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Excavation Adjacent to Close Gate, Newcastle, 1988–9

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SUMMARY

THE excavation of a section of the medieval town wall and the Riverside Tower south of the Close Gate was undertaken to identify the precise location of the monument and to establish the relationship between their construction and the development of the medieval waterfront on The Close. The work demonstrated that, in this area, construction of the town defences occurred in two phases, which were directly linked to the progression of the reclamation process which had commenced in the 13th century. The construction of Close Gate and a section of curtain wall to the south occurred in the second half of the 14th century, and was associated with a series of waterfront advances defined by revetment walls. The Riverside Tower and a section of curtain wall aligned parallel to the river were constructed in the early 15th century as both a defence and a retaining structure, which defined the extent of the waterfront here until the early 19th century. It would appear that because reclamation had advanced more quickly to the east, the waterfront between the Riverside Tower and the Tyne Bridge was never fully enclosed behind a curtain wall.

INTRODUCTION

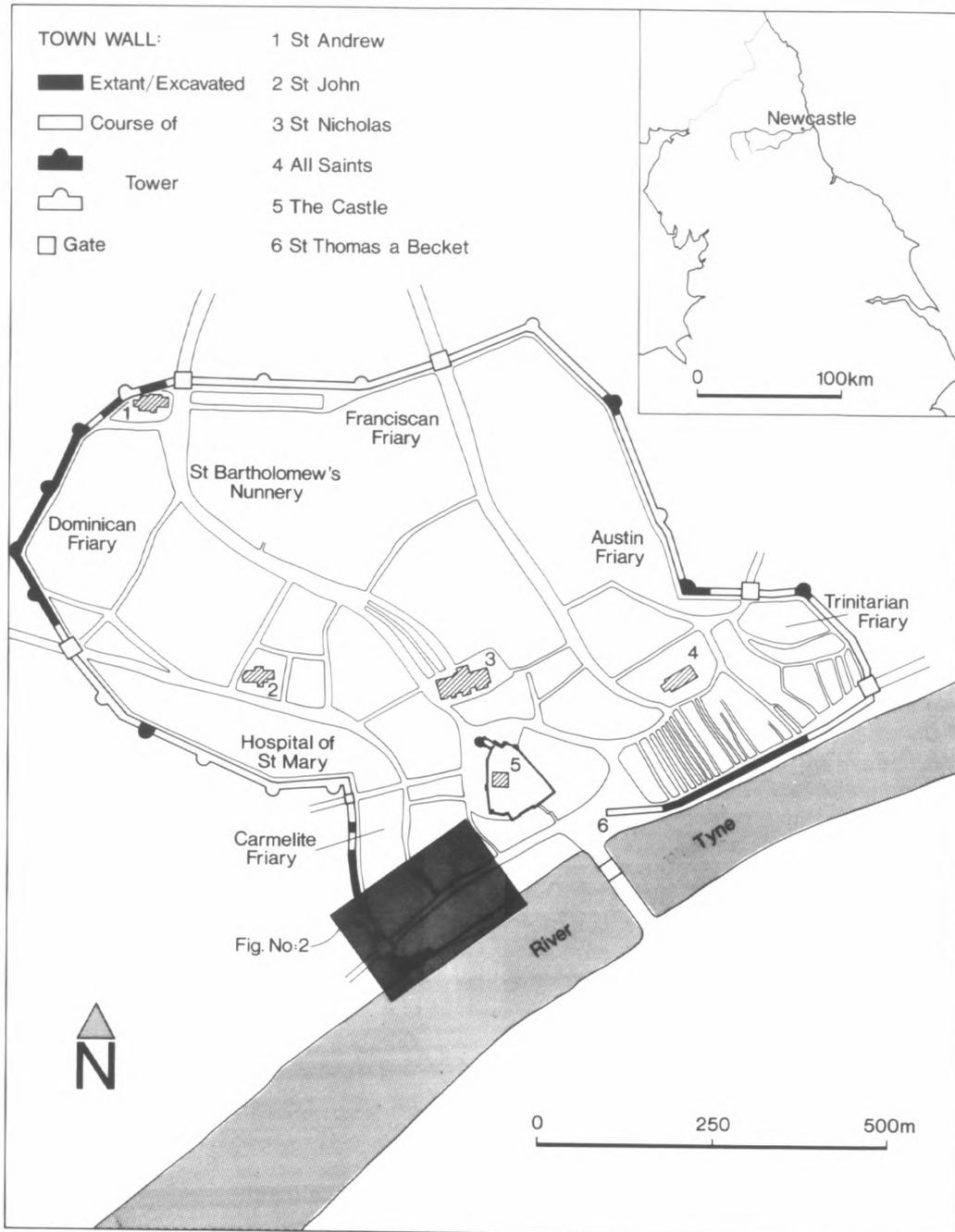
The excavation was undertaken between August 1988 and February 1989. The site was located at the western end of The Close, in the south-western part of the medieval town (fig. 1). The area had been a municipal car park and contained no standing buildings. Excavation (fig. 2) was limited to the immediate area

of the town wall as the work was undertaken as part of Scheduled Monument Consent for the construction of the Copthorne hotel. The aim of the excavation was to locate and record the extent of the medieval town wall within the site and to preserve by record the associated stratigraphy. The locational information from the excavation was used to modify the foundation plan of the development so that the wall could be preserved *in situ*. The extent of tidal flooding prevented the display of the monument within the development and following excavation the wall was covered by a protective blanket of gravel, a permeable man-made material ("typar") and a thick layer of dolomite chippings. Its course has subsequently been marked out within the floor surfaces of the development.

