660	1700	H	5	0	0	-	-								Heel only
	322	B	1700	1770	H	4	0	0	0	C	*I	*R		SH	R	M		Drawn by HAP (7362)
	322	B	1700	1770	H	5	0	-	0	C	W	K		SH	R	M		Drawn by HAP (7356)
	123	B	1660	1675	H	6	0	0	1	B								Hull Type 1c
	123	B	1660	1700	H	7	0	0	0	B								Hull Type 2
	123	B	1700	1710	H	-	0	0	0	B	?	B		SH	R	M		
V	116	B	1640	1670	H	6	0	0	0	B			Cut H mark					Heart-shaped heel similar to 1548; cut mark on heel
	116	B	1740	1770	S	4	0	-	0	C							20	
	321	B	1610	1640	-	-	0	-	/	B								Bowl fragment
	321	B	1640	1670	-	6	0	-	/	B								Similar to London Type 11
	321	B	1680	1710	-	-	0	-	0	B	R	C		BS	R	M	21	
	2	B	1640	1660	H	7	0	0	0	B			Cut H mark				04	Cut mark on heel
	2	B	1640	1660	S	7	0	0	0	B							06	
	2	B	1640	1660	H	7	0	0	0	B			Milled H					Milled heel
	2	B	1640	1660	H	7	0	0	3	B								Similar to 1551
	2	B	1640	1660	-	7	0	0	0	B								
	2	B	1640	1660	-	7	0	0	0	B								
	2	B	1640	1660	-	7	0	0	0	B								
	2	B	1640	1660	H	6	0	0	0	B			Cut H mark					Similar to 1548; cut mark on heel
	2	B	1640	1670	-	-	0	0	0	B								
	2	B	1640	1670	-	7	0	0	0	B								
	2	B	1650	1680	H	-	0	0	2	B	?	?		H	R	S	07	?Dutch; only traces of heel stamp survive;

																	moulded pellets on RHS of bowl
	2	B	1660	1675	H	6	0	0	0	B			Cut H mark					Similar to Hull Type 1; cut mark on heel
	2	B	1660	1680	S	-	0	0	0	B							16	
	2	B	1660	1680	S	-	0	0	0	B							17	
	2	B	1660	1680	S	7	0	0	0	B							19	
	2	B	1660	1680	S	7	0	0	0	B								Same as 1552
	2	B	1660	1680	H	-	0	0	0	B								Similar to 1556
	2	B	1660	1680	S	7	0	0	0	B								
	2	B	1660	1690	H	6	0	0	2	1B								Similar to 1556
	2	B	1660	1690	S	7	0	0	0	B								Similar to 1557
	2	B	1660	1700	H	-	0	0	0	B								Hull Type 2
	2	B	1660	1700	-	6	0	0	/	B								
	2	B	1660	1700	H	7	0	-	0	B								Hull Type 2b
	2	B	1660	1700	H	7	0	0	0	B								Hull Type 2b
	2	B	1660	1700	-	-	0	0	0	B								Bowl fragments
	2	B	1660	1700	-	-	0	0	0	B								Bowl fragments
	2	B	1660	1700	-	-	0	0	0	B								Bowl fragments
	2	B	1680	1710	H	6	G	0	0	B	I	C		H	R	S		Drawn by HAP (7349); Hull Type 4
	2	B	1680	1710	-	6	0	0	0	C								Similar to London Type 22v
	2	B	1680	1710	H	-	0	0	0	B								Hull Type 4
	2	B	1680	1710	H	6	0	0	0	B								Similar to 1556
	2	S	1760	1800	-	-	-	-	-	-			Midland	RS	I	S		Midlands-

													border					style border
	16	B	1740	1800	-	-	0	0	0	C								Similar to a London Type 26
	119	B	1660	1675	H	7	0	0	0	B								Similar to Hull Type 1
	119	B	1660	1700	H	7	0	0	0	B								Hull Type 2f
	119	B	1700	1770	H	-	0	0	0	B								Hull Type 7
	118	B	1660	1700	H	-	0	0	0	B								Hull Type 2
U/S	U/S	B	1640	1660	-	7	0	0	0	B								Similar to London Type 10
	U/S	B	1640	1660	-	7	0	0	0	-								Similar to Hull Museum 893.1982.152
	U/S	B	1640	1660	-	7	0	-	0	B								Similar to Hull Museum 893.1982.190
	U/S	B	1640	1680	H	7	0	-	-	-								Heart-shaped heel
	U/S	B	1660	1675	H	6	-	0	0	B								Hull Type 1
	U/S	B	1660	1675	H	7	0	0	0	B								Hull Type 1 bowl, patinated to give an impression of white slip on a red fabric
	U/S	B	1660	1680	S	7	0	0	-	-								Spur form; no rim
	U/S	B	1660	1680	S	7	0	0	-	-								Spur form; no rim; patinated to give the impression of white slip on red fabric
	U/S	B	1660	1700	H	7	0	0	0	B								Hull Type 2
	U/S	B	1660	1700	H	7	0	0	0	B								Hull Type 2

	U/S	B	1660	1700	H	7	0	0	0	1B								Hull Type 2
	U/S	B	1660	1700	H	7	0	0	0	B								Hull Type 2
	U/S	B	1660	1700	H	-	0	0	0	B								Hull Type 2
	U/S	B	1660	1700	H	7	0	-	-	-								Heel only
	U/S	B	1660	1700	H	7	0	-	0	B								Hull Type 2f
	U/S	B	1680	1710	H	6	0	0	-	-								Heel only

Key:
B/S = bowl (b) or stem (s)
H/S = heel type bowl (H) or spur type bowl (S)
B64 = the measurement of the stem bore in 64th of an inch (e.g. 7 = 7/64, 6=6/64 etc.)
BUR = the degree of burnishing or polishing (A =average, G=good, P=poor, F=fine, 0 = none and - = can't tell)
BX = if a bowl cross is visible at the base of the bowl cavity (0=none, -=can't tell a + or X denote the type of cross if present)
M4 = the amount of milling around the rim (e.g. 1= 1/4 milled, 2=1/2 milled, 3=3/4 milled, 4=fully milled, 0 = not milled, - = can't tell, / = rim broken but all surviving rim milled)
P = position of mark (e.g. H = heel, SH = sides of the heel)
M = method for application of mark (e.g. stamped (S) or moulded (M))
T = type of mark (e.g. relief (R), incuse (I))

The other finds

The site produced a substantial cultural assemblage, but the bulk of these finds came from the post-medieval contexts, particularly within the upper deposits of the Town Ditch. Although a small but significant component was recovered from the medieval and Tudor deposits associated with the construction and use of the Beverley Gate, many of these items were incorporated within construction dumps or levelling layers, and therefore may represent items lost or discarded elsewhere in the town; they are far outnumbered by the much larger component of material which was dumped here in the 18th and early 19th centuries. Whilst these are unlikely to shed much light on the military role of the Gate and its occupants, they do offer a useful insight into everyday domestic life within a bustling town and major trading centre at this date.

Coins and Jeton

by the late E.J.E. Pirie

Catalogue

1. Large fragment of a French jeton, or reckoning counter, struck in copper. 15th-century issue.

> Obv.: Heater shield of France — modern, within a granulated circle; AVE MARIA [GRACIA PLENA] around.
> Rev.: A long cross fleur-de-lissée with a quatrefoil at centre, and within a tressure of four arches; no legend.
> Cf. Barnard 1916: France, nos 46-9.

RF 360, Context 322, Phase IV.

2. William III; December 1694 - March 1702. Halfpenny; Type 1, 1695-8
Badly weathered coin. 28mm in diameter.

The coin, which renders the King's name and title on the obverse as GVLIELMVS TERTIVS, has Britannia on the reverse, with the date in the exergue below. The specimen is too worn for the exact date to be determined.
RF 100, Context 20, Phase IV.

3. George III; 1760-1820. Penny, 1806-7.
The coin is now far too damaged by corrosion for the exact detail of the issue to be determined.
RF 123, Context 119. Phase V.

The Glass

by John Tibbles and D.H. Evans

The site produced a large assemblage of post-medieval window and vessel glass from contexts of Phases III-V (*c.* 1600-1830); the vast majority of this is probably of 17th- and 18th-century date. Much of it was found in the upper fills of the Town Ditch, and in the adjacent clay dumps in front of and on top of the Town Wall (e.g. layers **319** and **321-2**). There were no indications that any of this material included residual medieval glass. The glass can be considered under five broad categories: wine-bottles, apothecary bottles and phials, other vessels, window glass, and miscellaneous objects. Very little of this is likely to relate to the occupation of the Beverley Gate itself, and it

seems reasonable to consider most, if not all, of this as domestic town rubbish thrown into the Ditch, or disposed of during the slighting of the former defences.

Fragments of some 52 wine-bottles were recovered from deposits of Phases IV and V. Although these contexts date from after 1700, they contained a considerable amount of re-deposited 17th-century pottery and pipes; it seems reasonable to expect that some of the wine-bottles in these contexts may also be of this date. The majority of the fragments are in olive- or dark green glass which has weathered badly, and which often displays surface iridescence. In general, those fragments from the upper levels were less prone to water-logging, and hence have survived in better condition. A selection of the more complete examples is illustrated (Fig. 31).

Fragments of seven pharmaceutical bottles were found in contexts of Phases IV and V. Nos 53 and 54 are the rims of apothecary bottles of early-mid 18th-century type (Fig. 31, nos 6-7); no. 56 is probably the base of a similar vessel. A range of complete 18th-century forms was illustrated by Noël Hume (1976, fig. 17). Comparable examples to the Beverley Gate vessels have been excavated at Plymouth (dated to *c.* 1730: Fairclough 1979, fig. 50, no. 8), Exeter (dated to *c*. 1730-50: Charleston 1984, fig. 153, nos 162-3) and Southampton (Charleston 1975, fig. 226, no. 1602). Vessel no. 57 has a thicker rim, but otherwise is probably of similar form, though perhaps of later 18th-century date. No. 55 comprises the shoulder and narrow neck of a phial or small flask, whilst no. 58 consists of two body fragments of a rectangular bottle (perhaps a medicine bottle?) in a light green glass.

The remaining 22 vessels are mostly wine glasses from 18th-century contexts: some of these (e.g. no. 77) are likely to be quite late in date. The other vessels include a jug or bottle (no. 66) with delicate white-trailed decoration; a heavy footring from a bowl or dish (no. 72); and an everted rim of a very thin bottle (no. 62), which is similar in form to 17th-century examples from Exeter (Charleston 1984, fig. 150, nos 101-2).

Large quantities of window glass were recovered from Phase III (17th century) onwards. None of this was painted or flashed. Only two near-complete quarries were recovered; one was triangular, the other square.

Lastly, two other objects deserve mention (nos 121-2). Both were probably bottle-stoppers, and are of mid or late 18th-century date.

Catalogue

Wine-bottles (Fig. 31)

1. Fragment of dark green wine-bottle. Fair metal. RF 371, Context 322, Phase IV.
2. Five fragments of dark green wine-bottle. Poor metal. RF 3247, Context 322, Phase IV.
3. Two fragments of green wine-bottle. Poor metal. RF 3260a, Context 322, Phase IV.
4. Fragment of dark green wine-bottle. Poor metal. RF 3260b, Context 322, Phase IV.
5. Eighteen fragments of dark green wine-bottle, including single neck fragment. All of poor metal. RF 3101, Context 322, Phase IV.
6. Two fragments of dark green wine-bottle. Poor metal. RF 94, Context 5, Phase IV.
7. Three fragments of dark green wine-bottle. Poor metal. Heavily weathered. RF 128, Context 1, Phase IV.
8. Two fragments of dark green wine-bottle. Poor metal. RF 168, Context I, Phase IV.

9. Complete dark green wine-bottle base. Poor metal. RF 113, Context 123, Phase IV. [Fig. 31, no. 1]
10. Two dark green wine-bottle fragments. Poor metal. RF 126a, Context I, Phase IV.
11. Four fragments of dark green wine-bottle. Poor metal. RF 21, Context 54, Phase IV.
12. Fragment of dark green wine-bottle. Poor metal. RF 21a, Context 21, Phase IV.
13. Part base of dark green wine-bottle. Good metal. RF 3253, Context 352, Phase IV.
14. Fragment of green wine-bottle. Poor metal. RF 3252a, Context 344, Phase IV.
15. Fragment of dark green wine-bottle shoulder. Poor metal. RF 3252b, Context 344, Phase IV.
16. Fragment of green wine-bottle neck. Good metal. RF 3252c, Context 344, Phase IV.
17. Two fragments of dark green wine-bottle base. Poor metal. RF 119, Context 67, Phase IV.
18. Fragment of green wine-bottle. Good metal. RF 90, Context 27, Phase IV.
19. Fragment of dark green wine-bottle. Poor metal. RF 18, Context 40, Phase IV.
20. Three fragments of dark green wine-bottle. Poor metal. RF 17a, Context 1, Phase IV.
21. Fragment of green wine-bottle. Poor metal. RF 91, Context 26, Phase IV.
22. Fragment of dark green wine-bottle. Poor metal. RF 13a, Context 31, Phase IV.
23. Fragment of dark green wine-bottle base. Poor metal. RF 124, Context 41, Phase IV.
24. Fragment of dark green wine-bottle. Fair metal. RF 52, Context 52, Phase IV.
25. Fragment of dark green wine-bottle. Fair metal. RF 107, Context 3, Phase IV.
26. Fragment of dark green wine-bottle. Poor metal. RF 7a, Context 45, Phase IV.
27. Complete neck and rim of dark green wine-bottle. Poor metal. RF 14, Context 1, Phase IV. [Fig. 31, no. 4]
28. Fragment of dark green wine-bottle. Good metal. RF 384, Context 319, Phase V.
29. Dark green wine-bottle base. Poor metal. RF 394, Context 321, Phase V.
30. Four fragments of dark green wine-bottle. Fair metal. RF 395, Context 321, Phase V.
31. Fragment of dark green wine-bottle. Fair metal. RF 392, Context 321, Phase V.
32. Fragment of dark green wine-bottle. Fair metal. RF 389, Context 321, Phase V.
33. Five fragments of dark green wine-bottle. Fair metal. RF 388, Context 321, Phase V.
34. Seven fragments of dark green wine-bottle. Poor metal. RF 36, Context 2, Phase V.
35. Five fragments of dark green wine-bottle. Poor metal. RF 97a, Context 2, Phase V.
36. Four fragments of dark green wine-bottle. Poor metal. RF 87, Context 2, Phase V.
37. Fragment of green wine-bottle. Fair metal. RF 3249a, Context 326, Phase V.
38. Base of dark green wine-bottle. Good metal. RF 3245a, Context 301/302, Phase V.
39. Fragment of dark green wine-bottle base. Good metal. RF 3245b, Context 301/302, Phase V.
40. Ten fragments of dark green wine-bottle. Poor metal. RF 3246a, Context 321, Phase V.
41. Fragment of dark green wine-bottle. Poor metal. RF 121, Context 118, Phase V.
42. Complete dark green wine-bottle base. Poor metal. RF 6, Context 49, Phase V. [Fig. 31, no.2]
43. Five fragments of dark green wine-bottle. Poor metal. RF 146, Context 2, Phase V.
44. Fragment of dark green wine-bottle. Good metal. RF 101, Context 20, Phase V.
45. Complete dark green wine-bottle neck and rim. Poor metal. RF 105, Context 17, Phase V. [Fig. 31, no. 5]
46. Fragment of dark green wine-bottle. Poor metal. RF 137, Context 2, Phase V.
47. Complete neck of dark green wine-bottle. Poor metal. RF 2, Context 2, Phase V. [Fig. 31, no. 3]
48. Base of dark green wine-bottle. Fair metal. RF 112a, Context 103, Phase V.
49. Four fragments of dark green wine-bottle. Fair metal. RF l12b, Context 103, Phase V.
50. Two fragments of dark green wine-bottle. Poor metal. RF 166, Context U/S.
51. Fragment of green wine-bottle. Fair metal. RF 136, Context U/S.
52. Two fragments of dark green wine-bottle base. Fair metal. RF 164, Context 216, Phase IV.

Apothecary bottles and phials (Fig. 31*)*
53. Rim and neck of sea-green phial 2mm thick. Slight weathering. RF 396, Context 322, Phase IV. [Fig. 31, no. 6]
54. Complete bottle rim and neck with beginnings of vertical walls. Slightly square form, rather than cylindrical. Light green hue. RF 397, Context 322, Phase IV. [Fig. 31, no. 7]
55. Fragment of bottle shoulder, with part of neck remaining; diameter at neck 20mm. Light/medium green in colour, with heavy weathering (not illustrated). RF 109, Context 21, Phase IV.
56. Fragment of cylindrical phial or bottle base with a high kick. Opaque blue-green glass (not illustrated). Diameter of base 40mm. RF 3c, Context 2, Phase V.
57. Fragment of phial rim, 40mm diameter. Deep blue/black (not illustrated). RF 97b, Context 2, Phase V.
58. Two fragments of a rectangular bottle, 46 x 40+mm in size. Light green (not illustrated). RF 97d, Context 2, Phase V.

59. Fragment of transparent olive-green bottle glass, 2mm thick. Slight weathering (not illustrated). RF 362, Context 321, Phase V.

Other vessel glass (Fig. 31)
60. Fragment of pale green glass vessel. RF 3248, Context 323, Phase III.
61. Fragment of wine glass, pale blue. RF 94, Context 5, Phase IV.
62. Part of the everted rim of a pale green bottle. Base 55mm diameter; thickness 2mm. RF 128, Context I, Phase IV. [Fig. 31, no. 9]
63. Fragment of wine glass, pale blue. RF 168, Context 1, Phase IV.
64. Three curved fragments of pale green vessel glass. Slight weathering. RF 399, Context 322, Phase IV.
65. Fragment of pale green glass vessel rim. RF 3100g, Context 322, Phase IV.
66. Fragment of pale brown/yellow glass jug or bottle. Three fine pale blue/white applied trails in horizontal bands as decoration. Wrythen decoration on main body of vessel. RF 398, Context 322, Phase IV. [Fig. 31, no.8]
67. Two fragments of pale green wine glass, 2mm thick. RF 17b, Context 1, Phase IV.
68. Fragment of wine glass, pale blue, 1mm thick. RF 17c, Context 1, Phase IV.
69. Fragment of green glass vessel with a gentle rollover rim. RF 13, Context 31, Phase IV.
70. Fragment of wine glass, pale blue, 1mm thick. RF 127, Context 1, Phase IV.
71. Fragment of wine glass, pale blue. RF 97d, Context 2, Phase V.
72. Near-complete dark green glass bowl or dish footring, 50mm diameter. RF 4, Context 50, Phase V. [Fig. 31, no. 11]
73. Fragment of green wine glass. RF 87b, Context 2, Phase V.
74. Two fragments of light green fluted wine glass. Heavily weathered. RF 383, Context 319, Phase V.
75. Fragment of green glass vessel. RF 390, Context 321, Phase V.
76. Fragment of pale green transparent glass. RF 335, Context 319, Phase V.
77. Fragment of fluted wine glass, in clear glass. RF 386, Context 319, Phase V. [Fig. 31, no. 10]
78. Fragment of green wine glass. RF 393, Context 321, Phase V.
79. Two fragments of pale green glass vessel. One fragment has a shallow everted rim. RF 387h, Context 321, Phase V.
80. Fragment of pale green glass vessel, with everted rim. Three faint horizontal incised lines below the rim. RF 387g, Context 321, Phase V.
81. Fragment of dark green wine glass rim, 1.25mm thick. Vessel is 90mm diameter at top. RF 135, Context U/S.

Window glass
82. Three fragments of window glass, 2mm thick. Greenish hue. RF 3103b, Context 335, Phase III.
83. Fragment of window glass, 3mm thick, grozed along one edge. Green hue. RF 3102, Context 335, Phase III.
84. Fragment of opaque window glass, 3mm thick. One edge grozed. RF 3251a, Context 336, Phase III.
85. Fragment of window glass, 1.5mm thick. Pale green. Heavily weathered. RF 325lb, Context 336, Phase III.
86. Four fragments of opaque window glass, 1mm thick. RF 3103a, Context 335, Phase III.
87. Three fragments of clear window glass, 2mm thick. RF 3252d, Context 344, Phase IV.
88. Near-complete triangular glass quarry, 60mm x 30mm x 40mm. Weathered surfaces. 1.25mm thick. RF 109c, Context 21, Phase IV.
89. Two fragments of window glass, 1mm thick. Weathered surfaces. RF 109d, Context 21, Phase IV.
90. Fragment of window glass, 2mm thick. Heavily weathered surface. RF 7b, Context 45, Phase IV.
91. Fragment of opaque window glass, 1.5mm thick. RF 3247b, Context 322, Phase IV.
92. Fragment of opaque window glass, 1.5mm thick. Heavily weathered. RF 3247c, Context 322, Phase IV.
93. Four fragments of window glass, 1.5mm thick, each with one cut edge. Slight green hue. RF 3100a, Context 322, Phase IV.
94. Thirteen window fragments, 1mm thick. Green/blue hue. RF 3100b, Context 322, Phase IV.
95. Fragment of opaque window glass, 2mm thick. RF 3100c, Context 322, Phase IV.
96. Six fragments of opaque window glass, 2mm thick. Single fragment has one grozed edge. Heavily weathered. RF 3100d, Context 322, Phase IV.
97. Two fragments of opaque glass, 2mm thick. Blue hue. RF 3100e, Context 322, Phase IV.
98. Fragment of glass quarry, 80+mm x 36+mm x 2mm. Heavily weathered. RF 3100f, Context 322, Phase IV.

99. Fragment of window glass, 2.5mm thick. Slight green hue. RF 132, Context 1, Phase IV.
100. Four fragments of window glass, 2mm thick. Green/blue hue. RF 114, Context 123, Phase IV.
101. Near-complete square glass quarry. 25mm x 25mm x 3mm. Heavily weathered surface. RF 134, Context 1, Phase IV.
102. Fragment of window glass, with one curved cut edge, and one straight. 1mm thick. Green hue. RF 126b, Context 1, Phase IV.
103. Fragment of clear window glass, 2.2mm thick. Heavily weathered surface. RF 135, Context 1, Phase IV.
104. Fragment of opaque window glass, with single cut edge. 1mm thick. RF 94, Context 5, Phase IV.
105. Fragment of opaque window glass, 1mm thick. RF 112c, Context 103, Phase V.
106. Fragment of opaque window glass, 2mm thick. Heavily weathered. RF 387f, Context 321, Phase V.
107. Two fragments of opaque window glass, 1mm thick. Blue/green hue. RF 3, Context 2, Phase V.
108. Three fragments of opaque window glass, 2mm thick. Single fragment has one cut edge. Weathered surfaces. RF 97c, Context 2, Phase V.
109. Ten fragments of opaque window glass, 1mm thick. Green/blue hue. Single fragment has one cut edge. RF 116, Context 2, Phase V.
110. Fragment of window glass, 3mm thick. Pale green. RF 3249b, Context 326, Phase V.
111. Fragment of window glass, 1.5mm thick. Pale green. RF 3250, Context 334, Phase V.
112. Fragment of clear window glass, 2mm thick. RF 3246b, Context 321, Phase V.
113. Fragment of opaque window glass, 1mm thick. RF 3240a, Context 319, Phase V.
114. Fragment of opaque window glass, 2.5mm thick. RF 3240b, Context 319, Phase V.
115. Four fragments of window glass, 2mm thick. Greenish hue. RF 3240c, Context 319, Phase V.
116. Sixteen fragments of window glass, 2mm thick. One fragment has two cut edges forming a right-angle. All fragments have a slight green/blue hue. RF 387a, Context 321, Phase V.
117. Twelve fragments of window glass, 1.5mm thick. Green/blue hue. RF 387b, Context 321, Phase V.
118. Sixteen fragments of opaque window glass, 1mm thick. Slight green hue. RF 387c, Context 321, Phase V.
119. Three fragments of window glass, 3mm thick. Green/blue hue. RF 387d, Context 321, Phase V.
120. Two fragments of window glass, 3mm thick. Green/blue hue. One fragment has a single grozed edge. RF 387e, Context 321, Phase V.

Miscellaneous glass objects
121. Fragment of dark green glass bottle-stopper, 30mm diameter. RF 115, Context 123, Phase IV.
122. Black glass ball, with fragment of iron attached; diameter of ball 13mm. RF 158, Context U/S.

Objects of Iron

Whilst a modest amount of ironwork survived from medieval and early post-medieval levels, the great majority of the iron objects recovered were found in 18th- and 19th-century contexts — with many representing rubbish thrown into the Town Ditch. The assemblage includes three tools (two chisels and a file), a collection of blade fragments (five knives and a pair of scissors), parts of two household vessels or containers (a skillet and a vessel handle), a collection of building ironwork, horse-gear (a horseshoe fragment and some horseshoe nails), and some miscellaneous plates and bar fragments. One of the more interesting later objects was the iron collar around the junction of an 18th-century wooden water-pipe.

Catalogue (Fig. 32)

A. Building ironwork (Fig. 32)
1. Clench bolt head, 35mm x 45mm. RF 3259a, Context 337, Phase I.
2. Heavily encrusted square-shank, with a hooked terminal. Length 85mm. RF 3222, Context 336, Phase III. [Fig. 32, no. 1]
3. Heavily encrusted bolt fragment. Length 35mm. RF 3227, Context 336, Phase III.
4. Corroded pin shaft. Length 36mm. RF 214, Context 335, Phase III.
5. Corroded hinge pin. Length 110mm. RF 3218, Context 335, Phase III. [Fig. 32, no. 8]
6. Heavily encrusted bolt. Length 92mm. RF 3193 mm, Context 322, Phase IV.
7. Heavily encrusted hinge pivot. Length 36mm. RF 3203, Context 322, Phase IV.
8. Encrusted curved pin. Length 32mm. RF 3255b, Context 322, Phase IV.
9. Heavily encrusted bolt head. RF 3155, Context 321, Phase V.
10. Flat iron pin with head. Length 32mm. RF 3254b, Context 321, Phase V.
11. Encrusted flat strip. 45mm x 28mm. RF 3257b , Context 326, Phase V.
12. Encrusted tapering iron bar. 156mm x 38mm x 30mm. RF 142, Context 2, Phase V.
13. Hinge strap with three countersunk perforations at one end. 115mm x 50mm x 3mm. RF 111, Context 1, Phase IV. [Fig. 32, no. 2]
14. Heavily encrusted tapering iron object. Length 92mm. RF 119, Context 40, Phase IV.
15. Flat iron strip with single curved end. Length 27mm. RF 118, Context 67, Phase IV [Fig. 32, no. 3]
16. Encrusted flat iron strip. 62mm. x 40mm. RF 3195, Context 322, Phase IV.
17. Bar fragment. 114mm x 38mm x 15mm. RF 3105, Context 319, Phase V.
18. Square iron bar, 8mm x 8mm, length 72mm. RF 99d, Context 2, Phase V.
19. Flat iron strip, heavily encrusted at one end. 93mm x 24mm x 4mm. RF 125, Context 17, Phase V. [Fig. 32, no. 5]
20. Heavily encrusted cylindrical object. Length 52mm. RF 165, Context 218.
21. Heavily encrusted iron lump, with remains of a square shank. Possibly a square bolt. Length 55mm. RF 148a, Context U/S.
22. Fragment of encrusted iron rod. Length 200mm x 7mm diameter. RF 148b, Context U/S.
23. Length of flat tapering iron, with single curved end. Possibly a wall hook. RF 148c, Context U/S.

B Tools (Fig. 32)
24. Fragment of a small flat chisel blade. RF 9c, Context 25, Phase V. [Fig. 32, no. 6]
25. Complete tang and blade of stone-working chisel. Length 125mm, Blade length 62mm, blade width 44mm. RF 96, Context 2, Phase V. [Fig. 32, no. 9]
26. Tang and incomplete shaft of hexagonal file. Length 76mm. RF 1, Context 2, Phase V. [Fig. 32, no. 10]

C. Household ironwork (Fig. 32)
27. Small vessel handle, rectangular in section. 117mm x 8mm x 4mm. RF 3185, Context 322, Phase IV. [Fig. 32, no. 7]
28. Encrusted skillet base fragment with full side height. Height of side 60mm. RF 3186, Context 322, Phase IV.

D. Knives and scissors (Fig. 32)
29. Single arm of domestic scissors with closed oval finger-loop. Length 145mm. RF 104, Context 20, Phase IV. [Fig. 32, no. 4]
30. Complete knife tang with part blade. RF 93, Context 26, Phase IV. [Fig. 32, no. 11]
31. Heavily encrusted knife tang. Length 40mm. RF 3188, Context 322, Phase IV. [Fig. 32, no. 12]
32. Heavily encrusted knife, whittle-tang. Length 5mm. RF 1108, Context 21, Phase IV.
33. Heavily encrusted knife tang and incomplete blade. Length 65mm. RF 3202, Context 322, Phase V.
34. Clasp knife. RF 105, Context 19, Phase V. [Fig. 32, no. 13]

E. Miscellaneous (Fig. 32)
35. Plate fragment. 65mm x 40mm x 5mm. RF 3228, Context 337, Phase I. [Fig. 32, no. 16]
36. Bar fragment. 65mm x 20mm x 20mm. RF 377a, Context 336, Phase III.
37. Bar fragment. 80mm x 15mm x 7mm. RF 377b, Context 336, Phase III.
38. Bar fragment. 70mm x 13mm x 14mm. RF 377c, Context 336, Phase III.
39. Crescent-shaped bar fragment, heavily encrusted. Length 55mm. RF 3226, Context 336, Phase III. [Fig. 32, no. 14]
40. Bar fragment. 50mm x 40mm x 24mm. RF 3220, Context 335, Phase III.
41. Plate fragment. 42mm x 32mm x 14mm. RF 3213, Context 335, Phase III.

42. Encrusted plate fragment. 48mm x 46mm x 4mm. RF 3217, Context 335, Phase III.
43. Four large fragments of a heavily encrusted iron collar from a timber water-pipe. 56mm wide x 25mm thick. RF 350, Context 350, Phase IV.
44. Two fragments of iron plate 60mm x 22mm x 6mm. RF 3241, Context 322, Phase IV.
45. Heavily encrusted fragment of iron plate. 90mm x 65mm. RF 3204, Context 322, Phase IV.
46. Encrusted flat iron strip. 86mm x 25mm. RF 3210, Context 322, Phase IV.
47. Horseshoe fragment with three nail-holes. Length 85mm. RF 143, Context 2, Phase V. [Fig. 32, no. 15]
48. Shaft fragment. RF130, Context 1, Phase IV. [Fig. 32, no. 17]

Table 5. Nails from the 1988-9 excavations (BEG 88)

	Size			
Phase	**0-40 mm**	**41 – 90 mm**	**91 + mm**	**Total**
V	19	52	5	76
IV	14	30	6	50
III	0	6	0	6
II	0	0	0	0
I	1	0	0	1
	34	**88**	**11**	**133**

The majority of iron nails found were too corroded or heavily encrusted to be readily identified into separate groups. Two common factors could, however, be applied to the nails identified: the majority had rectangular tapering shanks, and flat round or square heads. The only exceptions were eight flat wood nails with expanded heads, and two horseshoes nails.

Objects of copper alloy

A small assemblage of copper-alloy objects was recovered from the excavations, but with the exception of a single medieval mount, these were all post-medieval in date — with most being of 18th- or 19th-century date. Many are dress-accessories, whilst there are also examples of scabbard chapes and mounts.

Catalogue (Fig. 33)

A. Dress fittings (Fig. 33)
1. Moulded dress fastener. 37mm x 15mm. RF 358, Context 336, Phase III. [Fig. 33, no. 1]
2. Pin shaft fragments. RF 373, Context 322, Phase IV.
3. Copper-alloy button, with eye brazed on reverse, with a perforation either side. Button seam has been brazed and polished. RF 15, Context 1, Phase IV. [Fig. 33, no. 2]
4. Disc-shaped button-cover, with four central perforations for attachment. 23mm diameter. RF 376, Context 321, Phase V. [Fig. 33, no. 3]
5. Copper-alloy button-cover, with indentation decoration around the edge of the upper surface. 24mm diameter. RF 375, Context 321, Phase V. [Fig. 21, no. 4]
6. Buckle fragment. RF 359, Context 319, Phase V. [Fig. 33, no. 5]
7. Buckle fragment. RF 361, Context 321, Phase V. [Fig. 33, no. 10]

B. Lace ends (Fig. 33)
8. Copper alloy lace end, Type II. Length 35mm. RF 367, Context 335, Phase III. [Fig. 33, no. 11]
9. Copper alloy lace end, Type II. Length 23mm. RF 366, Context 321, Phase V.

C. Miscellaneous (Fig. 33)
10. Oval mount with projecting pin. RF 147, Context 108, Phase I.
11. Strap mount with retaining pins. Length 40mm. RF 364, Context 324, Phase IV. [Fig. 33, no. 6]
12. Fragment of copper-alloy binding, with two perforations for attachment. RF 365, Context 344, Phase IV. (Fig. 33, no. 7)

13. Fragment of scabbard / sheath chape. RF 369, Context 322, Phase IV. [Fig. 33, no. 9]
14. Copper-alloy disc. 17mm diameter. RF 363, Context 322, Phase IV.
15. Copper-alloy lump. RF 357, Context 321, Phase V.
16. Crescent-shaped sheath or scabbard mount. RF 159, Context 214. [Fig. 33, no. 8]
17. Copper-alloy wire. 102mm long. RF 163, Context 216, Phase IV.

Objects of lead

A small quantity of lead was recovered from Renaissance and post-medieval levels. The majority of this comprised building lead (e.g. flashing, window came, and lead binding), but there were also single examples of lead shot, a hook, and pieces of residue or slag which indicate that some lead-working was taking place.

Catalogue (Fig. 34)

A. Building construction (Fig. 34)
1. Strip of lead binding, with two perforations 4mm apart in strip centre. Length 80mm x 14mm x 3mm. RF 370, Context 336, Phase III. [Fig. 34, no. 8]
2. Strip of lead flashing. 130mm x 10mm x 2mm. RF 374, Context 335, Phase III. [Fig. 34, no. 2]
3. Strip of lead flashing. 70mm x 12mm x 3mm. RF 368, Context 322, Phase IV. [Fig. 34, no. 1]
4. Strip of lead window came. 35mm x 12mm x 4mm. RF 356, Context 319, Phase V. [Fig. 34, no. 9]
5. Strip of lead window came. 65mm x 4mm x 3mm. RF 106, Context 17, Phase V.

B. Miscellaneous (Fig. 34)
6. Lead hook. 40mm long. RF 372, Context 344, Phase IV. [Fig. 34, no. 10]
7. Lead slag. RF 129, Context 1, Phase IV. [Fig. 34, no. 3]
8. Flat lead strip with single perforation. 57mm x 7mm x 4mm. RF 12, Context 31, Phase IV. [Fig. 34, no. 4]
9. Lead shot. Wt. 29gms. 27mm diameter. RF 102a, Context 20, Phase IV. [Fig. 34, no.11]
10. Lead strip. RF 157, Context 16, Phase V. [Fig. 34, no. 5]
11. Tangled fragments of lead strip. RF 157a, Context 16, Phase V. [Fig. 34, no. 6]
12. Tangled fragments of lead strip. RF 157b, Context 16, Phase V. [Fig. 34, no. 7]

Objects of stone

A small quantity of worked stone was recovered from post-medieval contexts. The most notable of these was a fragment of lava quern (no. 1) from the Mayen area of Germany; this was found in a 17th-century context, but could well be a residual medieval find. In contrast, the various bottle-stoppers are clearly of later 18th- or 19th-century date.

Catalogue (unillustrated)

1. Lower rim fragment from upper stone of quern. Mayen or Niedermendig lava. 200 mm x 88 mm x 35 mm. RF 387, Context 322, Phase IV.
2. Limestone bottle-stopper, polished. RF 128, Context 21, Phase IV.
3. Mis-shapen stone ball 20mm diameter. RF 102b, Context 20, Phase IV.
4. Half-segment of polished limestone bottle-stopper 18mm diameter. RF 138, Context 123, Phase IV.
5. Flint spherical nodule 26mm diameter. RF 141, Context 2, Phase V.

Objects of fired clay

Two of the three fired-clay objects are of post-medieval date (a bottle-stopper, and part of an inkwell or candlestick). The third is a medieval gaming counter, fashioned from a piece of roof-tile; similar examples have now been recorded from a number of medieval sites in both Hull and Beverley.

Catalogue (unillustrated)

1. Rough-cut, hexagonal-shaped clay counter, cut from a clay roof-tile. Sides vary from 30mm to 50mm in length. RF 149, Context 35, Phase I.
2. Polished fired-clay ball bottle-stopper, 15mm diameter. RF 25, Context 23, Phase IV.
3. Corner fragment of a fired-clay inkwell, or candlestick; this has some similarities to some Low Countries brickware objects (cf. Evans and Verhaeghe 2000), but both the fabric and the external surfaces are finer. Decorated cube, with no visible sign of weathering or wear (water?). Its fabric is coarse and sandy, with heavy black speckled inclusions, with smooth slip-coated outer surfaces. All the remaining edges appear to be knife-trimmed, and, as with the incised decoration, were produced before firing. Decoration appears on two of the three surfaces:

> Surface A. An uneven straight line margin, containing a 45 degree corner of a triangle, and a M-shaped mark in the upper right-hand corner.
>
> Surface B. Margin similar to 'A', with a straight diagonal line from the upper left corner to the opposite broken edge. The centre of the upper half has an inverted equilateral triangle, containing the letter 'T'. Bottom left-hand corner of surface has part of a similar triangle visible.
>
> Between the two surfaces the edge has an incision cut along its full length.

The upper surface has a large knife-trimmed (?) moulded, tapering hole, *c.* 50mm radius, plus a knife-trimmed moulded spout (?) running to the remaining corner. There is no visible decoration. *c.* 75mm x *c.* 60mm x *c.* 72mm. RF 150, Context 31, Phase IV.

Objects of worked wood

The waterlogged conditions which prevailed in the Town Ditch favoured the preservation of both structural wood and wooden artefacts. The latter included a medieval knife-handle, and a small collection of post-medieval objects (knife-handle, pin, pegs or dowels, and a bottle-stopper); these are mostly from the 18th- and 19th-century levels in the Town Ditch. The assemblage is unremarkable, and is typical of what might be expected in comparable groups elsewhere in Hull (e.g. Watkin 1987).

Catalogue (unillustrated)

1. Undecorated scale for butt-tang knife. Three rivet-holes visible along centre. Length 105mm, width 28mm, thickness 14mm. RF 154, Context 29, Phase 1.
2. Square-sectioned tapering wooden pin. Length 50mm. Thickness 5mm. RF 170, Context 20, Phase IV.
3. Round-sectioned dowel or peg, hand-carved to a point at either end. Length 93mm. Diameter 25mm. RF 171, Context 21, Phase IV.
4. Round-sectioned peg or dowel. RF 23, Context 21, Phase IV.
5. Peg or stake. Length 110mm. RF 153, Context 4, Phase IV.
6. Complete bottle cork or stopper. Length 38mm. Diameter 22mm – 16mm. RF 145, Context 2, Phase V.
7. Carved oval-shaped knife-handle, with horizontal bands of varying widths as decoration. One end has small hole for tang, whilst the opposite is rounded with a flattened nipple. Length 75mm. RF 160, Context U/S.

Worked Bone

By D.H. Evans and John Tibbles

Seven items of worked bone were found in the fills of the Town Ditch, and in the adjacent dumps covering the remains of the Town Wall and the earlier bank (layers **31**, **67**, **116**, **322**, **335** and **351**). Although these contexts are exclusively post-medieval (covering the period *c.* 1600-1830), at least one of the objects (Fig. 35, no. 3) is almost certainly of medieval date. The objects comprise five handles, a part of a musical instrument, and a rough-out or trial-piece.

Objects 1 and 2 are the handles of scale-tanged knives (Fig. 35). Their butt-plates were made from sheep and cow bone respectively, and were riveted to the iron tangs. No. 5 was plain, but the others were decorated.

The terminal of catalogue no. 4 has been finished as a woman's head (Fig. 35, no. 3). She is wearing a barbette and fillet over a hair-net; this is particularly clear at the back of the head. This type of head-dress is typical of the 13th and 14th centuries (pers. comm. the late Dr Sue Margeson). Her eyes, mouth, and nose are executed in stylised deep carving which stops at the neck; immediately beneath this are three deeply incised horizontal bands. This type of handle belongs to a class of small, whittle-tanged, light implements, which are found in bone, ivory, horn, antler, walrus ivory, and even wood; they are conventionally described as knife handles, but some are so small and would have had such thin tangs that they are more likely to have been *gravoirs* or hair parters (den Hartog 2012, 6-7). Precise parallels are often difficult to find, as the figures are very individual depictions; a few, like this example, bear stylised heads; but, the great majority depict highly detailed full-figure carvings. This type of anthropomorphic handle was first discussed in Danish by Mogens Bencard (1975) in a paper which was subsequently summarised in English (Howe 1983). Bencard's initial corpus contained 24 examples which were then known from NW Europe, but this has since grown to over a hundred, with a distribution over most of Northern, Central and Eastern Europe. A recent study of just two distinctive types of anthropomorphic figures (den Hartog 2012) includes a corpus listing examples in France (18), Belgium and Luxemburg (12), Netherlands (5), Germany (15), Switzerland and Austria (6), England (11), Norway (1), Sweden (14), Denmark (9), Estonia, Latvia and Lithuania (5), Poland and Russia (3), the Czech Republic and Hungary (2), and Italy (1). Nor is this exhaustive, as there are other types of depictions known (e.g. two examples from Perth in Scotland; Hall 2001), and there are also discoveries which were not known to den Hartog. Some of these additional examples were cited by Watkin (1987, 217), but there are also two examples from Novgorod (Brisbane 1992, 100, 2001-3, fig. VI.2, nos 1-3, and fig. V.3, no. 6), two from a 13th-century context in the Hanseatic foundation of *Elbing* – now called Elblag, in Poland (Nawrolska 2012, fig. 26, nos 1-2) – and one from the Hanseatic foundation of Breslau (now Wroclaw, Poland. Piekalski 2008, *Abb.* 8).

Of the 102 examples listed in den Hartog's corpus, 23 are listed as being made of elephant ivory (22.5% of the sample), two are of walrus ivory (1.9%; to which may now be added the two Perth handles), two of horn (1.9%), at least two of antler (1.9%), and one of wood (0.98%); but, the vast majority (perhaps almost 70%) have

been carved from bone. Bencard suggested a broad date-range of *c.* 1250-1400 for this type of handle, on the basis that their style of decoration was related to the Paris school of ivory carving (Howe 1983, 149); such a date-range is also consistent with archaeological evidence from excavations. As Paris was the centre of the ivory trade, a Parisian origin for the very best of the elephant ivory handles seems probable, but the rest of the handles are likely to have been made in various places in Europe; as den Hartog succinctly observed in her concluding remarks, 'the high-quality Parisian handles were copied by local craftsmen and copies made of the copies' (2012, 18). This would seem to tally with the archaeological evidence of examples being found in a bone-working workshop in Lübeck (*ibid.*, 21), and in a walrus ivory workshop in Perth (Hall 2001).

British finds of such handles include published examples from Chalgrove (Oxon.), Crowland Abbey (Lincs.), Coventry (2 examples), Fishbourne, Hartlepool (Daniels 2010, fig. 8.4), Hull (3 examples), London (2 examples), Ludgershall Castle (Wilts.), Oxford, Perth (Hall 2001), Peterborough, Southampton, and York. There are also unpublished examples in the National Museum of Scotland (MacGregor 1985, 10), and from Jewry Wall, Leicester (see Watkin 1987, 217).

Watkin (*op, cit.*) suggested that the distribution of these decorated handles might have related to the activities of Hanseatic merchants. When that thesis was first proposed, it seemed to find some initial support in the recognition of so many examples found in well-known Hanseatic towns, such as Greifswald, Hamburg, Köln, Lübeck, Magdeburg, Rostock, Schleswig, Stralsund, Antwerp, Bruges, Lund, Oslo, Ribe, Riga, Stockholm, Talinn, and Dorpat (Estonia. Mäesalu 2008, *Abb.* 6 and 7); however, the comprehensive work done by den Hartog shows that these objects had a much wider, almost pan-European distribution, and that they demonstrate that a taste for such objects went far beyond the limits of purely Hanseatic influence.

Handles from Ribe, Breslau and Elblag still had their blades *in situ* (Nawrolska 2012, fig. 26, no. 2), but in many cases (as with this Beverley Gate example) the small blade has exerted so much strain on the handle that it has split, and broken off near the base. Several depict aristocratic garments or headbands (as here), and many of the figures terminate in incised horizontal lines; Howe has suggested that the latter may have been intended to hold metal mounts – typically silver hilt-bands, as found on the example from Ribe (Howe 1983, 148). Gilchrist has proposed that these elaborately decorated anthropomorphic handles might represent wedding gifts (Gilchrist 2012, 127) – and some certainly would be conducive with the concept of courtly love; however, there are also some which depict darker themes (including a rape: den Hartog, figs 10-11), which would tend to undermine her thesis. A more plausible interpretation would seem to be that these represent examples of elegant table knives, which would be used mainly to prick small portions of pre-carved food from serving dishes, rather than for any heavier cutting work (den Hartog 2012, 7-8); such a use would at least be appropriate for the relatively slender tangs found inside many of these handles. The associated depictions of hunting and fashionable dress (both male and female) on many of these handles suggest that these were owned and used by the wealthier sections of society, and that their possession 'marked out its owner as a man or lady of good taste' (*ibid.*, 18).

Examples of bone handles from Oxford (Hook and MacGregor 1997, fig. 78 –

Ashmolean Museum acc. no. 1888.13a; MacGregor 1985, fig. 88t) and Hull (Watkin 1987, fig. 127, no. 390) have been dated respectively to the 13th century and the second quarter of the 14th century; a 13th-century date has been proposed for the Elblag example, whilst a general 13th- or 14th-century date-range has been suggested for many of the Baltic finds. The Perth example was found in an early 14th-century context (Hall 2001, 169). This Beverley Gate example is clearly re-deposited. [It is also worth noting that, in addition to the anthropomorphic handles such as the example discussed here, there is also a smaller series of comparable contemporary handles bearing zoomorphic representations – cf. examples from Hoorn (West Friesland, Netherlands) and from the Deutsches Klingemuseum, Solingen: Riijkelijkhuizen 2007, 34-5.]

Fig. 35, no. 6 is part of a woodwind musical instrument. It has been made from highly-polished cow bone, and bears a single finger-hole. The broader end bears an internal screw-thread to take another section; the other end appears to have a chamfer, suggesting that this too continued. There is a single raised band around the casing. It was found in an 18th-century deposit, and has affinities with flutes and whistles from other sites (cf. MacGregor 1985, fig. 78e and i).

The final item has been fashioned from a cow rib (Fig. 35, no. 7). It is probably an unsuccessful rough-out, which was simply thrown away: though clearly worked, it makes no sense as a finished article.

Catalogue (Fig. 35)

Handles (Fig. 35)

1. Complete knife handle, made from a sheep's tibia. Undecorated bone scale-plates, with iron rivets. Length 120mm. RF 3221, Context 335, Phase III. [Fig. 35, no. 1]
2. Complete knife handle, made from a cow's long bone. Encrusted iron tang, and decorated bone scale-plates, with three or more iron rivets. Decoration is in the form of four groups of four holes in trefoil pattern. Polished. Length 107mm. RF 10, Context 31, Phase IV. [Fig. 35, no. 2]
3. Decorated bone handle of a knife or fork, with the remains of an iron tang. Decoration consists of two horizontal bands above four dots. Length 47mm. RF 380, Context 322, Phase IV. [Fig. 35, no. 4]
4. Carved bone knife-handle in the form of a figure-head, showing clear facial features and hatched headgear; the latter depicts a barbette and fillet worn over a net. Three incised bands, directly below the head, run horizontally around the hollow tapering handle. Highly polished. Length 61mm. [For a discussion of the affinities and parallels of this piece, see the main text, above.] RF 117, Context 116, Phase V. [Fig. 35, no. 3]
5. Incomplete bone knife-handle, made from a sheep metapodial or tibia. Length 67mm. RF 167, Context U/S. [Fig. 35, no. 5]

Musical instrument (Fig. 35)

6. Fragment of a woodwind instrument, made from cow bone. One finger-hole is visible; the surface of the instrument has been polished, and this fragment bears a raised horizontal band decoration. A 3mm deep screw-thread has been cut on the inside of the rim at the bevelled end. RF 379, Context 351, Phase IV. [Fig. 35, no. 6]

Miscellaneous (Fig. 35)

7. Carved cow rib bone, with a broken end. Two notches have been cut on either side of the complete end — at 11mm and 13mm, respectively, from that end. The edges have been trimmed, and the whole article polished. Possibly an unfinished object, or a 'trial piece'. Length 260mm; width 16mm – 20mm; thickness 7mm – 13mm. RF 120, Context 67, Phase IV. [Fig. 35, no. 7]

The Leather

Introduction

The site yielded a substantial and significant assemblage of leather artefacts. Almost all of these were recovered from either the Town Ditch, or the lowest levels of the Beverley Gate itself, where the prevailing anaerobic conditions greatly favoured the preservation of organic remains; hence, some 97% of the artefacts described here were recovered from the stratified archaeological deposits investigated during the winter of 1988-9, whilst the earlier 1986 excavation (which concentrated on much higher and drier deposits) yielded only a single leather artefact.

The great bulk of the material was found in deposits dating to the 18th and 19th centuries; these were mostly either construction dumps and levelling deposits, or layers of deliberate dumping into parts of the Town Ditch, once it had become clear that the defences no longer served a major strategic role. The distribution of the stratified material by phase is as follows:

- Phase 1: 5.8% (eight items from two contexts)
- Phase II: 3.65% (five items from two contexts)
- Phase IV 62.7% (86 items from 13 contexts)
- Phase V: 26.28% (36 items from five contexts)

The fact that almost 89% of the recovered leather artefacts came from 18th- and 19th-century contexts makes this site significantly different from many of the other waterlogged sites within the Old Town, where the medieval and Renaissance deposits are characterised by substantial dumps of leather. This may partly reflect that in earlier periods the Town Ditch was more regularly scoured, in order to prevent the accumulation of any large deposits of rubbish near to the Gate; but, it may also reflect a relaxation of the enforcement of rubbish disposal measures within the town from the 18th century onwards, which perhaps accompanied the gradual neglect of the former Town Defences.

Because this material was almost invariably found in secondary contexts, where it was clearly reworked, it is interpreted as representing rubbish brought here from elsewhere in the town. Most of the material is worn, and was clearly old when deposited; many fragments show clear evidence of both wear and repairs. Hence, this is most likely domestic waste. If any of it represents trade waste, then the trades involved would have been those of the cobblers and translators, rather than the shoemakers or cordwainers. Some of the material may well have been archaic, when deposited here — perhaps suggesting that we are looking at the movement of old rubbish (e.g. from the upcast from digging pits or cellars through earlier deposits elsewhere in the town).

The range of artefacts represented here comprises

- A large collection of discarded footwear components (55.15%)
- Six items of clothing and dress accessories (four belts, and two scabbards) (4.41%)
- 55 offcuts and fragments (40.44%)

The heavy dominance of the assemblage by footwear is only to be expected, but the

range of material represented is significantly later than many of the other excavated Hull sites (cf. Watkin 1987 and 1993). Similarly, the belts and scabbards add to and extend the range of a growing collection of leather dress accessories recovered from Hull sites (*op. cit.*), the main difference being the later date of deposition of several of the Beverley Gate examples.

Catalogue (Figs 36-9)

Footwear

Soles (Figs 36-7)

1. Part of a sole for the right foot. Length 170mm. Pointed toe, broad tread, and a narrow waist. Part of the heel seat is missing. Stitch length 8mm. RF41.2, Context 29, Phase I. [Fig. 36, no.1[
2. Part of a sole for the right foot. Length 210mm. Elongated pointed toe curving to the right. The heel seat is missing. Width at tread 85mm; width at waist 45mm. Stitch length 6mm. RF47, Context 51, Phase I. [Fig. 36, no.2]
3. Part of a sole. Length 210mm. Rounded point to toe; broad tread and narrow waist. Heel seat is missing. Width at tread 91mm; width at waist 42mm. Worn at tread. RF62, Context 29, Phase I. [Fig. 36, no. 3]
4. Part of a two-piece sole for the right foot; this may have been for a poulaine. Length 204mm. Heel seat is missing. Long narrow toe, curving to the right; broad tread and a narrow waist. Width at tread 76mm; width at waist 33mm. RF155.4, Context 68, Phase II. [Fig. 36, no. 4]
5. Sole for the right foot (child's size 11). Length 200mm. Oval toe, narrow waist and heel seat; worn through at the heel seat, also worn at the tread. Width at tread 77mm; width at waist 34mm; width at heel seat 50mm. Stitch length 5mm. RF75, Context 14, Phase II. {Fig. 36, no. 5]
6. Part of a sole. Length 86mm; width 33mm. Nail-holes 10mm apart along one edge. RF155.2, Context 68, Phase II. [Fig. 36, no. 6]
7. Part of a sole. RF26.4, Context 45, Phase IV. [Fig. 36, no. 7]
8. A heel piece. Stitch length 10-20mm. RF26.5, Context 45, Phase IV. [Fig. 36, no. 12]
9. Sole for the right foot. Length 250mm (adult size 4 or 5). Pointed toe, worn through at tread. Width at tread 80mm; width at waist 35mm; width at heel seat 53mm. Stitch length 5mm. RF69.1, Context 23, Phase IV. [Fig. 36, no. 13]
10. Part of a sole. Length 134mm. Heel seat and most of waist missing. Stitching on grain side may show the position of an inner sole. Width at tread 60mm; width at waist 10mm. Stitch length 5mm. RF64.6, Context 21, Phase IV. [Fig. 36, no. 8]
11. Part of a sole. Length 62mm. Stitch length 6mm. RF56.4, Context 31, Phase IV. [Fig. 36, no. 9]
12. Part of a sole. Length 87mm. Stitch length 6-7mm. RF54.3, Context 31, Phase IV. [Fig. 36, no. 11]
13. The waist section of a sole, cut for reuse. Length 75mm. Stitch-holes show the position of an inner sole. Stitch length 3-4mm. RF54.4, Context 31, Phase IV. [Fig. 36, no. 14]
14. Part of a sole; the toe is missing, and it is worn at the tread and heel seat. Length 138mm; width at tread 77mm; width at waist 21mm; width at heel seat 35mm. Stitch-holes at the waist may indicate strengthening, as there is no wear apparent at this point. RF54.5, Context 31, Phase IV. [Fig. 36, no. 15]
15. Part of a sole. Length 78mm. Stitch length 10mm. RF45.2, Context 31, Phase IV. [Fig. 36, no. 10]
16. Part of a sole. Length 170mm. Toe and part of the tread are missing; narrow waist and heel. Stitching at the tread and waist indicates the position of a repair-piece. RF45.3, Context 31, Phase IV. [Fig. 36, no. 16]
17. Sole for the left foot. Length 280mm (adult size 8?). Pointed toe, broad tread, and a narrow waist and heel seat. Width at tread 95mm; width at waist 41mm; width at heel seat 55mm. Stitch length 7mm. RF46, Context 45, Phase IV. [Fig. 36, no. 17]
18. Sole for the right foot. Length 160mm (child's size 7 or 8). It has a pointed toe, a broad tread, and a narrow waist and heel seat. Back part of the heel seat is worn away. Width at tread 57mm; width at waist 23mm; width at heel seat 33mm. Stitch length 5mm. RF57, Context 31, Phase IV. [Fig. 36, no. 18]
19. Part of a sole. Length 122mm; waist 30mm. Stitch length 7mm. RF53.6, Context 31, Phase IV. [Fig. 36, no. 19]
20. Part of a sole. Stitching indicates the former presence of a repair-piece. Length 120mm; width 65mm. RF38.1, Context 31, Phase IV. [Fig. 36, no. 20]

21. Sole for the right foot (child's size 1 or 2). It has a heel piece, and the remains of an inner sole. Stitch length 4mm. RF37, Context 31, Phase IV. [Fig. 36, nos 21 and 22]
22. Part of a sole. RF33.2, Context 41, Phase IV. [Fig. 36, no. 23]
23. Sole for the right foot (child's size 9). Comprises an inner sole (length 178mm), and a double-layered sole with a repair-piece on the outer edge of the tread. Length 182mm. RF34, Context 45, Phase IV. [Fig. 37, no. 24]
24. Sole for the right foot. Length 152mm; pointed toe, very broad tread, and a narrow waist; heel seat missing. Width at tread 75mm; width at waist 30mm. Also has the remains of an inner sole, which appears to have been cut down. Length 82mm. RF83.3, Context 20, Phase IV. [Fig. 37, no. 25]
25. Part of a sole, with a small slot cut through it. Length 61mm. RF32.2, Context 40, Phase IV. {Fig. 37, no. 26]
26. Sole for the right foot. Length 190mm. Square-toed inner sole. Width at toe 60mm; width at tread 80mm; width at waist 52mm. Heel seat is missing. It has three incised lines from the toe to the waist on the flesh side. Stitch length 6mm. RF83.1, Context 20, Phase IV. [Fig. 37, no. 27]
27. Heel seat of a sole. Length 75mm; width 45mm. RF83.2, Context 20, Phase IV. [Fig. 37, no. 28]
28. Part of an inner sole. Length 85mm; width 80mm. Toe worn away; cut across tread. Stitch length 3mm. Also has the remains of tunnel-stitching. RF73, Context 22, Phase IV. [Fig. 37, no. 32]
29. Sole for the left foot. Length 265mm (adult size 5 or 6). Long pointed toe; slight signs of wear at tread and outer part of heel seat. Width at tread 83mm; width at waist 36mm; width at heel seat 51mm. Stitch length 5mm. RF70, Context 23, Phase IV. [Fig. 37, no. 29]
30. A composite sole comprising a heel piece, a near-complete sole with a rounded toe, and the waist section of an inner sole. Length 133mm (child's size 4). Width at tread 52mm; width at waist 42mm; width at heel seat 50mm. Stitch length 5mm. RF122, Context 1, Phase IV. [Fig. 37, no. 30]
31. Part of a sole; only the waist survives. Length 75mm; width 18mm. RF82, Context 3, Phase IV. [Fig. 37, no. 31]
32. Heel seat from a sole. Length 48mm. RF44, Context 1, Phase IV. [Fig. 37, no. 33]
33. Sole for the right foot (adult size 1?). Pointed toe, broad tread, and a narrow waist and heel seat. Worn through at the tread; part of the heel seat is missing. RF38.3, Context 31, Phase IV. [Fig. 37, no. 38]
34. Heel composed of four discs nailed and sewn together. Length 70mm; width 53mm. RF38.4, Context 31, Phase IV. [Fig. 37, no. 40]
35. Fragment of sole. Length 68mm. Stitch length 5mm. RF80, Context V, Phase IV.
36. Sole for the right foot. Toe, part of tread, and part of the heel seat, are all missing. Length 200mm; width at waist 25mm. Stitch length 7-8mm. RF51, Context 2, Phase V. [Fig. 37, no. 34]
37. Sole for the right foot. Length 168mm (child's size 8). Pointed toe, broad tread, and narrow waist; worn at heel seat. Width at tread 60mm; width at waist 18mm; width at heel seat 31mm. RF68.2, Context 2, Phase V. [Fig. 37, no. 35]
38. Part of an inner sole; the toe and part of the heel seat are missing. Length 120mm. Stitch length 5mm. RF31.1, Context 2, Phase V. [Fig. 37, no. 36]
39. Part of a sole. Length 50mm. RF40, Context 2, Phase V. [Fig. 37, no. 37]
40. Part of a sole. Length 111mm. Toe and tread missing; worn at heel seat; remains of tunnel-stitching at waist. Width at waist 22mm; width at heel seat 37mm. RF68.1, Context 2, Phase V. [Fig. 37, no. 41]
41. Part of a heel. Length 56mm; width 72mm. It has three lines of nail-holes, 5mm apart. One edge worn away. RF61.2, Context 2, Phase V. [Fig. 37, no. 42]
42. Part of a sole. Length 57mm; width 50mm. RF31.2, Context 2, Phase V. [Fig. 37, no. 43]
43. Toe and tread of an inner sole. Length 92mm. Stitch length 5mm. RF31.3, Context 2, Phase V. [Fig. 37, no. 44]

Uppers (Figs 37-8)

44. Fragment of upper. Length 70mm; width 45mm. Grain/flesh seams on two edges. Stitch length 3mm. RF59.3, Context 29, Phase I. [Fig. 37, no. 45]
45. Part of an upper with two lace-holes. Length 52mm; width 30mm. RF155.3, Context 68, Phase II.
46. Upper. Length 152mm; width 48mm. Stitch length at lasting margin 5-6mm. Decorative stitching down both sides and across the top. RF65.2, Context 1, Phase IV. [Fig. 38, no. 46]
47. Eleven fragments of upper from the lasting margin. Stitch length 6mm. RF69.2, Context 23, Phase IV.
48. Fragment of upper; part of a shoe's quarter, with one edge/flesh seam. Stitch length 5mm. RF26.1, Context 45, Phase IV. {Fig. 38, no. 47 upper]
49. A fastening strap from an upper. RF26.3, Context 45, Phase IV. [Fig. 38, no. 47 lower]

50. Fragment of upper. Length 112mm; width 73mm. Remains of edge/flesh seam along one edge. Stitch length 4-5mm. RF161.2, Context 216, Phase IV. [Fig. 38, no. 48]
51. Strap fastening from an upper. Length 65mm. One edge has an edge/flesh seam. Stitch length 4mm. All other edges have been cut. RF45.1, Context 31, Phase IV. [Fig. 38, no. 49]
52. Part of an upper, cut down for reuse. Length 120mm. RF29.2, Context 49, Phase V. [Fig. 38, no. 50 upper]
53. Part of a vamp with an edge/flesh seam along one wing. Stitch length 3mm. RF29.3, Context 49, Phase V. [Fig. 38, no. 50 lower]
54. Vamp with an edge/flesh seam on each wing. Stitch length 5mm. There are two thong- / lace-holes at the throat. The remainder has been cut away for reuse. RF35, Context 45, Phase IV. [Fig. 38, no. 51]
55. Part of a vamp with a low-cut throat. It has three edge/flesh seams. Stitch length 5mm. RF36.2, Context 50, Phase V. [Fig. 38, no. 52]
56. Part of the lasting margin of an upper. Length 140mm. Stitch length 6-7mm. RF53.1, Context 31, Phase IV. [Fig. 38, no. 53]
57. Part of an upper. Length 163mm. Stitch length 6mm. RF55.1, Context 31, Phase IV. [Fig. 38, no. 54 shows the accompanying lasting margin]
58. Lasting margin from an upper. Length 158mm. Stitch length 6mm. RF38.2, Context 31, Phase IV. [

Welts (Fig. 38)
59. Two fragments of a welt. Stitch length 8mm. RF26.2, Context 45, Phase IV. [Fig. 38, no. 56]
60. Welt. Length 100mm. Stitch length 6-7mm. RF49.4, Context 45, Phase IV. [Fig. 38, no. 57]
61. Welt. Length 70mm. Stitch length 7mm. RF52.2, Context 2, Phase V. [Fig. 38, no. 55]
62. Welt. RF52, Context 2. [Fig. 38, no. 58]
63. Welt. Length 115mm; width 13mm. Stitch length 5-6mm. RF161.1, Context 216, Phase IV. [Fig. 38, no. 59]

Rands (Fig. 38)
64. Rand. Length 120mm. Stitch length 7mm. RF41.1, Context 29, Phase I. [Fig. 38, no. 60]
65. Rand. Length 68mm. RF56.3, Context 31, Phase IV. [Fig. 38, no. 61]

Clumps (Fig. 38)
66. Clump; repair piece covering toe and tread. Appears to have been stitched onto the sole with wooden pins. Length 120mm; width 92mm. RF155.1, Context 68, Phase II. [Fig. 38, no. 62]
67. Clump, shows signs of considerable wear. Two edges are torn; remains of tunnel-stitching. Length 93mm; width 80mm. RF56.5, Context 31, Phase IV. [Fig. 38, no. 63]
68. Clump soles; two repair pieces, roughly the same size, with numerous stitch-holes in both. Length 88mm; width 71mm. RF42, Context 31, Phase IV. [Fig. 38, no. 64]
69. Clump fragment, with tunnel-stitching along one edge. Length 111mm. RF53.3, Context 31, Phase IV. [Fig. 38, no. 65]
70. Clump fragment, with tunnel-stitching along one edge. Length 91mm. RF53.4, Context 31, Phase IV.
71. Clump, with tunnel-stitching along three edges. Length 77mm. RF53.5, Context 31, Phase IV. [Fig. 38, no. 68; see also no. 69 from the same context]
72. Clump; repair piece covering the toe and tread. Tunnel-stitching around all edges. Length 170mm; width at tread 91mm. RF55.2, Context 31, Phase IV. [Fig. 38, no. 72]
73. Clump; repair piece with numerous stitch-holes. Length 97mm; width 78mm. RF74, Context 1, Phase IV. {Fig. 38, no. 66]
74. Clump; repair piece. Length 76mm; width 64mm. RF86, Context 1, Phase IV. [Fig. 38, no. 67]
75. Clump. Length 81mm; width 53mm. Tunnel-stitching near three edges. RF52.1, Context 2, Phase V. [Fig. 38, no. 70]
76. Clump; repair piece for the edge of a sole. It has one edge/flesh seam, and tunnel-stitching. Length 77mm. Stitch length 5mm. RF61.1, Context 2, Phase V. Fig. 38, no. 71]

Belts (Fig. 39)
77. Belt. Length 498mm; width 12mm, tapering. Buckle-pin hole at narrow end. Two embroidered stripes run the full length. RF63, Context 29, Phase I. [Fig. 39, no. 73]
78. Belt? Length 137mm; width 12mm. One end torn; the other end has a metal stud and a slit, 45mm long, down the centre. Two embroidered stripes run from the slit to the torn end. A circular

impression may show the position of another stud, 50mm from the strap end. RF76.2, Context 23, Phase IV. [Fig. 39, no. 74]

79. Belt, pointed at one end, with eight buckle-holes down the centre, at intervals of 23mm. Decorated with two engraved lines — one near each edge. Length 185mm; width 17mm. RF50, Context 9, Phase IV. [Fig. 39, no. 75]
80. Belt? Length 158mm; width 37mm. Belt-end decorated with two rows of iron studs. RF81, Context U/S. [Fig. 39, no. 76]

Scabbards (Fig. 39)

81. Part of a scabbard with an engraved decoration. Length 95mm; width 60mm. Stitch length 11mm. RF33.1, Context 41, Phase IV. [Fig. 39, no. 77]
82. One half of a scabbard. Length 184mm; width 70mm. Decorated with wooden studs? Flesh/grain stitching. RF67, Context U/S. [Fig. 39, no. 79]

Offcuts and miscellaneous fragments

83. Trimming. Length 138mm. RF59.1, Context 29, Phase I.
84. Unidentified fragment. Length 44mm; width 36mm. RF59.2, Context 29, Phase I.
85. Offcut. Length 41mm. RF133, Context 1, Phase IV.
86. Offcut. Length 26mm. RF139.1, Context 21, Phase IV.
87. Fragment from a sole. Length 50mm; width 47mm. Remains of a seam on two edges. Stitch length 6mm. RF139.2, Context 21, Phase IV. [Fig. 39, no. 78]
88. Offcut. Length 85mm; width 54mm. RF140, Context 3, Phase IV.
89. Offcut, or binding strip? Length 110mm; width 20mm. RF80, Context 20, Phase IV.
90. Offcut. Length 71mm. RF77.2, Context 21, Phase IV.
91. Offcut. Length 65mm. RF77.3, Context 21, Phase IV.
92. Unidentified fragment. Length 33mm; width 28mm. RF77.4, Context 21, Phase IV.
93. Unidentified fragment. Length 67mm; width 58mm. RF77.5, Context 21, Phase IV.
94. Fragment. Length 85mm; width 75mm. Has five wooden pins through it in one corner. RF48, Context 52, Phase IV. [Fig. 39, no. 82]
95. Unidentified fragment. Length 48mm. RF49.1, Context 45, Phase IV.
96. Offcut. Length 91mm. RF49.2, Context 45, Phase IV.
97. Trimming. Length 110mm. RF49.3, Context 45, Phase IV.
98. Unidentified fragment. Length 68mm; width 53mm. RF76.1, Context 23, Phase IV.
99. Fragment. Length 80mm; width 62mm. Remains of stitching along two edges. RF65.1, Context 1, Phase IV. [Fig. 39, no. 83]
100. Trimming. Length 45mm. RF77.1, Context 21, Phase IV.
101. Offcut. Length 97mm. RF64.1, Context 21, Phase IV.
102. Trimming. Length 76mm. RF64.2, Context 21, Phase IV.
103. Offcut. Length 80mm. RF64.3, Context 21, Phase IV.
104. Unidentified fragment. Length 40mm; width 38mm. RF64.4, Context 21, Phase IV.
105. Fragment. Length 43mm; width 32mm. Remains of stitching along one edge. Stitch length 5mm. RF64.5, Context 21, Phase IV.
106. Offcut. Length 107mm. RF39.2, Context 1, Phase IV.
107. Offcut. Length 62mm. RF39.3, Context 1, Phase IV.
108. Two pieces joined together by an iron stud; originally part of an object which has torn away from the rest. The larger fragment has four large oval stitch-holes, along with several small tunnel stitch-holes, and a line of fine round stitch-holes along one edge. Length 107mm; width 76mm. Stitch length 3mm. RF39.4, Context 1, Phase IV. [Fig. 39, no. 80, upper and lower]
109. Offcut. Length 77mm. RF71, Context 1, Phase IV.
110. Unidentified fragment. Length 47mm. RF72, Context 21, Phase IV.
111. Offcut. Length 49mm. RF54.1, Context 31, Phase IV.
112. Trimming. Length 87mm. RF54.2, Context 31, Phase IV.
113. Trimming. Length 70mm. RF56.1, Context 31, Phase IV.
114. Trimming. Length 95mm. RF56.2, Context 31, Phase IV.
115. Trimming. Length 86mm. RF53.2, Context 31, Phase IV.
116. Trimming. Length 99mm. RF84, Context 21, Phase IV.
117. Offcut. Length 95mm. RF27, Context 41, Phase IV.
118. Three pieces held together by 13 iron studs and wooden pegs. The top piece has been cut with three wavy lines to form a decorative design. Length 135mm; width 100mm. RF28, Context 1, Phase IV. [Fig. 39, no. 81]

119. Roughly rectangular fragment, comprising two layers of leather held together with small wooden pegs or pins, running down the centre. The top layer of leather is now mostly missing. The edges look largely original. Length 74mm; width 45mm. RF32.1, Context 40, Phase IV. [Fig. 39, no. 84]
120. Offcut. Length 91mm. RF43, Context 52, Phase IV.
121. Offcut. Length 90mm. RF39.1, Context 1, Phase IV.
122. Offcut; part of a sole cut down for reuse. Length 75mm. RF78.1, Context 2, Phase V. [Fig. 39, no. 85]
123. Trimming. Length 103mm. RF78.2, Context 2, Phase V.
124. Unidentified fragment. Length 42mm. RF78.3, Context 2, Phase V.
125. Offcut. Length 34mm. RF79, Context 2, Phase V.
126. Unidentified fragment. Length 55mm. RF85.1, Context 2, Phase V.
127. Offcut. Length 115mm. RF85.2, Context 2, Phase V.
128. Offcut. Length 53mm; width 50mm. It has three nails/studs through it. RF85.3, Context 2, Phase V.
129. Offcut. Length 97mm. RF61.3, Context 2, Phase V.
130. Offcut. Length 115mm; width 79mm. RF61.4, Context 2, Phase V.
131. Unidentified fragment. Length 37mm.RF58.1, Context 2, Phase V.
132. Rand fragment? Length 77mm. RF58.2, Context 2, Phase V. [Fig. 39, no. 86]
133. Offcut. Length 62mm. It has one edge/flesh seam (stitch length 5mm), and two parallel rows of stitch-holes down the centre (stitch length 3mm). Two cut edges. RF58.3, Context 2, Phase V. [Fig. 39, no. 87]
134. Fragment with one cut edge; all the rest torn. Length 98mm. RF29.1, Context 49, Phase V.
135. Offcut. Length 190mm; width 110mm. RF36.1, Context 50, Phase V.
136. Trimming. Length 80mm. RF66, Context 25, Phase V.
137. Unidentified fragments. RF381, Context 307, Phase V.

The textile fragments from the Beverley Gate

By Penelope Walton Rogers
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Introduction

Two fragments of textile were recovered from a levelling deposit (**49**) in the Town Ditch in front of the Gate, among material thought largely to represent the upcast from the excavation of the adjacent Junction Dock in 1826-9 (Evans pers. comm.). The two pieces are obviously originally part of the same object, a curved length of felt, probably a hat brim, edged with a narrow ribbon.
Context: BEG88, Phase V, Context 49, RF30.

Description

The fragments of felt measure 320 x 60mm and 80 x 40mm. Both have a curving outer edge (Fig. 40), along which a ribbon, 12mm wide, has been stitched, so that it binds the cut edge; the inner edge of the felt is torn.

The felt is smooth-surfaced, relatively stiff and heavy, and approximately 2.5mm thick. It is made from a blend of wool and rabbit hair, predominantly rabbit hair. Fibre specialist, H.M. Appleyard, comments that the rabbit fibres are largely of the fur type (the finer undercoat fibres), with a few of the coarser guard hairs. He suggests that wool was introduced to help bind the felt together.

The ribbon is made from wool, and is woven in tabby (plain weave). The thin warp (lengthways threads) almost covers the thicker weft (crossways threads), so that the

ribbon has a ribbed effect. The warp is a fine yarn, weakly Z-spun, 30-40 threads per cm (the highest count is at the selvedges). The weft is coarser, Z-spun, 14-16 per cm. The ribbon has been stitched to the felt with a well-spaced hemming stitch, approximately 12 per 10cm. The sewing yarn is wool, plied in the S direction from two Z-spun yarns (Z2S).

The felt and the ribbon were tested separately for dye. Absorption spectrophotometry followed by thin-layer chromatography showed the presence of tannins, that is, pyrogallol with a possible trace of ellagic acid, in both samples. The tannins were considerably stronger in the ribbon, suggesting that it was originally dyed dark brown or, more probably, black. A certain amount of tannin may also be acquired during burial (from leaf-mould, wooden artefacts etc), and it is therefore not possible to tell whether the felt was dyed beige or grey, or was originally white and stained with tannins from the surrounding earth.

Comment
True felt, made by compacting fibres with the help of heat and moisture, was being made in England by Henry VIII's reign (Bowden 1962, 47), most commonly in the hatting industry. Compared with woven cloth, the output was small, and finds of felt from archaeological sites are relatively few. Surviving examples include a mid 14th-century felt hat, covered in silk, from Little Sampford, Essex {Finch 1983), and a felt hat brim from late medieval Carlisle (E. Crowfoot, pers. comm.).

The Beverley Gate fragments also resemble the shape of a hat brim, although the shallow curve of the outer edge suggests a very wide-brimmed hat, with a diameter of more than half a metre (Fig. 41). Hats with broad encircling brims were worn by fashionable women in the late 18th century, then fell from favour until they reappeared in the 1820s; those with a particularly wide brim were popular around 1790, and again in 1830 (Arnold 1964, 20; Gibbs-Smith 1960, pls 68-79); after 1830 smaller poke bonnets were worn. In the late 18th and early 19th century men also adopted flat-crowned hats, sometimes sporting wide brims (Harrison 1960, 154). Both men and women occasionally wore hats with brim-edges trimmed in a different colour.

The use of rabbit fur is particularly interesting. The felt hat industry is nowadays the major consumer of good quality rabbit pelts (Wildman 1954, 145), although when this began is not clear. S.W. Beck, when writing in *The Draper's Dictionary* in 1886 (p. 78), thought it was comparatively new, but Grace Darling's bonnet, made in 1838, proved to have been made from 'a densely textured felt' of 'angora rabbit hair' (Glover 1980, 113).

Conclusion
The fragments from Beverley Gate are almost certainly from a broad-brimmed hat of pale felt, with a black ribbon edging. The style of the brim conforms with the archaeological date of the late 1820s. The use of rabbit fur in the felt is useful evidence of an early introduction of fur felts.

Masonry

A small quantity of masonry fragments was recovered from Phase V or unstratified contexts. None is of any note. The sandstone probably came from North Yorkshire, the Magnesian Limestone from the Tadcaster area, and the Oolitic limestone from the quarries around the North and South Cave area.

Catalogue

1. Sandstone. Roughly carved block, with two curved edges. Slight tooling on three sides. L. 380mm. W. 200mm. Th. 140mm. M.1, Context 2, Phase V.
2. Sandstone slab. Possible fragment of millstone. Slight tool-marks. L. 380mm. W. 280mm. Th 60mm. M. 2, Context 2. Phase V.
3. Magnesian Limestone (fossiliferous) slab. L. 380mm. W. 320mm Th. 16mm. M.3, Context U/S
4. Limestone block. L. 340mm. W. 360mm. Th. 140mm. M..4, Context U/S.
5. Limestone block. L. 460mm. W. 285mm. Th. 160mm. M.5 , Context U/S
6. Sandstone block. L. 380mm. W. 180mm. Th. 140mm. M. 6, Context U/S

The clay roof-tile

by John Tibbles, with D.H. Evans

The use of clay tiles as a roofing material in this part of Yorkshire is attested from the second half of the 12th century. Quantities of tile fragments were present in the 1188 fire horizon at Lurk Lane, Beverley (Armstrong *et al.* 1991), whilst discarded fragments were also present in Phase 5 contexts (mid to late 12th century) at Eastgate, Beverley (Evans and Tomlinson 1992). On almost all of the excavated sites within the Old Town of Hull, roof-tiles have been found throughout the archaeological sequences, from the late 13th century onwards (cf. Armstrong and Armstrong 1987, 234).

On the present site, broken roof-tile fragments have been observed in a number of places near the base of the bank, underlying the Town Wall; this bank is the earliest feature on the site, and presumably dates to the documented construction of a bank-and-ditch defensive circuit in the early 1320s. Production of these 'thaktiles' is assumed to have been taking place in Hull at this date at the de la Pole tilery in Northfield (Armstrong and Armstrong 1987, 234); there may well have been other tileries in this area also making roof-tiles, but the only other documented tilery (the Royal or Corporation tilery) appears to have specialised in brick manufacture (Brooks 1939, 160). In addition, a number of tileries were operating in the Beverley area throughout the Middle Ages, and these almost certainly supplied building materials to Hull, in competition with the Hull production sites. Nor are these likely to have been the only production sites in the region, as the alluvial clays found throughout much of the Hull Valley would be suitable for tile manufacture (cf. the 13th-century monastic kiln sites at Meaux, to the south-east of Beverley: Eames 1961); nevertheless, Hull and Beverley remain the two most likely sources of supply.

Type Series

Flat tile
Type 1A

Dimensions:	L. 270-295mm; W. 165-180mm; Th. 13-15mm
Fabric:	Smooth, homogeneous fabric with no inclusions. Usually oxidised throughout, producing a colour range from orange to buff. Most examples have a slip wash.

Suspension: Single central pulled nib.
Manufacture: Moulded, with lipping of lower edges. Underside is rough and heavily pitted. Upper surface is smooth, and finger-ridged.
Contexts: Phase I: 107, 121, 337
Phase III: 335, 336
Phase IV: 1, 21, 322
Phase V: U/S

Type 3
Dimensions: +/- 350mm; W. 203-210mm; Th. 13-15mm
Fabric: Evenly fired orange fabric with dark inclusions. Sandy harsh surface texture. Buff slip wash on most examples.
Suspension: Single square tapering hole, either central, or to the right of centre.
Manufacture: Moulded, with a lip on both upper and lower edges. Underside is rough and heavily pitted. Upper surface is evenly smooth, and not sanded.
Contexts: Phase IV: 1

Type 6 (variant)
Dimensions: L. 270-280mm; W. 180-190mm; Th. 15mm
Fabric: Hard, dense, smooth fabric with fine quartz sand and white inclusions, which appear on the surfaces. Either oxidised throughout, or more usually oxidised margins and reduced cores. Pinky orange to dull salmon colours.
Suspension: Square-shaped nib, to the left of centre. Knife-trimmed.
Manufacture: Moulded, with lipping on upper and lower edges. Underside is pitted, whilst upper surface is smooth.
Contexts: Phase IV: 21

Type 7
Dimensions: L. 305-315mm; W. 190-210mm; Th. 15mm
Fabric: Smooth, dense fabric with fine sand. Fleshy pink to orange colours.
Suspension: Single small tapering round peg-hole, right or left of centre, and between 20mm and 30mm from top edge.
Manufacture: Lipping of bottom edges from mould. Underside is pitted and sandy. Upper surface is smooth. Impression of handle of puncturing tool often impressed into the surface around the suspension-hole.
Contexts: Phase V: 301, 302

Type 8
Dimensions: L. ?; W. 205mm; Th. 15mm
Fabric: Dense, orange fabric with fine sand, quartz and white inclusions.
Suspension: Single small tapering round peg-hole, centrally placed, 35mm from top edge. Hole tapers from 13mm to 10mm, and is made from the underside.
Manufacture: Lipping of bottom edge from mould. Underside is sandy with white flecking. Broad longitudinal striations on upper and lower surfaces.
Contexts: Phase V: U/S, 119, 319

Type 11
Dimensions: L. ?; W. ?; Th. 15mm
Fabric: Smooth, hard, dense, homogeneous fabric. Pinky orange in colour, with no noticeable inclusions.
Suspension: Two round holes, 100mm apart, and 20-30mm from top edge.
Manufacture: Underside is pitted, and upper surface is well-smoothed.
Contexts: Phase IV: 10, 21, 22, 322

N.B.: One fragment differed by having a creamy-buff fabric, and another by having two differing-sized peg-holes.

Pantile
Dimensions: L. ?mm; W. 190+mm; Th. 18mm

Fabric:	Dense homogeneous fabric with occasional speckled inclusions. Colours range from orange to salmon pink.
Suspension:	Square-shaped nib, knife-trimmed, situated at top centre of tile.
Manufacture:	Moulded into a characteristic pantile shape, with lipping on lower edge. Underside is heavily sanded. Upper surface is smooth.
Contexts:	Phase IV: 1, 20, 27, 123, 310, 322, 324, 344 Phase V: U/S, 2, 16, 17, 25, 50, 100, 102, 103, 118, 119, 305/6, 307, 319, 321

Hip tiles

Type 1A

The hip tile displays the same finger corrugations and slip-wash finishes which are characteristic of the contemporary plain tiles. The top is square-cut, and the peg-hole is circular, and made from the upper surface.

Contexts: Phase V: 305/6

Ridge tiles

Plain unglazed

Three fragments with a harsh sandy fabric, with heavy black inclusions. Colours range from orange to a salmon pink. Finger-ridges across the brow and length of the tile. Heavy pitting on the underside.

Contexts: Phase I: 29, 32
Phase IV: 5

Glazed

One fragment of brown lead-glazed ridge tile was present in a Phase I (medieval) context. The fabric was a dense, sandy orange, with no visible inclusions. Remnants of mortar still adhered to the underside.

Contexts: Phase I: 337

Glazed floor-tile

by John Tibbles

Nine fragments of undecorated floor tile were recovered from the excavation. All are worn, and are likely to have been re-deposited on the site as rubbish. Whilst all are likely to be medieval in date, only two examples were recovered from Phase I contexts, and none at all from Phase II; the remaining seven were found in contexts ranging in date from the end of Phase III (the late 17th century), to Phases IV and V (18th century and later) — and thus the great majority are heavily residual in context. There is no suggestion that any of the guard-chambers, associated with the Gate, were floored with tiles.

Four of the tiles bear a white slip under the glaze, which has fired yellow; these are probably later medieval imports of plain glazed tiles from the Low Countries (cf. Stopford 1997; 2005, Ch. 20; 2011, 137). The other five fragments have light or dark green lead glazes, and are presumably English plain glazed tiles.

Catalogue

1. Fragment with dark green glaze on the upper surface. Pale brick-red fabric with black speckled inclusions. Underside has coarse sandy surface. Depth 40mm. Context 319 (1374.86.HU), Phase V.

2. Fragment with dark green glaze on the upper surface. Orange fabric with occasional speckled inclusions. Underside has coarse sandy surface. Single remaining side face is smooth. Depth 40mm. Context 45 (BEG 88), Phase IV.
3. Corner fragment, with dark green glaze on the upper surface, and speckles on one side. Possible heavy wear on tile centre causing the remaining glaze to be visible on the tile edges only. Dark brick-red fabric with occasional inclusions. Both remaining sides are smooth, with a sandy surface on the underside. Depth varies between 38mm and 42mm. Context 123 (BEG 88), Phase I.
4. Corner fragment, with dark green glaze on the upper surface, which shows signs of wear. Two die nail-holes, diagonally opposite each other, set 55mm apart, appear in the glaze, which is also present on one side, whilst the other side remains smooth. The underside is rough. The fabric is a pale brick-red, with no visible inclusions. Depth 25mm. Context 31 (BEG 88), Phase IV.
5. Corner fragment, with a white slip coating under the glaze, which has fired a greeny yellow. Slight traces of glaze along the edge of the underside. The fabric is brick-red, with occasional black speckled inclusions. The underside has a sandy finish, and bears the impression of a thumb-print. The sides are smooth, and bear traces of both slip and glaze. Depth 38-40mm. Context 336 (1374.86.HU), Phase III.
6. Corner fragment, with a white slip coating under a clear glaze, which has fired yellow. Slight traces of glaze also remain on the side. Brick-red fabric, with no visible inclusions. Context 120 (BEG 88), Phase I.
7. Fragment with a white slip coating under a glaze which has fired yellow. The slip coating did not extend fully to the edges of the tile, and where the slip is absent, the glaze has fired brown — thus creating a thin brown margin around the edges of the tile. Traces of brown glaze also show on one side. Fleshy red fabric, with occasional black speckled inclusions. Traces of mortar adhere to the underside. Depth 30mm. Context 21 (BEG 88), Phase IV.
8. Corner fragment: as no. 6, but with a darker brick-red fabric. Traces of glaze on both sides. Context 1 (BEG 88), Phase V.
9. Fragment with a light green glaze on one side, and none now surviving on the upper surface. The fabric is orange, with the occasional large inclusion. Depth 38mm. Context 1 (BEG 88), Phase V.

The Bricks

By John Tibbles and D,H. Evans

Introduction

The construction of the Hull defences is believed to have required over 4.7 million bricks (excluding the Gates); the great majority of these bricks (if not all) were certainly made in Hull. There are documentary references to at least two ‘tileries’ in the town during the Middle Ages (Allison 1969, 57) — the de la Pole tilery, and the Royal (later, the Corporation) tilery — and there may well have been others; as bricks were then usually termed *waltiles* in contemporary documents, the term *tilery* should be treated with caution. Of these two known production sites, the Royal or Corporation tilery appears to have specialised in the manufacture of bricks (Brooks 1939, 158). The earliest references to it are in 1303, when its output was 54,350 bricks. In the following year, this had risen to 92,000, and production was to continue on this site until at least 1324 (*ibid.*, 156). At this date, this tilery occupied a site outside the fortifications between Monkgate and the Humber — “outside the town ditch and next to the Humber” (Horrox 1983, 171, n. 24). It was subsequently moved to a new site, further north; Brooks suggested that this move took place in 1324, when the Corporation is known to have purchased an extra plot of land for a tilery (Brooks 1939, 156), but Horrox has argued convincingly for the move probably having taken place in 1356, when a new tilery was documented as being under construction (Horrox 1983, 176, n. 78; Allison 1969, 57). The new site lay outside the postern at

the end of Kirk Lane — the modern junction of Posterngate with Princes Dock Side — a mere 300m south of the Beverley Gate. Some production accounts for this tilery survive for the period 1394/5 – 1437/8, and show that its annual output fluctuated between 46,000 and 105,000 bricks (Brooks 1939, 157). They were fired in turf-fired kilns, in loads of about 36,000 bricks; in most years, there were only two firings — rising to three in 1433 (*ibid.*, 159). The average retail price seems to have been about 5s. per thousand bricks (*ibid.*, 160). The proximity of the successive tileries to the site of the Beverley Gate strongly suggests that this Corporation tilery was the main source of supply of the bricks found during the excavation. If this were indeed the case, then the bulk of this tilery's output may have been utilised in the construction of the town's defences. This was certainly Leland's impression: "Most part of the brik that the waulles and houses of Kingston wer buildid was made without the south side of the toun; the place is caullid the Tylery" (Woodward 1985, 11). Moreover, the completion of the main circuit of walls in the first two decades of the 15th century may have contributed substantially to the subsequent decline of the Hull brick-making industry in the following two decades. Production at the Corporation yard was last recorded in1438, and by 1443 the town was buying in bricks from elsewhere — mainly from the Beverley tileries which were to supplant the Hull industry (Horrox 1983, 176, n. 78).

Given the enormous volume of bricks used in the town defences, compared to the relatively modest annual output of the Corporation tilery, it is hardly surprising to find that (a) it took over 70 years to complete the walled circuit, and (b) that there is substantial variation in the size and finish of the bricks found in different parts of these defences. Different parts of the circuit were built at different times, and major structures such as the Town Gates were periodically strengthened and enlarged. Hence, those bricks from the Beverley Gate guard-chamber (a mid 17th-century structure) are generally thicker and narrower than those used in the adjoining section of the (medieval) Town Wall; whilst the latter are different again from those used at Blanket Row (Tibbles 2011), or in the sections of the wall at Humber Street (Bartlett 1971). Some of these variations reflect significant differences in the dates of construction; however, others may simply reflect the fact that any large-scale engineering project of this nature would have been carried out in stages, with different work gangs being responsible for different sections of brickwork — an analogous situation to that observed on sections of Hadrian's Wall (Hooley and Breeze 1968).

Brick sizes and their possible chronological ranges

Nine major brick types and three sub-groups were present on this site, and were defined on the basis of their dimensions, finish and fabrics (see below); of these 12 categories, seven are likely to have begun production during the medieval period (Types 2, 4a, 4b, 6a,6b, 8 and 9).

Medieval contexts (Phase Ib)

Brick-built structures first appeared in Phase Ib, which dates broadly from the mid or later 14th century to *c.* 1540. The largest structure belonging to this phase is the Town Wall (**327**). Here, in the stretch next to the Beverley Gate, the bricks used in its construction ranged in size from 260-285mm in length, 140-150mm in width, and 50-62mm in thickness; though, as we seen in Part I (above), the brickwork used in other parts of the Town Defences can vary considerably. This probably reflects little more than that a large civil-engineering project like this took many decades to complete,

and that materials from a number of different brickyards would have been employed in different sections; the documentary records for the construction of the North Bar in Beverley in 1409 show that it incorporated bricks and *sqynchons* from 24 different tilers and brick-makers (Leach 1896, 29-37), and there may have been a similar variety of suppliers in the case of the Hull defences over more than half a century. The bricks used in the Town Wall are somewhat larger than those surviving in the east end of Holy Trinity church, which is thought to have been erected in the period *c.* 1300-1320 (Pevsner and Neave 1995, 505); those in its north wall average 247 x 121 x 52mm, whilst their counterparts in the south wall average 234 x 111 x 59mm — the slightly shorter bricks used in the church may reflect the fact that this part of the Town Wall was built at a somewhat later date (perhaps half a century or more later).