HISTORICAL BACKGROUND

The medieval street called "The Close" extended westwards from the north end of Tyne Bridge along the foot of the river cliff beyond the Close Gate to the foot of Forth banks. In medieval and later documents the boundary between the eastern end of The Close and Sandhill to the east was not always clearly defined. Generally, the phrase "in the Close" was a location applied to properties opposite and west of a chapel dedicated to St. Thomas à Becket on the east side of the Tyne Bridge and below the Castle heugh.

The road from the bridgehead eastwards to Sandhill and The Side is likely to be part of a much earlier route way than The Close leading to the west. The former covers the easiest gradients from the river to the bank top and



this is likely to have been the preferred route from Roman times (the medieval bridge would appear to be sited at the same point as the Roman river crossing). By contrast the route westwards along the river edge does not appear to have developed until the 13th century, and even then the route led through one of the more minor gates to the town (the principal route west being via West Gate).

The earliest reference for the existence of a street leading westwards from the bridge end does not occur until 1260 (Oliver 1924, p.76, 108). Early 13th-century documents relating to properties which can subsequently be placed in The Close are generally described as lying on the "hoga" which may be translated by the local term "heugh" meaning the bank side (of the R. Tyne). In the period 1260-90 the street is referred to only as the "king's road" or the "high road", and it is not until 1291-2 (Oliver 1924, p.171, 324) that a document actually gives the location of a property as in "le Clos".

Reclamation of ground from the R. Tyne is mentioned in several late 13th- and 14th-century leases. As part of various rights and duties tenants were allowed to recover "*et quidque de Tyna racionabiliter adquirere poterit*"—whatever of the river as could reasonably be acquired. The earliest such reference is in 1272, and subsequent documents relating to other properties in late 13th and early 14th century also repeat this formula (Oliver 1924, p.94, 140, p.17, 12). In each of the instances where there is a clause concerning reclamation in The Close, the road is given as the northern boundary to the property and the references therefore reflect the later stages of the reclamation process. What cannot be ascertained from the documents is how the road came to be formed and what effect the splitting of properties, which it caused, had on the pattern of land holding.

The Construction of the Town Wall

The earliest murage grant for Newcastle dates to 1265 and an almost continuous run of grants exists until 1384. In the 14th century there was a specific tax on coal and in the late 15th

century other sources were granted for expenses associated with the town defences, e.g. custom duties, fines and ransoms, together with a perpetual right of murage. No local records survive to document the amounts collected or spent and none of the grants can be associated with the construction of specific sections of the circuit. It is only through the use of indirect references, such as claims for compensation, or petitions for the right to build a postern, that the progress of construction can be traced.

The sequence of construction has been described by B. Harbottle (1969 and 1989). It is sufficient to note here that in the south-western quadrant of the town, the wall is recorded as passing through the precinct of the Hospital of the Blessed Virgin Mary in 1311 when the proposed route (probably to the Castle) was altered and the line changed to run south through the precinct of the Carmelite friary towards The Close. The Carmelites petitioned for compensation in 1333 and it is likely that the section including Close Gate was constructed by the middle of the century (Nolan 1989). On the south-eastern side of the town further realignment of the circuit occurred to include Pandon following its acquisition in 1298. However, completion of the wall along the Quay can only have occurred after the formation of a continuous river frontage. As late as 1392 (Brand 1789, p.100) there were still properties in the Quayside area whose southern boundary was the river rather than the highway and it seems likely that the quay wall was not constructed until the 15th century.

The site

Very little documentary evidence survives relating to either the Close Gate, or the Riverside Tower and those references which do are confined to the period from the mid-16th to the late 18th century. There are slightly more comprehensive records relating to the ground on either side of the wall itself, but these do not begin until the late 17th century.

The only view of the Close Gate to have survived is a somewhat unreliable 19th-century engraving (fig.3), compiled "from various