The bricks used in the Phase Ib buttresses at the Beverley Gate itself (contexts **6**, **66**, **345** and **347**) were similar to those used in the Town Wall, and averaged 270 x 140 x 45mm in size. Because these buttresses were sealed beneath Phase II brickwork, and have been left *in situ*, no samples were removed, and thus none appears in the tables below; however, these may represent complete examples of Type 2 bricks. In addition to those bricks which were incorporated in extant walls and buttresses, there were also discarded whole and part-bricks of Types 2, 4a, 4b, 6a, 6b and 8 in contexts **29**, **35**, **39**, **337**, **341** and **342**.

From the above, it can be seen that medieval bricks, both from this site, and from elsewhere in the town, range between 234mm and 290mm in length; this range corresponds with imperial sizes from just under 9½ inches to almost 11½ inches long.

It is also noticeable that the products of the Hull industries were slightly different in size from those which were being produced at nearby Beverley during the same period. The bricks used in the extant 1409 North Bar are somewhat shorter than their Hull counterparts. Here, the range is 220-245 x 108-120 x 50-56mm, with most averaging 240 x 115 x 55mm.

Phase II (c. 1540-1600)
Between 1541 and 1543 a major new set of defences was constructed on the east bank of the Hull (see Part II, above). Documentary evidence records that a new brick kiln was built on the east bank of the Hull to provide the bricks for these new works (the erection of the Castle, the two new Blockhouses and the Curtain Wall). Numerous excavations on different parts of these defences have shown that a number of different sizes of bricks were used in their construction. The South Blockhouse was built of two main sizes of bricks: 200-220 x 100-105 x 50mm, and 245-260 x 130-150 x 50mm. At the Castle, another two sizes were employed: 210 x 110 x 50mm, and 210 x 100 x 50mm. Whereas the Curtain Wall employed in its northern section bricks of 265-270 x 125-130 x 50-60mm, and in its southern section bricks of 210 x 110 x 50mm. Hence, even though all of these bricks would have been laid within a three-year period, this massive building project shows that there could be a substantial variation in the sizes of bricks used, and that some (particularly in the Curtain Wall) differed little in length from their late medieval counterparts; the range of different brick sizes employed in this project suggests that, in addition to those bricks which were fired in the newly-built kiln, others may have been bought in from local brick suppliers. It is worth noting that these Henrician brick-built defences mark the appearance of some slightly shorter and slightly narrower bricks.

At the Beverley Gate, the earlier Phase Ib brickwork was sealed beneath new brickwork. As all of these works are now on permanent display, they have been left *in situ*; however, they ranged in size from 250-260 x 125-140 x 52-66mm (with a mean size of 256 x 131 x 59mm). This is within the range previously recorded in the contemporary northern section of the Henrician Curtain Wall on the east bank of the Hull.

A good indication of late 16th-century brick sizes in Hull is offered by those used in the construction of the 1583-5 Old Grammar School in South Churchside. Here, the range of brick sizes is 195-235 x 25-130 x 60-70mm, with most being around 215 x 120 x 70mm.

Phase III (c. 1600-1700)
In the early part of this phase new brick guard-chambers were added to the rear of the Beverley Gate. The bricks used in this structure varied in size from 250 x 120 x 50mm, to 270 x 140 x 70mm. Those in its west wall (**328**) averaged 268 x138 x 60.4mm; those in its east wall (**330**) averaged 257 x 125 x 61mm; and those in its north wall (**329**) averaged 264 x 123.5 x 61.7mm. The size range is similar to that seen at the South End Fort, which was built in the late 1620s, but also includes an example of Type 4a bricks in the east wall. The large numbers of bricks needed for the South End Fort strongly argues for these having been newly fired, rather than being built of old reused bricks; this would tend to suggest that long-established brick sizes continued to be manufactured locally into the first half of the 17th century — contrary to the traditionally accepted thoughts on the dating of bricks.

Loose or discarded bricks of Types 1, 2, 5, 6a, and 6b were recovered from contexts **335** and **336**; of these, Types 1 and 5 made their appearance in this phase.

There are a number of surviving mid or later 17th-century brick buildings in Hull; one of the better-known examples is Wilberforce House in the High Street. This is a building, with an Artisan Mannerist façade of the 1660s, built by William Catlyn (Pevsner and Neave 1995, 533). The bricks used in that façade measure 230-240 x 110-120 x 60-70mm, with many being 240 x 120 x 65mm. These are noticeably shorter than those used in the Beverley Gate guard-chambers, but larger than those used in the 1680s work at the Hull Citadel (see below).

Whilst there was no evidence at the Beverley Gate for any major rebuilding during the later 17th century, comparable evidence of brickwork of the period 1681-90 can be found at The Hull Citadel. Here, a contract was approved in August 1687 for the manufacture of 2 million bricks; whilst this particular contract was for a late stage of the project, it does serve to give a good idea of the scale of the works.

Excavations have shown that in some places bricks from the earlier Henrician defences were simply reused in the building of the new Citadel; in others, new bricks were employed, and, as only to be expected in such a large undertaking spread over a number of years, there is variation in the size of the new bricks – probably reflecting the fact that they were made in batches by a number of different brickyards. At the former South Blockhouse, bricks measuring 220-228 x 102-110 x 62-68mm were used in the construction of the late 17th-century defences, and were laid in English

Bond (Foreman 1997, 11); whereas, at one of the Sally-ports, the bricks measured 230-235 x 105-110 x 50-60mm (Foreman and Goodhand 1996, 179). [The full range of brick sizes recorded at the Citadel is summarised in Foreman 1997, 47, but this also includes examples used in 19th-century modifications to the fortress.]

Phase IV (c. 1700-1776)
In the early part of this phase a new sentry-box was built against the Town Wall. Its footings (**127** and **316**) were made of bricks measuring 260 x 110 x 50mm. It was associated with a brick-lined culvert (**313**), built of reused Types 4a and 6a bricks, and joined a second brick-lined drain (**109**/**111**/**312**), which also incorporated reused bricks (of Types 4a, 6b, 7 and 8).

In 1735 the ruinous tower over the Beverley Gate had to be dismantled. A retaining revetment or buttress was erected against the front of the Gate at this time. These retaining works clearly incorporated a number of reused timbers, and it is likely that the brick rubble which formed part of the new revetment consisted entirely of old material, probably from the demolished tower. Certainly, the new dumps on the east side of the buttress (**4** and **352**) incorporated quantities of Types 4a and 5 bricks. The large dumps of material deposited into the former drawbridge-pit (e.g. **22**), or the Town Ditch (e.g. layers **1** and **322**) all contained massive quantities of old brick. One new brick type (Type 7) appeared in the later parts of this phase.

Phase V (1776 – c. 1830)
The great bulk of deposits associated with this phase are either demolition contexts, or dumps. The one major exception is the construction of a new brick-lined drain (**115**). The bricks used in its construction varied in size between 235 x 118 x 50mm, and 240 x 120 x 60mm, and included reused examples of Types 6a, 6b and 8.

Loose or discarded examples of Types 1, 2, 3, 4a, 5, 6a, 6b, 7 and 8 were recovered from contexts **2**, **16**, **301/2**, **319**, **320**, **321**, **325**, **355**, and **U/S**. The only new type to appear here is Type 3.

The Beverley Gate bricks seen in a wider context
It is clear that this is a site on which there was a strong residual component present in most phases. This is particularly evident in the levelling deposits and dumps, or the make-up layers for tracks and the Gate passage, where a substantial element of rubble and building debris was incorporated; it is also clear that old bricks and part-bricks were reused in small areas of repairs, or in the construction of features such as drains, or the footings of a sentry-box, where only limited quantities of bricks were needed, and where function mattered more than the final visual appearance. Because most of the sampled bricks were derived from such deposits, the distribution of brick types by phase, listed below, strongly reflects that residual element. However, it should also be borne in mind that the major campaigns of building or refurbishing the defences — e.g. the building of the Phase Ib Town Wall, the refurbishment of the Beverley Gate in Phase II, or the addition of the new guard-chambers in Phase III — are likely to have relied on the use of substantial quantities of new bricks, in order to complete their contracts on time, and to a sufficiently high standard to pass inspection by the Crown Commissioners.

Nationally, some broad generalisations can be made about brick sizes, and their likely date-ranges. Hence, Lloyd suggests that no 10 inch (*c.* 255mm) long bricks were manufactured after 1550 (Lloyd 1925, 89-100); however, a York charter of 1585 stipulates that a brick size of 10" x 5" x 2 ¼" (c. 255 x 127 x 58mm) should be used. Bricks with a length of 9" (*c.* 228mm) are generally considered to be later than the early 16th century in date, although examples from the 13th - 15th centuries are also known (Lloyd 1925, 89).

Brick statutes were implemented from the 16th century onwards, and were regularly revised — though the frequency of these revisions might argue for their ineffectiveness. Statute lengths generally decreased in size, whilst the corresponding thicknesses remained fairly constant throughout the 18th century. Hence, in 1725 a size of 9" x 4 ¼" x 2½" (*c.* 228 x 108 x 63mm) was implemented, and in 1769 this remained as 9"x 4 ¼ " x 2 ½" (*c.* 228 x 108 x 63mm); whilst in1776, it became: 8 ½" x 4" x 2 ½" (*c.* 216 x 108 x 63mm). Although due to the limitations of the available technology of the time, these sizes were not closely followed (Harley 1974, 74), and varied widely (Campbell and Saint 2002, 180). Brunskill suggests that

> "By the turn of the 17th century bricks were still imperfect, but the general size had settled at 9" in length by 2½" thick" (Brunskill 1990, 140).

Bricks displaying only width and thickness varied within a range of 110mm-140mm (4 ¼ " – 5 ½") wide by 35mm-65mm (1 ¾" – 2 ¾") thick. Although bricks of the smaller thickness were manufactured in the early medieval period, caution must be taken, as measured thickness may be the result of wear or over-firing. Generally, the dimensions of the bricks were fairly evenly spread throughout the site phases, suggesting that no direct correlation can be made between phase and part-brick size. The continual re-use of brick as a building material may act as a contributing factor to this evenness.

Although Hull manufactured bricks until at least the 1430s, there is a growing body of evidence to suggest that both bricks and tiles were also imported from Beverley into Hull for building construction. The brick assemblage is comparable to other Hull sites, although the distinctive lack of wasters and seconds is noticeable.

Type Series

From a sample of 142 bricks recovered, it was possible to categorise the material into nine major groups, and two sub-groups, based upon dimensions, fabric, colour, and texture.

Type 1

Dimensions:	L. 245mm – 260mm; W. 125mm – 135mm; Th. 40mm - 47mm
Fabric:	Fine fabric with few visible inclusions.
Colour:	Medium orange to a red/maroon.
Texture:	Smooth, with sides, ends and underside all sanded.
Contexts:	Phase III: 335 Phase IV: 5, 21, 322 Phase V: 2, 16, 301/2, U/S

Type 2

Dimensions:	L. ?; W. 135mm; Th. 45mm - 50mm
Fabric:	Fine fabric with sporadic inclusions and occasional voids.
Colour:	Medium orange.
Texture:	Smooth, with sides, ends and underside all sanded.
Contexts:	Phase I: 29, 337

Phase III: 336
Phase IV: 1, 21, 322
Phase V: 320, 321, U/S

Type 3

Dimensions: L. 245mm – 255mm; W. 120mm – 135mm; Th. 37mm - 43mm
Fabric: Fine fabric with no visible inclusions.
Colour: Medium orange to a deep maroon.
Texture: Upper surface smooth; sides rougher than the upper surface, and ends considerably rougher.
Contexts: Phase V: 16, 319

Type 4A

Dimensions: L. 260mm – 270mm; W. 125mm – 130mm; Th. 55mm - 62mm
Fabric: Fine fabric with no visible inclusions.
Colour: Medium orange to a burnt red.
Texture: Upper surface smooth; sides, ends and underside are rough, and are generally sanded.
Contexts: Phase I: 29, 35, 39, 121, 337, 341, 342
Phase IV: 1, 4, 312, 313, 322, 330
Phase V: 301/2, 319, 325, U/S

Type 4B

Dimensions: L. 270mm; W. 126mm; Th. 55mm (one corner truncated)
Fabric: Same as 4A.
Colour: Same as 4A.
Texture: Same as 4A.
Contexts: Phase I: 29, 35

Type 5

Dimensions: L. 220mm – 235mm; W. 105mm – 120mm; Th. 34mm - 40mm
Fabric: Same as 3.
Colour: Same as 3.
Texture: Same as 3.
Contexts: Phase III: 336
Phase IV: 1, 4, 5
Phase V: 2, U/S

Type 6a

Dimensions: L. ?; W. 120mm – 125mm; Th. 47mm - 49mm
Fabric: Coarse and sandy fabric with lithic fragments.
Colour: Medium to burnt orange.
Texture: Upper surfaces smooth; ends smoother than underside, often with one side smoother than the other. All surfaces are sanded, apart from the upper which bears a white slip.
Contexts Phase I: 342
Phase III: 335
Phase IV: 313
Phase V: 115

Type 6b

Dimensions: L. ?; W. 117-120mm; Th. 59mm - 61mm
Fabric: Coarse and sandy fabric with lithic fragments.
Colour: Medium to burnt orange.
Texture: Upper surfaces smooth; ends smoother than underside, often with one side smoother than the other. All surfaces are sanded, apart from the upper which bears a white slip.
Contexts Phase I; 29, 342
Phase III: 331
Phase IV: 109
Phase V: 115, 319

Type 7

Dimensions:	L. 225mm – 245mm; W. 110mm – 120mm; Th. 70mm - 75mm
Fabric:	
Colour:	Brick red to a reddish-purple.
Texture:	
Contexts:	Phase IV: 322, 312
	Phase V: 16, 319, 322, 333, 345

Type 8

Dimensions:	L. 230mm – 240mm; W. 110mm – 115mm; Th. 50mm - 60mm
Fabric:	Coarse fabric with heavy black inclusions.
Colour:	Orange to reddish-orange.
Texture:	Smooth.
Contexts:	Phase I: 337, 341, 342
	Phase IV; 45, 109, 312, 322
	Phase V: 16, 115, 321, 355

Type 9

Dimensions:	L. 280mm – 290mm; W. 140mm – 150mm; Th. 50mm - 60mm
Fabric:	Coarse and sandy fabric with black inclusions.
Colour:	Fleshy pink to pale maroon.
Texture:	Smooth, with sandy sides, ends and underside.
Contexts:	Phase 1: 120
	Phase V: 321

The Structural Wood

Whilst the deposits associated with the medieval Town Wall and the 17th-century guard chambers to the rear of the Beverley Gate were mostly dry and aerated, the contexts associated with the lower levels of the medieval Gate and with the adjacent Town Ditch were predominantly waterlogged. The latter provided ideal conditions for the preservation of organic materials such as timber and leather; and, hence, it is hardly surprising that a substantial quantity of structural timbers survived — many of which were found *in situ*.

Important groups of material include:

- The sole-plates and braces for the sub-structure of the Phase I Gate.
- A Phase II bridge structure in front of the Tudor Gate tower.
- A Phase IV revetment, in front of the Gate.
- Various lines of posts extending into the Ditch.
- A series of timbers salvaged from the Town Ditch during a watching-brief in the summer and autumn of 1988; although these had been disturbed from their original context, some of these timbers probably represented the remains of the various bridges which would have once spanned the Town Ditch, and provided a main access into the Old Town.

Of the 66 timbers listed in the catalogue, 64 were submitted for dendrochronolgical assay (see the detailed report by Cathy Tyers, below). The majority were oak (57 samples), but there were also five pine and two elm timbers amongst the assemblage. As Tyers notes in her report, the timbers have mostly been fashioned from halved or quartered tree trunks. Noticeably absent from this site is any of the imported Baltic oak, which featured so prominently in the 14th-century coffin timbers at the Hull Augustinian Friary site, or in the late 15th-century fish tanks at Blaydes Staithe, Hull;

hence, although Baltic timber was clearly arriving in Hull in some quantity during the 14th and 15th centuries, other sources of oak (in this case, slow-grown, and presumably native oak) were being exploited for structures such as the Town Defences. This pattern of usage appears to have continued well into the post-medieval period. The pine samples from this site are all from Phase V (late 18th and 19th century) levels, and the trading connections of the town suggest that these softwood timbers are likely to have originated at this date from Scandinavia or the eastern Baltic.

Catalogue

Beams with joints

1. Lower part of diagonal brace, with full tenon, and vacant central peg-hole, 30mm dia. Part of the sub-structure of the Phase I Gate. L. 130mm. W. 38mm. Th. 33mm. T.3, Context 71, Phase I.
2. Part of an oak sole-plate with mortise cut to seat oblique tenon (T. 3); fashioned from a halved trunk. A vacant peg-hole, 40mm dia., 30mm from upper surface, runs through the full width of the beam. The timber has fractured downwards from the mortise and peg-holes. Part of the sub-structure of the Phase I Gate. L. 120mm. W. 56mm. Th. 50mm. T.4, Context 72, Phase I.
3. Lower part of oak diagonal brace, with full tenon, containing vacant central peg-hole. Underside shows two trapezoidal cramp-marks. Associated with timber **55**. Part of the sub-structure of the Phase I Gate. L. 120mm. W. 48mm. Th. 44mm. T. 1, Context 73, Phase I.
4. Part of an oak sole-plate with longitudinally cut mortise, slightly off-centre, with two 32mm dia. retaining pegs *in situ*. Base of the beam is only roughly levelled, and has extensive bevelling on one edge. A single trapezoidal cramp-mark is visible 150mm from the mortise on the upper surface. Part of the sub-structure of the Phase I Gate. L. 136mm. W. 48mm. Th. 35-40mm. T. 2, Context 55, Phase I.
5. Oak sole-plate end. Part of the sub-structure of the Phase I Gate. L. 300mm. W. 290mm. Th. 200mm. T 57, Context 55, Phase I.
6. Oak beam with a broken end containing remains of lap-joint, with a vacant central peg-hole, 35mm dia. Opposite end has a lap-joint, with three vacant peg-holes, 35mm in dia. Saw-marks are evident at three points on the beam. L. 850mm. W. 170mm. Th. 110mm. T. 31, Unstratified [1988.T13a].
7. Oak beam with broken end, displaying remains of lap-joint. Opposite end has lap-joint containing three vacant peg-holes, each 30mm dia. L. 900mm. W. 150mm. Th. 120mm. T. 32, Unstratified [1988.T13p].
8. Beam with two broken ends. Part lap-joint at each end, both containing a single vacant peg-hole, 30mm and 40mm respectively. L. 750mm. W. 150mm. Th. 140mm. T. 35, Unstratified [1988.T28].
9. Re-used oak beam, with one face displaying remains of three half joints (one lap-, and two possible scarf-joints), which contain a total of five vacant peg-holes, diameters ranging between 30mm and 50mm. One face shows a part mortise cut, containing two vacant peg-holes, dia. 30mm, and a tapered cut end with an angle of cut of 20 degrees. L. 1600mm. W. 160mm. Th. 80mm. T. 13, Unstratified [1988.T8].
10. Oak beam with single bevelled end, displaying a squint lap-joint, containing a central peg *in situ* (length 270mm). Opposite end is decayed. Part of the revetment in front of the Phase IV Gate. L. 1800mm. W. 160mm. Th. 180mm. T. 39, Context 8, Phase IV.
11. Re-used oak beam. One end displays the remains of a mortise or scarf-joint (depth 120mm, width 70mm), an angled cut of 20 degrees, and a squint lap-joint that contains a vacant central peg-hole of 30mm dia. The opposite end has the remains of a tenon, centrally cut. Two mortises are visible on the bottom face, one cut approximately halfway (220mm x 60mm x 100mm deep), and the second 130mm apart (260mm x 50mm x 80mm deep). A central peg-hole, 30mm dia., has been drilled on one edge, at approximately 80mm from the mortise end. A further mortise has been cut on the inner face, at its approximate mid-point, which has been cut by a later mortise. Part of the revetment in front of the Phase IV Gate. L. 1870mm. W. 140mm. Th. 180mm. T. 40, Context 9, Phase IV.

Beams with pegs

12. Oak beam end, fashioned from a halved trunk. One end sawn, and the opposite broken. Single peg *in situ* (20mm dia.), close to edge. On the opposite face, there are two vacant peg-holes, 45mm and 85mm respectively from the sawn end (dia. 30mm). L. 650mm. W. 250mm. Th. 110mm. T 14, Unstratified [1988.T9].

Posts with joints

13. Oak post. One end decayed, and the opposite cut into shoulder tenon, containing vacant peg-hole, 30mm dia. At right-angles to the tenon, and 400mm distant, is a second vacant peg-hole, 25mm dia. L. 1380mm W. 240mm Th. 240mm. T 7, Unstratified [1988.T2].
14. Upper end of a square-cut oak post, with large mortise containing the remains of a tenon, held *in situ* by four wooden pegs, 30mm in dia. Mortise size: 710mm long, 70mm wide and 130mm deep. A second mortise has been cut into the opposite face, 160mm from the upper end. Mortise size: length 170mm, width 50mm depth 110mm. L. 810mm. W. 330mm. Th. 280mm. T 41, Unstratified [1988.T11].
15. Oak post with offset tenon at one end, and the opposite decayed. Tenon size: length 130mm, depth 25mm. thickness 20mm. L. 580mm. W. 260mm. Th. 160mm. T 29, Unstratified [1988.T13m].
16. Oak post. One end decayed; opposite end has a tenon with a vacant central peg-hole, 30mm dia. Saw-marks are visible on both sides of the tenon, and one shoulder has a heavy concentration of woodworm. A possible mortise is visible, 110mm from tenon, on one face. L. 1140mm. W. 200mm. Th. 160mm. T 43, Context 19, Phase II.
17. Oak post, square-cut, with off-centre tenon at one end. Peg *in situ,* 380mm from tenon shoulder. Part of the bridge structure in front of the Phase II Gate. The outermost measured ring dates to AD1567. L. 1440mm. W. 200mm. Th. 180mm. T. 58, Context 56, Phase II.
18. Oak post. Re-used quarter-cut timber. Off-centre tenon at one end, mortise on the opposite. One face has a vacant peg-hole, 30mm dia, whilst mortise contains two peg-holes at right-angles to the other peg-hole. Part of the bridge structure in front of the Phase II Gate. The outermost measured ring dates to AD1568, but the *terminus post quem* for the felling is AD1580. L. 1070mm. W. 250mm. Th. 230mm. T. 59, Context 57, Phase II.
19. Oak post, fashioned from a quartered trunk. Square upper section, with tenon at one end. Part of the bridge structure in front of the Phase II Gate. L. 320mm. W. 230mm. Th. 180mm. T. 60, Context 58, Phase II.
20. Oak post. Upper section, with a badly decayed mortise at one end, containing a vacant peg-hole at right-angles to mortise, 50mm dia. L. 380mm. W. 330mm. Th. 260mm. T. 67, Context 65, Phase I.

Posts with pegs

21. Oak post with decayed end. Vacant peg-hole in the centre of the opposite end, 30mm dia. L. 640mm. W. 210mm. Th. 140mm. T. 11, Unstratified [1988.T6].
22. Oak post .Tapering and quarter-cut, with peg *in situ* (30mm dia.) at 30mm from end. L. 460mm. W. 130mm-150mm. Th. 110mm. T. 33, Unstratified [1988.T13o].

Posts

23. Oak post. L. 700mm. W. 180mm. Th. 120mm. T. 46, Context 36, Phase V.
24. Oak post; the timber has been left whole. Remains of sapwood still attached. Part of a Phase IV line of posts. L. 560mm. Dia. 140mm. T. 62, Context 60, Phase IV.
25. Oak post. Quarter-cut. L. 480mm. W. 130mm. Th. 160mm. T. 66, Context 64, Phase I.
26. Upper section of an oak post, with single planed face, and one partially planed face. Part of a Phase IV line of posts. L. 1320mm. Dia. 100mm. T. 61, Context 59, Phase IV.
27. Upper section of an oak post, with single planed face. Part of a Phase IV line of posts. L. 400mm. Dia. 120mm. T. 63, Context 61, Phase IV.
28. Oak post. Part of a Phase IV line of posts. L. 340mm. Dia. 120mm. T. 64, Context 62, Phase IV.

Boards

29. Board with broken end. Two nails, each 420mm from broken end, 60mm apart. L. 2080mm. W. 220mm. Th. 60mm. T. 12, Context 7, Phase I.
30. Pine board. L. 1430mm. W. 240mm. Th. 30mm. T. 44, Context 28, Phase V.
31. Pine board with broken end. Single nail on one surface, 170mm from cut end. Diagonal saw-marks along one surface. L. 2140mm. W. 280mm. Th. 30mm. T. 45, Context 30, Phase V.
32. Pine board. L. 1680mm. W. 200mm. Th. 30mm. T. 47, Context 37, Phase V.
33. Oak board. Sawn at one end, cut to tapering point at the opposite end. Part of the revetment in front of the Phase IV Gate. L. 940mm. W. 230mm. Th. 50mm. T. 48, Context 42A, Phase IV.
34. Oak board, shaped to a tapering point at one end. Two iron bolts, 60mm and 110mm respectively from top edge. Part of the revetment in front of the Phase IV Gate. L. 1050mm. W. 230mm. Th. 50mm. T. 49, Context 42B, Phase IV.

35. Oak board, tangentially split. Upper section of shuttering. Part of the revetment in front of the Phase IV Gate. The outermost ring dates to AD1614; felling date range of AD1620 - 1665. L. 290mm. W. 370mm. Th. 50mm. T. 50, Context 42C, Phase IV.
36. Oak board, shaped to tapering point at one end. Part of the revetment in front of the Phase IV Gate. L. 1210mm. W. 220mm. Th. 70mm. T. 51, Context 42D, Phase IV.
37. Oak board, shaped to a tapering point at one end. Iron bolt attached near to upper right-hand corner. Part of the revetment in front of the Phase IV Gate. L. 1250mm. W.220mm. Th. 50mm. T. 52, Context 42E, Phase IV.
38. Oak board. One end broken. Two iron bolts, 40mm apart, 80mm from sawn end. Part of the revetment in front of the Phase IV Gate. L. 1330mm. W. 240mm. Th. 50mm. T. 53, Context 43A, Phase IV.
39. Oak board. One end cut, opposite end broken. Part of the revetment in front of the Phase IV Gate. The outermost heartwood ring dates to AD1586; *terminus post quem* for felling is AD1596. L. 550mm. W. 150mm. Th. 60mm. T. 54, Context 43B, Phase IV.
40. Oak board with one end cut to a shallow point. Two bolts, 120mm apart, 1060mm from straight cut end. Part of the revetment in front of the Phase IV Gate. L. 2210mm. W. 400mm. Th. 50mm. T. 55, Context 43C, Phase IV.
41. Oak board shaped to a tapering point at one end, and sawn at the opposite end. Two edges are chamfered. Part of the revetment in front of the Phase IV Gate. L. 1760mm. W. 420mm. Th. 80mm. T. 56, Context 46, Phase IV.
42. Oak board, with one broken end. Saw-marks visible on one edge. L.780mm. W. 60mm. Th. 50mm. T. 8, Unstratified [1988.T3].
43. Board. One end broken, and the opposite end has been cut from one edge, to form a point. Angle of cut, 30 degrees. Saw-cuts on one face. L. 680mm. W. 170mm. Th. 50mm. T. 9, Context 4, Phase IV.
44. Board, with both ends broken. L. 1040mm. W. 120mm. Th. 50mm. T. 10, Context 5, Phase IV.
45. Oak board, with both ends broken. Part of the bridge structure in front of the Phase II Gate. L. 870mm. W. 100mm. Th. 50mm. T. 15, Context 11, Phase II.
46. Oak board. One end broken, and opposite end chamfered. L. 1140mm. W. 140mm. Th. 60mm. T. 16, Context 12, Phase IV.
47. Oak board. Both ends broken. L. 1080mm. W. 130mm. Th. 50mm. T. 17, Unstratified [1988.T13a].
48. Oak board. One end broken, and the opposite end has been cut at an angle of 20 degrees. The outermost ring dates to AD1583. L. 999mm. W.130-220mm. Th. 40mm. T. 18, Unstratified [1988.T13b].
49. Oak board. Both ends broken. The outermost ring dates to AD1580. L. 580mm. W. 120mm. Th. 50mm. T. 20, Unstratified [1988.T13d].
50. Oak board, tangentially split. Both ends broken. L. 900mm. W. 220mm. Th. 30mm. T. 21, Unstratified [1988.T13e].
51. Oak board. Both ends broken. L. 620mm. W. 130mm. Th. 40mm. T. 22, Unstratified [1988.T13f].
52. Oak board, both ends broken. L. 1080mm. W. 150mm. Th. 50mm. T. 23, Unstratified [1988.T13g].
53. Elm board. Both ends broken. Heavy iron staining on one edge. L. 420mm. W. 380mm. Th. 50mm T .24, Unstratified [1988.T13h].
54. Oak board. Both ends broken. L. 600mm. W. 90mm. Th. 30mm. T. 25, Unstratified [1988.T13i].
55. Oak board. Both ends broken. L. 760mm. W. 80mm. Th. 40mm. T. 26, Unstratified [1988.T13j].
56. Oak board. Both ends broken. L. 630mm. W. 80mm. Th. 30mm. T. 27, Unstratified [1988.T13k].
57. Oak board. One end broken. Opposite end has been cut from one edge, at an angle of 20 degrees. L. 1020mm. W. 180mm. Th. 40mm. T. 28, Unstratified [1988.T13l].
58. Oak board. Both ends broken. Iron staining on the edges. L. 710mm. W. 100mm. Th. 30mm. T. 30, Unstratified [1988.T13n].
59. Oak board. Both ends broken. L. 700mm. W. 100mm. Th. 40mm. T. 34, Unstratified [1988.T13r].
60. Oak board. Both ends broken. L. 770mm. W. 200mm. Th. 30mm. T. 36, Unstratified [1988.T29].
61. Oak board. One end cut, opposite end broken. L. 700mm. W. 180mm. Th. 30mm. T. 42, Context 12, Phase IV.
62. Pine board. One end cut, opposite end broken. L. 340mm. W. 230mm. Th. 50mm. T. 65, Context 63, Phase V.
63. Oak board, fashioned from a quartered trunk. Both ends broken. Two nails, 360mm. apart, in approximate centre. L. 1050mm. W. 150mm. Th. 50mm. T. 19, Unstratified [1988.T13c].

Fragments
64. Oak board. Triangular shaped off-cut of oak. Angle of cut, 45 degrees. L. 150mm. W. 150mm. Th. 50mm. T. 38, Context 5B, Phase IV.

65. Fragment of oak plank or stake. L. 380mm. W. 40mm. Th. 50mm. T. 37, Context 5A, Phase IV.

Water-pipe
66. Elm water-pipe made from a section of hollowed-out tree-trunk, with no heartwood surviving, but with substantial remains of bark *in situ*. One end shows the remains of an iron collar, and 12 nails forming a rectangle close to the collar. L. 150mm; dia. 420mm; thickness of wooden tube 120mm. Unstratified [1988.T1].

Part VI: Environmental Reports

The Animal Bones from the Beverley Gate

By Sally Anne Scott

{Editorial note: This report was submitted in late 1989; however, as the great bulk of the material relates to re-deposited material in dumps within the Town Ditch, it is felt that its overall content and conclusions are still valid.]

Introduction

In all a total of 1,342 bone fragments were recovered from the site of which it was possible to identify 966 fragments (72%) to species or genus.

Methods and Techniques

In recording the animal bone assemblage, the following information was systematically recorded and interpreted:

1. The species or genus represented.
2. The skeletal element. Where a bone was fragmented, a measure of the section of the bone present was taken.
3. Any particular features of preservation, e.g. gnawing, abrasion and charring. In addition, the total number of unidentified fragments was recorded.
4. Dental attrition and tooth eruption times for cattle, sheep and pig following the system devised by A. Grant (1982), S. Payne (1984) and Bull and Payne (1982).
5. The epiphysial fusion times of the long bones and vertebrae of the major domesticates.
6. A measure of the relative proportions of the various carcass components of cattle, sheep and pig.
7. Non-metrical features e.g. the absence of the second premolar in cattle and sheep mandibles, and the position of the nutrient foramen in sheep femora.
8. The recording of any evidence of disease or injury.
9. A full biometrical archive using the system of standardised measurements first devised by A. von den Driesch (1976).

Results

On the whole, the preservation of the bone was very good with less than 1% of the identified assemblage in total being heavily abraded, gnawed or charred (10 fragments in all). The bone was mostly dark brown in hue, and a large proportion of the bones was complete. This would tend to suggest that the assemblage represents primary deposits.

Of the 40 identified fragments from Phase I, cattle made up almost half of the assemblage. Although most skeletal elements were represented, fragments of mandible and maxilla predominated. Only two mandibles retained teeth *in situ*, both belonging to adult individuals with the 3rd molar in wear. The sample of epiphysial fusion data was too small to be of use. Only one cattle bone appeared to have been butchered; this was a vertebra sliced down the median sagittal plane. Sheep were represented by fragments of mandible, rib and fore limb, none of which appeared to have been butchered. Only one mandible possessed a partial tooth row, and this indicated an individual of at least 3 years of age with the third molar in wear. All of the surviving epiphyses were fused, although the sample was too small to be of relevance. None of the sheep bones appeared to have been butchered. The only other species represented were pig, cat, dog and horse. Pig was represented by a single unfused thoracic vertebra, horse by a single tooth. Seven dog bones were recovered – fragments of mandible and limb bones, almost all of which were fused, and none of which was butchered.

Phase II consisted of a single context containing two fragments of sheep bone, and a single unidentified fragment. None of the bones appeared to have been butchered.

Phase III consisted of 74 fragments of bone, of which it was possible to identify 43 (58%) to species. Sheep was the most abundantly represented species, accounting for almost half of the identified assemblage. Skeletal elements represented included mandible and hind limb in fairly equal proportions. The smaller, more fragile bones of the skeleton (e.g. the phalanges and the vertebrae) were under-represented. Only one bone had been butchered, a vertebra that had been cleaved down the median sagittal plane. Of the recorded epiphyses, all of the early and intermediate fusing bones were fused, whilst the small number of late fusing bones and vertebrae were not. Of the two mandibles with partial tooth rows that survived, both were derived from adult individuals with the 3rd molar in wear. From context **335**, a fragment of metacarpal was recovered, which judging by the pitted appearance of the bone surface would seem to have passed through the digestive system of a dog. Only 12 fragments of cattle bone were recovered from this phase, and most skeletal elements were represented. Only one bone exhibited butchery marks, and that was an astragalus that had been sliced obliquely. There were no dental data for cattle from this phase, and of the few epiphyses that survived (all early and intermediate fusing), half were fused. Of the unfused fragments, it was noted that many were neonatal. From context **336**, a fragment of cattle metatarsal was recovered with evidence of extensive bony growth around all facets of the median trochlea of the distal epiphyses, perhaps indicative of a form of osteoarthritis. The only other species to be represented were dog, cat, horse, pig and domestic fowl. The four dog bones seemed to indicate the presence of two individuals – one adult and one immature. The single pig bone was a cervical vertebra from a fully adult individual which had been cleaved down the median sagittal plane.

Phase IV of the site which covers the period *c.* 1700-1780 yielded over half of the total bone assemblage. Within this group, a large proportion of the material came from two contexts: **1** and **21**. Context **1** was a massive deposit of rubbish into the Town Ditch, and context **21** was a dump of soil and midden material associated with the construction of a coffer dam. Of a total of 720 bone fragments, it was possible to identify 542 fragments (75%) to species or genus. There was no evidence of charring or gnawing, but three of the bones were heavily abraded and were probably reworked

from earlier material. Cattle were represented by 166 fragments of bone. A minimum numbers estimate revealed the presence of at least three individuals, but this is probably inaccurate, and the true figure is likely to have been much greater. A study of the carcass components revealed a very high proportion of mandible and maxilla fragments (almost 35% of all cattle bones). Fragments of scapula and pelvis also predominated to the detriment of all other skeletal elements. Many of the cattle bones had been butchered, in particular the vertebrae, 11% of which had been sliced down the median sagittal plane. Other butchered bones included pelvis, femur and humerus which had been sliced laterally, probably as carcasses were jointed into smaller units. Only two cattle mandibles with partial tooth rows were recorded, one of which was from an adult individual with the 3rd molar in wear; the other was from a sub-adult individual with the 2nd molar just in wear. In terms of epiphysial fusion evidence, all age groups seemed to have been represented, including a significant proportion of neonatal animals. None of the cattle bones was diseased or injured.

Sheep were the most abundantly represented species in Phase IV, accounting for almost 43% of the total identified assemblage. A minimum number of individuals estimate indicated the presence of at least nine sheep. There was an interesting spread of carcass components, with the bones of the fore limb, in particular the metacarpals, accounting for almost half of all identified sheep bones; similar concentrations have subsequently been seen in post-medieval “brownland” dumping at Hungate, York (pers. comm. Prof. Terry O’Connor). All of the butchered bones, with the exception of one metatarsal with lateral cut marks, were vertebrae sliced down the median sagittal plane. It is interesting that despite the large numbers of metapodials from this phase, only one had been butchered. The epiphysial fusion data revealed that over three-quarters of the epiphyses were fused, which would suggest that the majority of these sheep were mature. This is borne out in the dental evidence. Almost all of the mandibles recorded were from animals with the 3rd molar in wear, and in some cases, the teeth were very heavily worn, indicating an age at death of well in advance of 5-6 years. The sample of sheep femora with recorded nutrient foramina was too small to be of any great significance, but did show that the foramen was rarely found in the midshaft or distal loci. This is often the pattern observed in modern sheep populations. None of the sheep bones was diseased or injured.

Phase IV contained not only the greatest number of bone fragments, but also the greatest range of species. Although many were represented by a single bone or by a couple of fragments, species such as cat made up a significant proportion of the identified assemblage. A minimum number of individuals estimate revealed the presence of at least six cats. Almost all skeletal elements were represented, and none of the bones had been butchered. Roughly half of the bones were from fully adult animals, whilst the rest were from kittens (possibly even foetal). It seems a fair assumption that complete dead cats were being thrown into the Town Ditch. Other species to be recovered for this phase were pig, horse, dog, domestic fowl, goose, goat, rabbit, mallard, crab and pike. With the possible exception of dog and horse, it is likely that this group of bones represents food debris, although none of the bones showed any sign of butchery. In addition, from context **1** came the vertebral centrum of a whale. This massive bone bore a multitude of surface cut-marks on both epiphysial surfaces, which would seem to indicate that at some time this bone had been used as a kind of "chopping block" (the marks do not seem to be associated with the primary, or indeed secondary butchery of the whale).

Hull's involvement in the arctic whaling trade began in the later 16th century, and flourished during the first half of the 17th century, before being supplanted by competition from both the Dutch and the London-based Muscovy Company; by the end of the 17th century British whaling was in the doldrums. In the first half of the 18th century plentiful imports of whale products from North America were able to satisfy British needs until they were interrupted by wars from 1752 onwards. This prompted Hull merchants to look for other sources of supply, and in 1754 a ship from Hull sailed once more to the arctic fishery. This and subsequent voyages proved so successful that the Hull Whale Fishery and Company was set up in 1758. In 1766 Samuel Standidge began a substantial investment in both whaling and the tanning of seal skins, which led on to the establishment of the Hull whaling trade. By the end of the 18th century the Hull fleet represented 40% of the whole whaling trade in Britain. The latter reached its zenith in 1820 (when 62 ships from Hull were engaged in the trade), and then began a slow decline; however, even as late as 1834 Hull was still the leading British whaling port, with 27 ships. By 1842 there were only two ships left working from the port; the trade continued until the loss of the last ship in 1869 (for details, see Credland 1995 and 1996; Adamson n.d.; Allison 1969, 182-3; Atkinson 2017, 123-4; and Table 5). The whale fishery provided two major products: oil and "whale-bone" (i.e. baleen). The Hull whale-yards were concentrated on the east bank of the River Hull, in an area then called the Greenland Yards, off Cleveland Street; here, a number of "whale-bone manufactories" were concentrated around South Street in the late 18th and early 19th centuries. [For a detailed description of the dismembering and rendering of a whale carcass at Hull, see the contemporary account by George Head in his diary, which was first published in 1836 as *A Home Tour through the Manufacturing Districts of England in the summer of 1835*: Crowther 1992, 72-3.] A good indication of the utility of baleen is provided by adverts for a "whale-bone manufactory" in South Street, which featured sieves, gratings, ornamental blinds, and ***chopping blocks***. In 1808 Samuel Crackles of Hull was selling patent baleen brushes for cleaning roads, chimneys and ships (Gillett and MacMahon 1989, 237). The whale vertebra from Context **1** is presumably one of the butcher's chopping-blocks mentioned in the adverts; a more complete example made from a vertebra of a Greenland Right Whale — now in the collections of Hull Museums — is illustrated by Adamson (n.d., inside front cover).

Phase V of the site, which is post-1776 in date, yielded 381 bone fragments of which it was possible to identify 254 (67%) to species or genus. Cattle accounted for almost a quarter of the identified assemblage. With the exception of horn cores, all skeletal elements were represented, with scapula, pelvis and the bones of the fore limb predominating. Very few of the bones exhibited butchery-marks, and no real patterns in butchery practice could be discerned. The only recorded cattle mandible was of a very immature individual with the deciduous 4th premolar just coming into wear. Of the epiphyses recorded, 60% were unfused, and many of the bones were described as being very immature.

Sheep made up over half of the recorded assemblage, and a MNI estimate indicated the presence of at least three individuals. The bone from this phase was however rather fragmentary, and the true figure is likely to have been much higher. A fairly high proportion of the bones had been butchered, in particular the vertebrae (cleaved down the median sagittal plane). In terms of the skeletal elements represented,

scapula, pelvis and the bones of the fore limb predominated, possibly the remains of small joints of lamb or mutton. Almost two-thirds of the epiphyses were fused, with only the latest fusing groups and vertebrae showing a marked proportion of unfused bone. The indication was, therefore, that the majority of these sheep were sub-adult/adult. Of the three recorded mandibles, only one came from a substantially younger individual; the other two had died aged at least 3-4 years. The other species identified in this phase were pig, horse, dog, cat, domestic fowl, goose, goat, rabbit, mallard and haddock. In all cases these species were represented by only a handful of bones or a single fragment. None of these bones had been butchered. It is likely that, for the most part, they represent food debris.

In addition to the material described above, there was a small amount of bone that was unstratified. It was thought to be post-medieval in date, and probably as late as the early 19th century. Of the 113 bones recovered, it was possible to identify 85 (75%) to species. Cattle and sheep predominated and in both cases, the majority of recorded bones were from fully mature individuals (most of the epiphyses were fused, and in the case of sheep, all three mandibles were from adult individuals with the 3rd molar in wear). Several of the bones had been butchered, but in most cases this manifested itself in the random oblique slicing through of bones, or multiple surface score-marks. The other species represented were pig, horse, dog, cat, domestic fowl, goose and mallard. Only one bone had been butchered (a pig bone that had been sliced down the median sagittal plane).

Sheep provided the only groups of measurable bone in quantity to warrant biometrical analysis. The greatest length (G1) was plotted against the breadth of the proximal articulation (Bp) for both metatarsals and metacarpals (cf. the data in Table 12). The majority of both elements came from Phase IV, with some examples from Phases III and V. The results revealed a fairly diverse scatter of points, with some very large, and some very small individuals being represented. In both cases the sample was too modest to state with certainty whether this variation in size was due to differences in breed, improved animal husbandry, or merely sexual dimorphism. It does however provide a useful addition to the ever-increasing archive of sheep bone measurements recorded in this area (Beverley and York in particular), and is one of the few biometric samples that span the period of agricultural Improvements.

Conclusions

Although Beverley Gate was a fairly small excavation site, it was strategically very important in the development of the Old Town of Hull. It represents one of the most important entrances to the old walled town, and its earliest levels have their origins in the first half of the 14th century. In terms of the bone commented upon in this report, the majority of material was post-medieval in date (from the beginning of the 18th century onwards). Of the bone recovered from the first three phases, very little can be said. The bone appears to be mainly domestic refuse which had found its way into the Town Ditch and onto the ramparts of the Town Wall. Although there is evidence to suggest that some of these deposits may have been reworked soils, the absence of significant numbers of very abraded bones does not attest to this.

By Phases IV and V the range of species had become more diverse, although it should be borne in mind that the later phases yielded far more bone in total than the earlier three. As the domestic species such as cattle, sheep and pig make up such a large

proportion of the assemblage, and as many of their bones had been systematically butchered, it seems fair to assume that much of the assemblage represents deposited (and possibly re-deposited) domestic food refuse. In addition, some of the bone was clearly derived from other sources (e.g. the complete cat skeletons discarded in the Town Ditch), and possibly the waste generated from the skinning of sheep (the very high proportion of sheep metapodials in Phase IV).

Of the other species represented, the most interesting is whale in context **1** (Phase IV). Although only represented by a single bone, it happily confirms the presence of a whaling fleet in Hull at this date, as known from the historical record. Otherwise, the range of species represented in undramatic, and is typical of post-medieval refuse from other urban sites of comparable date.

Appendix

The following bones required further identification, which took place at the Environmental Archaeology Unit, University of York.