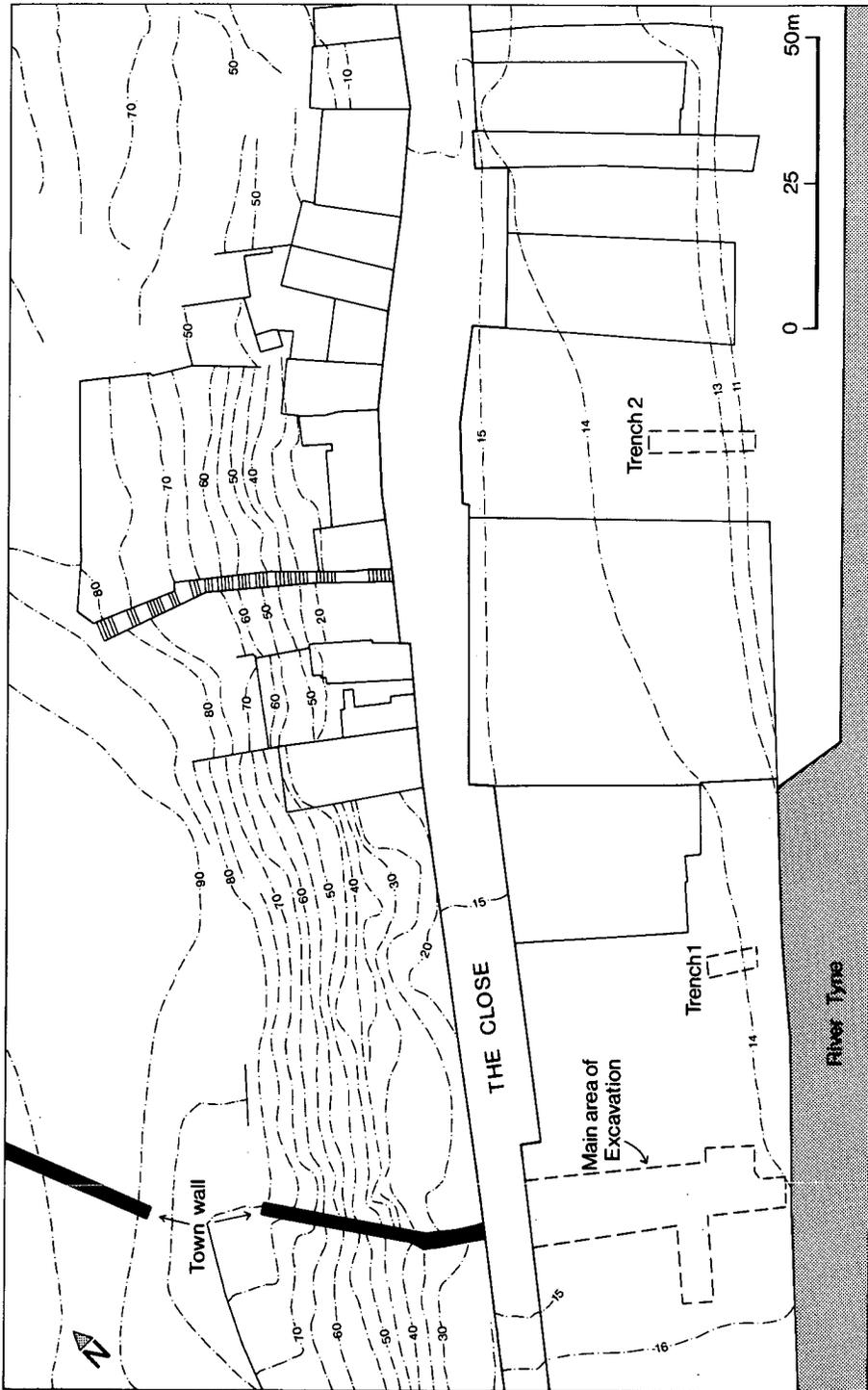


Fig. 2 Site location.



Fig. 3 A 19th-century view of Close Gate, compiled "from various sources". (The gate was demolished in 1797).

sources" (Richardson 1842) several years after the gate was demolished in 1797 (Mackenzie 1827). It depicts a three-storey rectangular structure over a central archway, but lacking either a flanking guardroom or a pedestrian passageway. From 1771, until its demolition, the gate served as a gaol. The fact that there appear to have been three chambers available for this purpose would suggest that the gate may have been of three storeys. The gate had previously been used as a store; in 1564 there were "remanynge at the Clos yaitt 24 great troys that is of the town" (TWAS Chamberlains Accounts 1561-4, fl. 11). A document of 1574 (Welford, Vol. 2, p. 462) records the purchase of a rope for the drawbridge at Close Gate, so it is likely that there was a ditch or drawbridge pit immediately to the west of the gate itself. It is probable that the gate did not have flanking guard chambers since during the English Civil War an adjacent house was leased as a guardhouse.

The most complete view of the Riverside Towers appears in the Buck engraving of "The South-East Prospect of Newcastle" dated 1745 (fig.4). This shows it to be a square, free-standing crenellated structure, although no adjoining sections of curtain wall are depicted. Brand, writing in 1789, records that a tower or turret existed 52 yards south of the Close Gate, adjoining the river Tyne, and that "part of it [was] still remaining" (Vol.I, p.7). This would suggest that the tower was largely derelict by this date. A Richardson engraving of the tower dated 1846 (fig.5) depicts the tower as a three-storey structure, heavily rebuilt in brick above the ground floor, with a pitched roof and an external wooden stair giving access to a first floor doorway.

In the late 17th and 18th centuries the tower had been the meetinghouse firstly for the Company of Housecarpenters and subsequently the Company of Sailmakers (TWAS Common Council Minutes 1820 ff.156-9). The former quit the tower in 1713 for the West Gate and the Sailmakers took it over on a 21-year-lease (TWAS Common Council Minutes f.227). Unlike other Companies in Newcastle, the Housecarpenters and the Sailmakers left no minute books relating to their tenure of their meetinghouse at the Riverside Tower. From the late 17th century the "low-room" was let separately.

The stretch of curtain between the Close Gate and the Riverside Tower appears to have survived to some height until its demolition in 1867 (TWAS T186/2243), although the north end may have been cut back as a result of road widening in or after 1835 (TWAS Common Council Minutes f.459). It is not visible on the 1745 Buck engraving as the view of it is obscured by a later building. The stretch of curtain returning east from the Riverside Tower is shown on the Cotton MSS (c. 1590), by Speed (c. 1610) and in a survey of the town defences in 1638. The wall runs eastwards only partway towards Tyne Bridge and appears to be pierced by at least one watergate. It does not appear on the 1745 Buck engraving or Thompson's town plan of 1746 and must therefore have been demolished by this date.

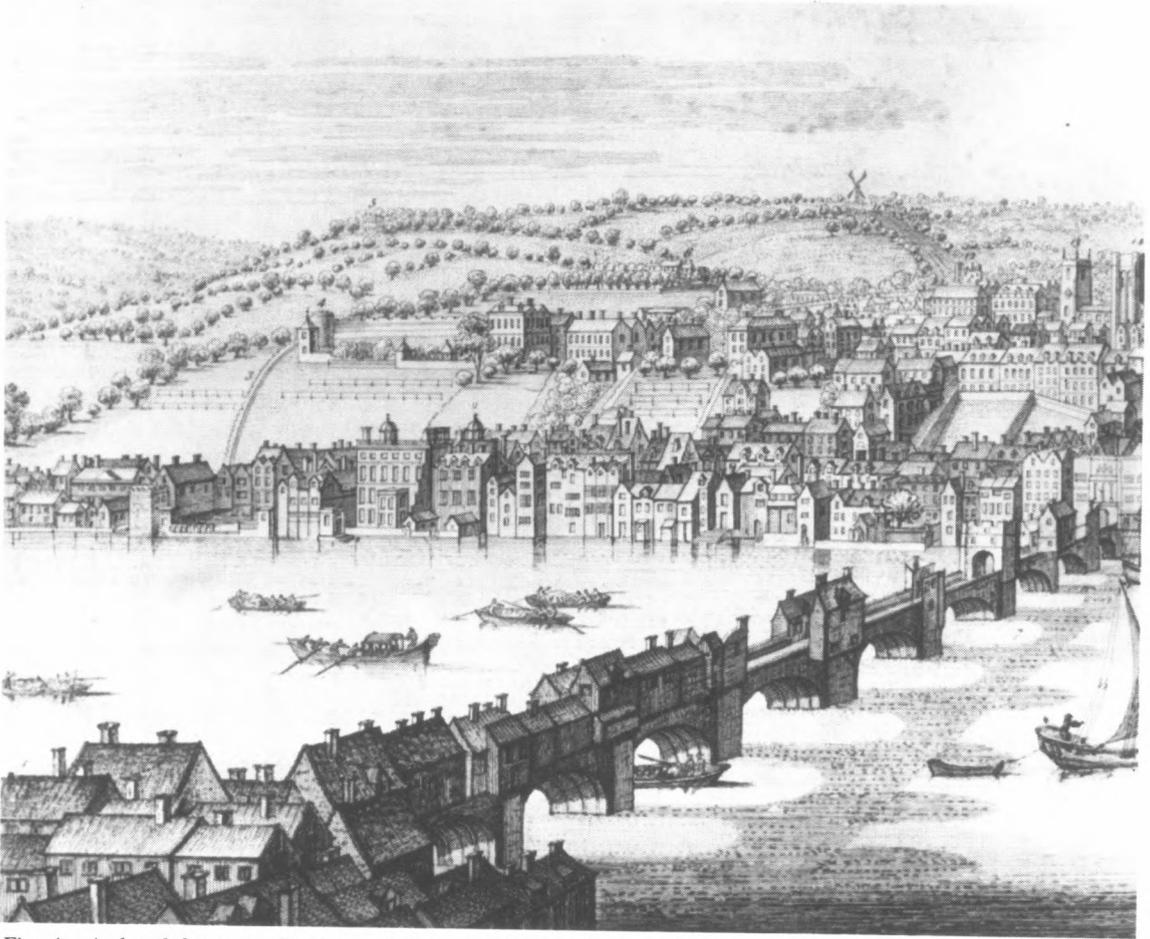


Fig. 4 A detail from the Buck engraving of "The South-East Prospect of Newcastle" of 1745 showing the Riverside Tower.

In the late 17th century, the area immediately inside the town wall, south of The Close and north of the river wall, was divided into two properties. The low room of the tower and a piece of waste to the north of it, measuring 25 yards by 7 yards, formed one plot; with a messuage and a piece of waste ground, forming a second to the north fronting onto the street. The plots were owned and leased separately until 1749. The southern plot, which was owned by the town, is referred to as waste ground in 1685, and by 1731 Ralph Walker had a workhouse there (NRO ZCK 1/6/1). John Stephenson acquired the northern property in 1731 and

by 1749 he had also acquired the lease of the southern property from the town (Twas Common Council Minutes f.139). In a mortgage document dated 1770, the waste ground, behind the messuage fronting the street, is described as having a malting or malthouse recently built upon it, while the property to the south is described as being part of the malthouse, and it is evident that both plots were effectively being developed as one by this date (NRO ZCK 1/6/1). Despite being remortgaged several times the property was leased by Longstaffe between 1770 and 1793 when John Fenwick took over both properties.