Context	***Species***
2	Common Crane — 1 fragment of L tarsometatarsal
322	Gadid sp. — 1 caudal vertebra of Ling
321	cf. Cod —1 precaudal vertebra + 1 caudal vertebra
	Fish — 1 unknown fragment
25	Cod — 1 ceratohyal fragment
	Fish — 1 unknown fragment
29	Gadid sp. — 1 basioccipital fragment
41	Fish — 4 fragments of same smashed-up bone

Table 6. Total fragment numbers by Phase Group

Phase	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*	*17*	*18*	*19*	*20*	*G*	*A*	*C*
I	18	7	1	1	6	3	2	1	-	1	-	-	-	-	-	-	-	40	11	51	1	2	-
II	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	1	3	-	-	-
III	12	21	1	2	4	2	1	-	-	-	-	-	-	-	-	-	-	43	31	74	-	1	-
IV	166	232	21	7	7	59	26	10	1	4	4	1	2	1	1	-	-	542	178	720	-	3	-
V	62	134	12	5	2	11	10	6	1	5	2	2	-	-	-	1	1	254	127	381	1	1	1
U/S	31	36	3	1	3	5	4	1	-	-	-	1	-	-	-	-	-	85	28	113	-	-	-
Total	289	432	38	16	22	80	43	18	2	10	6	4	2	1	1	1	1	966	376	1342			

Key:

1. Cattle	13. Crab
2. Sheep	14. Whale sp.
3. Pig	15. Pike
4. Horse	16. Bird sp.
5. Dog	17. Haddock
6. Cat	18. Total identified
7. Domestic fowl	19. Total unidentified
8. Goose	20. Grand total of fragments
9. Goat	G. Gnawed fragments
10. Fish sp.	A. Abraded fragments
11. Rabbit	C. Charred fragments
12. Mallard	

Table 7. The carcass components of the major domesticates

Phase	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*	*17*	*18*	*19*	*20*	*21*	*22*	*23*	*24*
I	0	5	2	0	2	1	1	0	3	0	2	0	0	2	0	1	0	1	0	0	0	0	0	0
%	0	61	5	0	15	6	5	0	7	0	55	0	0	27	0	14	0	4	0	0	0	0	0	0
IV	1	21	15	12	8	10	8	6	22	1	16	12	18	34	24	45	4	32	1	1	0	5	7	2
%	4	35	5	25	8	8	6	2	7	2	17	2	20	18	10	24	1	5	14	2	0	35	33	14
V	0	3	9	3	6	4	3	6	4	1	8	13	10	15	9	8	0	24	0	0	0	0	0	0
%	0	17	10	21	21	11	7	7	4	6	6	6	29	22	10	12	0	11	0	0	0	0	0	0

Key:

Cattle	***Sheep***	***Pig***
1. Horn cores	10. Horn cores	
2. Skull	11. Skull	19. Skull
3. Vertebrae	12. Vertebrae	20. Vertebrae
4. Scapula and pelvis	13. Scapula and pelvis	21. Scapula and pelvis
5. Fore limb	14. Fore limb	22. Fore limb
6. Hind limb	15. Hind limb	23. Hind limb
7. Hocks	16. Metapodials	24. Metapodials III and IV
8. Toes	17. Toes	
9. Ribs x ½	18. Ribs x ½	

N.B.: The percentage figures (%) have been standardised — i.e. the actual number of fragments has been divided by the number of times that particular skeletal element occurs in the body of an individual. The figures were then rounded up to the nearest whole number.

Table 8. Butchery of the major domesticates

Phase	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*	*17*	*18*	*19*	*20*	*21*	*22*
I	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
II	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
III	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0
IV	1	12	1	1	2	1	0	0	0	6	0	0	0	1	0	0	0	0	0	0	0	0
V	0	1	0	2	0	0	0	0	1	11	0	1	1	0	0	0	0	0	0	0	0	0
U/S	0	2	1	0	1	0	0	1	0	0	0	1	0	0	0	0	0	1	0	0	0	0

Key

Cattle	***Sheep***	***Pig***
1. Skull	9. Skull	17. Skull
2. Vertebrae	10. Vertebrae	18. Vertebrae
3. Scapula and pelvis	11. Scapula and pelvis	19. Scapula and pelvis
4. Fore limb	12. Fore limb	20. Fore limb
5. Hind limb	13. Hind limb	21. Hind limb
6. Hocks	14. Hocks	22. Hocks
7. Toes	15. Toes	
8. Ribs	16. Ribs	

Table 9. The position of nutrient foramina in sheep femora

Phase	***Proximal***		***Midshaft***		***Distal***	
	Present	*Absent*	*Present*	*Absent*	*Present*	*Absent*
I	0	0	0	0	0	0
II	0	0	0	0	0	0
III	0	0	0	0	0	0
IV	1	1	1	4	1	3
V	0	0	0	1	0	1
U/S	0	1	0	1	1	0

Table 10. Biometrical archive

Sheep metacarpals

Context	*R/L*	*G1*	*Bp*	*Sd*	*Bd*
1	L	113.5	24.0	15.9	27.0
1	L	118.4	20.3	12.2	22.7
1	R	120.1	22.4	14.4	23.9
1	R	119.4	24.7	14.2	24.8
21	R	109.0	20.0	10.9	22.5
3	L	115.8	21.7	13.1	23.7
21	R	113.7	21.8	13.7	24.8
21	R	117.0	21.1	13.0	24.0
335	L	131.7	26.3	15.9	28.3
335	R	119.7	22.0	13.2	25.2
336	L	141.0	24.8	16.6	28.3
5	R	117.4	21.7	12.7	23.9
2	R	115.5	20.4	11.6	22.6

Sheep metatarsals

Context	*R/L*	*G1*	*Bp*	*Sd*	*Bd*
1	R	136.9	24.1	15.1	28.2
1	R	128.1	19.8	11.3	23.6
45	R	121.2	19.6	11.0	-
1	L	124.1	19.4	11.7	23.9
1	R	151.1	21.1	12.9	26.9
3	L	124.0	19.8	10.8	22.1
3	L	132.0	19.6	11.7	23.9
3	L	128.3	21.0	13.1	24.0
21	R	123.6	20.1	11.4	24.5
335	R	119.1	20.5	12.2	24.4
2	R	135.0	21.1	12.3	24.4
2	R	153.5	22.3	15.2	25.1

Tree-ring analysis of timbers from the Beverley Gate, 1986-90

By Cathy Tyers

[An earlier version of this paper was published as Groves 1990, but this is superseded by the present report which has been updated, and incorporates amendments to the site phasing.]

Introduction

Timber structures of late to post medieval date were revealed during an excavation at the Beverley Gate, Hull, by the then Humberside Archaeological Unit in 1986–89. Documentation indicates that the town was enclosed by a Ditch and palisade in AD1321-4, There are no specific references to work at the Beverley Gate *per se* at this time, but, as this Gate was later regarded as the town's most important Gate, it is assumed that a timber Gate was erected on the site at about this time (Evans pers. comm.).

A total of 64 timbers were sampled for tree-ring analysis, of which one was from the 1987 excavation, and the rest were from the winter excavation during 1988-89, Five Phase Ia timbers were from the sub-structure of a timber Gate, thought to date from AD1321-4 to perhaps as late as the 1380s. A further four samples were from a series of Phase II vertical posts, The vertical posts may be part of a bridge set in front of the main Gate (by now largely a brick structure) during the later 16th century (Table 11). The single sample from Phase III was from a discarded timber in the moat, next to the Gate. The presence of a large tenon and dowel-hole suggests that it had been a major structural timber, and may have related to a refurbishment of a drawbridge in front of the Gate *circa* AD1600-1700.

Eighteen Phase IV timbers were sampled, of which three were from structural timbers discarded into the moat. These three timbers may have been associated with a major refurbishment. In the early 18th century the Gate structure began to collapse, and the remaining 15 samples are associated with a timber revetment and groyne erected to shore up the front of the now ruinous Gate. The early bridge timbers (Phase II) were reworked to carry the beams of the coffer dam; two new horizontal members, six vertical planks, and three horizontal-planks from the shuttering of the west face, were sampled. Slightly upstream from this shuttering, a line of posts associated with the groyne, and an outlying post, provided four samples. The documentary evidence records that the tower of the Gate was taken down in 1735, whilst the pottery and clay-pipes in the deposits associated with this timber shuttering suggest that this structure was probably contemporary with this work, and represents a temporary revetment erected in *circa* 1735-40.

Five planks were sampled from Phase V. These were discarded in the Town Ditch between the dismantling of the Gate and the construction of the Monument Bridge, and therefore may relate to the demolition of the Gate structure in ADl776.

It is not known with which phase the timber from the 1987 excavation was originally associated. It was labelled **BEG87**, but is known throughout this report as **1987**. The remaining 30 samples are from large structural timbers disturbed by machine prior to excavation, and are therefore unstratified. These are from the moat immediately west

of the Gate, and are probably associated with a bridge or bridges.

It was hoped that dendrochronological analysis would provide a more precise dating framework for the site. The unstratified samples were included for analysis as they probably provide the only opportunity to obtain dates for the construction of any of the bridges in front of this side of the town.

Method

The samples were prepared by freezing them for a minimum of 48 hours, and then cleaning their cross-sectional surface with a surform plane. They were then divided into oak (*Quercus* spp) and non-oak samples. Oak is relatively easy to recognise, as it is a ring-porous species with wide medullary rays running from pith to bark and a flame-like distribution of groups of pores in the latewood (Wilson and White 1986, 105). The non-oak samples were identified by taking thin sections of wood from the transverse, tangential and radial planes (see, for instance, Schweingruber 1978).

At the time of the original analysis Sheffield Dendrochronology Laboratory had instigated a policy of measuring non-oak samples as a matter of routine. Although no absolute dating had yet been obtained for coniferous species (but now see Groves 2000), absolute dating had been achieved with post-medieval elm (*Ulmus* spp) timbers (Groves and Hillam 1997). It is usual to measure only one radius on oak samples, but two radii of each non-oak sample were measured, where this was feasible, and combined to give a single sequence for the sample. The measurement of more than one radius of a non-oak sample ensures accuracy and increases the reliability of the ring sequence (Groves and Hillam 1988).

Any unsuitable samples were rejected before measurement. These are usually samples with unclear ring sequences, or samples with less than 50 rings. Ring patterns with fewer than 50 rings are generally unsuitable for absolute dating, as they may not be unique (Hillam *et al.* 1987). However, samples with 30-49 rings and bark or bark edge are usually included for measurement, as these have the potential to provide precise felling dates.

The growth rings of all suitable samples were measured on a travelling stage connected to an Apple II microcomputer (see Hillam 1985, Fig. 4). The ring-width data were transferred to an Atari ST microcomputer with hard disk drive via the Sheffield University Prime mainframe computer. The ring-sequences data were plotted on semi-logarithmic paper, using a graphing program on the mainframe (Okasha 1987), to facilitate visual comparison of the patterns. The process of crossmatching and dating was carried out on the Atari microcomputer with software written and developed by Ian Tyers (then of the Museum of London), although visual matching was still used to check the computer results. The crossdating programs are based on versions of CROS (Baillie and Pilcher 1973; Munro 1984), and measure the amount of correlation between two ring-sequences.

The Student's *t* test is then used as a significance test on the correlation coefficient. All *t* values quoted in this report are identical to those produced by the original CROS program (Baillie and Pilcher 1973). Generally, a *t* value of 3.5 or over represents a match, provided that the visual match is acceptable (Baillie 1982, 82-5).

The samples were initially analysed phase by phase, but due to the lack of crossmatching, all ring-sequences from the site were compared with each other. The ring patterns which crossmatched were combined to give a site master curve. Where two or more samples appear to have been split from the same tree, a tree master curve was constructed. This was incorporated into the structure master curve as a single sequence to prevent any bias within the master. The master curve and all unmatched ring-sequences were tested against reference chronologies to obtain absolute dates. A master curve is more likely to produce a date than the ring-sequence of a single sample when compared with dated reference chronologies. This is because the master curve enhances the common climatic signal and reduces the "background noise" resulting from the local growth conditions of individual trees.

The results date only the rings present in the timber, and therefore do not necessarily represent the felling date. If the bark or bark edge is present on a sample, the exact felling year can be determined. A study of oak sapwood data showed that 19 out of every 20 samples from British trees, older than 30 years, had 10-55 sapwood rings (Hillam et *al.* 1987). These 95% confidence limits are used to estimate felling dates in the absence of complete sapwood. In the total absence of sapwood, the addition of 10 rings (the minimum number of sapwood rings expected) to the date of the last measured heartwood ring produces a probable *terminus post quem* for felling. As the number of missing heartwood rings is unknown, the actual felling date could be much later.

At this stage of tree-ring analysis, factors such as stockpiling or timber re-use must also be considered, since they might affect the interpretation of the tree-ring dates. Thus, whilst the production of dates is a completely independent process, their interpretation can be refined by studying other archaeological evidence.

Results

The number of rings, their orientation, and the size of the cross-section of every sample were noted (Tables 12-13). The tree-ring results are described phase by phase below.

Phase I

The five samples were oak, but three were rejected; **65** had less than 50 rings, whilst **72** and **77** contained a band of unmeasurable rings. The five measured samples (**55** and **64**) contained 52-155 rings. Sample **55** had retained 11 sapwood rings, and **64** had its full complement of sapwood.

Phase II

Four samples were oak, but one (**11**) was rejected, as it had less than 50 rings. The three measured samples (**56**, **57** and **58**) contained 52-155 rings. The ring patterns of **56** and **57** crossmatched each other.

Phase III

Sample **19** was oak, but contained only 39 rings, and was therefore rejected before measurement.

Phase IV

All 18 samples were oak, but only four (**42A**, **42C**, **43B**, and **60**) were suitable for measurement. The 14 rejected samples all contained less than 50 rings. Those suitable for measurement had 58-108 rings, apart from **42A** which contained only 35 rings, but had bark edge. Samples **42C** and **60** had both retained some of their sapwood rings. The four measured ring patterns were compared with each other, and a possible match was found between **42C** and **43B**.

Phase V

Four samples were pine (*Pinus sylvestris* L.), and one was oak. The oak sample, **36**, had 23 rings, and was rejected. Also discarded were **63** with only 24 rings, and **37** whose ring pattern was unmeasurable due to narrow bands in which each ring could not be readily distinguished. The measured pine ring sequences from **28** and **29** had 67 and 66 rings respectively. They were compared with each other, but did not crossmatch.

Unstratified timbers

Twenty-two of the 30 unstratified timbers were rejected as they contained less than 50 rings (Table 12). Two of the remaining samples, **Tl** and **T13H**, were elm. These had measurable sequences of 56 and 55 rings respectively, but they did not crossmatch. The other measured samples, all oak, had 55–80 rings. The ring patterns of **T08**, **T13O**, **T13P** and **T28** were found to match (Table 14; Fig. 42). The ring-width data were combined to produce a 72-year master curve (Table 15). A match was also found between **T13B** and **T13D**, which produced a *t* value of 13.1. This indicates that these two samples were probably split from the same tree. Although there is no precisely defined limit, individual samples which match with *t* values over approximately 10.0 are likely to have originated from the same tree.

Timber **1987** was pine and contained 102 growth rings. Its ring-pattern was compared with the Phase V pine samples, but was not found to crossmatch.

As few reliable crossmatches had been obtained when comparing samples within each phase, all individual sequences, both stratified and unstratified, were tested against each other. Consistent matching was obtained between six sequences (Table 16; Fig. 43), which confirmed the possible match previously found between **42C** and **42B**. The excellent visual similarity and the high *t* values obtained between **42C** and **TI3B**/**T13D** indicate that **42C** was probably also from the same tree as **T13B**/**T13D**. The tree master curve from those three samples was then combined with the sequences from **43B**, **56** and **57** to give a 140-year site master curve (Table 17). This was compared with the 72-year master curve obtained from four unstratified timbers, but no match was found. All unmatched ring sequences were tested against both site master curves, but no further reliable crossmatching was obtained.

Both site master curves and all unmatched individual sequences over 49 years were

checked against dated reference chronologies from north-east England, and then elsewhere in the British Isles. A good match was found for the 140-year site master curve when it spanned the period AD1475-1614 (Table 18). No other consistent results were obtained for either the 72-year master curve, or any of the individual sequences. These were also compared with reference chronologies from the rest of Europe, but remain undated.

Interpretation

Two of the dated samples, **56** and **57**, are from Phase II, and are probably contemporary. The outermost measured rings date to AD1567 and AD1568 respectively, but **57** had an additional two unmeasured rings (Table 19). Consequently, the *terminus post quem* for the felling of these Phase II timbers is AD1580. The structure, possibly a bridge, with which **56** and **57** are associated, therefore could not have been built before AD1580. The presence of apparently functionless carpentry features suggests that both **56** and **57** are re-used or secondary timbers (Evans, pers. comm.). This implies that the possible bridge was constructed sometime after AD1580.

The outermost rings of **T13B**, **Tl3D** and **42C** are AD1583, AD1580 and AD1614 respectively (Table 19). However, **42C** has four sapwood rings, so a felling date range of AD1620-1665 is obtained for these three samples from the same tree. Timber **42C** (Phase IV) is a vertical plank associated with the Phase IV timber revetment, but it appears to have been re-used (Evans, pers. comm.). This implies that **42C** was originally utilized, probably in the same structure as **T13B** (unstratified) and **T13D** (unstratified), during the period AD1620-1665. Plank **42C** was then re-used in the construction of the revetment sometime after AD1620.

The remaining dated timber, **43B** (Phase IV), is from shuttering associated with the timber revetment. It has no sapwood, and its outermost heartwood ring dates to AD1586, giving a *terminus post quem* for felling of AD1596. It is also re-used, but it may be contemporary with **42C**, and therefore also felled and originally used during AD1620-65.

The Timbers

The majority of the timbers were trimmed or worked in some way. They are mostly halved (e.g. **72**, **T9**) or quartered (**58**, **T13C**) trunks, which had been hewn into the required shape, or tangentially split planks (**42C**, **T13E**). However, of the few remaining timbers, some were left whole (**60**), and others, although virtually intact, were shaped or trimmed on one or more sides (**8**, **64**).

The age and size of the parent trunks are difficult to assess, due to the lack of sapwood and/or pith on many of the samples. The distribution of ring-sequence length is shown on Groves 1990, fig. 3, but it should be noted that these lengths generally represent an under-estimate of the age of the timber at felling, due to the lack of sapwood and/or pith. However, it seems likely that over 80% of the oak timber was less than 100 years old when felled, with *circa* 55-60% younger than 50 years old (*ibid.*, fig. 3). The trunks ranged from about 150mm, to over 450mm diameter, when felled.

The average ring width of the oak timbers ranges from 1.1mm to 7.7mm, with over 40% having an average ring width of over 3.0mm (*ibid.*, fig. 4). Slow-grown timbers have narrow ring widths, and originate from trees that grew under conditions that were limiting, possibly in dense woodland. Faster-grown timbers, with wider average ring widths, had more favourable conditions, and perhaps experienced less competition. This variation may have resulted from the exploitation of a large area of local woodland, or possibly due to the timber having been obtained from several diverse sources.

The two elm samples with average ring widths of 2.6mm and 2.8mm probably originated from trees over 60 years old, with diameters of approximately 500mm. The pine samples tended to be narrower-ringed, and from trees over 70 years old. Sample **63** is the exception, as it has an average ring width of 5.2mm, and contains only 24 growth rings. The timbers were probably from pine trees of approximately 300mm diameter.

Although it is as yet impossible to source timber using dendrochronology with any detail, the results produced by the dated 140-year master curve suggest that these timbers are of British origin, and probably from a local source. The use of relatively young oak trees with wide average ring widths during the late 16th – 17th centuries may indicate a depletion of local woodland resources. During the 17th century forests are thought to have been heavily and systematically exploited, resulting in a depleted stock of oak trees of a suitable size for building (Baillie 1982, 211-13). Additionally, the use of pine in Phase V suggests a potential reduction in the amount of oak timber available and reflects the increasing availability of imported conifer timber.

Conclusion

A total of 21 samples (16 oak, three pine, two elm) were measured, of which six oak timbers were absolutely dated. Although the number of dated timbers is low, the study was successful in that felling dates were obtained for timbers from Phases II and IV. Additionally, the analysis has indicated that two of the unstratified timbers were probably originally used in a structure with **42C**. The possible bridge from Phase II was constructed after AD1580, but probably before AD 1665, whilst the Phase IV timbers indicate building activity on the site during the period AD1620-1665. These timbers were then reused in the Phase IV timber revetment, indicating that this structure was built sometime after AD1620. Unfortunately, it was not possible to determine felling dates for the timbers from the Phase Ia sub-structure of the timber Gate, or whether the Phase V timbers were related to the demolition of the Gate structure.

The analysis has provided a useful 140-year chronology spanning the years AD1475-1614. This adds to the network of medieval chronologies available for the Hull and Beverley region, and extends their coverage into the 16th and 17th centuries. The 72-year site master curve remains undated. However, as more reference chronologies become available for this region, it may be absolutely dated, thus providing further dating evidence for the timber structures from Beverley Gate, Hull.

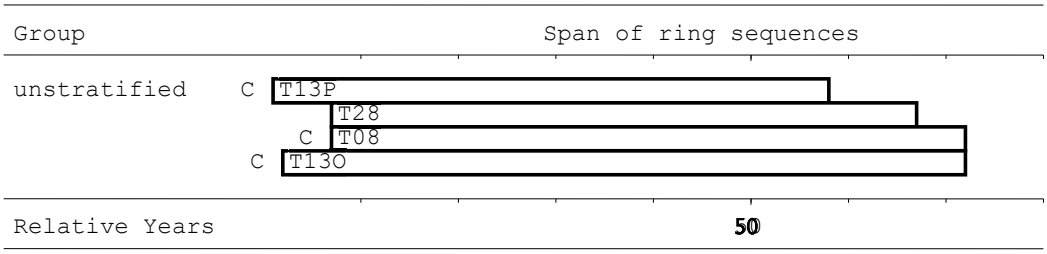

Figure 42: Bar diagram showing the relative positions of the four crossmatched timbers from Beverley Gate, Hull. White bar = heartwood rings; C = centre of tree was present.

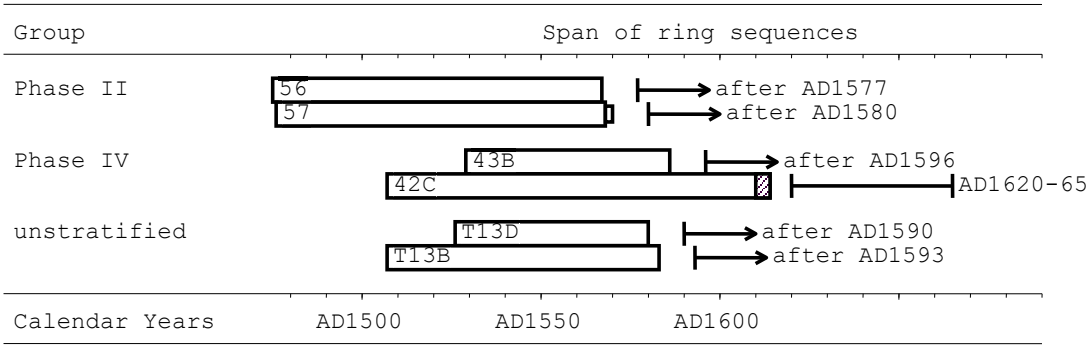

Figure 43: Bar diagram showing the relative positions and the individual felling dates of the dated samples from Beverley Gate, Hull. White bar = heartwood rings; hatched bar = sapwood rings; narrow bar = unmeasured rings

Table 11. The timber samples and structures.

Phase	Expected date	Samples	Comment
Ia	1321/4 – *c.* 1540	55, 64, 65, 72, 77	Sub-structure of timber Gate
II	*c.* 1540 - *c.* 1600	11, 56, 57, 58	Vertical posts – possibly part of a bridge
III	*c.* 1600 – *c.* 1700	19	Discarded structural timber – possibly from a refurbishment of the Gate
IV	*c.* 1700 - 1776	5a, 5B, 12	Discarded structural timber – possibly from a refurbishment of the Gate
		8, 9	Horizontal members of the Phase IV timber revetment
		42A-E, 46	Vertical planks of the Phase IV timber revetment, driven in behind 8 and 9
		43A-C	Horizontal planks from the west face of the Phase IV timber revetment
		59, 61, 62	Line of posts associated with the groyne
		60	Outlying post
V	1776 – *c.* 1830	28, 30, 36, 37, 63	Discarded planks – possibly from the demolition of the Gate
U/S		T01-T09, T11, T12, T13A-R, T20, T29	Structural timbers recovered during a watching-brief on the insertion of sheet piling – may relate to former bridges in front of the Gate
		1987	A pine timber from the spring 1987 excavations

Table 12. Details of the timber samples.

Wood no.	Wood type	Phase	Total rings	Sapwood rings	Average width	Size 1	Size 2	Comment
05A	Oak	IV	4	0	6.3	40	25	Rejected
05B	Oak	IV	18	0	4.7	140	30	Rejected, knotty
08	Oak	IV	21	0	5.7	180	170	Rejected
09	Oak	IV	35	5	3.1	190	170	Rejected
11	Oak	II	45	0	6.7	355	280	Rejected
12	Oak	IV	40	0	4.9	190	30	Rejected
19	Oak	III	39	0	4.9	200	175	Rejected
28	Pine	V	67	0	1.1	240	35	-
30	Pine	V	66	0	1.0	250	40	-
36	Oak	V	23	0	7.4	170	140	Rejected
37	Pine	V	100	0	1.0	205	35	Rejected
42A	Oak	IV	35	15	2.2	210	50	Probable bark edge
42B	Oak	IV	20	0	5.0	230	50	Rejected
42C	Oak	IV	108	4	1.7	370	50	-
42D	Oak	IV	33	0	2.7	230	75	Rejected
42E	Oak	IV	40	0	2.6	215	70	Rejected
43A	Oak	IV	39	2	2.3	230	55	Rejected
43B	Oak	IV	58	0	1.5	125	40	-
43C	Oak	IV	29	0	6.7	365	50	Rejected
46	Oak	IV	30	0	6.7	450	95	Rejected
55	Oak	Ia	52	11	2.8	300	225	-
56	Oak	II	93	0	2.6	200	190	-
57	Oak	II	93	0	3.0	255	215	+ 2 rings
58	Oak	II	155	0	1.5	225	185	-
59	Oak	IV	20	0	2.5	105	80	Rejected
60	Oak	IV	62	0	1.3	155	150	Probable bark edge
61	Oak	IV	28	0	2.1	120	100	Rejected
62	Oak	IV	29	0	2.1	125	105	Rejected
63	Pine	V	24	0	5.2	230	50	Rejected
64	Oak	Ia	57	17	1.6	160	135	Knotty, felled winter
65	Oak	Ia	40	3	4.3	280	175	Rejected
72	Oak	Ia	50	10	3.3	275	165	Rejected
77	Oak	Ia	60	12	1.3	155	155	Rejected
T01	Elm	U/S	56	0	2.6	420	210	Felled winter
T02	Oak	U/S	30	10	7.7	255	250	Rejected
T03	Oak	U/S	24	0	2.5	55	50	Rejected
T04	Oak	U/S	34	0	4.1	140	50	Rejected
T06	Oak	U/S	29	4	6.2	160	125	Rejected
T07	Oak	U/S	26	0	2.1	185	55	Rejected
T08	Oak	U/S	66	0	1.5	160	120	Knotty
T09	Oak	U/S	36	0	4.7	285	105	Rejected

T11	Oak	U/S	31	0	2.4	75	45	Rejected
T12	Oak	U/S	25	8	1.4	35	25	Rejected
T13A	Oak	U/S	19	0	3.7	120	50	Rejected
T13B	Oak	U/S	77	0	2.2	195	50	-
T13C	Oak	U/S	35	0	4.0	140	50	Rejected
T13D	Oak	U/S	55	0	2.0	115	50	-
T13E	Oak	U/S	24	0	6.0	215	30	Rejected
T13F	Oak	U/S	48	0	1.6	105	25	Rejected
T13G	Oak	U/S	25	0	3.6	125	45	Rejected
T13H	Elm	U/S	55	0	2.8	385	50	Knotty
T13I	Oak	U/S	37	0	1.8	90	35	Rejected
T13J	Oak	U/S	20	0	1.8	90	45	Rejected
T13K	Oak	U/S	48	0	1.1	75	45	Rejected
T13L	Oak	U/S	80	0	2.0	175	40	-
T13M	Oak	U/S	35	0	5.6	245	185	Rejected
T13N	Oak	U/S	42	0	1.3	85	40	Rejected
T13O	Oak	U/S	71	0	1.7	165	110	-
T13P	Oak	U/S	58	0	1.7	165	110	-
T13Q	Oak	U/S	27	0	4.8	125	115	Rejected
T13R	Oak	U/S	20	0	2.8	100	40	Rejected
T28	Oak	U/S	61	0	2.0	150	130	-
T29	Oak	U/S	25	0	3.4	195	30	Rejected
1987	Pine	U/S	102	0	2.0	290	200	Rejected

Table 13. Cross-sectional sketches; the sketches are not to scale.

Wood No	Sketch	Size	Wood No	Sketch	Size	Wood No	Sketch	Size
05A		40x25	43B		125x40	T02		255x250
05B		140x30	43C		365x50	T03		55x50
08		180x170	46		450x95	T04		140x50
09		190x170	55		300x225	T06		160x125
11		355x280	56		200x190	T07		185x55
12		190x30	57		255x215	T08		160x120
19		200x175	58		225x185	T09		285x105
28		240x35	59		105x80	T11		75x45
30		250x40	60		155x150	T12		35x25
36		170x140	61		120x100	T13A		120x50
37		205x35	62		125x105	T13B		195x50
42A		210x50	63		230x50	T13C		140x50
42B		230x50	64		160x135	T13D		115x50
42C		370x50	65		280x175	T13E		215x30
42D		230x75	72		275x185	T13F		105x25
42E		215x70	77		155x155	T13G		125x45
43A		230x55	T01		420x210	T13H		385x50

Table 13. Cross-sectional sketches; the sketches are not to scale.

Wood No	Sketch	Size	Wood No	Sketch	Size	Wood No	Sketch	Size
T13I		90x35						
T13J		90x45						
T13K		75x45						
T13L		175x40						
T13M		245x185						
T13N		85x40						
T13O		165x110						
T13P		165x110						
T13Q		125x115						
T13R		100x40						
T28		150x130						
T29		195x30						
1987		290x200						

Table 14. Matrix of t values obtained between the ring sequences of T08, T13O, T13P, and T28.

	T08	T13O	T13P	T28
T08	*	4.0	4.2	5.4
T13O		*	6.1	9.1
T13P			*	4.6
T28				*

Table 15. The undated 72-year tree-ring chronology from Beverley Gate.

Years	Ring width data (units of 0.02mm)											Number of samples per year									
1	132	82	90	79	99	114	93	77	86	88		1	2	2	2	2	2	4	4	4	4
	95	78	99	80	77	107	109	100	100	79		4	4	4	4	4	4	4	4	4	4
	95	119	123	135	63	84	97	77	77	88		4	4	4	4	4	4	4	4	4	4
	121	105	90	103	90	75	78	74	62	67		4	4	4	4	4	4	4	4	4	4
	81	112	77	72	70	69	81	67	60	63		4	4	4	4	4	4	4	4	4	4
51	60	75	75	77	100	99	86	69	56	58		4	4	4	4	4	4	4	4	3	3
	79	83	59	87	71	101	110	105	99	83		3	3	3	3	3	3	3	2	2	2
	90	100										2	2								

****

Table 16. Matrix of t values obtained between the ring sequences of T13B, T13D, 42C, 43B, 56 and 57. \ indicates t value of less than 3.0.

	T13B	**T13D**	**42C**	**43B**	**56**	**57**
T13B	*	13.1	11.0	3.7	5.2	\
T13D		*	9.7	3.0	4.1	3.6
42C			*	3.7	4.5	3.1
43B				*	5.9	\
56					*	6.4
57						*

Table 17. The 140-year tree-ring chronology from Beverley Gate, AD1475-1614.

Years	**Ring width data (units of 0.02mm)**											**Number of samples per year**									
AD1475					138	116	102	108	111	150						1	2	2	2	2	2
	177	219	228	232	255	203	271	206	206	295		2	2	2	2	2	2	2	2	2	2
	212	177	238	234	171	174	180	123	189	207		2	2	2	2	2	2	2	2	2	2
AD1501	219	221	171	149	183	167	168	185	169	134		2	2	2	2	2	2	3	3	3	3
	154	147	160	162	173	150	129	145	146	136		3	3	3	3	3	3	3	3	3	3
	157	115	114	109	96	126	125	131	116	122		3	3	3	3	3	3	3	3	4	4
	127	112	106	107	117	118	121	97	107	98		4	4	4	4	4	4	4	4	4	4
	87	89	101	101	125	105	84	98	95	100		4	4	4	4	4	4	4	4	4	4
AD1551	124	82	62	103	96	72	55	65	100	86		4	4	4	4	4	4	4	4	4	4
	86	89	82	76	75	72	86	73	82	89		4	4	4	4	4	4	4	3	2	2
	75	54	58	64	63	57	53	54	71	69		2	2	2	2	2	2	2	2	2	2
	71	76	65	68	66	84	87	56	58	43		2	2	2	2	2	2	1	1	1	1
	51	33	57	83	78	70	49	74	78	66		1	1	1	1	1	1	1	1	1	1
AD1601	78	62	63	67	59	99	71	64	47	66		1	1	1	1	1	1	1	1	1	1
	55	49	58	37								1	1	1	1						

Table 18. Dating the 140-year Beverley Gate chronology, AD1475-1614. SDL = Sheffield Dendrochronology Laboratory.

Reference chronology	*t* value
Belfast long chronology 7000 (Brown et al. 1986)	3.75
East Midlands (Laxton and Little 1988)	5.30
England (Baillie and Pilcher, pers. comm.)	6.08
Golden Cock, Wakefield, W. Yorks. (SDL unpublished)	3.71
Northern France (Pilcher 1987)	3.31
Old Kent House, Ridgeway, Derbyshire (SDL unpublished)	4.67
Upwich3, Droitwich (Groves and Hillam 1997)	4.66
Welsh border (Siebenlist-Kerner 1978)	5.34

Table 19. Details of the tree-ring dates. Dates of heartwood sapwood transitions, if present, are given in brackets.

Wood number	Phase	Date span	Felling date
42C	IV	AD1507-1614 (1611)	1620-1665
43B	IV	AD1529-1586	After 1596
56	II	AD1475-1567	After 1577
57	II	AD1476-1568 + 2 rings	After 1580
T13B	U/S	AD1507-1583	After 1593
T13D	U/S	AD1526-1580	After 1590

Part VII. Discussion

It is not certain how many towns in Britain actually had any defences at all; Turner, in her seminal survey of Town defences, originally listed over 130 examples (Turner 1970), but more recent studies have suggested that as many as 211 late Saxon and medieval boroughs may have had some sort of defences (Bond 1987, 192; Palliser 1995; Palliser *et al.* 2000, 174; Creighton and Higham 2005, 218). However, this covers the whole period from 600-1300, and includes not only those towns with significant defensive circuits, but also those which boasted imposing freestanding Gates – to control the ingress and egress of traffic, the collection of tolls, and to symbolise civic pride – but little else. Certainly, within York and the East Riding, only four boroughs had any defences at all – Hull, York, Beverley and Hedon – and of these, by far the most elaborate were those at Hull and York. In the rest of Yorkshire, only Pontefract and Scarborough had any elaborate town defences.

The early to mid 14th-century timber circuit, with its associated Bank and Ditch

The complexity of a town's defences often reflected both its own strategic needs and the amount of funding which was available at the time of their construction; this could also be influenced by when the defences had first been developed, as some towns had their origins in the pre-Conquest era. Hence, there can be a considerable variation in the size and complexity of surviving examples of even earthen and timber circuits. At Hereford the late Saxon Rampart was *c.* 15m wide at the base, and stood some 3m high (Kenyon 1990, 186). At New Radnor, the medieval Bank was up to 2.7m high (Creighton and Higham 2005, 80); whereas, at Hartlepool, the original Bank was only about 1.5m high – later raised to 2m (Kenyon 1990, 191). At Tonbridge (Kent), the Bank was *c.* 2.1m high, whilst at Taunton (Somerset), the early 13th-century Rampart was 11-12m wide and 3m high (Creighton and Higham 2005, 158). There is a similar wide variation in the size and profile of Town Ditches. Hence, the Norman settlement at Pleshey (Essex) was surrounded by a Ditch *c.* 13.5m wide and *c.* 3.5m deep (Creighton and Higham 2005, 81); the U-shaped Ditch at Tonbridge (Kent) was of similar size, being 12.5m wide, and *c.* 3.5m deep (*ibid.*, 158). At Bristol, a section across the Ditch established its width as being 15.8m, and it was at least 4m deep (Kenyon 1990, 198); whereas, at Devizes (Wilts.), the V-shaped Ditch was 5m deep, but only 9m wide (Creighton and Higham 2005, 158). At Taunton (Somerset), the re-cut Ditch was *c.* 10m wide, and 4m deep (*ibid.*). At Houndsditch, London, the early 13th-century Ditch was at least 22m wide (Kenyon 1990, 198). Whereas, the Ditches around some other towns were far more insubstantial; in one area of the Coventry circuit, the *c.* 10.5m wide Ditch was shown to be flat-bottomed, and only *c.* 2m deep (*ibid.*, 198), whilst at Northampton, the Ditch was a mere 4m wide and 2m deep (*loc. cit.*). These handful of examples suggest that the original early 14th-century defensive circuit at Hull was comparable with some of the larger and more substantial circuits of town defences elsewhere in Britain, and was clearly on a larger scale than those of some of its wealthier contemporaries, such as Beverley, Coventry or Northampton.

The defensive circuit which was begun in 1321-4 consisted principally of a clay Rampart fronted by a massive Ditch, enclosing an area of approximately 31.6 hectares (Fig. 6). At the Beverley Gate, the Phase I levels provided clear evidence for the base of the clay Rampart (which lay behind the later brick Town Wall), and for the upper

parts of the Ditch; further evidence for the clay Rampart was also recorded along various parts of North Walls in 1969 (Bartlett 1971, 6-7, 10-11, 18 and 20).

The Rampart at the Beverley Gate survived to a height of about 1.45m; but, further to the north-west, it survived variably to recorded heights of 1.8m and 2.8m (Bartlett 1971, unnumbered figs on pp 7, and 10-11). It has been suggested on the basis of cartography and early topographical prints that the original height of the clay Rampart would have ranged between about 2.44m and 3.05m (Bartlett 1971, 20). Its width is slightly harder to calculate with any accuracy, as no complete sections through it have yet been obtained; but, at the Beverley Gate, the Rampart would appear to have been at least 5.6m wide at its base, and at least 4m wide at the top. One of the sections at North Walls suggests that it may have been up to 6m wide at the base.

No evidence for the bases of the post-settings for the documented accompanying palisade was recognised within the excavated area. This may partly reflect the level of truncation which has occurred within this section of the Rampart during the post-medieval era (particularly during Phases IV and V); but, it may also reflect the fact that many of the late structures encountered within this area in 1987 and early 1988 tended to be left *in situ*, whilst excavation work was concentrated on other parts of the site. Hence, the only firm evidence which we currently have for a palisade consists of the documentary entries within the *Chamberlains' Account Rolls* for 1321-4.

The Town Ditch, in its final post-medieval form, would appear to have been some 12-13m wide at the Beverley Gate, but cartographic prints suggest that in other parts of the circuit it may have reached widths of up to 18.5m. Its full depth is uncertain, but may have been up to 6m; this would concur with observations made on part of the Ditch much further south in Humber Dock Street in 2016, where coring detected the base of the Ditch at -2.71m OD – approximately 6m below the adjacent road surface level (Jobling and Rowland 2016, 14; the base of the Ditch was measured from beneath an area of substantially raised pavement, but the depth quoted here has been adjusted to take that into account).

The medieval Town Walls

The evidence of the murage grants (see Table 1, above) suggests that the gradual replacement of the earlier Bank and palisade with a brick Curtain Wall may have taken over 65 years; the first definite mention of a Town Wall is in a deed of 1339, and so construction had clearly begun before that date. The fact that there are so many individual grants spaced over the course of the mid and later 14th and early 15th centuries would tend to suggest that the defensive circuit was rebuilt in brick in successive campaigns of work, and that there may well have been substantial periods of inactivity between these building campaigns; that, in turn, would suggest that these various sections of walling were built by different gangs, and that a certain amount of variation might be expected in both the finish of the wall, and the sizes of bricks which were employed over such a long period.

There is a considerable amount of variation present between the dimensions of different sections of the Town Wall along parts of the western and northern sections of the defensive circuit (Table 20); but, this has often been complicated by both the level of truncation which those sections had experienced, and the limitations on what could be exposed during individual pieces of fieldwork. Nevertheless, in three of the

nine relevant pieces of fieldwork, the external face of the lower courses has been shown to have a stepped external batter; a similar stepped external batter has also been observed on both the Beverley Gate itself, and on the excavated interval tower on North Walls. Hence, it would be reasonable to assume that many (if not all) sections of the Town Wall bore an external stepped batter.

Table 20. Details of the different sections of the Town Wall recorded at various parts of the circuit.

Location	***Width at base***	***Width at surviving top***	***No. of surviving courses***	***External batter survives: Y/N***
Beverley Gate	1.6m	1m	20-21	Y
North Walls 1	4' 6" (*c.* 1.4m)	3' 8" (*c.* 1.2m)	20	Y
North Walls 3	Chalk foundation only			
Alfred Gelder St (April 1987)		1.1m	19	Y
Alfred Gelder St/Guildhall Rd (May 1987)		1.1m	10+	
Queens Gardens C (2008)	1.2m – 1.4m			
Queens Gardens D (2008)		1.15m	21	
Little High St (1998)		1.2m		
Princes Dock St 3 (1986)	1.4m			

Where the base of the wall has been exposed, this has been found to sit on a chalk foundation. Three main brick sizes have been recorded in different sections of the wall. These are:

255mm x 135mm x 45mm
280mm x 140mm x 50mm
275mm x 135mm x 45mm

These would all appear to have been in use during the medieval period, and presumably reflect little more than the variety of ceramic building materials which were in use at that time, and which were being supplied by different production sites over a period of perhaps three-quarters of a century or more. In addition, other brick sizes were used in later additions and repairs to the Town Defences during the post-medieval period.

Bartlett, in his seminal article on the Medieval Walls of Hull, attempted to calculate the original height and form of the defences, and the quantities of bricks which might have been employed in their construction (Bartlett 1971, 19-21). The Town Records include a surviving scaled drawing of 1742 through the Town Wall, which indicates

that at that date the height of the Curtain Wall to the parapet level was 14ft (*c.* 4.27m); a sketch by Martin Beckman in *c.* 1690 indicates a similar height, and would seem to confirm this calculation. The parapet itself is likely to have added a further 6ft (*c.* 1.83m) to this height, in order to effectively protect any defenders; thus, Bartlett worked on the assumption that the full height of the external face would have been about 20ft (*c.* 6.1m) high. The depiction of the defences on the *c.* 1638 Hollar map and the 1745 S. and N. Buck view suggested to him that the interval towers would have averaged a height of some 29ft (*c.* 8.84m), whilst the detailed views of the rear of the north and west Walls shown on the *c.* 1538-9 Cottonian MS maps indicated that the parapet walk was stepped down in between the interval towers, rather than being at a constant horizontal level (Fig. 2).

Bartlett had also excavated substantial parts of two interval towers – one on Humber Street, and another on North Walls (see below). With the information about their construction to hand, he produced the following rough calculations:

"No. of bricks in a single interval tower 40, 350. Hence,

No. of bricks in all 30 towers (including posterns)	1,210,000
No. of bricks in the three main gates	240,000
No. of bricks in 4yds of excavated Curtain Wall 9,675. Hence,	
No. of bricks in the whole Curtain Wall (1,355 yds)	3,250,000
Suggested total of bricks used in the medieval defences of Hull	4,700,000"

There are some obvious problems with these calculations, not least of which is that he has included estimates for only three main Gates, whereas there were five; at the time when he was drawing up these calculations, no archaeological investigations had taken place at any of the main Gates, and so his estimates for the number of bricks used in their construction were pure guesswork. [Later excavations were to show that their brick foundations were both more substantial than those of the interval turrets, and were set much deeper than the adjacent stretches of the Town Wall.] In addition, Bartlett had assumed that the dimensions of the Town Wall would have been uniform throughout, whereas we now know that there was significant variation between different parts of the circuit. Lastly, the two interval towers which he investigated were both rectangular, whereas cartographic evidence suggests that there was considerable variety in the plans and shapes of individual towers. Hence, his calculations should not be taken too literally. Nevertheless, they do serve as a useful indicator of the enormous scale of these works, and of the kinds of order of materials which would have been needed to complete this brick circuit: the realisation that upwards of 5 million bricks would have been required, coupled with the surviving medieval documentary records for the output of the Corporation brickyard in individual years, make it clear that it would have taken many decades for this circuit to have been completed, and show that previous assumptions in some historical works that the whole circuit could have been completed in the 1320s were ill-founded.

The excavated interval towers

In 1964 excavations on the south side of Humber Street, just to the east of Queen's Alley, exposed most of the south wall of a rectangular interval tower, together with the beginnings of its western side wall; the tower would have projected forwards from the Town Wall, which would have lain to the north. The south wall was *c.* 0.91m thick, and survived to a height of 22 courses. The published section drawing shows

that the base of this wall had been laid over deposits containing 16th-century pottery, and that its foundation trench was cut through later 17th-century rubbish layers (Bartlett 1971, 4). Hence, this particular tower would seem to have been a later 17th-century addition to the defences – possibly contemporary with Beckman's refurbishing of the defences in the 1680s.