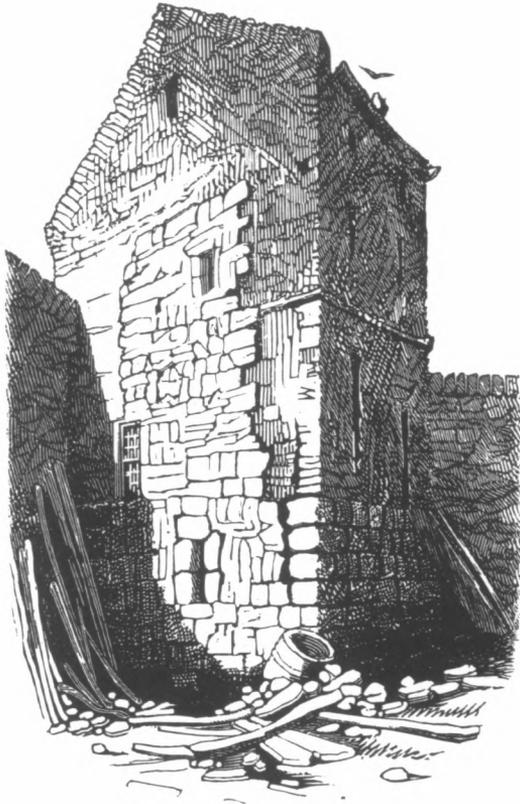


Fig. 5 A view of the Riverside Tower c. 1846.

In 1835 Thomas Cookson acquired the properties on the east side of the wall and thereby unified the ownership of the land on both sides of the wall. The extent of buildings on the property at this date is depicted on a plan which accompanied the deed (fig. 6 NRO ZCK 1/6/3).

In 1651-2 Ralph Cocke in his will, left a property in the Close which was situated south of the road and had the town dyke as its eastern boundary. This reference, together with the earlier reference to the drawbridge at the gate, would suggest that there was a ditch immediately outside the town wall on the Close until the mid-17th century. Certainly such a space is depicted on the 1638 survey of the town wall. In the 17th and 18th centuries there are references to there being a pier, staith or

quay at Close Gate (Twas Common Council Minutes 1647, f. 240; 1654, f. 268; 1729, f. 177). In 1796, Messrs Airey Cookson and Co. leased a piece of waste ground outside Close Gate on the west side of a yard used by the town surveyor and the quay master and in 1819, when Cookson leased the property it contained a dock or barge house. In 1835, a petition for the lease of the same property (Common Council Minutes f. 459) includes the following account:

On 23 Dec 1823 the Corporation demised to Cookson's late father, the Town's Yard on the South side of the Close . . . with a dock lately used as Corporation barge house, a passageway to the Tyne, and a quay in front, with liberty to pull down the barge house and build additions to their iron foundry, adjoining to the west. . . The barge house was (now) pulled down.

In 1867 Cookson obtained permission to erect a large five storey warehouse (Twas T186/2243). This was built straddling the town wall and stretched from the Close to the river, and it would appear that this section of the wall was demolished at this time. The building had three aisles, divided by two rows of columns which were supported on masonry foundation walls and the base of the town wall was retained to form the eastern column foundation. The warehouse was subsequently altered in the early 20th century when the northern half was demolished and replaced by a grain silo (Twas T186/10871) which was constructed on a reinforced concrete raft foundation.

THE EXCAVATION

The main area of excavation measured approximately 45m long by 14m wide and extended from the road to the river edge (fig. 7). The trench encompassed the scheduled area of the town wall and tower and only a small margin of ground to the east and west. It was extended to the east in the area of the tower and the river wall and in one section to the west to test for the presence of a ditch.