In 1969 Bartlett excavated a rectangular interval tower at Site 1 at North Walls; it projected north-westwards in front of the Town Wall, measured *c.* 7.19m x 4.6m in extent, and its eastern side wall was bonded into the Town Wall (*ibid.*, 6-13). In contrast to Humber Street, this tower appears to have been medieval. Part of its rear wall still stood 36 courses high. The northern or front wall stood 25 courses high, with the bottom *c.* 1.52m being raked in an external batter. The only deposits recorded within its interior incorporated material of the late 17th and early 18th centuries, and appear to relate to its abandonment and decay, rather than its occupation.

The successive structures at the Beverley Gate

The Phase 1a timber Gate

The remains of the early Gate comprise several major ground sills, some diagonal braces, and the bases of some of its uprights – all of which chanced to survive solely because they were partially sealed beneath later stonework and brickwork.

The length of the central passageway through the Gate was 6.7m; but its width is less certain, as the southern side of the Gate was not firmly established; it may have lain just outside of the area available for excavation, or (as shown on the plans) its approximate line may have been indicated by the position of later brick settings **353-4**. If the timber Gate was of similar width to its brick successor, and if the evidence of early cartographic and topographical depictions of the Gate is at all reliable, then the width of the central passageway might have been in the order of about 3.6m to 3.8m – which would have been wide enough to have merited being closed with double-leaved doors (possibly at either end); this would have been a similar arrangement to that of the surviving early 15th-century North Bar at Beverley (Bilson 1896, 38 and 40). The likelihood is that this was a rectangular Gate tower, probably of just two storeys – the room above the passage providing not only accommodation for a gate-keeper, but also providing a more commanding view of the approach to this entrance to the town.

Although dendrochronological assay was carried out for all of the surviving sole-plates and associated timbers of any size, none proved to have enough rings to allow any dating. Hence, it was not possible to demonstrate whether the Beverley Gate formed part of the original defensive circuit envisaged in the campaign of building between 1321 and 1324. Nevertheless, the route to and from Beverley – which was controlled by this Gate – was of such paramount importance, that a Gate would have been built here at a very early stage in the evolution of the Town Defences (if not from the outset); and the archaeological evidence suggests that there was a timber Gate here by at least the mid 14th century, if not by the end of the first quarter. By the end of the Middle Ages, the Beverley Gate had emerged as the most important entrance to the town, and it was to hold that pre-eminence in later centuries. Hence, it would almost certainly have been here that the governor, Sir Robert Constable, would have hung after the suppression of the *Pilgrimage of Grace*; and it was at this Gate that Charles I would demand entrance on 23rd April 1642.

Many medieval towns are known to have had timber Gates – particularly in the period from the 11th to the later 13th centuries; but, in the archaeological record, these are now represented mainly by fragments, as the bulk of the Gate structures would have been rebuilt in more durable materials, such as stone or brick – just as happened at this Hull site. At nearby Beverley, the earliest reference to a timber Gate or 'Bar' is in the late 12th or early 13th century (Kent 1989, 178); and wooden 'Bars' were erected in 1405 and 1433-4, and were still being erected as late as 1460-1 and being rebuilt or repaired in 1445-6 (*ibid.*, 179). Timber structures had the advantage of being much cheaper, and easier to erect than their stone or brick counterparts; but, their disadvantages were that they required a higher level of maintenance, were a greater fire risk, and were less durable. Lastly, the advent of artillery quickly rendered these timber structures obsolete.

The Phase Ib rebuilding of the Beverley Gate (Fig. 44)
At some stage after the midpoint of the 14th century the timber Gate was rebuilt in more durable materials; however, as many of the upright and diagonal braces of the earlier structure survived encased in the new stone and brickwork, substantial parts of the Phase Ia structural elements clearly continued in use. Hence, this should be seen as a major strengthening and refurbishment of an existing structure, rather than its complete replacement.

The front of the Gate was rebuilt and encased in substantial brick buttresses, up to 13 of the external basal courses of which were battered outwards in projecting courses, in a similar fashion to those of the Town Wall; as with the latter, the brickwork had been laid on top of a flat shallow footing of two or three courses of limestone. These buttresses would have carried the weight of an arched entrance to the passageway, and a short stubby return to the south, recessed just over 1m within the passageway, would have marked the position of the doors. The external appearance of the new Gate would thus have been one of a flush vertical brick face, rising above the stepped brick footings, with the central passageway flanked on either side by projecting buttresses; this is not dissimilar to that of the extant North Bar at nearby Beverley, which dates to 1409 (Bilson 1896, 41). The top of the surviving courses of the Phase Ib brickwork is now at a height of 2.161m OD; but not all of the surviving brickwork is of the same date, as some of the topmost courses now seal the tops of sawn-off timbers (e.g. Fig. 22, S10). The likelihood is that whilst the onset of Phase Ib may date to the second half of the 14th or the very early years of the 15th centuries, parts of the Gate may continue to have been modified during the remainder of the Middle Ages and the earlier years of the Tudor period – and, by then, some of the earlier timbers may have become redundant.

Within the internal passageway the lower sections of its northern side, and the base of its eastern end were strengthened with the construction of a low stone bank. The latter ranged in height between about 1m and 1.45m, and consisted of limestone and chalk boulders, that were faced on their west and south sides by roughly-faced limestone blocks, and presented a level upper surface, which would have supported overlying brickwork. The projecting internal return at the eastern end would have supported the weight of an arched entrance to the passageway. The function of this stone strengthening to the walls of the passageway was two-fold: it would have made the base of the passageway (and its vulnerable timbers) more fire-proof, but, more importantly, it would have helped to bear the structural load of an over-sailing brick

vault, and the brick superstructure of an upper floor and tower. The latter reason is why the stone footings for these parts of the Gate were more substantial than at the front, where corner buttresses were able to take the load.

The Phase I passageway was *c.* 7.6m long, with an internal width of at least 3.8m. This compares reasonably well with the North Bar at Beverley, where the length of the Gateway (excluding the projecting buttresses on its north face) is about 7.23m, whilst the internal width of the passageway is about 4.21m (Bilson 1896, 39), and is closed with double-leaved doors. The passageway at the North Bar is covered with a quadripartite brick vault of two bays; there are also three small recessed brick-lined arched niches set into the internal walls on either side of the passageway. As none of the surmounting brickwork for the passageway at the Beverley Gate has chanced to survive, we have no way of knowing the details of the vaulting, or of whether any similar recessed niches would once have existed here; but, it would be reasonable to assume that a brick vault of some kind would have covered this tunnel – though whether that would have been a barrel vault, or a ribbed quadripartite vault of more than one bay (as at Beverley) is less certain.

The main dating evidence for the onset of Phase Ib is provided by Humberware pottery, including a complete jug, incorporated within the construction dumps and floor levels within the Gate passage. This suggests that these floor levels are unlikely to be any earlier than the second half of the 14th century, but could equally be of early 15th-century date. The most likely documented murage grants (see Table 1) cover the period from 1353-4 to 1404, which would span the reigns of Edward III, Richard II, and Henry IV. We have precious little detail about the order in which different parts of the defences were rebuilt in brick, and so we do not know whether this work was done sequentially from south to north, or whether the rebuilding of individual Gates was given any precedence over (for example) adjoining stretches of the Town Wall; however, we do know that one of the earliest recorded sections of Wall was in 1339 at the south of the town, facing the Humber, so, if the work was done sequentially from south to north, then one might argue that reconstruction in brick might have been expected to have reached this part of the circuit by the 1370s or 1380s – which would conceivably place it in either the later parts of the reign of Edward III (1327-77), or that of his successor, Richard II (1377-99). Certainly, there were a number of five year grants between 1376 and 1396, followed by a four-year grant in 1399 – all of which argue for a substantial and sustained programme of building work taking place during this period, with several grants following on sequentially; though not conclusive in itself, this period from 1376 to 1399 does look the most likely candidate to fit the bill.

The earliest detailed depictions of the town are provided by two maps which survive within the Cottonian Manuscripts of the British Library; the late George de Boer argued convincingly for these to date to *c.* 1538-9 (de Boer 1973). These show the Beverley Gate as a two-storied structure, surmounted by a small, round embattled tower, topped with a pointed steeple (Fig. 2); the tower is lit by a number of rectangular windows. A large central Tudor archway is flanked on either side by symmetrical projecting stepped buttresses (Fig. 44). At first-floor level, a single small rectangular window opening is set centrally over the gateway; the latter is protected by a portcullis, and would appear to open onto a drawbridge – as small square openings for the bridge chains are visible in the upper brickwork of the ground floor.

Later topographical prints and historic maps depict the other main Gates to the town, and show that (by their final stages) there was considerable variety in form, size and ground plans; this, together with the substantial variation in the form of the interval towers, argue for work on the construction of the defences having taken place over a lengthy period of time, with much of the work being carried out by different gangs of workmen. Interestingly, all of the Gates depicted on the *c.* 1538-9 maps of Hull and in later topographical prints appear to have been single-towered structures.

Nationally, although many of the better-known and more impressive surviving medieval Gates tend to be twin-towered structures (for examples, see Kenyon 1990, 191-4, and numerous plates in Creighton and Higham 2005), there are also a number of other single-towered structures known from other parts of the country. One of the more famous examples is St. Benedict's Gate, Norwich, which was erected in the late 13th or early 14th centuries (Hurst and Golson 1955); others include Southampton West Gate, Coventry Cook St Gate, and Launceston South Gate (Creighton and Higham 2005, pls 50 and 115-16).

Phase II: Tudor work at the Gate

After the effective capitulation of the town to the *Pilgrimage of Grace* in October 1536, with little resistance, Henry VIII ordered a major review of Hull's defences, which would appear to have been undertaken probably in 1538-9, under the supervision of John Rogers. One of the major outcomes was the recommendation to construct an extensive set of new defences on the east bank of the River Hull, and this work was duly implemented in a major programme of works between 1541 and 1543; but, there were also a number of recommendations for strengthening parts of the existing Town Walls. A new bulwark was to be added at "the Watergate" (probably the Humber Gate), and artillery was to be placed there; the chain tower next to the River Hull was to be enlarged; the North Gate, and the corner tower at the north-west angle of the town, were to be enlarged and strengthened; and a barbican was to be added to the Beverley Gate, and the Town Ditch to be scoured. The height of the clay Ramparts was to be increased, all the posterns were to be strengthened, and the sluices were all to be renovated (Allison 1969b, 414).

As Henry visited the town in 1541, and was clearly taking a personal interest, it is likely that some action would have been taken to implement several of these recommendations – in contrast to what happened in response to many later surveys of Hull's defences (e.g. in the later 16th and 17th centuries). Certainly, manuscript drawings of the defences facing onto the Humber suggest that John Rogers was contemplating the additional works at the Humber Gate (Shelby 1967, pl. 8); hence, the seaward-facing defences were clearly being seriously considered for strengthening. How much, if any, of the works proposed at the North and Beverley Gates, and at the angle tower, was ever progressed, is less certain. The progress of work on the defences seems to have been slower than Henry intended, as a further order was issued in 1542 for several of the Gates to be locked at night, until the new fortifications were finished; artillery was to be placed in the tower of the Water Gate, whilst other Gates and posterns were to be closed. Later in the same year, it was decided that the Beverley Gate could stay open, but that Myton Gate was to be blocked (Allison 1969b, 414). The Town Ditch does appear to have been scoured – if the clay dumps found in front of the Town Wall, incorporating late 15th- or early

16th-century pottery, do indeed belong to the transition from the very end of Phase Ib to the onset of Phase II – but, no trace was found of any new barbican at the Beverley Gate.

As detailed above (Part II), the fears of a Spanish invasion in the 1580s led to some hasty strengthening of the Hull defences. In the archaeological record, three of the principal uprights for a new bridge were found in front of the Beverley Gate. Dendrochronological assay indicates that they were felled sometime after AD 1580. Whilst it is possible that these were constructed with a documented gift of timbers from the Crown to Hull in 1581 in order to assist with repairs, the likelihood is that those particular timbers would have been used mainly for the urgent repairs needed at the South Blockhouse. It seems more likely that the new bridge at the Beverley Gate would have been constructed in the mid or later 1580s. An accompanying brick structure found here has been interpreted as the base of a brick-lined pit for the counterweights of a drawbridge; as documentary references to drawbridges at the Beverley Gate persist into the later 17th century, it would seem more likely that the new timbers would have been part of a drawbridge, rather than a fixed bridge in this position.

Phase III: the 17th-century structures at the Beverley Gate (Fig. 45)
In structural terms, the first major event of this phase was marked by the rebuilding and expansion of the largely medieval Gate structure – almost certainly to be able to accommodate the additional men, stores and ammunition, which came with its adaptation for the use of artillery. Whilst the gun crews and their equipment would have been stationed at the Gate, the likelihood (from subsequent records of damage sustained during the Civil War) is that the guns themselves would have been mounted on the flanking sections of the ramparts immediately behind the Town Wall; the *c.* 1638 Wenceslaus Hollar map of Hull shows low embrasures cut at intervals along the tops of the Town Wall (Fig. 4). A Crown Survey of 15th June 1660 records that a *demi-culverin* and three *saker*s were kept at the Beverley Gate (PRO WO46.1, 2 – *Account of Ordnance*; Howes and Foreman 1999, 53); to give an idea of the size of this ordnance, by the mid 17th century an ordinary *demi-culverin* would have weighed 2,700lbs and fired a 10lb shot, whilst an ordinary *saker* would have weighed 1,500lbs and fired a 6lb shot (based on figures cited in the *Compleat Gunner*, published in 1672: see Blackmore 1976, 397).

Two large two-storied guard-chambers were added to the rear of the existing Gate, probably in the later 1620s; the eastern halves of their chambers were built into the top of the Phase Ia clay rampart. These had massive deep foundations to their front walls, to carry the weight of a brick vault, for the upper storey. In each guard-chamber a staircase gave access to the upper floor, which would have been heated.

Hollar's Map of *c.* 1638 (Fig. 4) clearly depicts the rebuilt Gate as a lower squatter structure than its medieval predecessor. The latter's tall tower and steeple has gone. Instead, we have a two-storied Gate, capped with simple crenelated battlements, flanked to the rear by two-storied guard-chambers, with their pitched gables set at right-angles to the Town Wall (Fig. 45); symmetrical tall chimneys project from each of these guard-chambers. The external entrance to the Gate is still through its Tudor-style archway, flanked on either side by its projecting stepped buttresses; and its upper floor is still lit by a single, small, centrally-set rectangular window, flanked on either

side by the small square openings for the drawbridge chains. But, what is markedly different is the new west-facing aspect of the guard-chambers, where small rectilinear windows lit each of the stair-wells to the upper floors; there is a double-width window in the lower part of the southern guard-chamber.

Hollar's Map, though often conventionally dated to "*c.* 1640", was clearly surveyed before additional outer defensive works were constructed in 1639-40 (see below, and also Part II above). Hence, as this map shows the Beverley Gate with its new guard-chambers, these clearly pre-date the Hollar survey (perhaps of 1637-8). Archaeological evidence for the dating of the rebuilding of the Gate is frustratingly sparse, but recent excavations at the South End Fort have shown that the bricks used for the latter's construction are very similar to those used in the guard-chambers of the Beverley Gate (George 2005, 93). As the South End Fort was built in 1626-7, this could suggest that the rebuilding of the Beverley Gate was broadly contemporary, and similarly represents a response to a perceived threat of a Spanish invasion in the early years of the reign of Charles I.

In 1639-40, as tensions rose in the period leading up to the start of the Civil War, a major programme of improvements to the defences was initiated by the Crown. The widespread use of artillery in contemporary warfare had exposed the weaknesses of medieval town defences, and many contemporary European towns had addressed this problem by adding additional circuits of Outer Ditches and low counter-scarped Outer Banks, and protecting the approaches to their Gates with angled bastions and hornworks – all intended to keep artillery and the besieging forces further away from the actual Walls, whilst the angled outer earthworks would also serve to deflect shot away from scoring direct hits on the Walls. Such complex outer defences had already made their appearance around some historic towns in the Low Countries by the time of the Religious Wars of the later 16th century (e.g. at Alkmaar), but with the outbreak of the Thirty Years War in 1618 they were to become widely adopted across much of Western Europe, and it was not long before such fashions were copied in Britain. Hence, as Hull held England's second largest arsenal (outside of the Tower of London), it is hardly surprising that the Crown decided to bring its defences up to the same standard. Angular half-moon bastions were erected in front of the major Gates, linked by breastworks which extended for the full length of the western and northern sides of the town; beyond this set of earthworks was excavated a new Outer Ditch, spanned by drawbridges, with a low counterscarp Bank even further beyond. Whilst none of these outer defences has yet been archaeologically investigated, and nothing now remains above ground, their plan and layout are known from their depiction on various 18th-century maps of the town (e.g. Woolner 1715; Phillips 1725; Thew 1784; Hargrave 1791. Cf. reproductions in Sheppard 1911, or Humberside County Council Leisure Services Dept. 1995). With regards to the outer defences near the Beverley Gate, the details given on the 1715 Woolner Map, coupled with those on a 1776 plan by Edward Johnson for the Dock Company, suggest that the northern side of the half-moon bastion erected in front of the Beverley Gate would underlie the southern half of the Hull Maritime Museum (the former Docks Office), whilst the Outer Ditch would pass underneath its northern and eastern sides –all of which would lie well beyond the limits of the 1986-9 excavations.

Nevertheless, some archaeological evidence for the lead up to the Civil War did survive at the Beverley Gate, in the form of some massive clay dumps which were set

against the front wall of the northern guard-chamber. These incorporated pottery of the early to mid 17th century and a clay-pipe of *c.* 1630: they are thought to represent the scouring of the Town Ditch in 1638, as part of the works carried out for the Crown by Captain William Legge, Master of the King's Armouries (Howe and Foreman 1999, 25; see Part II, above).

Clear evidence for the Civil War itself was more elusive, as the structural remains which did survive would have mainly been at foundation level or just above; whereas most of the very extensive structural damage which is recorded in documents would appear to have been sustained by the upper sections of the Walls and Ramparts (see Part II, above).

In the two decades following the Civil War the defences experienced a lengthy period of neglect and under-funding, as Hull struggled to meet the costs of the extensive repairs which were needed. Whilst little structural evidence for this survived *in situ*, dendrochronological assay of several timbers reused within a Phase IV timber revetment did identify a whole group of planks that had been fashioned from trees felled between AD1620 and 1665; although it cannot be proved indisputably, there is a strong suggestion that these particular planks had been salvaged from a major structure, such as a bridge that had been erected at the Beverley Gate in the late 1660s or 1670s (see Tyers, above). A possible candidate would be the repair of a drawbridge here, for which the Governor agreed to repay the costs in May 1667 (Stanewell 1951, 352, M.324); however, whether this work was actually carried out in that year is uncertain, as a subsequent inspection in March 1670 estimated the costs of repairs to Gates and drawbridges as being £85 (Howes and Foreman 1999, 53). It should also be borne in mind that with two circuits of Ditches around the town, there would also be two drawbridges leading to each Gate; hence, although a 1681 Crown Survey recommended that repairs be carried out to a drawbridge at the Beverley Gate (*ibid.*, 111), this might not be the same drawbridge as that mentioned in 1667.

Evidence for repairs to the defences carried out in response to Martin Beckman's surveys in the 1680s (see Part II, above) has previously been observed to the south of the Beverley Gate, in Princes Dock Street (Sheahan 1866, 353n). It is known that Beckman recommended the repair of at least one drawbridge at the Beverley Gate – although whether this was to the bridge over the Inner Ditch, or the Outer Ditch, is not stated – and that a new hanging lock was fitted at the Gate in 1683 (Howes and Foreman 1999, 111); however, in the archaeological record, no evidence was recognised for any new structural activity during the later part of Phase III.

Phase IV: the Beverley Gate from c. 1700 to 1776 (Fig. 9)
This period saw the gradual deterioration and neglect of Hull's defences throughout the circuit, as their military role became increasingly irrelevant. Moreover, the Walls and Ditches constricted the need to physically expand the limits of the built-up area, whilst the narrow Gates and bridges posed a bottle-neck to the flow of traffic in and out of the bustling town. Ultimately, the decision was taken to dismantle the whole section of defences around the western and northern sides of the town, to make way for the construction of the first of Hull's docks.

At the Beverley Gate itself, the tower had become so ruinous, that it had to be taken down in 1735. Benjamin Gale's drawing (possibly of the early 1770s. The engraving

published by Tickell states in its caption that it was drawn before the Gate was taken down in 1776; Tickell 1796, opposite p.347) shows that most of the medieval sections of the Gate survived intact (Fig. 9) – although the upper parts of the first floor (above its window light), together with the front crenellations, had gone; this part of the monument looks more like a stable, consolidated ruin. Rather, by this date what had clearly been dismantled, or had collapsed, were the upper parts of the 17th-century guard-chambers: all of the walling above the upper stair light to the northern guard chamber had gone, and its southern counterpart had fared only slightly better. [Benjamin Gale (1741-1831) was born in Aislaby, North Yorkshire, and worked in Hull during the late 18th century – being listed in Trade Directories at 18 Lowgate from *c.* 1790 to 1803; he would have been in his early 30s during the first half of the 1770s. See Credland 2000, 9.]

At the beginning of the 18th century the approach to the Beverley Gate appears to have still been via one or more drawbridges, as these were regularly mentioned in the Corporation records as having been in need of repair; but by the time of Gale's view, the inner drawbridge at least had been replaced by a fixed bridge. His view of the Gate (Fig. 9) shows a broad road sweeping towards the archway, and lined on either sides by brick walls which would appear (from the figures seen next to the northern wall) to have been about 2m high, and capped with a coping; but this had clearly been standing long enough to have sustained some damage, as a section of walling on the left-hand side of the road has collapsed, and behind it are visible the tops of a wooden fence-line of posts, in what had formerly been the Town Ditch.

Archaeological evidence for the documented dismantling of parts of the Gate's topmost parts in 1735 is provided by the substantial remains of the base of an *ad hoc* clasping buttress which was built against the northern half of the Gate. A crude but effective timber revetment was fashioned out of a number of large, reused 17th-century timbers – probably reclaimed from a redundant structure which was being broken up at or near the site (e.g. the planking from an old drawbridge). This shuttering retained a brick-and-rubble core, which was created behind it. Finds incorporated in the dumps, which consolidated this revetment or buttress, incorporated pottery, clay-pipes and glass of the first two quarters of the 18th century, along with a halfpenny of William III; but, there was nothing which need be any later than *c.* 1740 – with many of the finds being either residual, or more typical of rubbish from the decades from 1710 to 1730. It is suggested that this structure would have helped to support the Gate superstructure, whilst its more ruinous portions were being taken down.

The medieval Gateway had extended westwards almost up to the eastern lip of the Ditch. Hence, when this new timber shuttering was erected, the latter had to be anchored into the upper fills and eastern sides of the Ditch, some 0.80m to the west of its original edge. The line of the shuttering was then extended to the north-north-west by a new retaining bank. This new boundary feature effectively defined a new eastern edge to the Town Ditch, and created a broader berm in front of this part of the Town Wall. The area between the old medieval bank and this new bank was then reclaimed by infilling it with rubbish, and its western edge was then demarcated with a new fence-line. Presumably, this land reclamation immediately to the north of the Gate helped both to stabilise the sides of the Ditch, and to give lateral support to the temporary buttress.

The last defensive role for the Town Ditch was in the troubled months of 1745. Dumps of clay set in front of the Town Wall, to the north of the Gate, may mark the scouring out of parts of the Ditch in 1745, for which works the Magistrates contributed £1,900. Finds incorporated in these dumps comprise a mixture of residual material and pottery of the second quarter of the 18th century.

At some stage during this Phase, the old drawbridge across the Inner Ditch was replaced with a fixed bridge in much the same position. The former drawbridge-pit was infilled; pottery in this fill dated to the second quarter of the 18th century. The actual date of the construction of a fixed bridge is difficult to fix with any precision, but the most plausible suggestion is that it followed sometime after the dismantling of the ruinous tower in 1735. If Gale's view of the Beverley Gate (Fig. 9) is accepted at face value, then a fixed bridge existed here before 1776, lined on either side by substantial high brick walls; and their weight would presumably have necessitated some sort of causeway over the former moat. In the archaeological record, there is no sign of any substantial brick or stone rubble causeway in this position; but, there clearly is very extensive evidence for dumping clays, soil and rubbish in this part of the former Town Ditch. Hence, the Ditch was certainly being narrowed and infilled, as part of a major phase of encroachment and reclamation. The latest material in these dumps included stamped clay-pipes of William Westerdale (who is recorded as working in both 1754 and 1774), and bowls of shapes current until *c.* 1770.

By the early 1770s the military role of the old Town Defences had largely been superseded, and, whilst the Town Walls and Gates still had a symbolic value and fulfilled a civic role in the collection of tolls and the control of the ingress and egress of traffic, they were increasingly seen as an encumbrance to the civic purse, and an unnecessary constraint to the flow of commercial traffic in and out of this great bustling port. In 1774 the Hull Dock Company was created, with the passing of a new Act of Parliament, and the town granted the whole of the northern and western sections of the defences (from North Gate to the Hessle Gate) to the new company, in preparation for the construction of Hull's first Dock.

Phase V: the dismantling of the Defences, and the creation of the Docks (1774-1829)
The decision was taken to construct much of the new Dock over the former site of the section of the Inner Town Ditch which lay between the Town's North Gate and the Beverley Gate; in later years, this would become known as Queen's Dock (now Queen's Gardens), but, when first opened in 1778, it was simply called The Dock. Locating the new basin over the former Ditch was a pragmatic move, which cut down on the amount of fresh excavation that would be needed: the Ditch simply had to be enlarged, and then re-cut to shape, and lined. However, to permit free and unrestricted access to the sides of the new Dock, the old Town Walls first needed to be pulled down.

Work on the dismantling of the Walls next to North Gate began in 1774, and progressed steadily around to the Beverley Gate, which it had reached by 1776. Archaeological investigations (see Part III, above) suggest that the extent of demolition was not always consistent; in most places, the Walls have been reduced to a broadly similar height, but, in a few places, almost all of the brickwork has been removed down to the original chalk foundations. In and around the Beverley Gate, the

brick structures of both the Gate itself and the adjoining section of Town Wall were reduced to their present height within the excavated area; but, the comparable sections of the Wall and its interval towers to the north and north-east were mostly reduced to much lower heights. Nevertheless, parts of the lower brick courses did tend to survive in most cases, and were preserved from later disturbance by being buried beneath the upcast from the excavation of the new Dock.

Much of the Inner Town Ditch (and its fills) is likely to have been completely removed by the creation of the new Dock basin – the same observation could equally be made about the construction of the later Docks along the west side of the Town; the exceptions will be in those areas next to its terminals, or where later locks were constructed. These are precisely the reasons why the section of the Town Ditch in front of the Beverley Gate chanced to survive: it coincided with the south-western terminal of the new Dock, and was then subsequently protected, as much of the site adjoined a lock which was built in 1829 between the Queen's Dock and the new Junction Dock. This fortunate set of circumstances allowed parts of the old Ditch to survive largely undisturbed, and preserved some of the former bridge timbers *in situ* in front of the former Gate; but, elsewhere, for much of the circuit, we can expect that the excavation of the late 18th- and 19th-century Docks may have removed either all, or at least the majority of the remains of the Inner Ditch. The only likely exceptions may be small sections in front of the North, Myton and Hessle Gates; but, even in some of these locations, later truncation may have destroyed all trace. Hence, these Beverley Gate excavations may well represent our only opportunity to investigate the archaeology of the Inner Ditch.

At the Beverley Gate – perhaps in preparation for the construction of the adjacent south-west terminal of the new Dock – a series of new dumps were either deliberately tipped, or were allowed to rapidly accumulate over the tops of the Phase IV ditch fills, in order to level up the surface of the former Town Ditch, and to complete its reclamation. Finds incorporated in these layers mostly date to the later 18th and early 19th centuries, and it is likely that these dumps represent successive levelling and tipping between 1776 and 1829 (see below).

The final major event was represented by the opening of the adjoining Junction Dock, to the south, in 1829 – this is now known as Prince's Dock – and the construction of the contemporary Monument Bridge over the lock-pit between the two docks. Some of the upcast from the excavation of both the lock-pit and the new dock was spread over the former site of the Beverley Gate and its adjoining section of Town Ditch; the latest finds incorporated in this material date to the early 19th century, but none needs be any later than "*c.* 1830".

The fate of the Outer Ditch is less certain, as parts of it would have lain beyond the limits of the new Dock; and, so far, no opportunity has yet arisen to investigate any of it archaeologically. Nevertheless, in the same way that the former drawbridge over the Inner Ditch had been replaced by a new fixed bridge by the end of Phase IV, it is likely that the earlier drawbridge over the Outer Ditch would have been supplanted by a fixed bridge either during the later stages of Phase IV or at the beginning of Phase V – to enable a freer and faster flow of traffic in and out of the town. Similarly, with the disappearance of any military role for the Outer Ditch, it is likely that this would have been used as a suitable site for the opportunistic dumping of rubbish, and would

relatively quickly have been infilled; equally, being adjacent to the northern side of the new Dock basin, it may also have received considerable quantities of upcast from the latter's excavation in 1774-6.

In terms of the cartographic evidence, all of the sections of the Outer Ditch and its bastions from the Beverley Gate to the Hessle Gate are shown intact on Robert Thew's Map of 1784; but, the comparable section and bastions to the north and north-east had already disappeared. Whereas, by the time of Cragg's Map of 1817, all trace of the Outer Ditch and its bastions had vanished; however, the latter does also show the site of the New Dock (i.e. the Junction Dock), which at that date had not even been built – so this is not conclusive proof. Nevertheless, as both the Humber Dock (of 1809) and the Junction Dock (of 1829) were designed to be wider than the original Dock (of 1774-8), it is likely that the last parts of the Outer Ditch were infilled before 1809. The evidence of Hargrave's map of 1791 is inconclusive; whilst it does not show any of the former Outer Ditch surviving, the areas where it would have lain are still shown as undeveloped, and the layout of the roads on the western limits of the town appear to still respect the shape of some of its bastions. This would seem to be corroborated by Lumsdon and Davis's map of 1800, which – although it does not show the Outer Ditch *per se* – leaves the line of it clear of development, and labels this as 'Old Government Works' (Brigham 2009, fig. 12).

Water management

Besides their obvious defensive role, many Town Ditches had ancillary roles, which were often associated, in one way or another, with water management. Streams or rivers formed part of the defensive circuits of a number of historic towns (as they did at both Hull and Beverley. [For a range of other examples, see Schofield and Vince 2003, ch. 2; Creighton and Higham 2005; Barley 1976; Beresford and St Joseph 1979).] Parts of many Ditches were either regularly or seasonally water-filled. In some instances, the Ditches played a part in the provision of a town's freshwater supply; whilst in most cases, storm water would be discharged into, or run off into the Ditch. In a few towns, fishponds could even be incorporated into the defensive circuit (e.g. as at York, or Stafford). In many more, a flow of water through parts of the Ditches allowed water-intensive crafts or industries to develop alongside the Town Ditch; for example, fulling, dyeing and tanning industries all flourished alongside different sections of the Beverley defences (see Evans 2006). In yet other cases, water from the main Ditch could be used to power watermills for example at Worcester or Hereford (Schofield and Vince 2003, 51).

At Hull, the main course of the River Hull had changed dramatically during the mid 1250s, and from then onwards flowed into the Humber via a more easterly channel (Sayer's Creek; see Evans 2016, fig. 1), and this was to permit the development of the Old Town in its current position. Cartographic evidence suggests that the line of the north-western section of the Town Ditch probably followed part of the original course of the Alde Hull (Travis-Cook 1905); in other words, this part of the Town Ditch utilised part of the old river bed, once the main course of the river had altered – and that its excavators probably widened and deepened the bed and sides of that former channel during the process. Hence, the ground into which the Town Ditch was cut had already been shown to be suitable for holding water.

The freshwater supply

In 1401 the Borough Corporation began work on the construction of a new freshwater dyke which ran from Anlaby, 3 miles (5 kms) to the west of Hull, to the Old Town. It joined up with the Bushdyke, which fed into the Town Ditch, just to the south of the Beverley Gate. This was to form the main freshwater supply to Hull until the mid 19th century (Evans 2006). A large section of the Town Ditch, between North Gate and the Hessle Gate, was closed off at either end, to form a freshwater lake, from which water was drawn and carried into the town in carts by "bushmen" or "bussmen"; they filled their carts at a stone trough at the Bushdyke. The regular cleaning of these ditches was to be a constant concern of the Town Corporation for the next four and a half centuries – e.g., animals were not allowed to be watered there, and the washing of clothes in the freshwater ditches was forbidden (Allison 1969, 78).

In 1613 a new waterworks was built near the Beverley Gate (Evans 2006, Fig. 5a). A horse-drawn pumping engine raised water from the Bushdyke into a network of lead pipes which ran down Whitefriargate to properties in the High Street; small lead pipes ran from the larger mains into fashionable houses. By 1617 many of the latter houses were supplied in this way; but, water was still being delivered by cart to some parts of the town as late as the 1770s (Allison 1969, 371-2).

The disposal of storm and flood waters

By the middle of the 14th century a system of open “sewers” (Evans 2004, Fig. 5c) ran through the Old Town; these were presumably intended largely to carry away surface water, rather than faeces, or household and other detritus. Their main outfall was at the South End, where they emerged via an outfall called *The Mamhole* into the Humber; the sewers passed through the Town Wall at *The Mamhole Gate*. This outlet is first mentioned in 1354, and the Borough Accounts show that its riverside face was strengthened with timber piles and stone dressing (Allison 1969, 377). However, some of the other sewers emptied into the river-facing sections of the Town Ditch, beyond the Hessle and North Gates (Foot Walker 1949); by emptying into those sections of Ditch nearest to the rivers, these were intended to avoid any cross-contamination with the freshwater supply. During the 15th century both the *Mamhole* and the common sewers were periodically cleansed by the Council.

Sewers were not enclosed or placed underground until the second quarter of the 17th century. 'Vaulted' sewers were constructed at the Suffolk Palace and in Whitefriargate in 1638, and another was built along Grimsby Lane to the Haven in 1642; a further two sewers were ordered to be vaulted in 1669 (Allison 1969, 377).

By the mid 18th century more and more buildings were being crammed into the restricted confines of the Old Town, which would have meant that there would have been less open ground to soak up rain and flood water; this would have exacerbated the problems facing the antiquated system of *sewers*, which were now clearly struggling to cope. We are fortunate in having a very detailed report written by the celebrated engineer, John Grundy junior; Grundy later went on to become one of the main engineers to be employed in the construction of The Dock at Hull between 1774 and 1778. His report is dated 16th July 1746, and although its title might suggest that it describes the condition of the Ditch/moat circumscribing the walls and ramparts of the town, the bulk of the document is devoted to the state of the *common sewers* emptying into the Ditch, and the sluices set between different sections of the Ditch. The first part of this document – describing the state of the defences – was published

in a now defunct journal some years ago (Foot Walker 1949), but the second describing his recommendations for improving the system remains in manuscript (KUHRO M.449). In the following extracts, a 'shore' is a sewer, and a 'clow' is a sluice:

> "By order of Mr Mayor of Hull and in Company with Mr Alderman Cookson I viewed the Ditch which circumscribes the Land Walls and ramparts of the said Town, and found so much warped and silted up by the Dirt and Soil from the Common Shores from the Town which empty themselves therein, and from the Sediment also left by occasionally taking in the Tydes at a Clow or Shuttle under Hessle Gate, that its Bottom is now higher than the Outfalls or mouth of many of the said Common shores whereby the Drainage of the Town is not only obstructed, but also the foul Water retained so long in the said Ditch for want of a proper outfall into the Humber is stagnated stale as to become extremely Noxious, putred and unwholesome to the adjoining Inhabitants in particular, and also to the town in general.
>
> In order to form a Judgement of Proper Expedients to remedy this great evil, I made the following Observations, viz.
>
> That there is an Arch under the HESSEL GATE of about 2 feet Waterway and a Draw Door on the lower Mouth thereof which is occasionally drawn to let in and out the Tyde waters, which at this time I found drawn and that the same had rose considerably higher at this than at the North End of the Ditch, from whence I apprehend that the fall is from the North Gate to Hessel Gate.
>
> At MITON GATE the arch is 8 or 9 feet wide at least. The Street leading to this Gate has no common Shore, and as it lyes very flatt is extremely ill drained, and very much incomoded with Dirt and Filth.
>
> There is a Shore a little North of this Gate but it is quite warped up.
>
> At POSTERN GATE is a very large Shore.
>
> Under BEVERLEY GATE is a Brick Arch of 9 or 10 feet Waterway. The Pipe from the Town Water Engine lyes across this Waterway. At White Fryer Gate there are common shores from the Town, but they are warped up and contracted at their mouths.
>
> The LARGEST COMMON SHORE which empties itself into this Ditch is as I am informed from that part of the Town called Green Ginger but the Mouth of this is much obstructed.
>
> Near the NORTH GATE is a stock of Tunnel with a shuttle of about 12 or 14 inches wide which serves in case of need to communicate with the Outer Ditch.
>
> Mr Cookson and Mr Blaydes informed me that there is an Arched tunnel under the North Gate and from thence into the Haven, but that it has been long since stopped up and disused. I apprehend that there was also a Clow or draw door

> at the mouth of this tunnel that was used to take in and let out the Water for the same purpose as that at Hessel Gate."
>
> [The rest of the report consists of recommendations for repairs and improvements.]

From the above, it is clear that despite the intentions of the original medieval builders of these *sewers* to keep storm water separate from the freshwater in different sections of the Town Ditch, by the mid 18th century storm water was being discharged into many sections of the Ditch; it may be that by this late date the practice of keeping a large freshwater lake here had been superseded by improvements to the piped water supply. Secondly, the references to a large brick arch in the Ditch at the Beverley Gate may imply that a fixed bridge had already been built here by 1746, as a brick arch would make little sense in this position, if a drawbridge was still in use here.

Acknowledgements

This project was the brain-child of David Crowther and Peter Armstrong; the latter was responsible for all of its early stages, and for the production of a popular booklet about the Beverley Gate in 1987. The excavations at this site were carried out by the former Humberside Archaeological Unit, on behalf of the City Planning Department, City Engineer's Department, Hull Museums, and Technical Services of Hull City Council, between 1986 and the beginning of 1989 — the work taking place in a number of discrete phases, as the designs for the Central Area pedestrianisation scheme developed and were gradually implemented. Successive campaigns of excavation were led respectively by Peter Armstrong, Martin Foreman, and D.H. Evans. Small excavation teams were formed at various times from the following pool of staff: David Atkinson, Robert Baxter, Mark Brookfield, Ken Elders, John Farrimond, Martin Foreman, Mike Frankland, Anthony German, Tony Hatfield, David Marchant, John Tibbles, and David Tomlinson. Occasional assistance was also given by local volunteers (e.g. Grant Cairns, Peter Hicks, Elaine Hicks, Marcus and Carl Gledhill, and Sophie Tibbles), members of the East Riding Archaeological Society, and a detachment of Conservation Volunteers. Considerable assistance with the site planning and the drawing of wall elevations in 1989 was also given by the illustrators of an Employment Training scheme run by Humberside County Council (including Ian Beck, Peter Harrison, Isabelle Lomholt, and Tony Walsh). An archaeological watching-brief was also carried out by our colleague, Philip Hampel (now the City's Principal Conservation Officer), during the construction of the coffer dam for the amphitheatre built around the remains of the Beverley Gate.

The post-excavation work was carried out under the supervision of D.H. Evans, mostly in 1989-90, by an in-house project team of Mark Brookfield, Joanne Driffill, Ruth Head, John Marshall, Linda Smith and John Tibbles, supplemented by external specialists and other members of the Humberside Archaeological Unit. The conservation was carried out by Jennifer Jones at the University of Durham; dendrochronology was undertaken by Cathy Groves (now Cathy Tyers) at the Sheffield Dendrochronological Laboratory for English Heritage, whilst the animal bones were studied and reported upon by Sally Scott (then of the University of York's Environmental Archaeology Unit). A number of soil samples were also submitted to the EAU, but, whilst we were told that the initial processing of these had revealed the presence of some interesting material (e.g. some interesting brassicas, and peat), we never received a detailed report on the work.

The report on the textile remains was provided by Penelope Walton Rogers. The late Liz Pirie (then of Leeds City Museums) kindly identified the coins. The late Gaz Watkins did some preparatory work on the clay-pipe assemblage, but, on the abolition of the County Council, left archaeology before ever being able to finish this; thankfully, a few years later, Susie White came to Hull as part of her research for her PhD, and very kindly agreed to study the Beverley Gate assemblage. Problems with completion of a pottery report beset the project for over a decade, and led to extensive delays to any hopes of publishing the site; fortunately, Andrew Sage agreed to study this material as part of his MA for the University of Durham. One of the consequences of those delays is that some of the original authors of finds reports have since left archaeology, or, sadly, died; hence, it has not always been possible to update some of these reports, or, in a few cases, to establish the authorship of some of the catalogues. Where the authorship of individual finds reports is not indicated in the text, these will have been produced within the Humberside Archaeological Unit, by either one of the core team, or by another member of the Unit. The illustrations are mostly the work of John Marshall, Linda Smith and Mike Frankland, but the pottery illustrations are by Andrew Sage; the final artwork was prepared for publication by Mike Frankland. A popular booklet (Evans and Sitch 1990) was produced, summarising the main results of the fieldwork.

A major civil-engineering project such as this involves a large number of people from different backgrounds, many of whom were instrumental in giving invaluable help behind the scenes: this was no exception. Amongst those who gave much needed support, help and advice within the City Council were Howard Crossley, Philip Hampel and Peter Hicks from the Planning Department, John Emmerson and Derek Cottrell from the City Engineers, and David Crowther, Peter Sweeney (and later, Mick Stanley, Bryan Sitch and Andrew Foxon) from Hull Museums. Within Humberside County Council, the committed support of Dr Ben Whitwell, the late Bob Hallas and Michael Symmons to this project was invaluable, as also was the administrative back-up given by Jane Price and Zena Ahmed.

The former English Heritage (now Historic England) became involved with this project in autumn 1986, after seeing the quality of survival of the buried remains of the Town Wall and the guard

chambers of the Beverley Gate; they then began to grant-aid elements of it from April 1988 onwards. They gave assistance both in kind and in direct funding. The former included allowing the regionally-based staff of the Ancient Monuments Laboratory to work both on the conservation of artefacts and on the dendrochronlogical assay of the timbers from the excavations; this was a major boon to the project. In January 1989 they offered to fund the costs of the on-site works retrospectively; in the same letter, they also indicated that they would consider funding further stages of the archaeological programme, including the necessary post-excavation work. John Weaver, the then English Heritage Inspector of Ancient Monuments, was greatly supportive throughout, and wanted to see the medieval defences of Hull scheduled, once the construction work on the amphitheatre was completed (letter dated 4th January 1989); that larger vision has yet to be realised, but the site of the Beverley Gate itself was scheduled in 2016.

We should also like to thank Dan Brown of the Burton Group (one of whose premises overlooks the site of the Beverley Gate) for helping to secure a grant of £300 from his company towards the costs of the 1986 excavations; other grants towards the costs of the scheme were made to the City Council by Ibstock Building Products Ltd., Marshalls Mono Ltd., and Ernst and Young.

The total costs of the Hull City Central Area pedestrianisation scheme were estimated in 1986 as being £1.953 million, which were underwritten by the former Humberside County Council, the European Regional Fund, and Hull City Council; of this total, the archaeological costs came to £43,798.32 by the end of 1989 (under 2.25% of the total project costs).

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The Figures

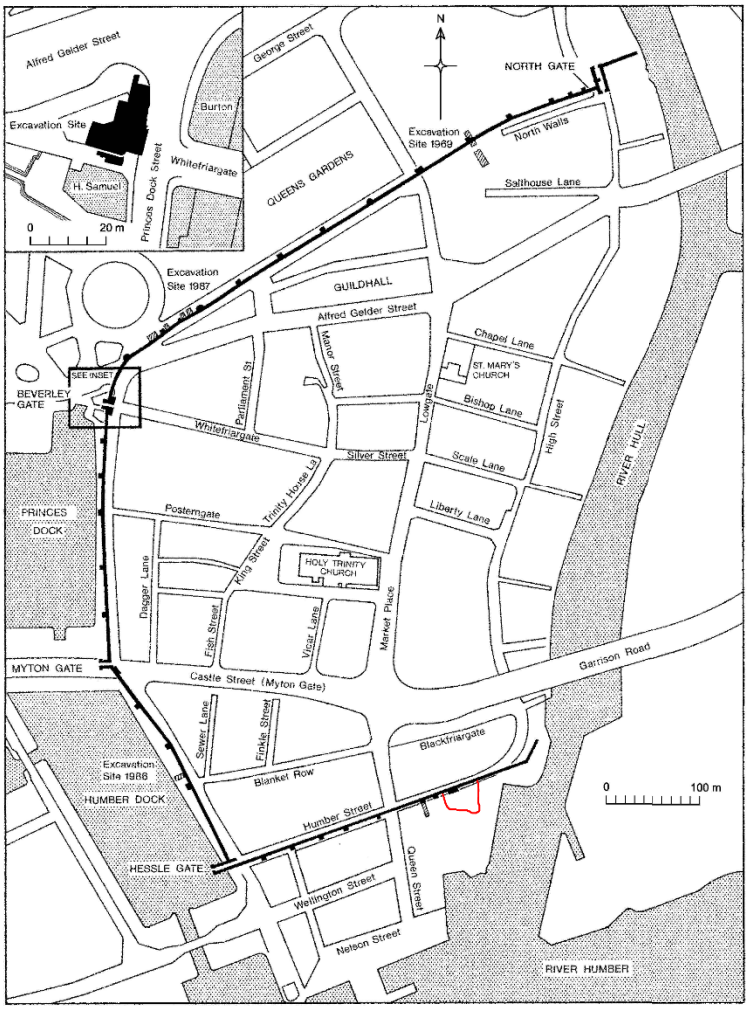


Fig. 1. The circuit of the late medieval and early post-medieval Town Walls, superimposed on the modern street plan. The location of the main areas where excavations have taken place are also indicated. The Inset shows in black the extent of the excavated areas at the Beverley Gate.

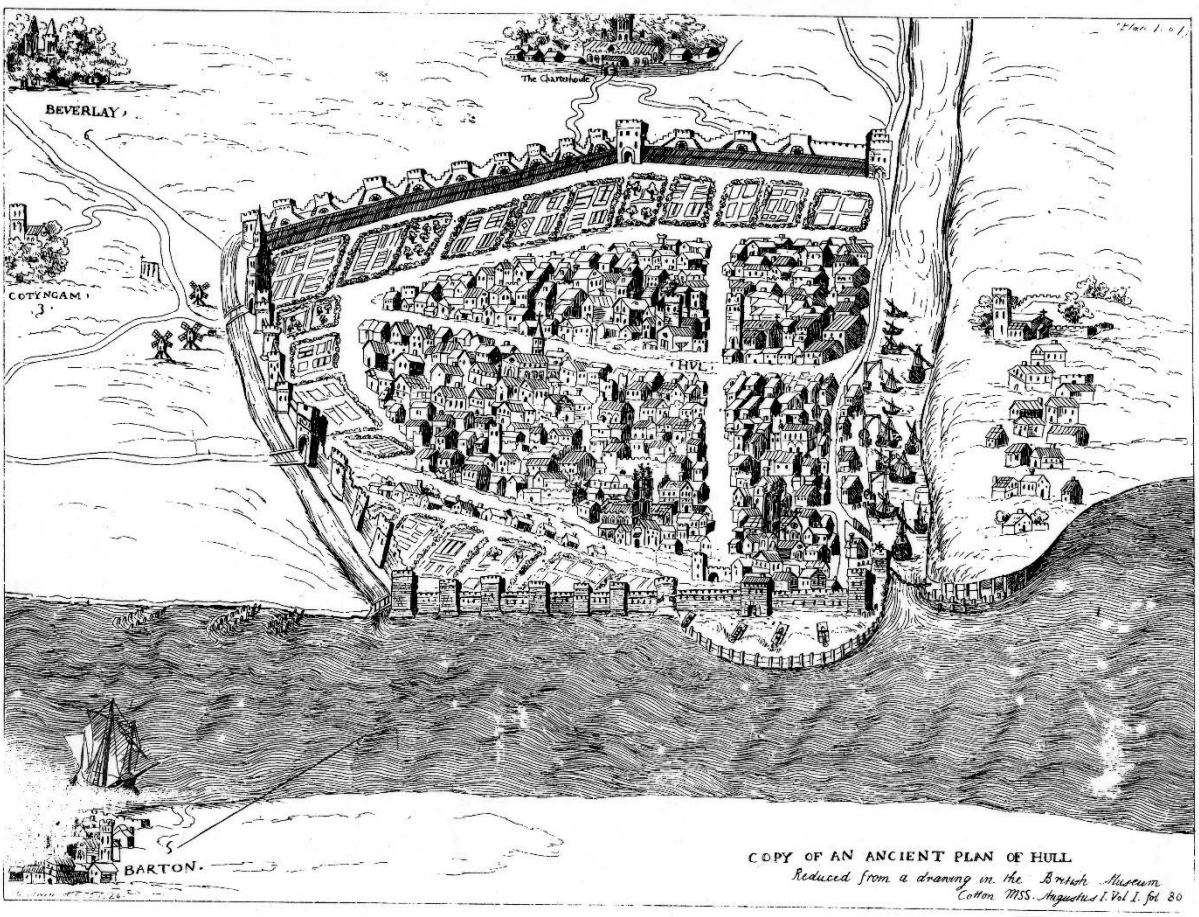


Fig. 2. The Old Town of Hull, viewed from the south in the 1530s. An early 19th-century antiquarian copy of an original plan held in the British Museum Cottonian Mss Augustus I, Vol. I, Folio 83. George de Boer has suggested that the original dates to perhaps 1538-9. [Copyright: Hull History Centre]

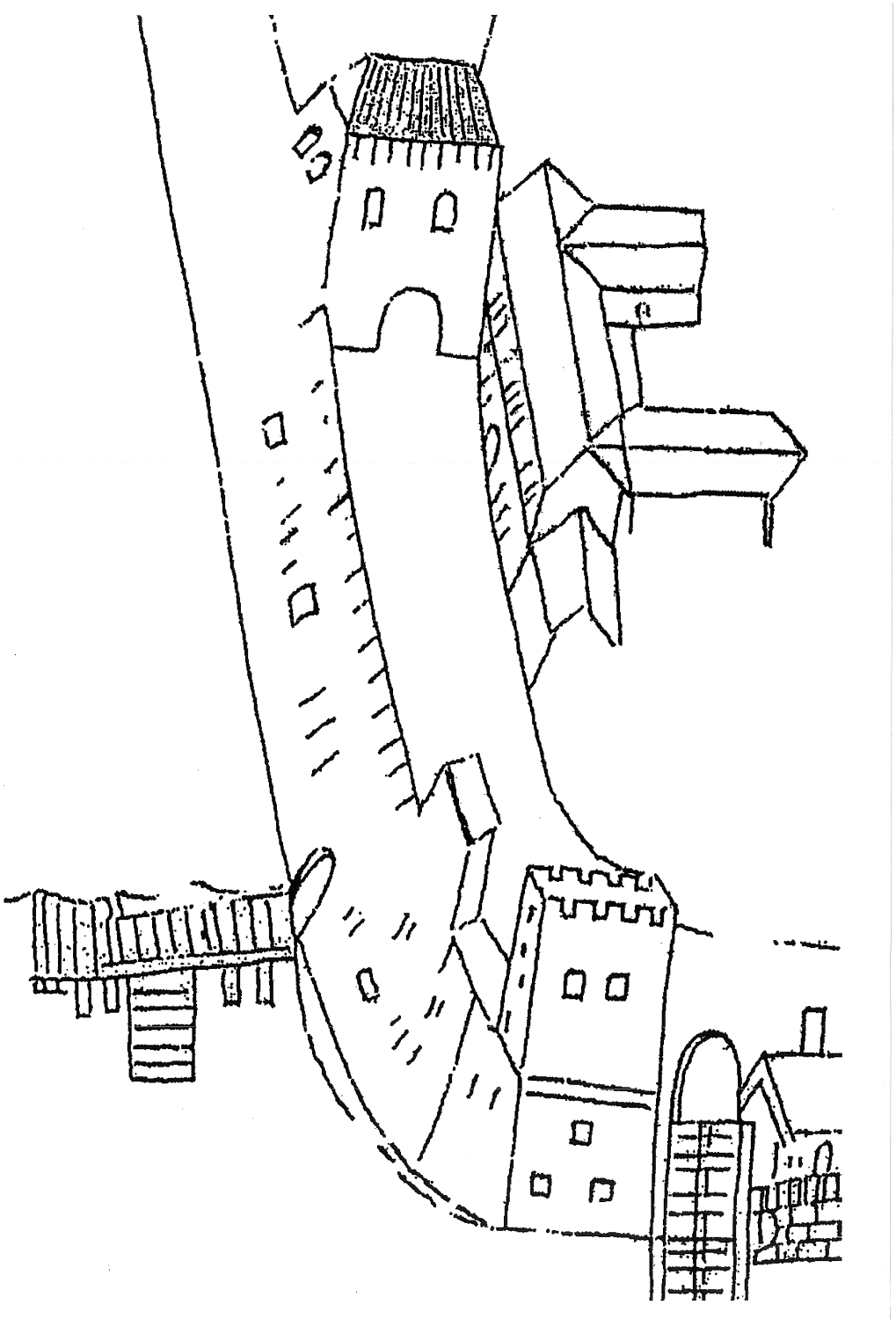


Fig. 3. Copy by John Bartlett of a mid 16th-century figurative view from the east along the south wall of the town. The River Hull and the Boom Tower are in the foreground, the Humber foreshore is to the left, with the archway into Little Lane. The Humber Gate is in the upper middle ground. Clearly, this is schematic, as the foreground with its gun positions is not depicted.

Fig. 4. A view of Hull from the west, drawn by Wenceslaus Hollar before 1640. This version is in colour, and is thought to date to about 1638. [Copyright: Hull History Centre.]

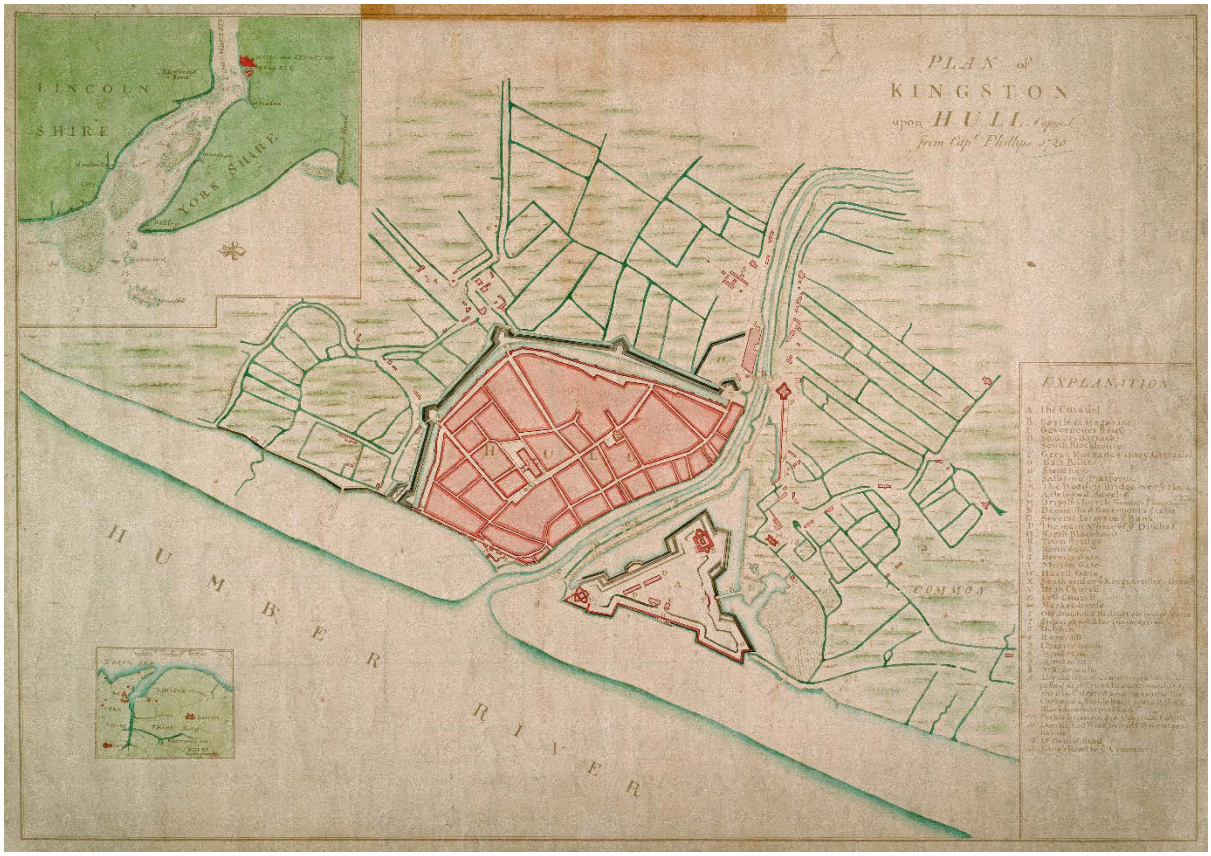


Fig. 5. Captain Phillips' Map of Hull 1725. This shows the layout of the Civil War outer circuit of ditch, and the polygonal bastions erected in front of each Gate. This one of the fullest records of their extent, before work began on dismantling the fortifications in the late 18th century. [Copyright: Hull History Centre.]

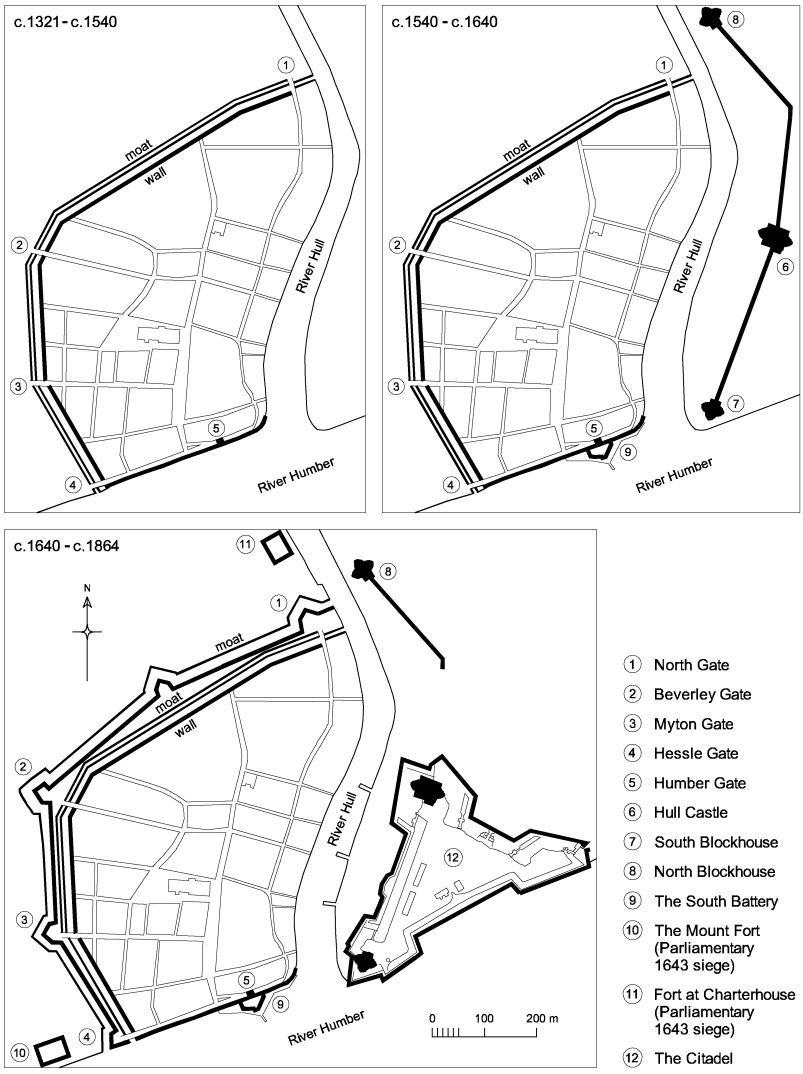


Fig. 6. The schematic development of the Hull Defences between the mid 14th century and the end of the 17th century.

Fig. 7. The Hessle Gate during the 18th century. The remains of one of the English Civil War earthworks can be seen in the foreground. [Topographical print in the collections of Hull City Museums and Galleries. Copyright HCMAG]

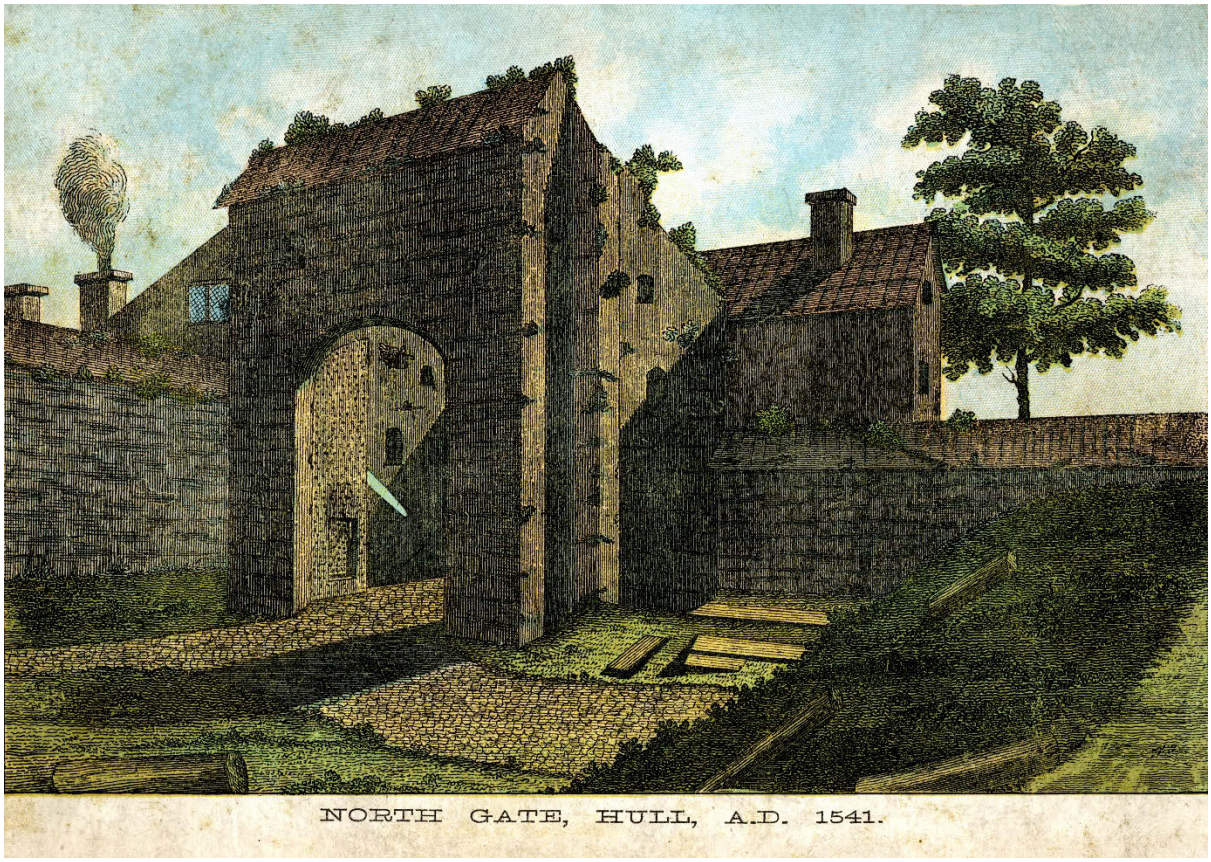


Fig. 8. The North Gate in the 18th century. This was demolished in 1774-6, to make way for the construction of the Queen's Dock. [Topographical print in the collections of Hull City Museums and Galleries. Copyright HCMAG]

Fig. 9. The Beverley Gate in *c.* 1770. From an engraving by Benjamin Gale. [Copyright HCMAG]

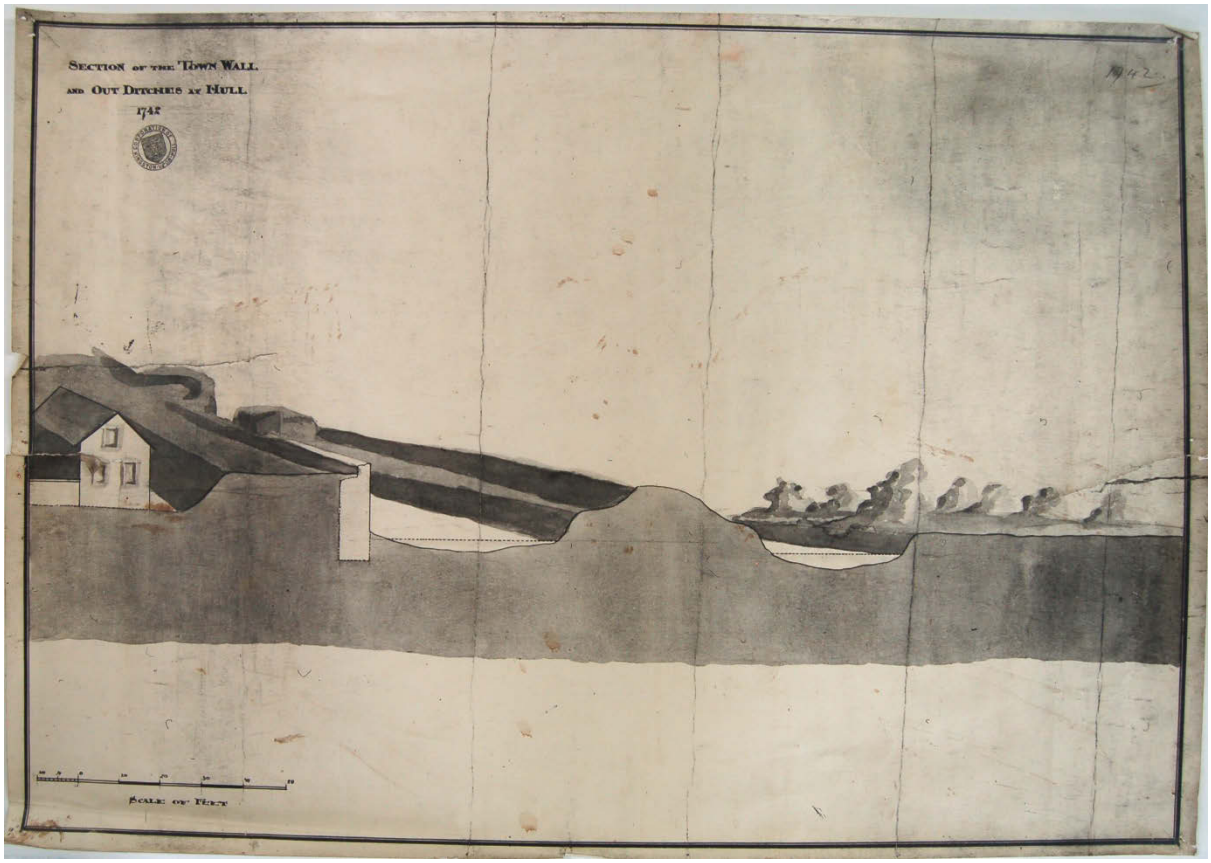


Fig. 10. A profile through the outer earthworks of the Town Defences in 1742. [From the collections of the Wilberforce House Museum, Hull. Copyright HCMAG]

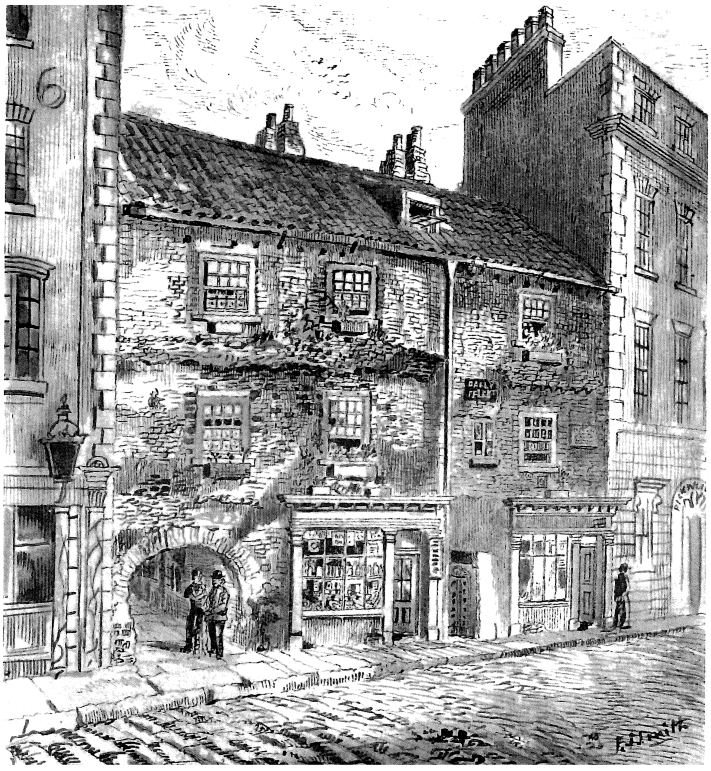


Fig. 11. The archway at the entrance to Little Lane, on the north side of Humber Street, was the last surviving section of the Town Walls. Probably the factor which contributed most to its survival into the mid 20th century was that it became incorporated into the lower part of an 18th-century three-storied building, and so was not demolished at the same time as most of the rest of the circuit. This view, by the celebrated local artist F.S, Smith, dates to about 1885. [Source: Aldridge 1989, no. 63. Copyright: HCMAG]

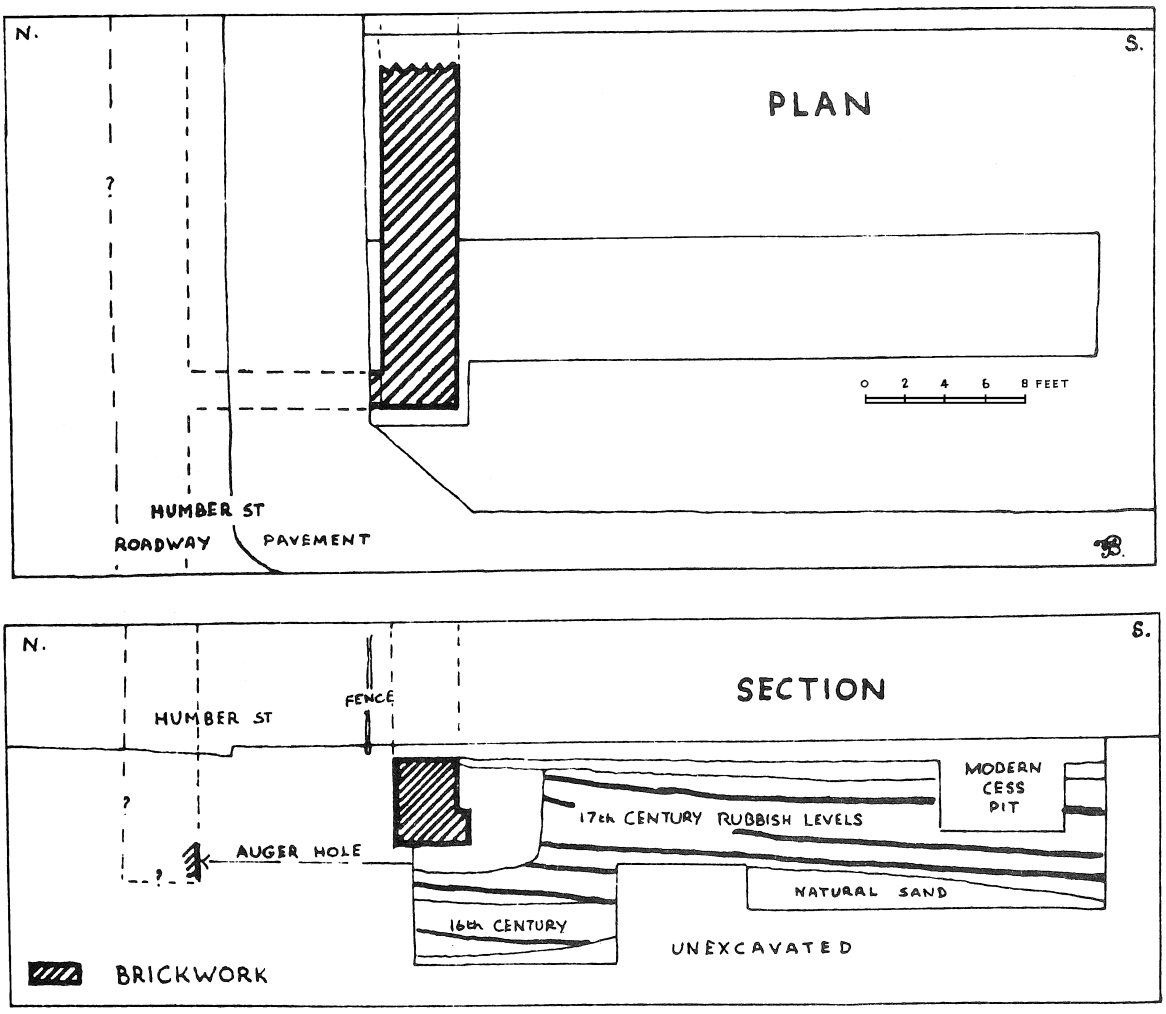


Fig. 12. Humber Street 1964. Plan and section of Bill Varley's excavations, as published by John Bartllett. [Copyright Hull Museums]

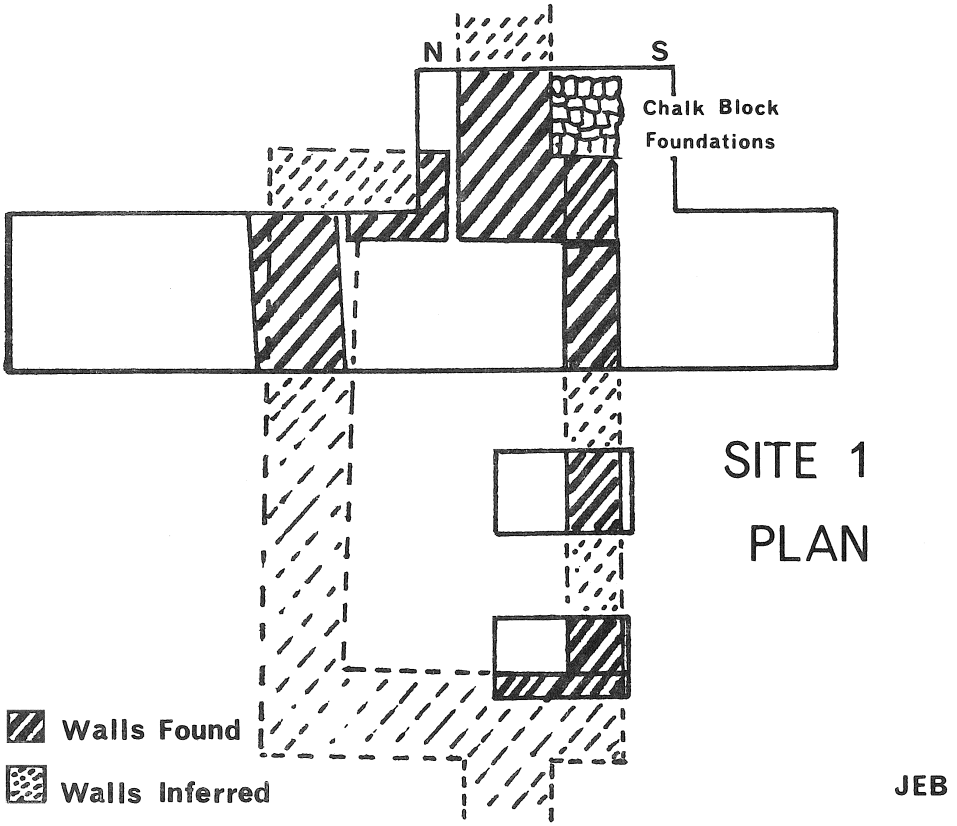


Fig. 13. North Walls 1969. Plan of interval tower in Trench 1. [Copyright Hull Museums]

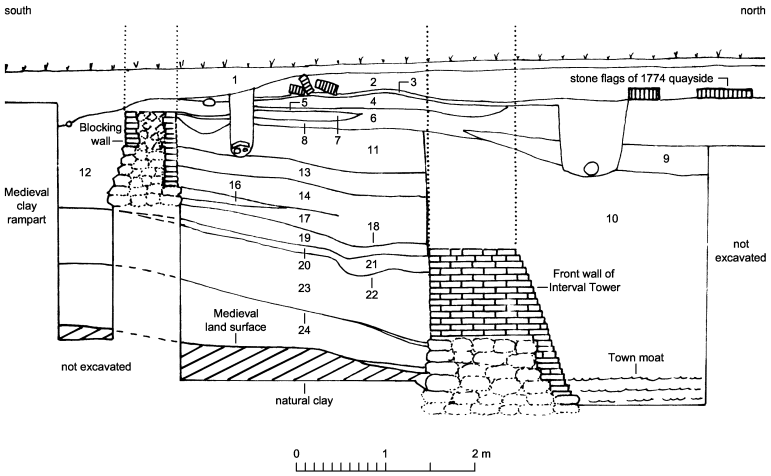


Fig. 14. North Walls 1969. A north-south section through one of the Interval Towers, which had been cut into the 14th-century clay rampart; the relationship of the battered front face of the Tower to the Town Ditch can be seen on the right-hand side of the section drawing. [From an original by John Bartlett: Bartlett 1971]

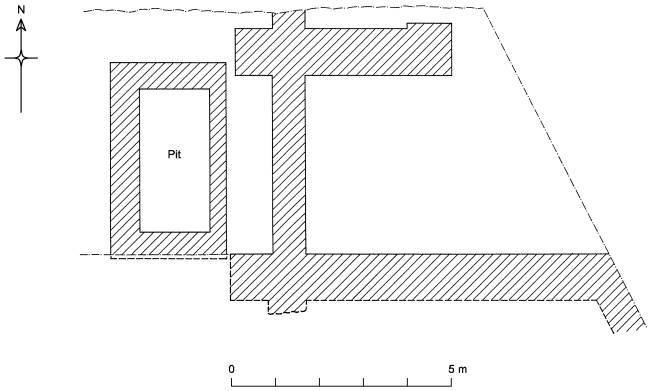


Fig. 15. Schematic plan of the structural remains at the Myton Gate, which were briefly exposed in 1976. [See also Ayers and Evans 2001]

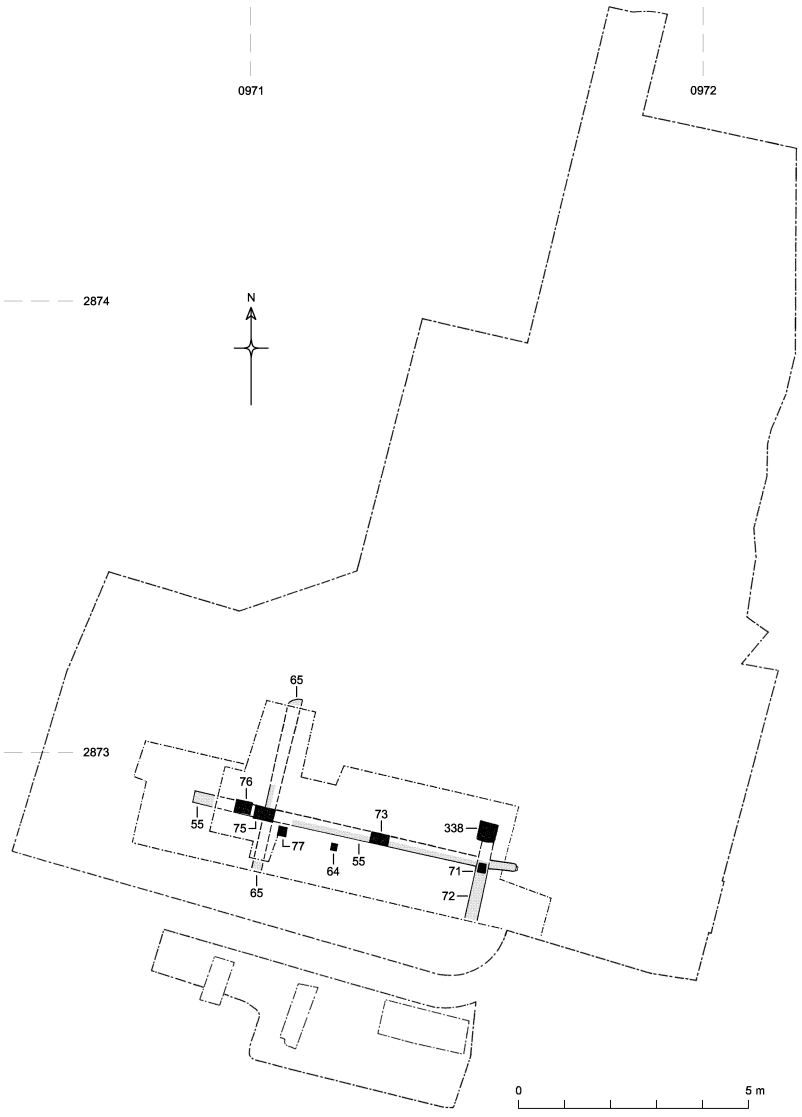


Fig. 16. Plan of the excavated Phase Ia timber structures at the Beverley Gate. [Early to mid 14th century]

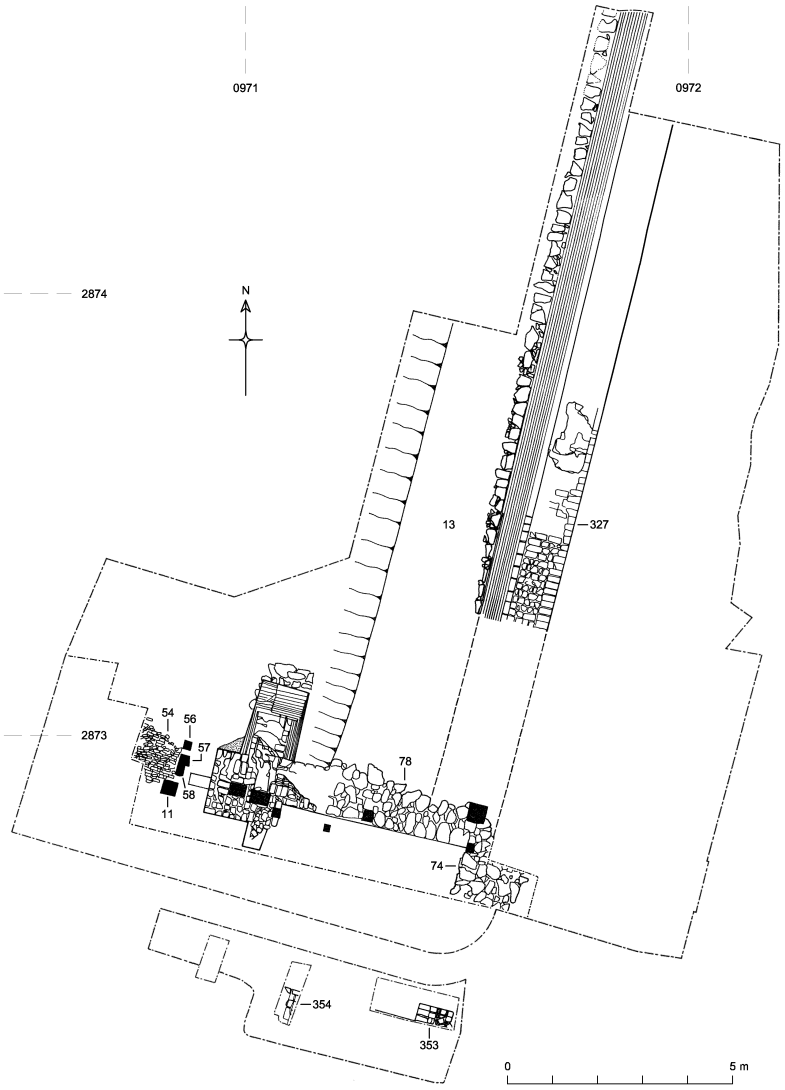


Fig. 17. Plan of the excavated \Phase Ib and Phase II structural remains at the Beverley Gate, and the eastern edge of the adjacent Town Ditch. [Later 14th to later 16th centuries]

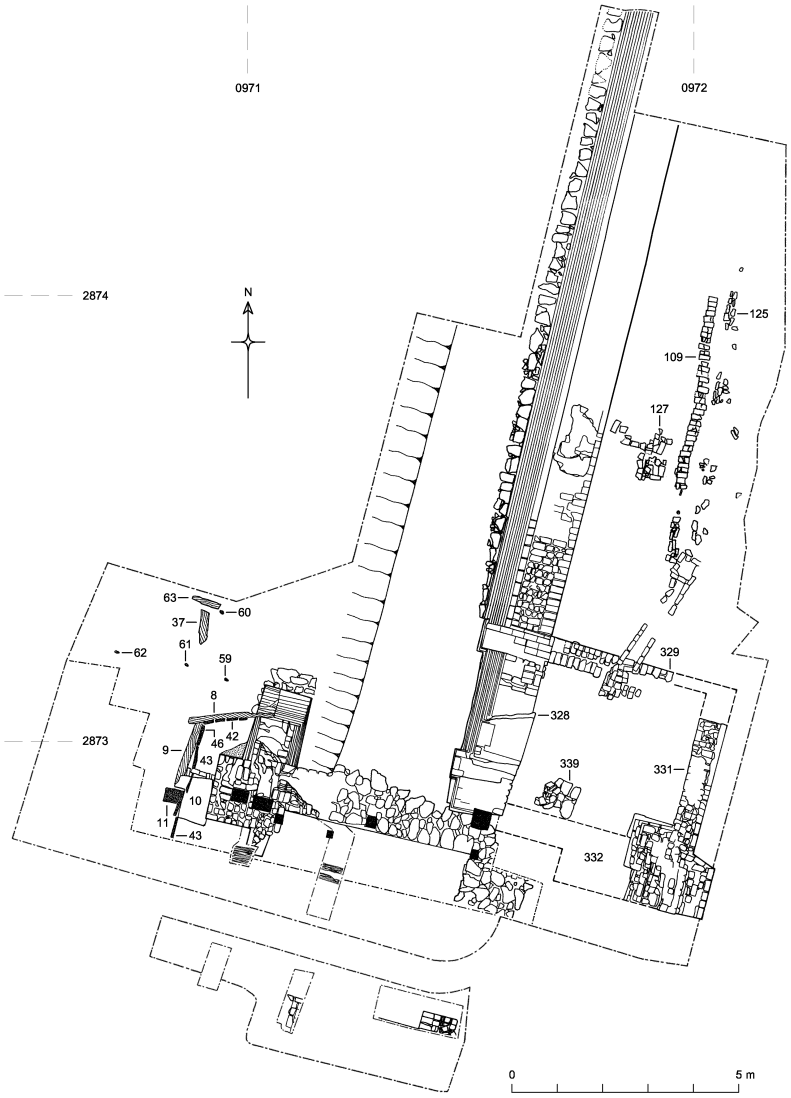


Fig. 18. Plan of the excavated Phase III and Phase IV structural remains at the Beverley Gate. [17th and 18th centuries]

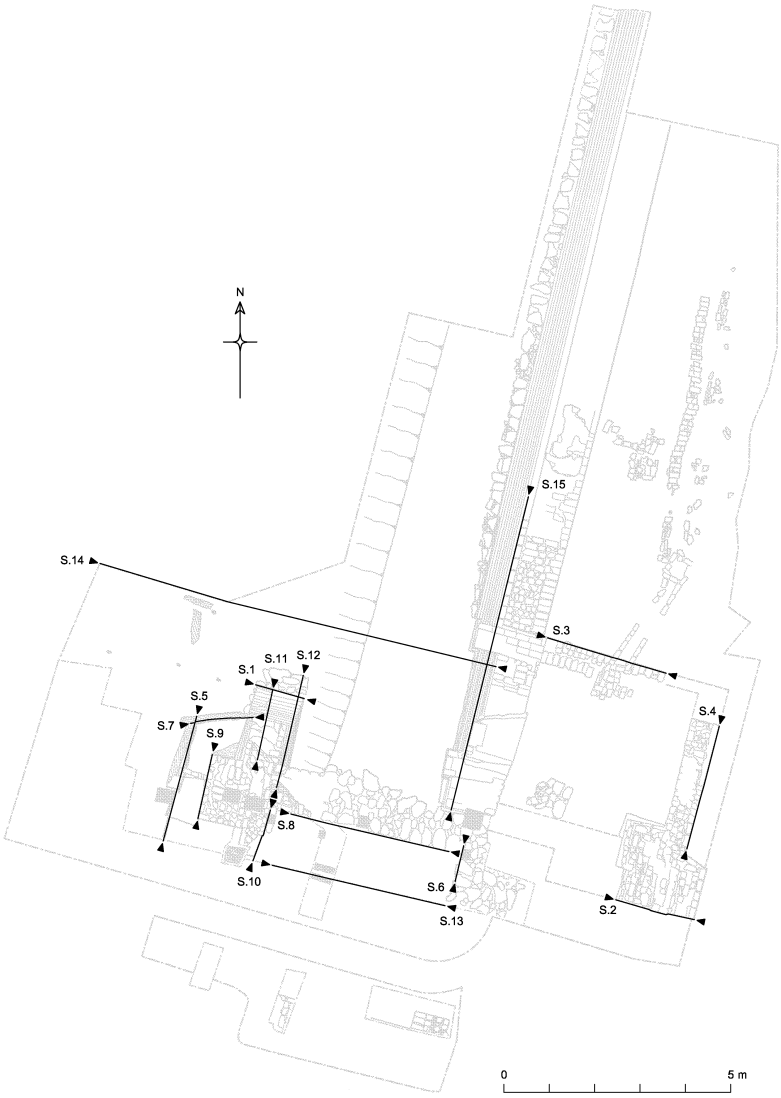


Fig. 19. Plan of the excavated area at the Beverley Gate, showing the location of the illustrated sections and wall elevations.