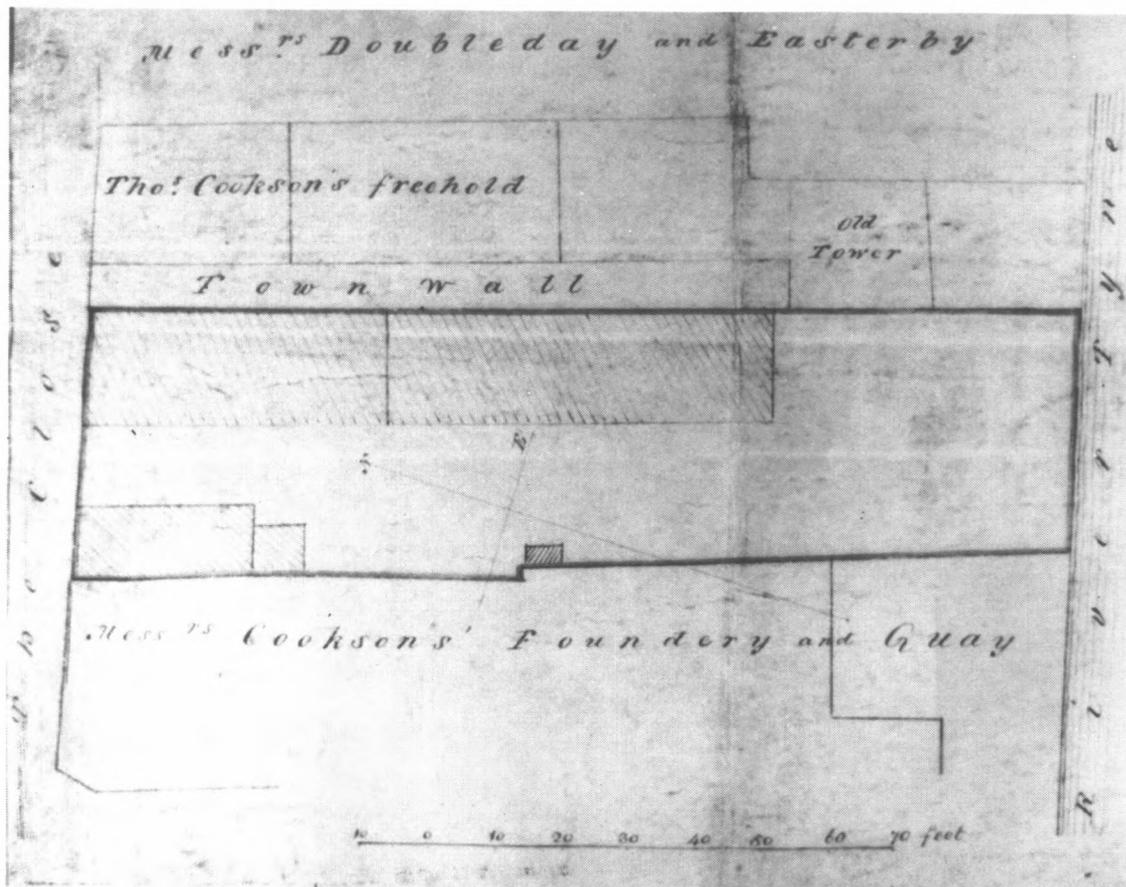


Fig. 6 Plan of the town wall and Riverside Tower from a deed of 1835 (NRO ZCK 1/6/3—published by kind permission of Mr. Cookson).

The foundation walls for the warehouse erected in 1867 straddled the town wall and left only narrow blocks of archaeological stratigraphy surviving against the medieval structures. It is these narrow strips that were excavated to provide running sections (S1 and S2) through the sequence of landfill deposits. Within these areas, little survived of other structures which pre-dated the construction of the warehouse.

Phasing summary

A total of eight primary development phases

could be identified within the site, extending from the late 12th century to the mid-19th century.

In phase 1, which dated from the 13th to the mid-14th century, a series of relatively sterile contexts were deposited along the river edge forming a platform approximately 25 metres wide.

In phase 2, in the mid-14th century, the town wall was constructed out across the phase 1 deposits and into the river itself. Here the wall was built directly on river sand as no evidence was discovered for piling or matting that might have been used to spread the load. Construction work presumably took place at low tide,

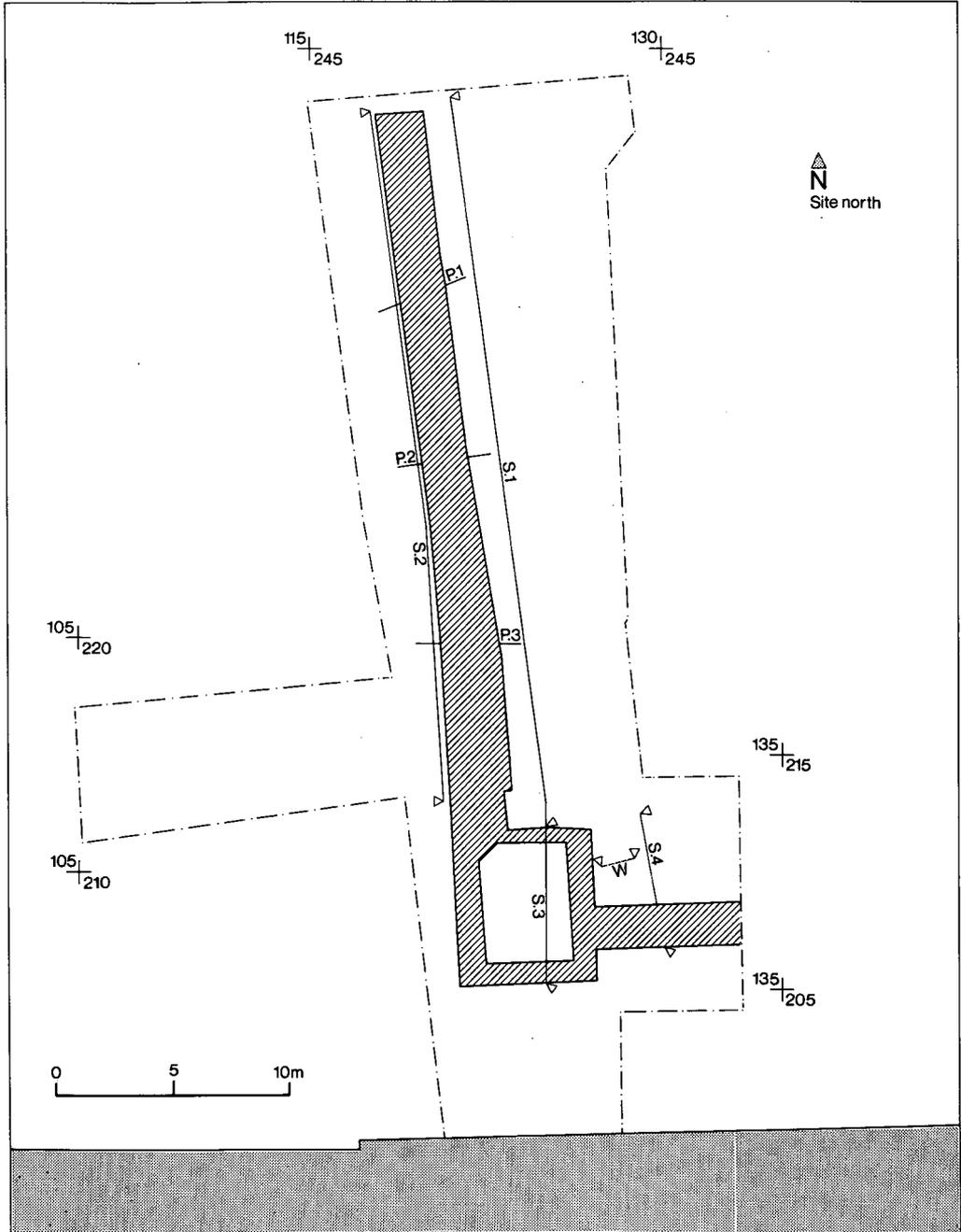


Fig. 7 Site plan indicating location of principal sections in relation to the Town Wall.

the wall being built in a series of sections which stepped down into the river.

In phase 3, approximately mid-14th to early 15th century, a series of contexts which became increasingly contaminated by amounts of domestic refuse were deposited against the east face of the town wall. These layers were retained by a series of low retaining walls and finally by a post and wattle timber revetment. The ground level in places, was raised in excess of 2 metres by this process.

In phase 4, the early 15th century, the Riverside Tower and the river wall were constructed eastwards from the southern end of the town wall built in phase 2. The rectangular form of the tower is typical of structures of this date and the partial enclosure of the river frontage would seem to be paralleled by similar works on the Quayside to the east at this date.

In phase 5, during the 15th century, large quantities of mainly domestic refuse were tipped in order to consolidate ground levels behind the newly created river frontage. Later deposits and structures from the late 15th to the early 17th century did not survive east of the wall as the area was truncated by later buildings.

In phase 6, early 17th to mid-18th century, a series of alterations were made within the tower which may be linked to permanent occupation of the structure which appears to have started after the English Civil War (1639–45).

In phase 7, mid-18th to early 19th century, the tower became largely ruinous although its south wall was rebuilt to incorporate elements of a timber landing stage. North of the tower a large building (a malthouse), was constructed abutting the town wall. West of the town wall a dock was formed and a waterside building, probably the mayor's barge house was constructed behind it.

In phase 8 the barge house was demolished and the dock filled in. Later (in 1867), the town wall was demolished and a large warehouse was erected.

AREA 1: EAST OF THE TOWN WALL

Phase 1

Reclamation deposits which pre-dated the construction of the town wall were only located towards the north end of the site (fig.8). They consisted of a sequence of layers to the east of the town wall which sloped down towards the river and represented the southern extent of the platform. These layers varied quite widely in their make-up and origin. Layers of clean sand (242 and 232) were likely to have been river deposited. Interleaved layers of clay and sand (241) had developed on the bank side and exhibited considerable river influence in their formation, while others exhibited some degree of human influence (for example 291). Many of these contexts contained a small amount of artefactual material.

A large number of river pebbles were exposed at the south end of layer 249, pressed into its surface, and may have represented the remains of cobbling. They would appear to have been purposely laid and may reflect an early attempt to stabilize the bank edge.

Practical problems were encountered in the excavation of this area due to the erosion of layers of sand which ran below the town wall. In order not to undermine the town wall itself, a wide baulk of deposit running alongside the wall was left *in situ* and excavation was thus limited to a narrow trench 0.8m wide. The depth to which this trench could be excavated was limited both by its width and by drainage problems associated with the tidal flooding of the site. As a consequence only the uppermost layers of this phase were seen in plan, the remaining deposits being recorded in section only.

Phase 2

A relatively shallow foundation trench (1033) 0.10–0.15m deep, was cut into the top of the deposits forming the pre-wall river bank, for the construction of the town wall (3000). The trench, which was visible only on the east side of the town wall, was traced southwards for approximately 12.0m. It is likely that it did not extend south beyond the edge of the pre-wall