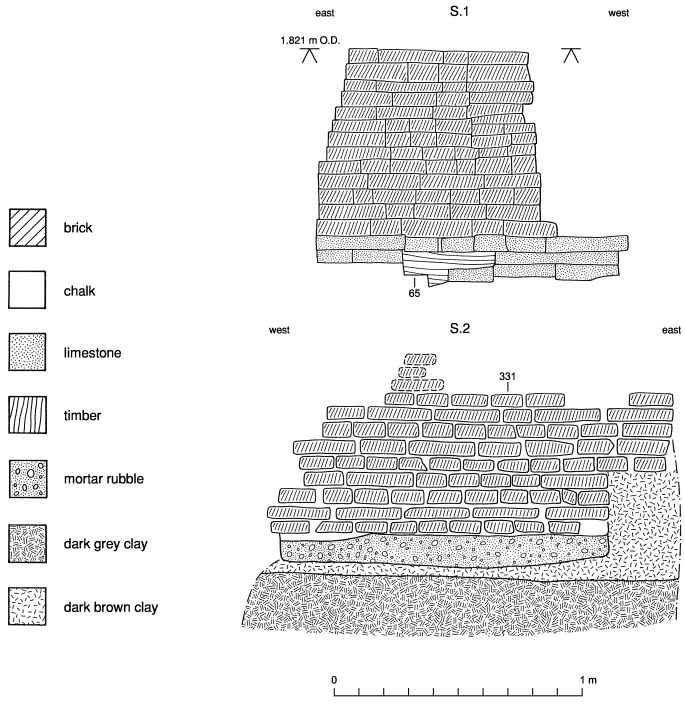


Fig. 20. Wall elevations at the Beverley Gate. Elevation S1 shows the battered external north face of the projecting northern buttress at the front of the late medieval Gate; at its base, the end of one the Phase Ia timber sole-plates can be seen to be encased within the later medieval brickwork. Elevation S2 shows the southern external face of the Phase III northern guard-chamber; this has been cut into the top of the Phase Ia clay rampart – part of which survives on the eastern side of this section.

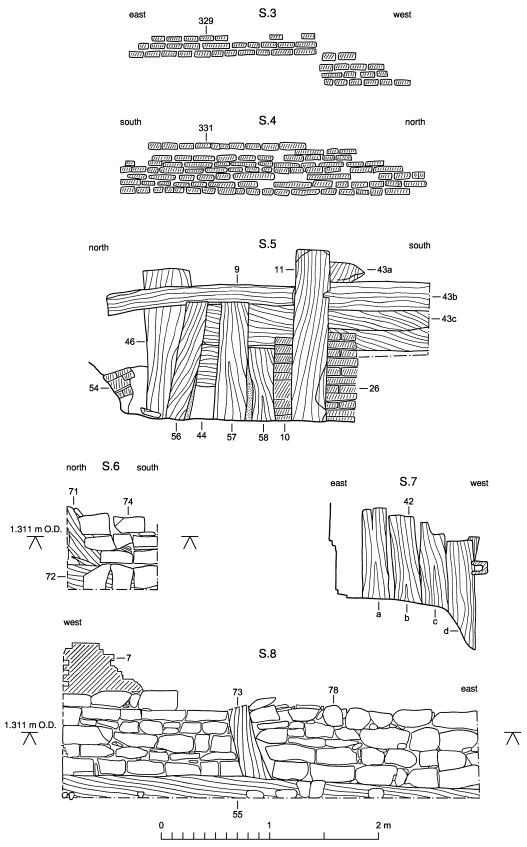


Fig. 21. Selected sections and elevations at the Beverley Gate. S3 shows the northern external face of the Phase III northern guard-chamber. S4 depicts the comparable eastern face of the same structure. S5 shows the external front face of the Phase IV timber shuttering or revetment erected in front of the Gate in the 1730s. S6 shows a north-south elevation of Phase Ib stonework at the eastern end of the medieval Gate; part of a Phase Ia sole-plate and diagonal brace can be seen encased within the later stonework. Elevation S7 shows the internal face of the vertical planking used in the north-western side of the Phase III timber shuttering erected in front of the Gate. Elevation S8 shows the internal face of the northern side of the corridor through the medieval Gate; at its base is a Phase Ia timber sole-plate with a diagonal brace, encased in the stone coursing of the base of the Phase Ib Gate, whilst this in turn is topped by later Phase Ib or II brickwork t its western end.

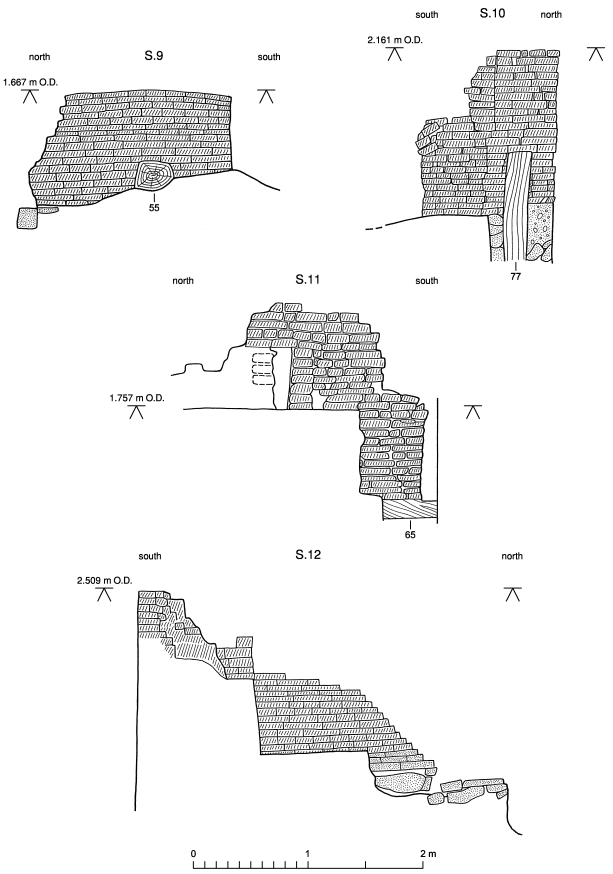


Fig. 22. Selected sections and elevations at the Beverley Gate. S9 shows the western external face of the front of the northern half of the Phase Ib Gate; the end of a Phase Ia timber sole-plate can be seen embedded in its base. S10 shows the eastern or internal face of the buttress encasing the western end of the front entrance to the corridor through the medieval Gate; again, part of a Phase Ia timber upright can be seen encased in the later brickwork. S11 shows a north-south profile through the surviving brickwork of the front of the Gate. Elevation S12 shows the internal or western face of the brickwork fronting the northern half of the entrance to the Gate; the battered faces of the projecting courses of Phase Ib brickwork at the base of the corner buttress can be seen on its northern side.

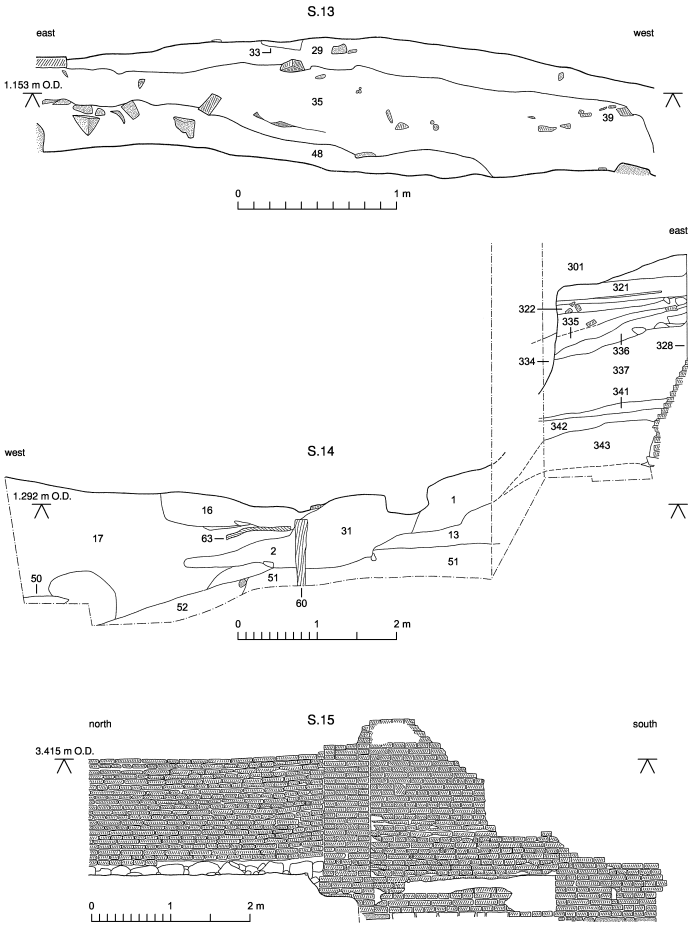


Fig. 23. Selected sections and elevations at the Beverley Gate. Section S13 shows the north-facing section through the deposits which had accumulated within the passage through the Gate. S14 shows a south-facing section across the upper fills of the Town Ditch, and the deposits which accumulated against the west face of the Town Wall. S15 shows an elevation of the west face of the Phase III northern guard chamber) on the right of the drawing), and the adjoining stretch of the medieval Town Wall (to its left); the foundations for the two-storey guard chamber are set much deeper than those of the Town Wall.

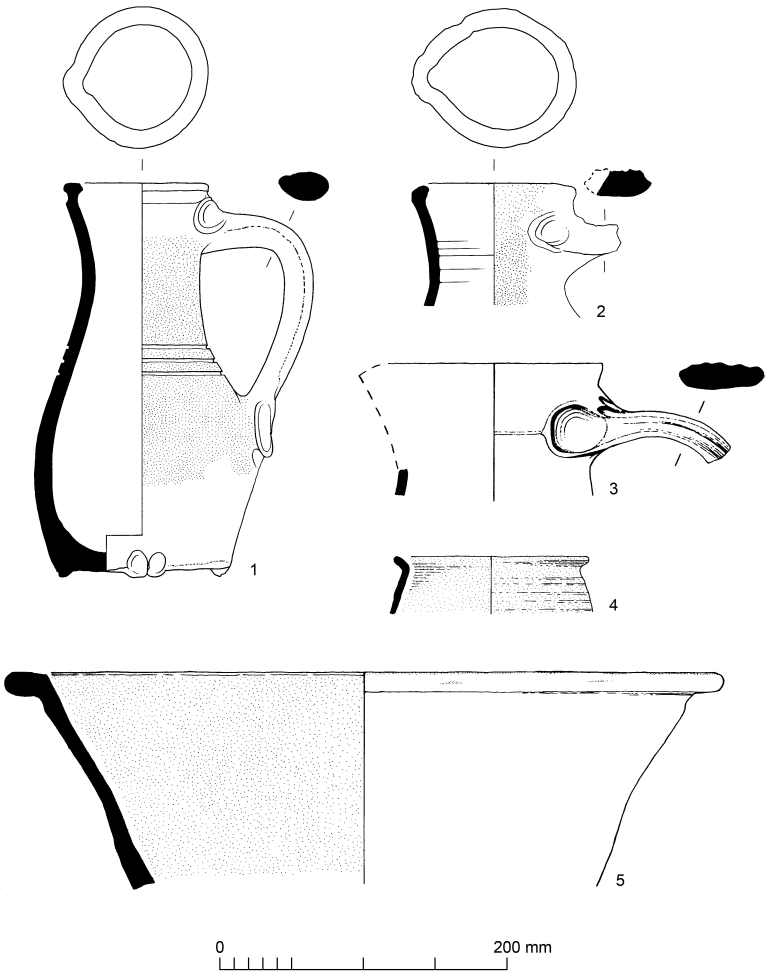


Fig. 24. Medieval and post-medieval pottery. Scale 1:4.

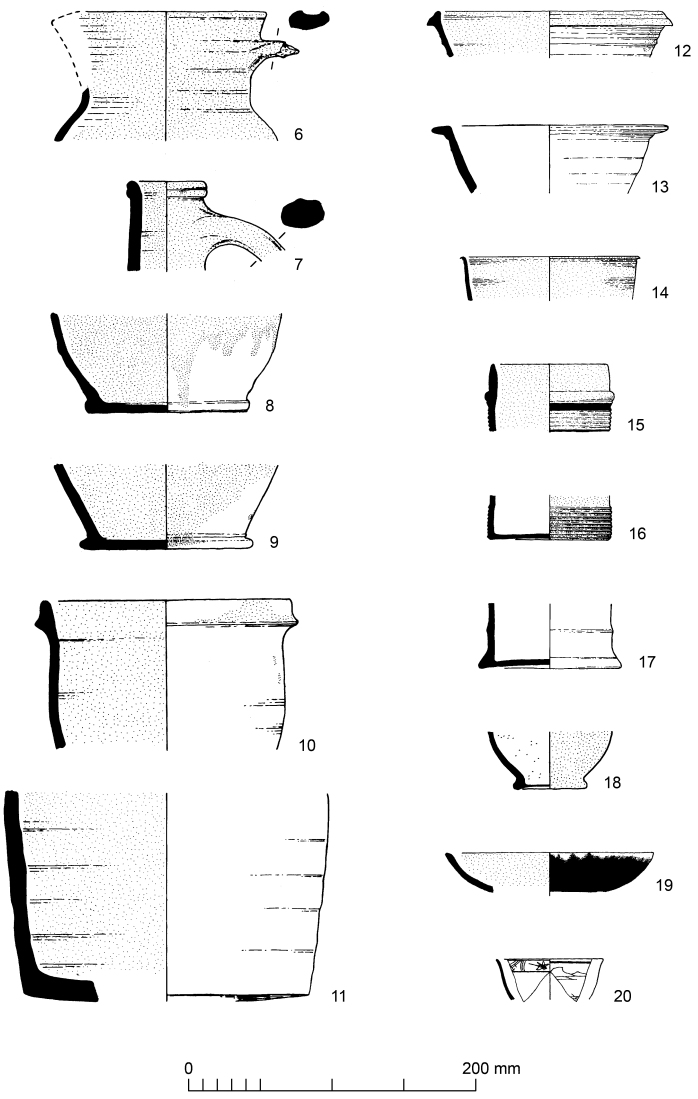


Fig. 25. Post-medieval pottery. Scale 1:4.

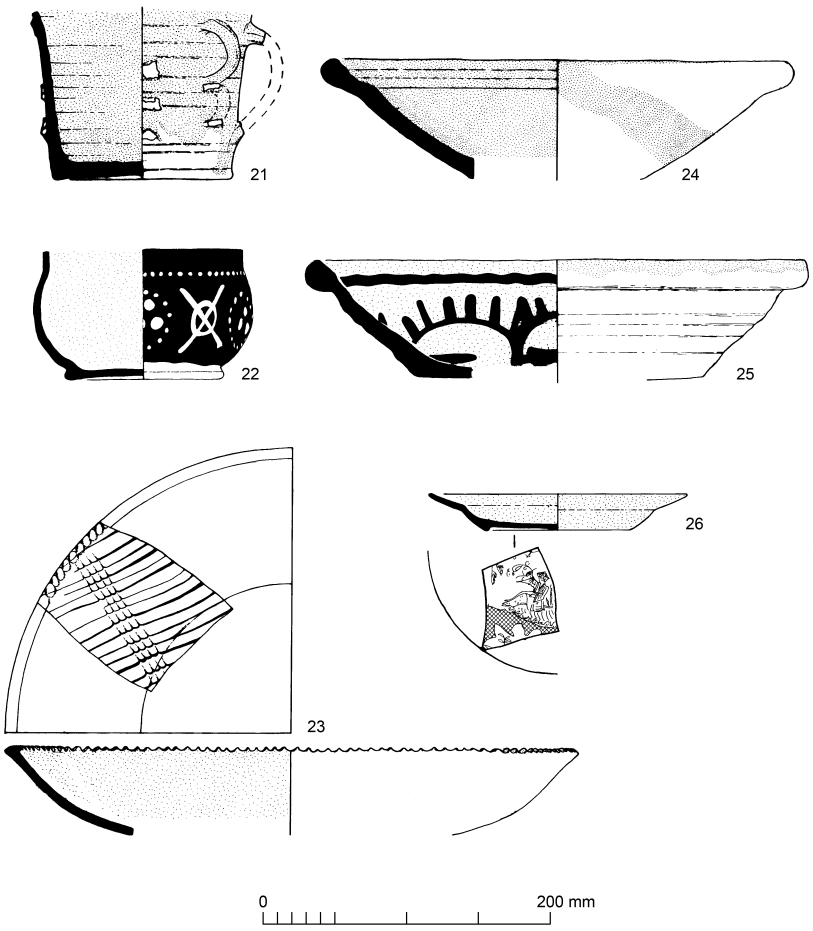


Fig. 26. Post-medieval pottery. Scale 1:4.

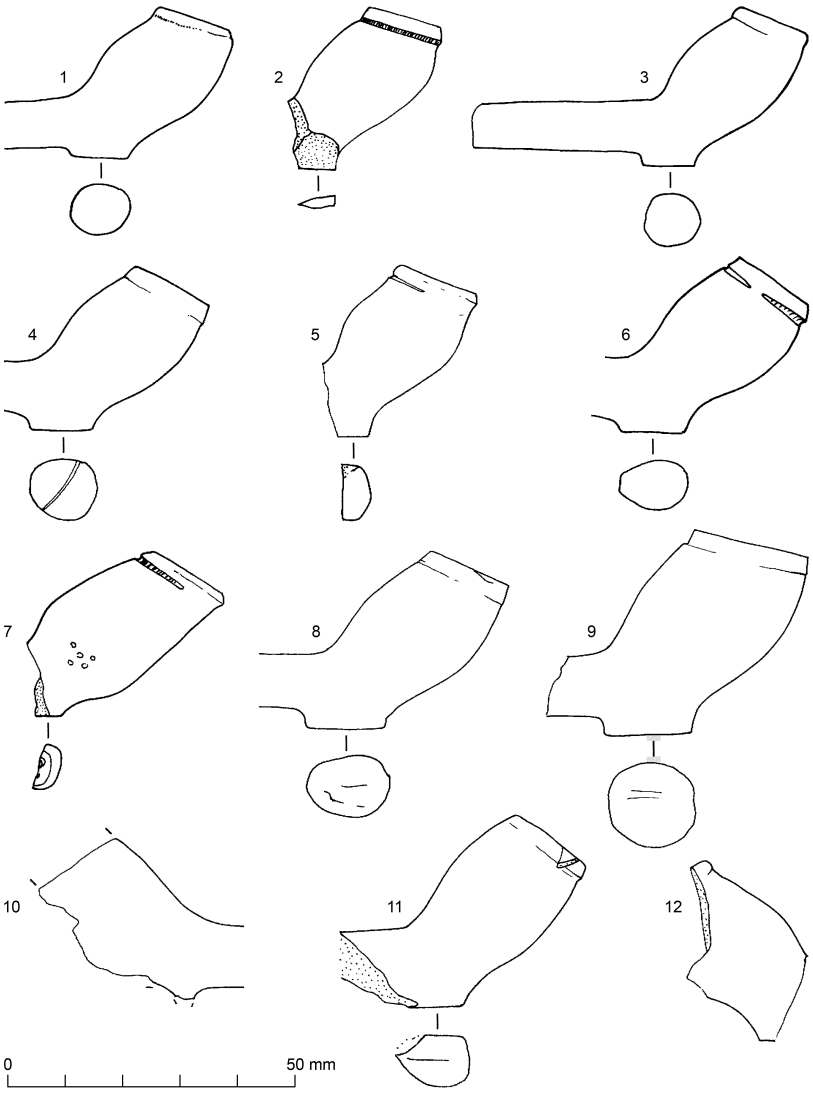


Fig. 27. Clay tobacco pipes. Scale 1:1.

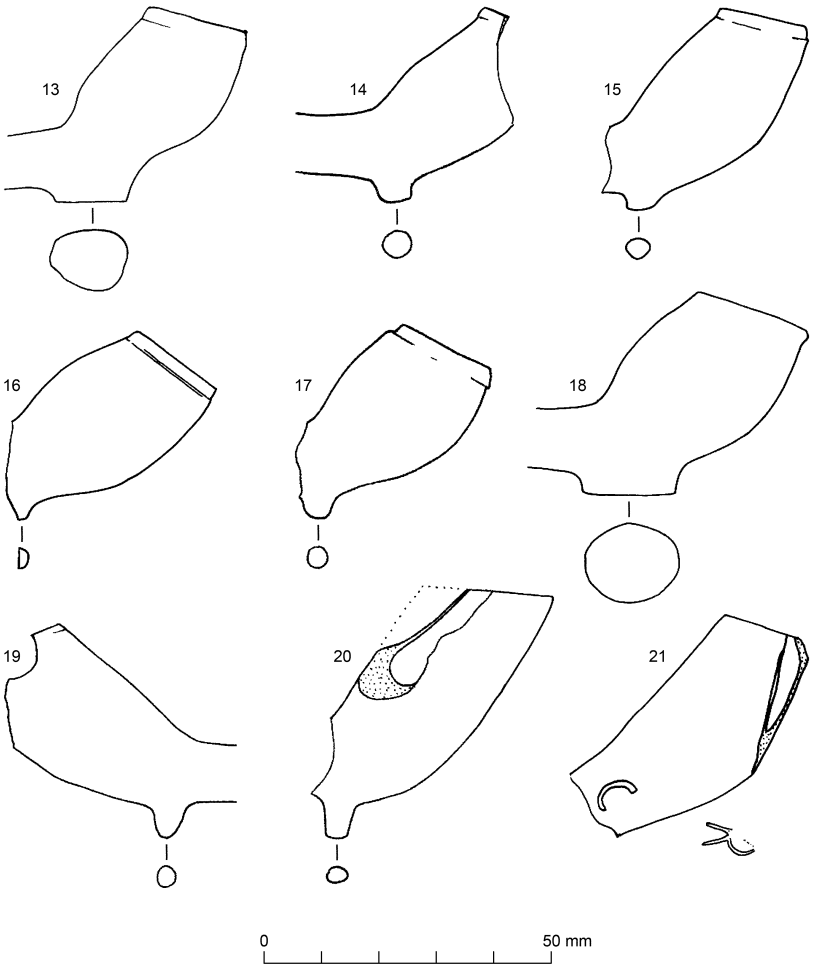


Fig. 28. Clay tobacco pipes. Scale 1:1.

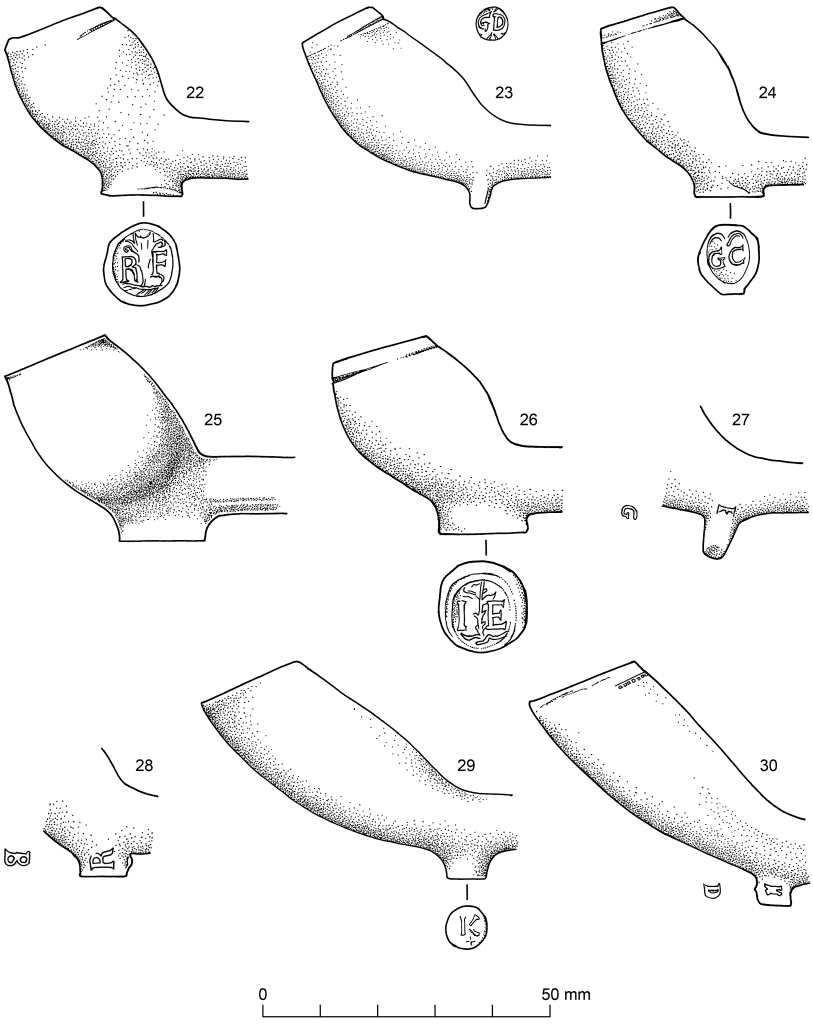


Fig. 29. Clay tobacco pipes. Scale 1:1.

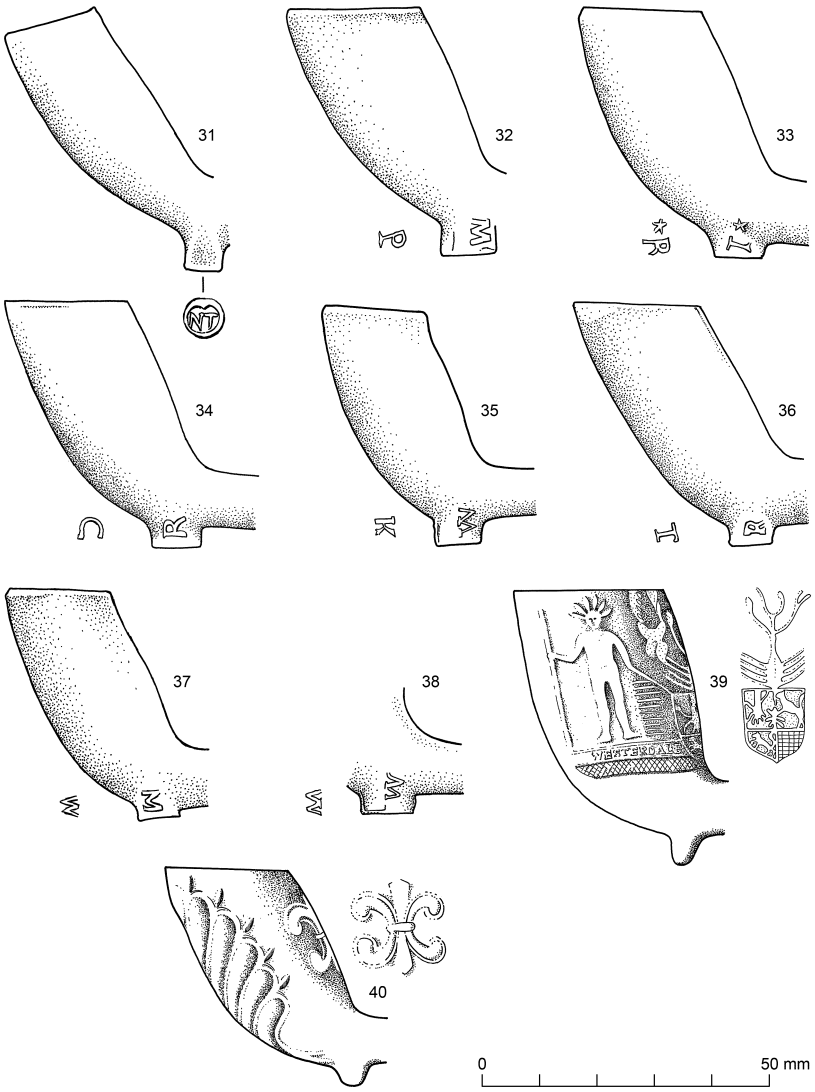


Fig. 30. Clay tobacco pipes. Scale 1:1.

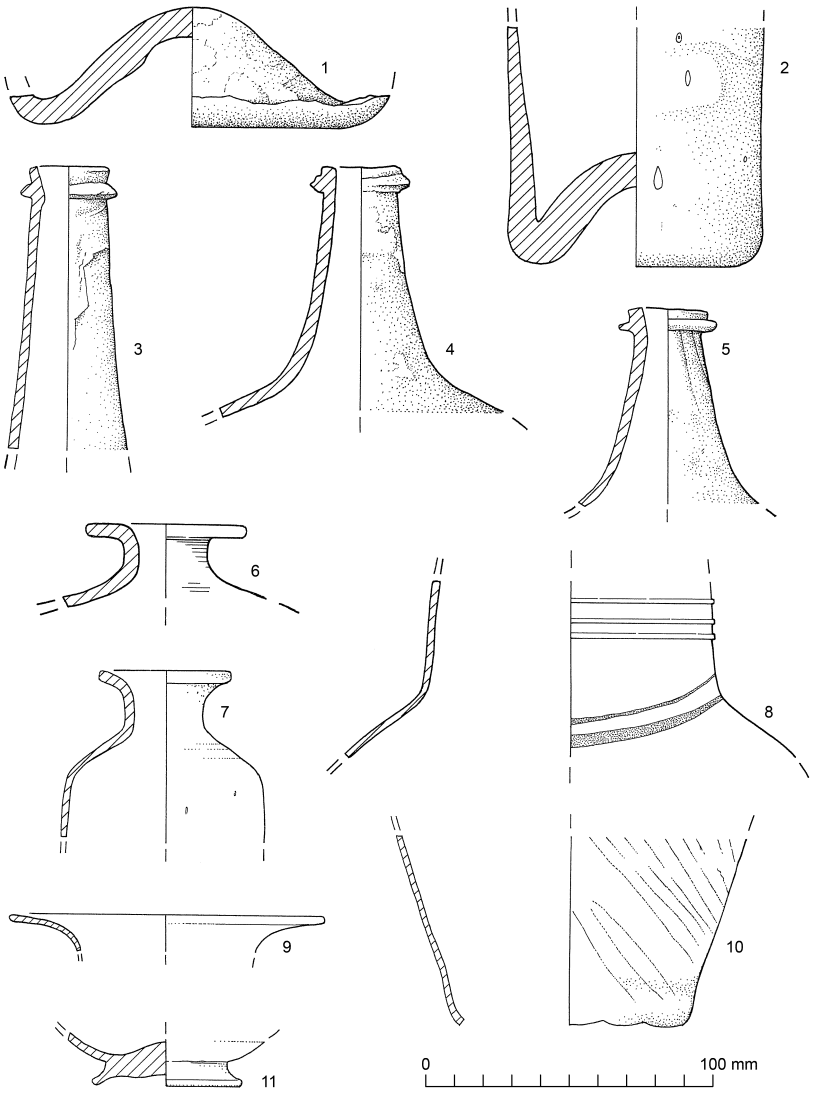


Fig. 31. Vessel glass. Scale 1:2.

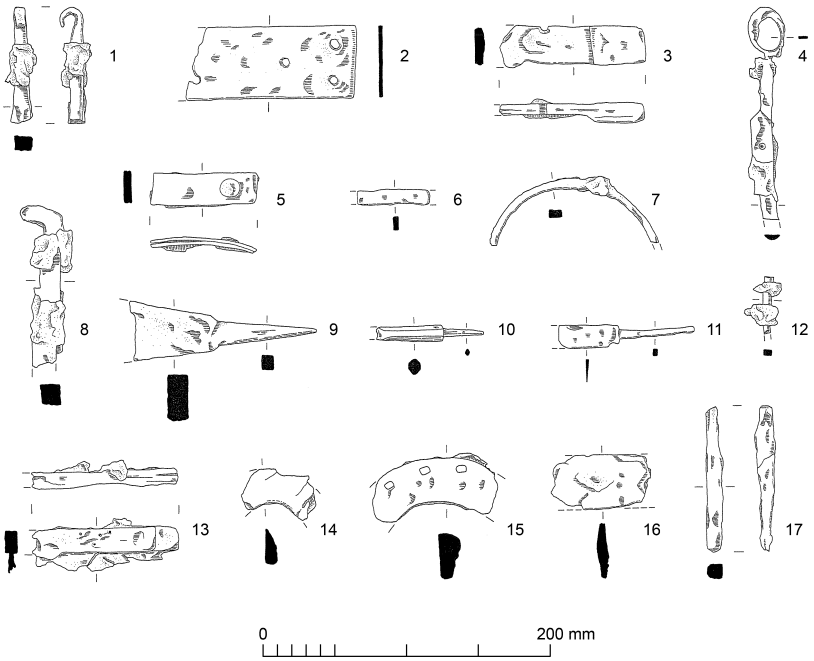


Fig. 32. Objects of iron. Scale 1:4.

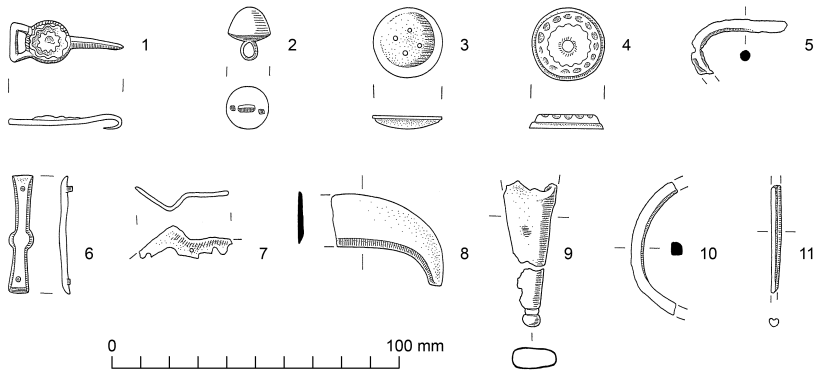


Fig. 33. Objects of copper alloy. Scale 1:2.

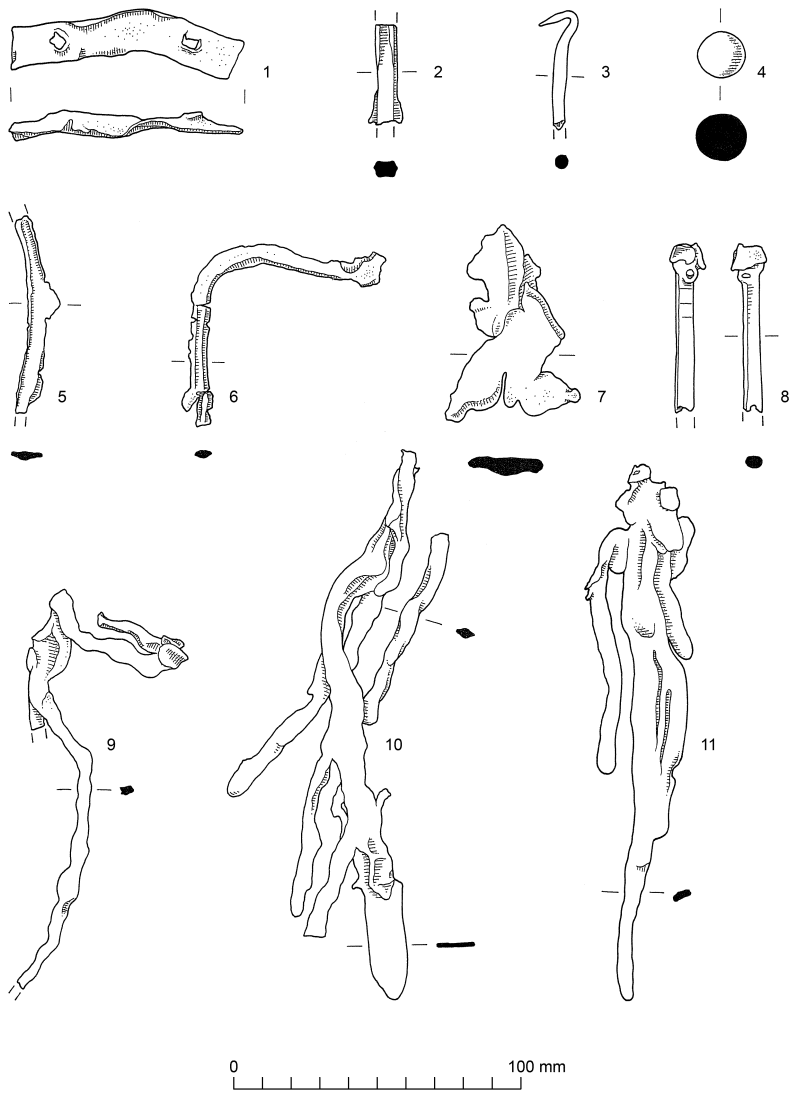


Fig. 34. Objects of lead. Scale 1:2.

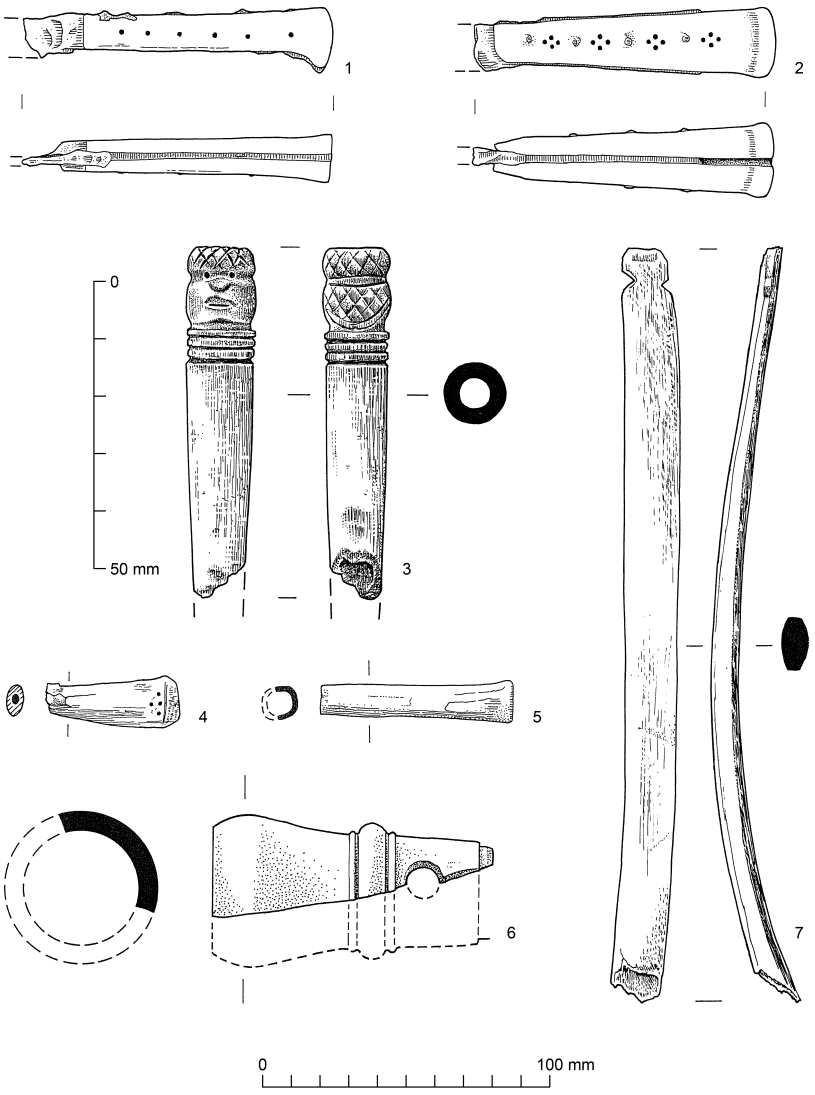


Fig. 35. Objects of worked bone. Scale 1:2.

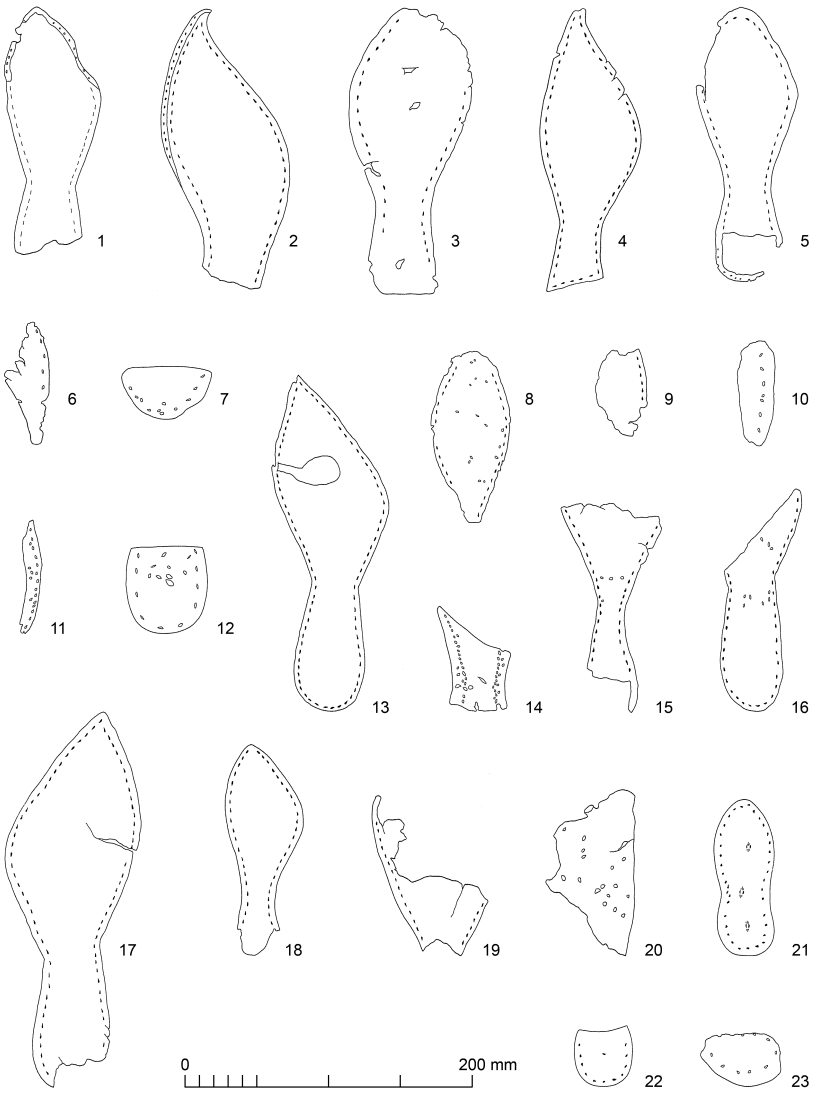


Fig. 36. Leather footwear fragments. Scale 1:4.

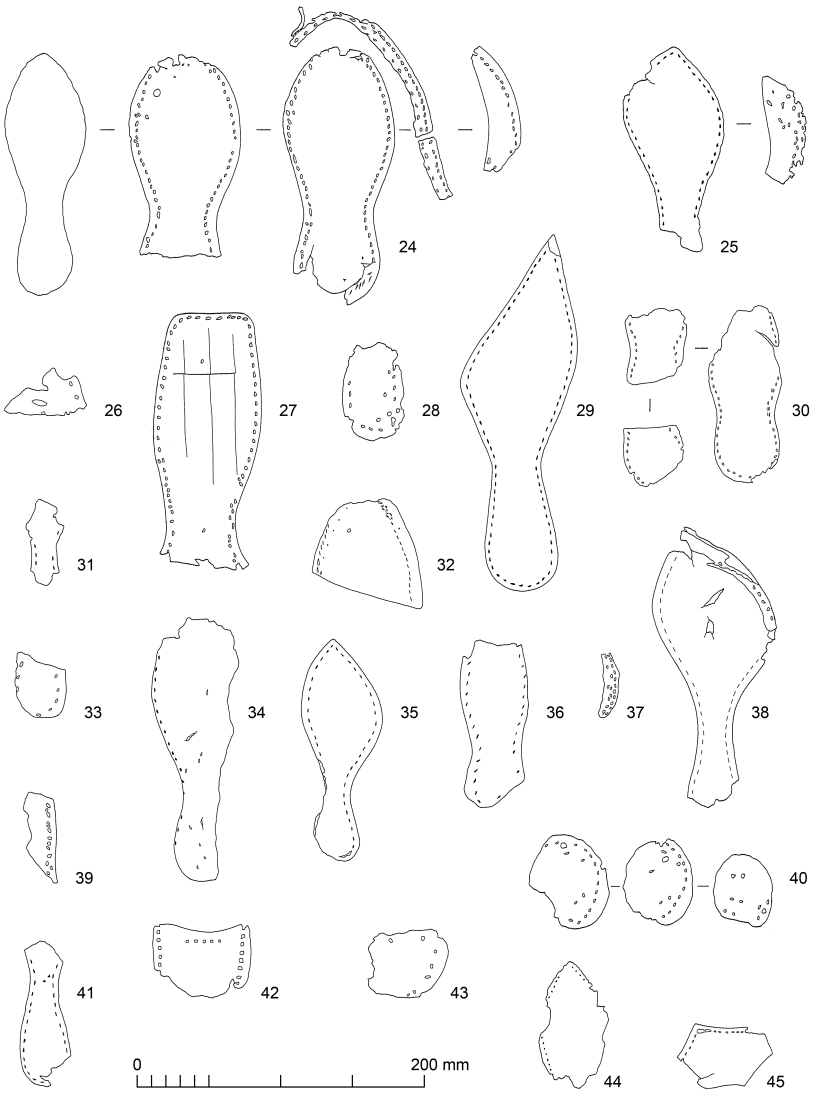


Fig. 37. Leather footwear fragments. Scale 1:4.

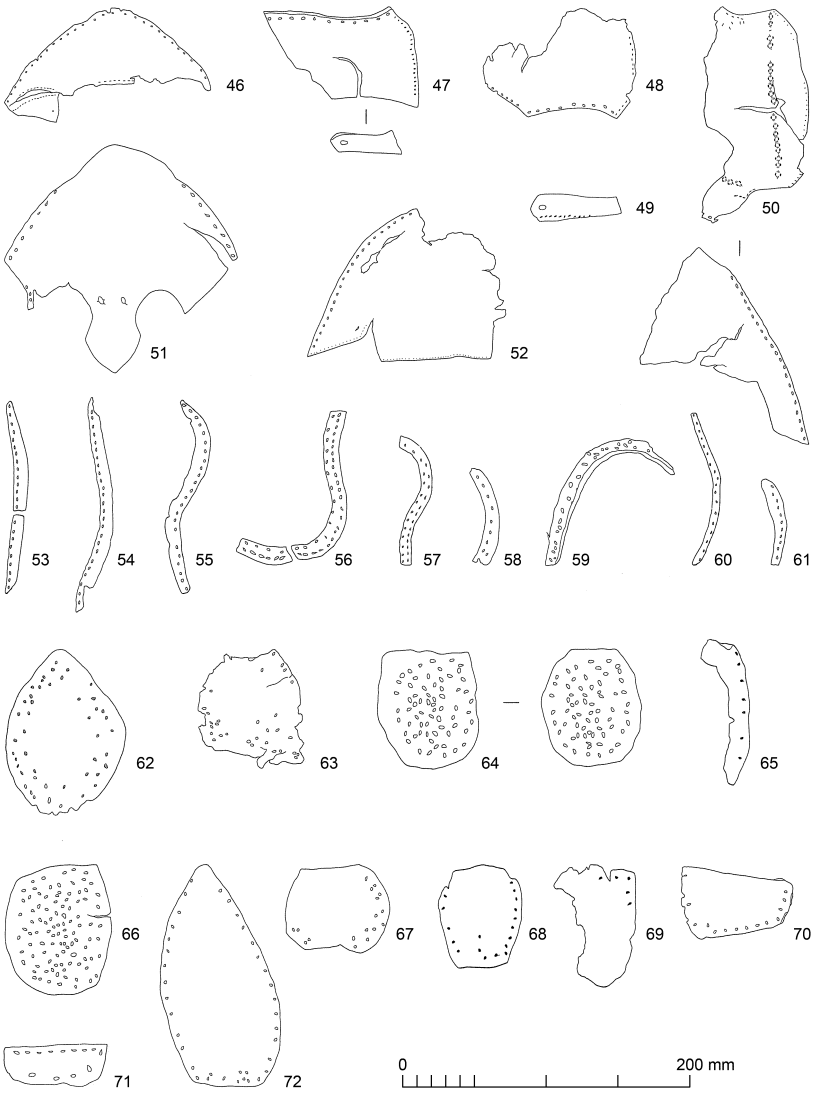


Fig. 38. Leather footwear fragments. Scale 1:4.

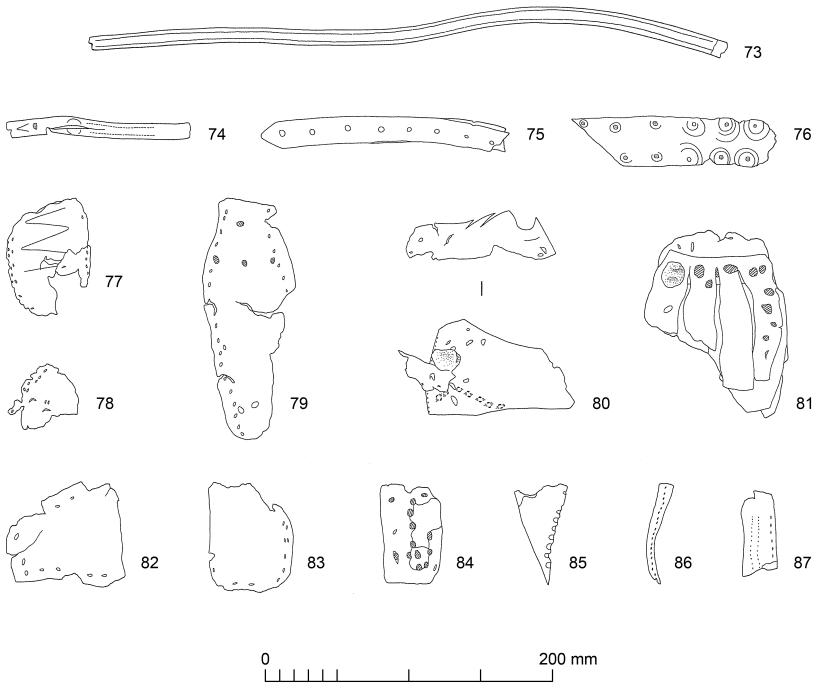


Fig. 39. Miscellaneous leather fragments. Scale 1:4.

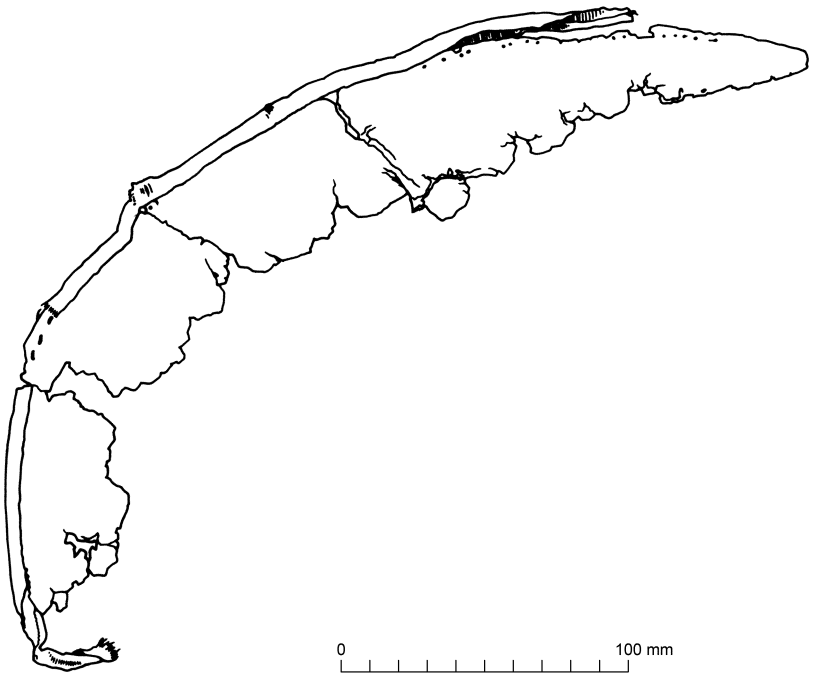


Fig. 40. Felt hat brim fragment. Scale 1:2.

Fig. 41. Styles of 18th-century felt hats, which might be similar to the Beverley Gate brim fragment.

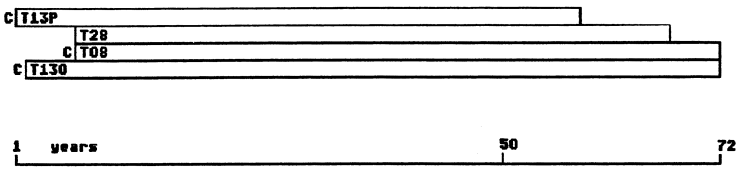


Fig. 42. Bar diagram showing the relative positions of the four crossmatched timbers from Beverley Gate, Hull. White bar = heartwood rings; C = centre of tree was present.

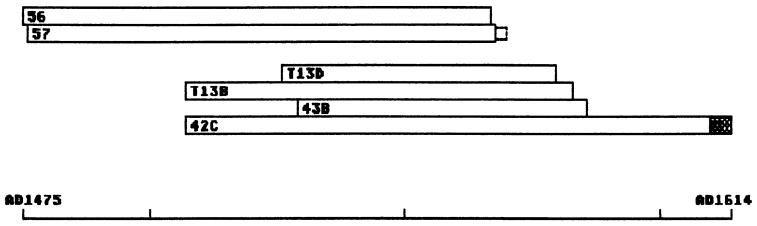


Fig. 43. Bar diagram showing the relative positions and the individual felling dates of the dated samples from Beverley Gate, Hull. White bar = heartwood rings; hatched bar = sapwood rings; narrow bar = unmeasured rings.

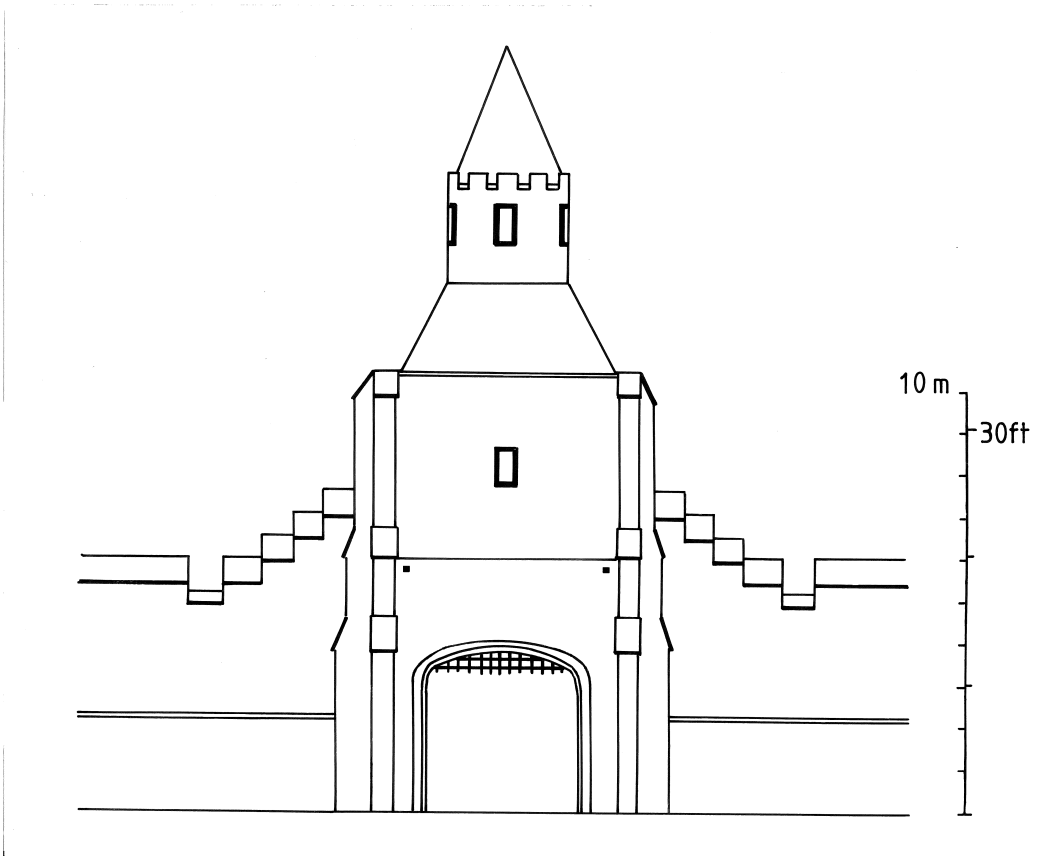


Fig. 44. The front elevation of the Beverley Gate as it might have looked in the late 1530s (based on a reconstruction by Col. R.W.S. Norfolk, and hints given in the *c.* 1538 view of Hull).

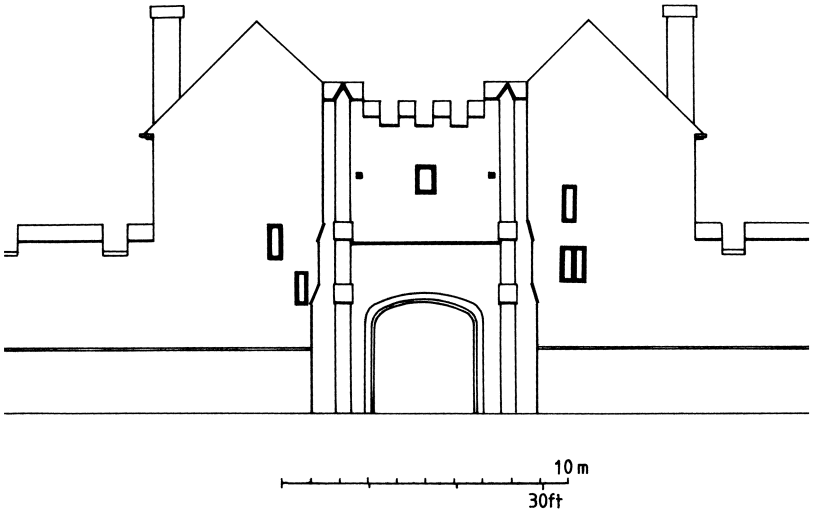


Fig. 45. The front elevation of the Beverley Gate as it might have looked in the late 1630s (based on a reconstruction by Col. R.W.S. Norfolk, and hints given in the *c.* 1638 Hollar plan of Hull).

The Plates

Pl. 1. Aerial view of the Old Town of Hull in 1989, seen from the south; the River Hull is on the right-hand side of the photo. The medieval street pattern is still readily discernible, although the town has been bisected by a dual carriageway which has substantially broadened the route of Mytongate. The line of the western and northern defences is preserved in the circuit of late 18th- and early 19th-century docks built around the edges of the Old Town; the Queen's Dock, to the north, was filled in during the 1930s and is now public gardens. [Photo by John Dent, for the former HAU: copyright Humber Archaeology Partnership]

Pl. 2. The last part of the medieval defences to remain standing was an archway at the end of Little Lane – a small alley which ran between Humber Street and Blackfriargate – seen here in about 1964. It is thought to have been demolished in the mid 1960s. [From a photo by Alan Tuxworth: Tuxworth 1991, 10]

Pl. 3. A postern, or small arched doorway for pedestrians through the wall, off Humber Street, photographed in 1905. [From an old postcard in the possession of the late Chris Ketchell. Copyright: The former Hull Local History Studies Unit.]

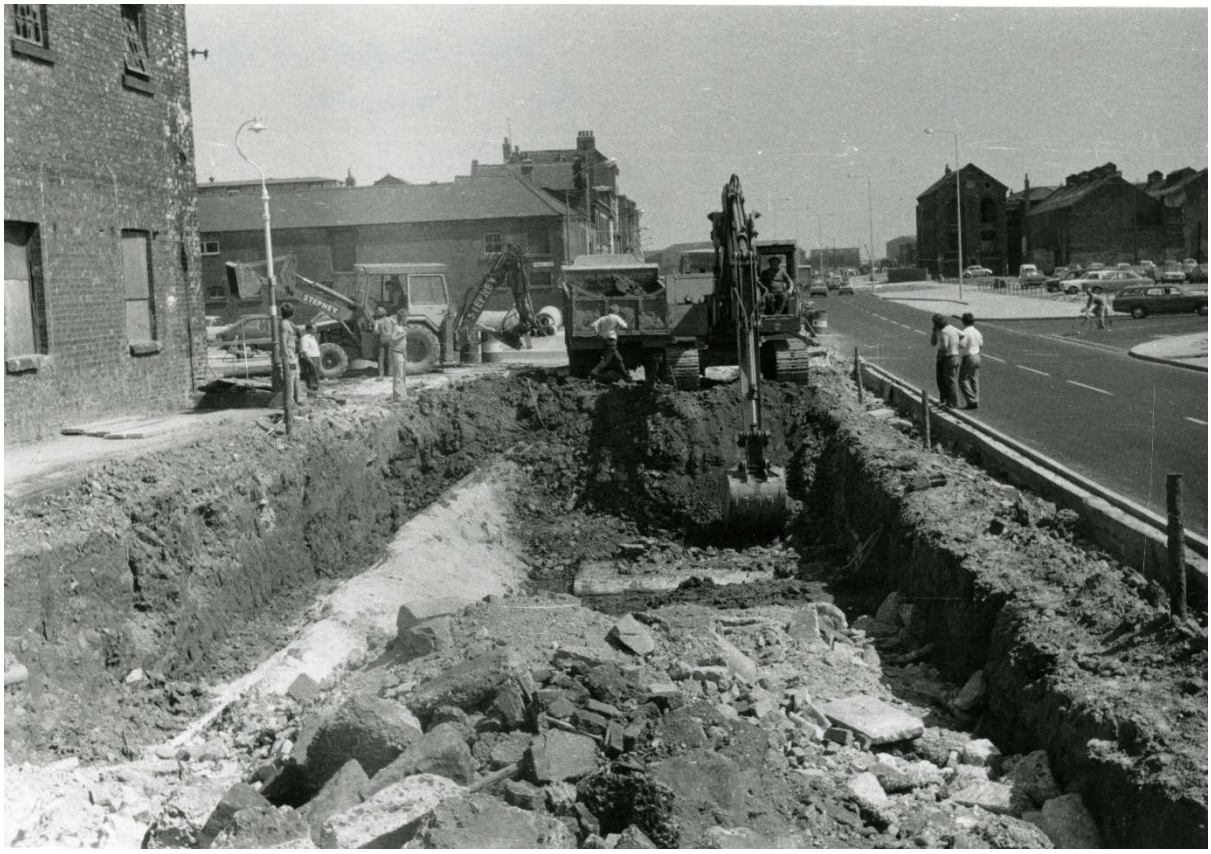
Pl. 4. Humber Street 1964: excavations off Queens Alley. View from the south-west of the deposits which had built up against the exterior of the south wall of the Interval Tower; the brickwork of the latter can be seen at the far end of the trench, on the left of the photograph. [Copyright Hull Museums.]

Pl. 5. Humber Street 1964: excavations off Queens Alley. External face of south wall of Interval Tower; seen from the south. Sixteen courses of brickwork are visible above the offset foundations; another five courses can be seen in the broader basal footings. [Copyright Hull Museums.]

Pl. 6. North Walls 1969. Trench 1, viewed from the north-north-east. The external batter of the front face of the Interval Tower can be seen in the foreground; the internal deposits which built up within the tower are in the background. [Copyright Hull Museums.]

Pl. 7. North Walls 1969. The northern end of Trench 1, viewed from the south-south-west. The southern external face of the Interval Tower is in the foreground, the top of the rear face of its north wall is visible in the far background, behind the timber shoring; some of the deposits filling the interior of the tower are visible in the section on the right of the photograph. [Copyright Hull Museums.]

Pl. 8. Part of the Town Wall exposed in a machine trench during building work in Humber Street in 1973. This appears to be running alongside the edge of the pavement. Some 14 courses of brickwork were visible in the two surviving slides, but, apparently up to 22 courses were recorded in some sections of the trench. [Photo: Peter Armstrong. Copyright Hull Museums.]

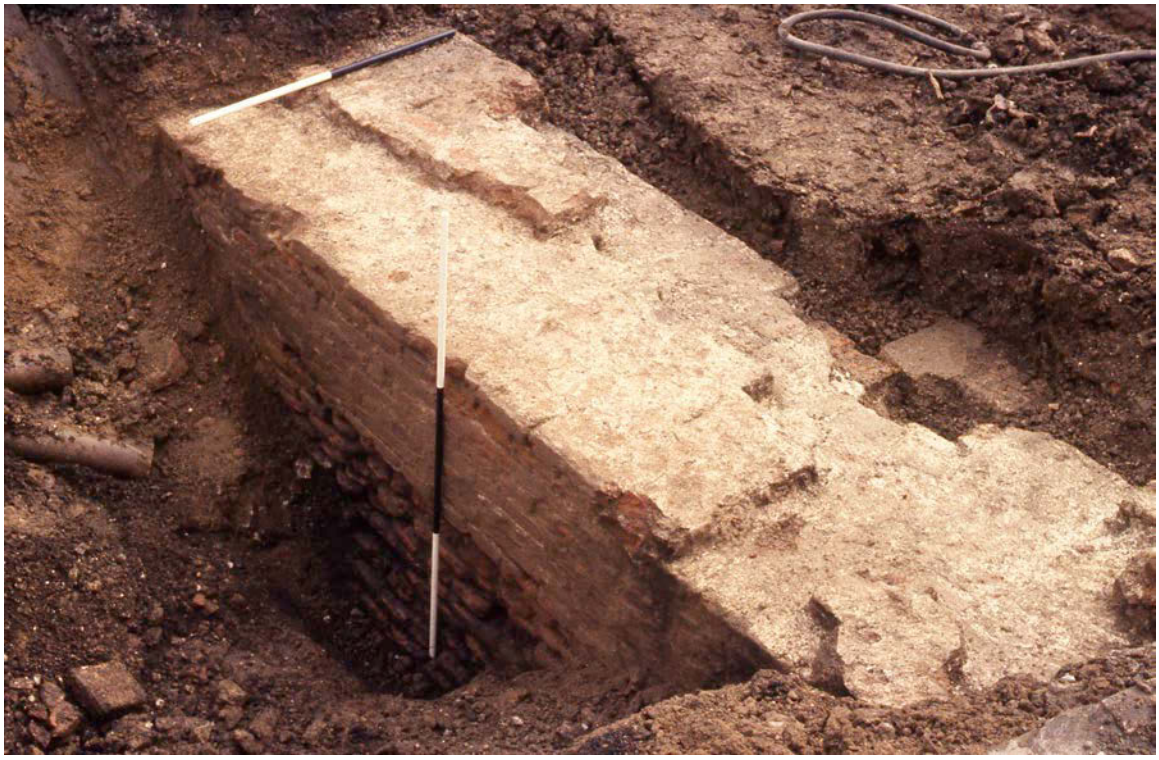


Pl. 9. A machine uncovering the remains of the Myton Gate in July 1976 in the course of building what is now the dual carriageway of the A63 Castle Street; viewed from the west. The footings of a counterweight pit, in front of the Gate, can be seen beginning to emerge. The brick walls of the Grade II Listed *Warehouse no. 6* can be seen on the left, with the entrance to Prince's Dock Street just beyond; in the right middle ground (considerably beyond the machine) can be seen the junction of Humber Dock Street with what is now the south carriageway of Castle Street. [Photo: Humberside Archaeological Unit.]

Pl. 10. The initial cleaning of the top of the counterweight pit at the Myton Gate, viewed from the north-west. In the southern baulk section behind the pit can be seen at least nine courses of brickwork belonging to the medieval Gate, and surviving to within about half a metre of the then existing ground surface. [Photo: Humberside Archaeological Unit.]

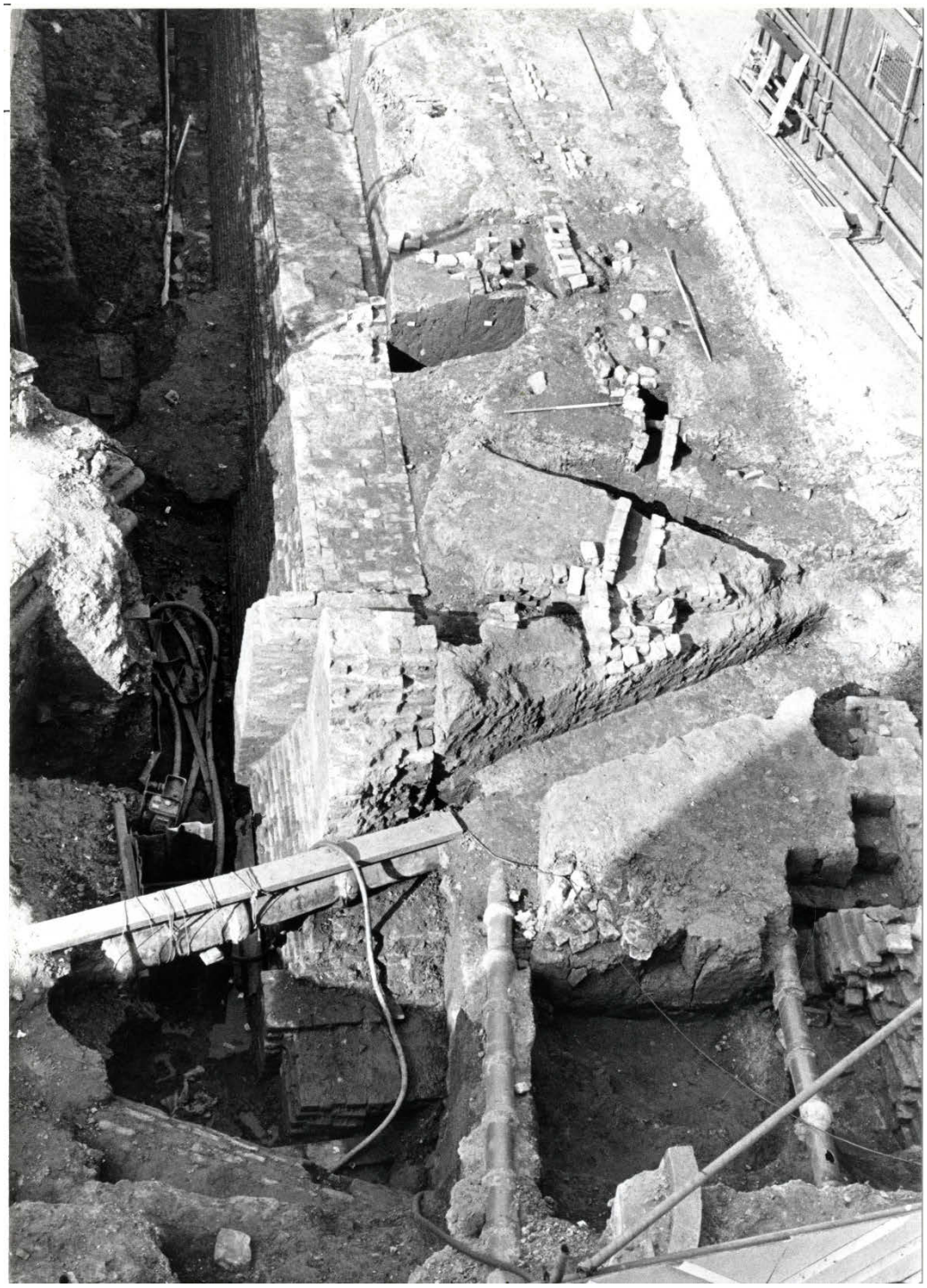
Pl. 11. A record shot of the cleaning of the exposed brickwork of both the counterweight pit, and the north-west corner of the Myton Gate; viewed from the north. At least eleven courses of brickwork can now be seen in the baulk section. [Photo: Humberside Archaeological Unit.]

Pl. 12. Humber Dock Street August 1986, Trench 3. The top and western face of the footings of the Town Wall, viewed from the west. [Scan of a slide now in the collections of the Humber Archaeology Partnership; but original photo source currently uncertain]



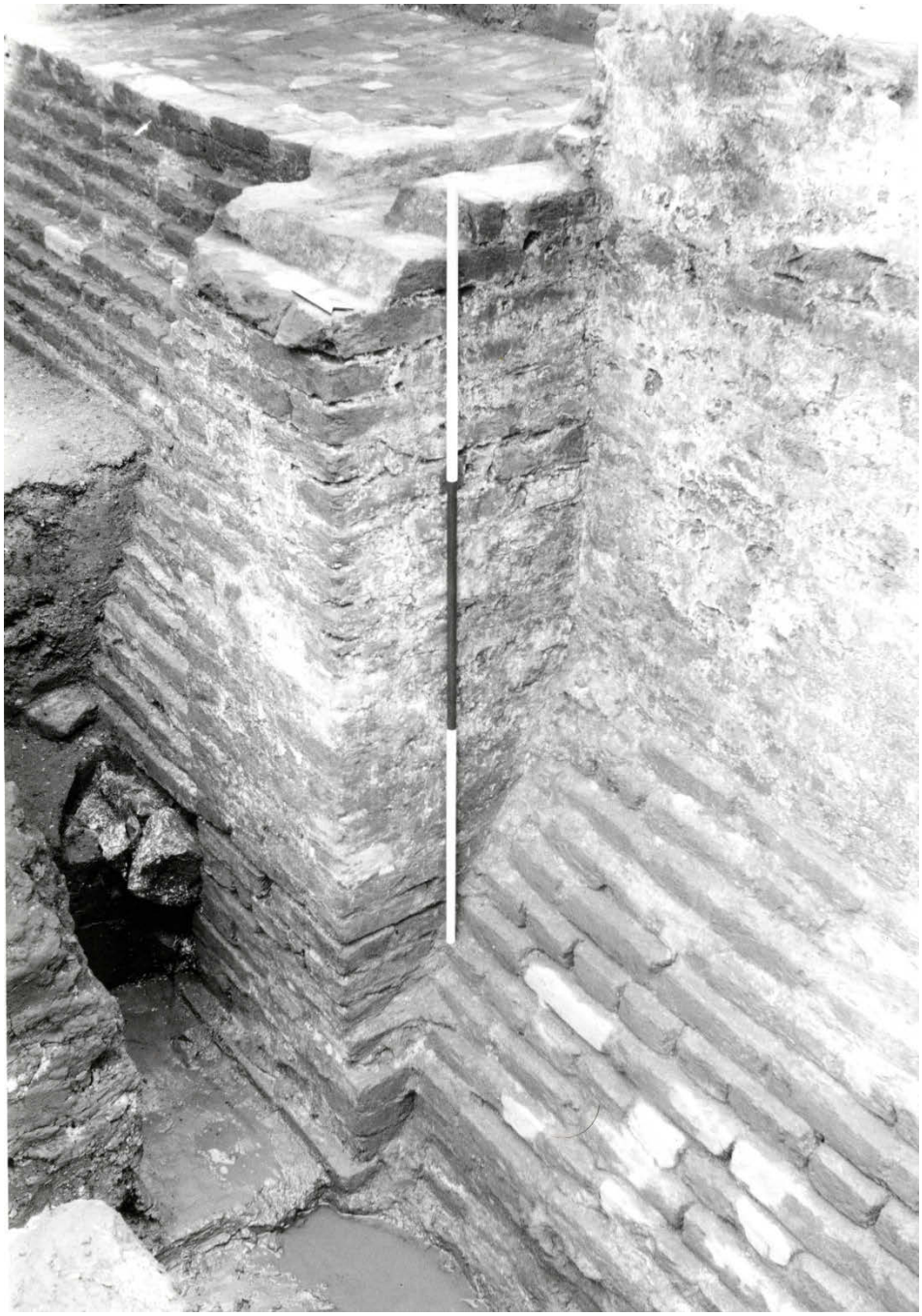
Pl. 13. Guildhall Road, near junction with Alfred Gelder Street, 1987. The top and front face of a section of the Town Wall, seen from the north-west, during the pedestrianisation works. [Copyright Hull City Council – originals taken either by HAU or by the staff of the Planning Department.]

Pl. 14. Guildhall Road, near junction with Alfred Gelder Street, April 1987. The front face of the Town Wall, seen from the north. [Copyright Hull City Council – originals taken either by HAU or by the staff of the Planning Department.]



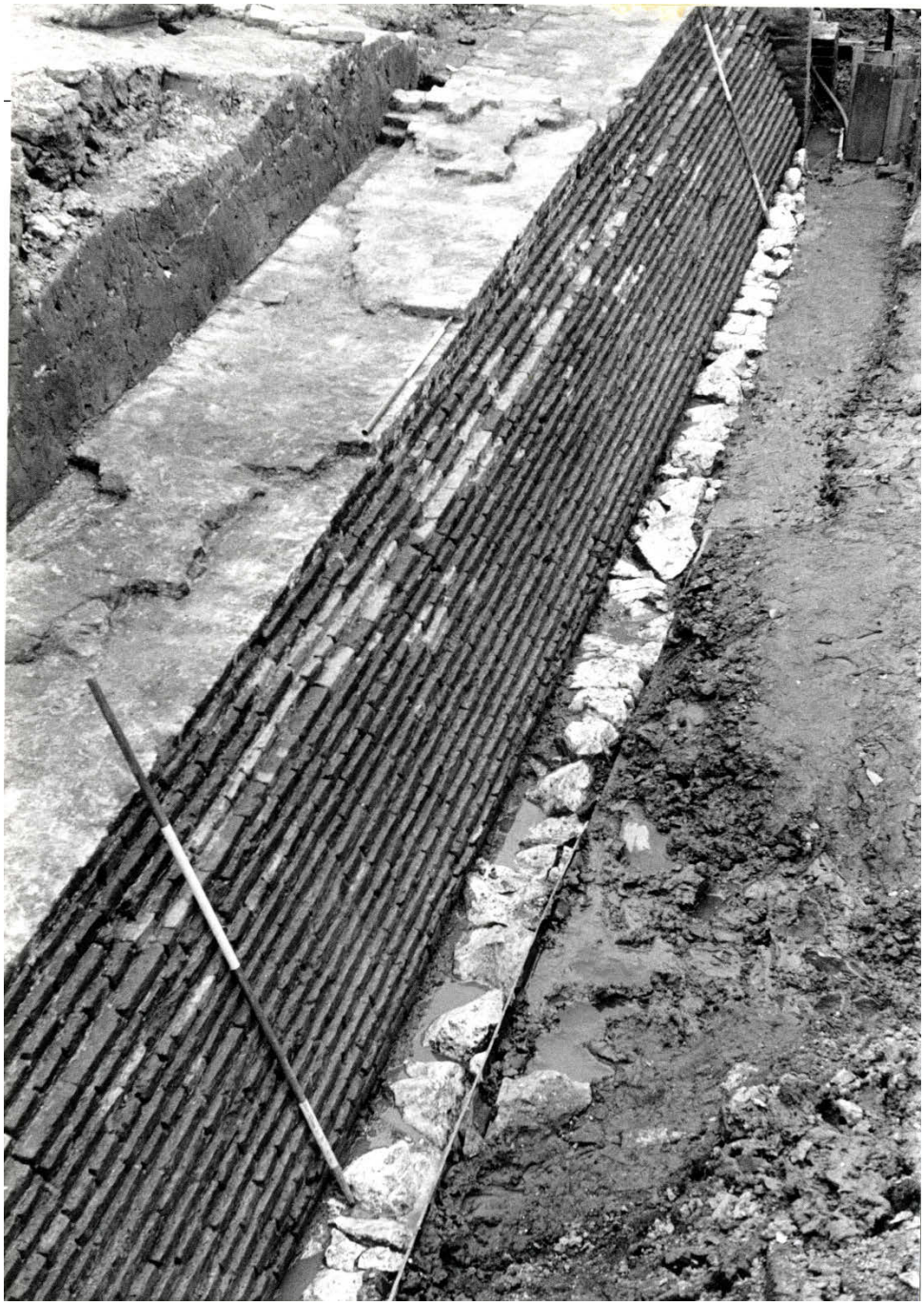
Pl. 15. An overhead view of the excavations in progress at the Beverley Gate site in spring 1988, taken from the south, and showing the degree of disturbance to the uppermost layers caused by the insertion of services. The upper layers of the northern guard chamber lie in the foreground; the line of the Town Wall is clearly visible in the left half of the photograph, whilst a series of 18th-century drains and other features built onto the top of the clay rampart can be seen to its right. [Photo: Humberside Archaeological Unit]

Pl. 16. Beverley Gate, 1986. The battered courses of brickwork in the external western face of the 17th-century northern Guard Chamber, with its flanking corner buttress, viewed from the west. Part of the adjoining medieval Town Wall can be seen to the left of this buttress, on the far left of the photograph. An early 20th-century sewer trench has removed much of the south-western corner of the Guard Chamber. [Photo: Humberside Archaeological Unit]



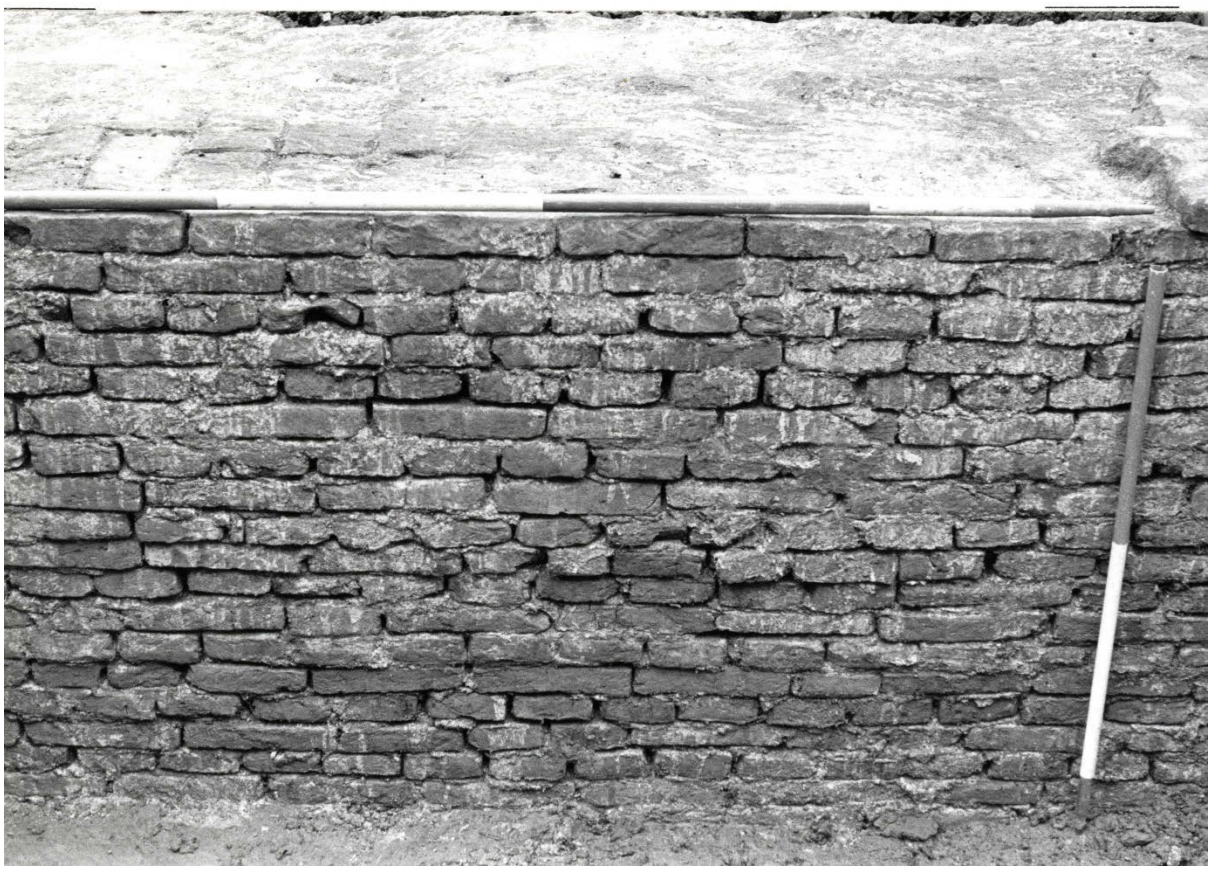
Pl. 17. Beverley Gate, 1986. An oblique view of the same remains, here seen from the south-west. The vertical face of the corner buttress dominates the left centre-ground of the photograph, whilst the pronounced batter of the lower parts of both the external wall of the Guard Chamber (in the right foreground) and the external face of the medieval Town Wall (in the left distance) is emphasised in this oblique view. Part of the chalk footings beneath the base of the Town Wall is just beginning to be exposed. [Photo: Humberside Archaeological Unit]

Pl. 18. Beverley Gate, 1986. An oblique overhead view of the junction of the medieval Town Wall (to the left) with the north-west corner of the 17th-century Guard Chamber; there is a butt joint, where the Town Wall has been cut back to form a clean vertical face against which the new corner buttress can be built. The pronounced external batter of the lower sections of both the Town Wall and the Guard Chamber can be clearly seen. [Photo: Humberside Archaeological Unit]



Pl. 19. Beverley Gate, spring 1988. A view along a section of the medieval Town Wall to the north of the Beverley Gate, seen from the north-north-west. The top of the exposed brickwork marks the level to which the Wall was dismantled in 1774-6, in preparation for the construction of Queen's Dock. The external batter of the lower courses of the Wall can be clearly seen, whilst projecting forwards from its base is the leading edge of its chalk footings; a berm would have lain to the west, with the Town Ditch beyond the right-hand edge of this photograph. [Photo: Humberside Archaeological Unit]

Pl. 20. Beverley Gate, spring 1988. A section of the brickwork in the top of the Town Wall, fully cleaned, and after the removal of vestiges of mortar from the slighting of the defences in the 1770s. [Photo: Humberside Archaeological Unit]



Pl. 21. Beverley Gate, spring 1988. A section of the vertical internal face of the Town Wall, after part of the clay rampart had been removed to expose this. [Photo: Humberside Archaeological Unit]

Pl. 22. Beverley Gate, winter 1988-9. The remains of the medieval Gate projecting forward from the Town Wall; this had been dismantled to a much lower height than either the Town Wall or its adjacent Guard Chambers. This photograph looks along part of the central passage-way through the Gate, with the stone footings of the northern side of the Gate Tower visible on the right-hand side of the photograph, and the brick footings of the western or front wall of the Gate in the background; view from the west. The sheet-piling of the coffer dam for the amphitheatre can be seen on the left-hand side of the photograph; this illustrates how close the piling came to destroying part of the surviving vestiges of the medieval Gate. [Photo: the author]

Pl. 23. Beverley Gate, winter 1988-9. The southern baulk of the excavated area of the medieval Gate, viewed from the north-east. This offers a longitudinal section through the internal surfaces and deposits within the passageway through the Gate. The tops of the stone footings of the north wall of the Gate (**78**) and its eastern return (**74**) are visible in the foreground, whilst parts of the brickwork of the west wall of the Gate can be seen in the right distance. [Photo: the author]

Pl. 24. Beverley Gate, winter 1988-9. Overhead view from the east of the junction of stone wall footings **78** and **74**. [Photo: the author]

Pl. 25. Beverley Gate, winter 1988-9. Detail of internal face of the stone wall footing of the north wall of the Phase Ib Gate (**78**), seen from the south. The base of a horizontal timber sole-plate (**55**) with a diagonal brace (**73**) can be seen encased within the stonework. [Photo: the author]

Pl. 26. Beverley Gate, winter 1988-9. Oblique view of the junction of a Phase Ia timber sole-plate with a diagonal brace; seen from the south-west. Note the projecting end of a long roundwood dowel projecting from the joint. [Photo: Bill Marsden]

Pl. 27. Beverley Gate, winter 1988-9. The eastern end of sole-plate **55**, where it joined with sole-plate **72**. Viewed from the west, after the overlying stonework had been dismantled to reveal this. [Photo: Bill Marsden]

Pl. 28. Beverley Gate, winter 1988-9. The northern end of the Phase Ib passageway through the medieval Gate, seen from the south. The top of wall **73** can be seen on the right-hand side of the photograph; in the centre-ground are parts of the stone levelling at the base of the Gate passageway, and the sawn-off remains of a timber post, **64**. The brickwork of the front of the Gate lies beyond. [Photo: the author]

Pl. 29. Beverley Gate, winter 1988-9. Complete Humberware jug, found lying on its side in the Phase Ib passageway; late 14th or very early 15th century. {Photo: the author]

Pl. 30. Beverley Gate, winter 1988-9. Rear face of the western return to the end of the north wall of the Phase Ib Gate passage; viewed from the east. The brickwork encases at its base the sawn-off stump of a Phase Ia timber upright, **77**. [Photo: the author]

Pl. 31. Beverley Gate, winter 1988-9. The tops of the wooden uprights for the Phase II bridge in front of the northern half of the Gate; note the projecting tenons. The Phase Ib brickwork can be seen behind these timbers. Viewed from the west. [Photo: the author]

Pl. 32. Beverley Gate, winter 1988-9. The north-western corner of the Gate took the form of a substantial buttress with cross-shaped projecting arms to both the west and north (cf. Gale's engraving of *c.* 1770). Here, we see the northern projecting arm, viewed from the north-west. The lower courses of brickwork are battered outwards at its base, whilst the bottom course has been laid on a bed of flat stone slabs. The remains of the Phase 1a sole-plate can just be seen in the centre of the north face, encased in the basal courses of brickwork. [Photo: the author]

Pl. 33. Beverley Gate, winter 1988-9. The north face of the northern projecting arm to the front of the Gate, seen from the north. The stepped courses of brickwork can be clearly seen to have been set on a flat bed of stone slabs. The remains of the Phase 1a sole-plate can just be seen in the centre of this face, encased in the basal courses of brickwork. [Photo: the author]

Pl. 34. Beverley Gate, 1986. The north-western corner of the Phase III northern Guard Chamber, viewed from the east. In the right foreground is its north wall (**329**); just beyond is the junction with its west wall (**328**), whilst the adjoining section of the medieval Town Wall (**327**) lies to its right. [Photo: Humberside Archaeological Unit]

Pl. 35. Beverley Gate, 1986. The same junction, viewed from the south-south-east. Wall **328** is in the left foreground, wall **329** in the centre right, and the medieval Town Wall (**327**) can be seen in the background. [Photo: Humberside Archaeological Unit]

Pl. 36. Beverley Gate, 1986. An elevation through the junction of the Phase Ib Town Wall (**327**) with the Phase III northern Guard Chamber; seen from the east. The medieval wall (in the right-hand side of the photograph) has been partially dismantled to permit the insertion of the Guard Chamber. The lower courses of the former have been cut back to form a vertical face against which a clay construction dump has been piled; the section of brickwork above this is more irregular, but has been cut back to allow the construction of the walls of the Guard Chamber. [Photo: Humberside Archaeological Unit]

Pl. 37. Beverley Gate, winter 1988-9. The Phase IV timber revetment or shuttering erected in front of the north-west corner of the Gate Tower; viewed from the north-west of the Gate passage. A substantial horizontal oak beam (**8**) can be seen retaining the front of a series of broad upright planks (**42A-D**), set diagonally between the two projecting brick arms of this part of the Gate; the northern end of its western counterpart, beam 4 is just visible on the right of the photograph. [Photo: the author]

Pl. 38. Beverley Gate, early January 1989. The same Phase IV timber revetment, viewed from the north. The north-eastern end of beam **8** is supported by the upper courses of the projecting brick arm of the medieval Gate; the tops of the vertically-set planks (**42A-D**) can be seen behind the beam. [Photo: the author]

Pl. 39. Beverley Gate, early January 1989. The internal face of the Phase IV timber revetment, viewed from the south-east. Planks **42 A-D** can be seen in the centre of the photograph, with planks **43** to the left. [Photo: the author]

Pl. 40. Some of the cut-marks left on the surfaces of the late 18th-century chopping-block made from a whale's vertebra. [Photo by Christine McDonnell, York Archaeological Trust.]