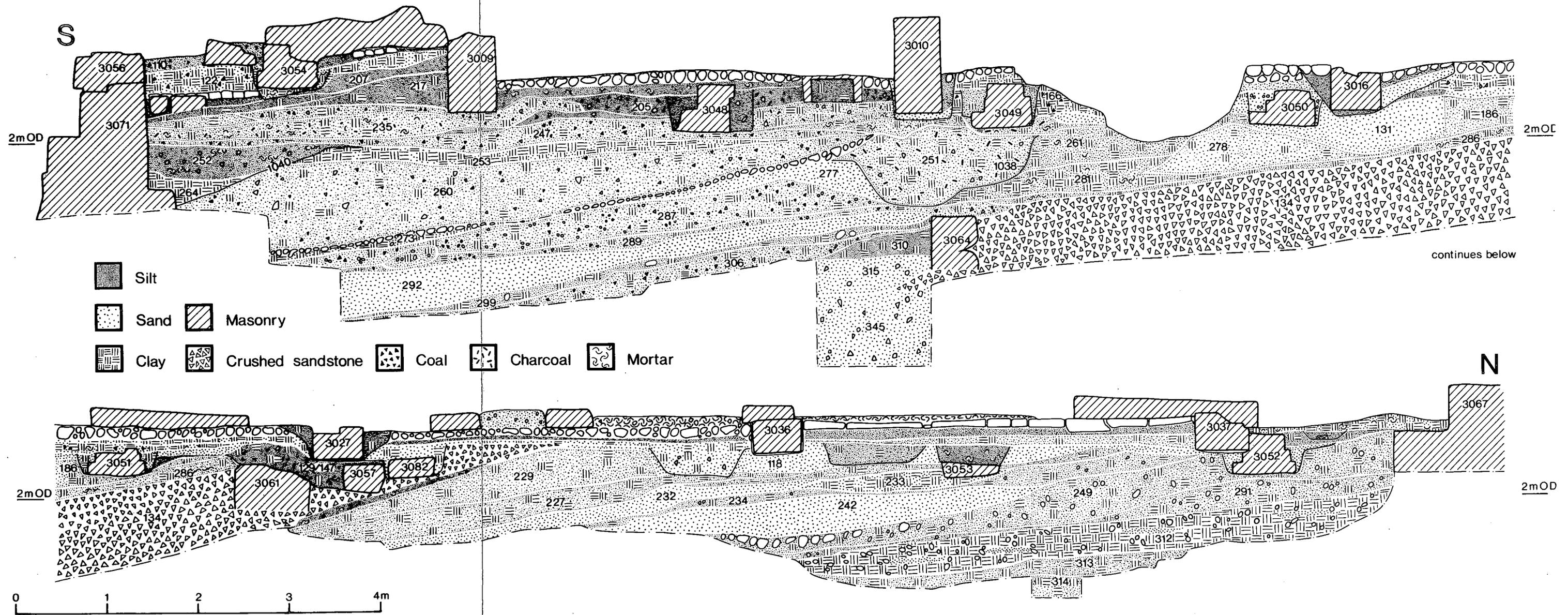


Fig. 8 North-South section east of the Town Wall.



platform. Sections excavated against both the eastern and western sides of the town wall revealed the wall footings, not in a foundation trench, but laid directly on top of a sandy surface, which was presumably the top of the river bed. It seems likely, therefore, that a foundation trench was dug on dry ground and where the wall entered the river a trench was both unnecessary and impossible to excavate. Certainly the very uneven settlement of the structure together with the marked displacement of joints would tend to confirm the observations that the wall was constructed directly on river sand.

The town wall (3000), constructed in local sandstone, was traced south over a distance of 36.7m. The wall measured 2.05m wide at the northern end, broadening out to 2.8m north of the tower (see profiles 1-3, fig.9). The course of the wall changed slightly between 7.5m and 12.5m north of the tower, coinciding with this expansion in width. Its footings comprised roughly dressed, irregular blocks although no trace of a bonding matrix survived in the elements that were exposed. The wall above the footings was faced on both sides with finely dressed, rectangular ashlars, and had a rubble core bonded with a light brown, coarse, sandy mortar. Although pointing did survive in places, generally the mortar had been washed out of the joints. There was a single chamfered

plinth course on the west face of the wall which stepped down three times.

A series of five or possibly six discrete sections of masonry could be identified within the structure as a whole. Distinct vertical and angled breaks, where the coursing of the stonework was interrupted, could be identified on both faces of the wall, and generally there was a good correlation between the position of these breaks on each side. These sections are likely to reflect the need to step the wall down, in order to take account of the sloping riverbed; the resulting steps in the footings being reflected in the upper masonry.

A section approximately 8.8m in length at the south end of the wall appeared to have been remodelled with the subsequent addition of the Riverside Tower. This was indicated by a butt joint on the south face of the tower which was associated with a break in the plinth course at this point. The west wall of the tower proper measured only 1.1m wide and it was apparent that the southern end of the town wall had been cut back and rebuilt in phase 4 with the construction of the south wall of the tower.

Processes aimed at raising ground levels to the east of the town wall probably began during the wall construction itself. The lowest post-wall deposit identified on the east side (345) would seem to comprise large sandstone fragments mixed with sand. Whether this layer

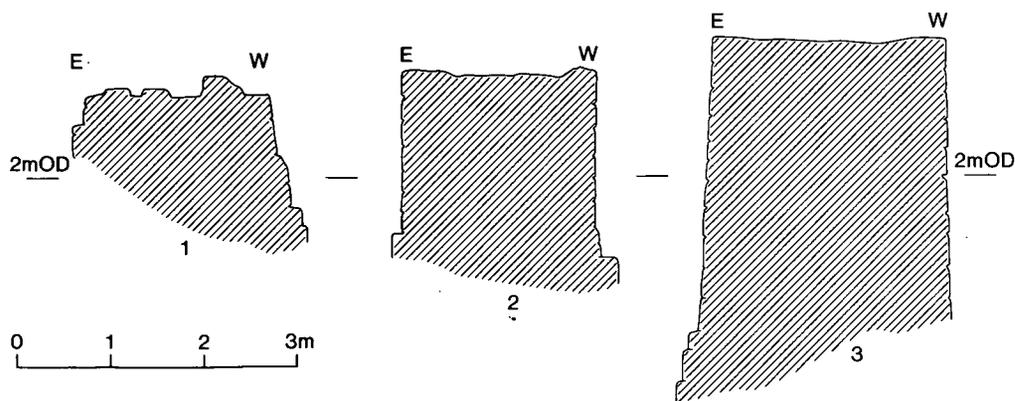


Fig. 9 Profiles 1-3 across the Town Wall.

was the result of a formal attempt to raise levels or rather represented building waste from construction of the wall could not be determined. Quite a thick layer (0.90m) had been deposited before a more substantial and more obviously formal attempt at raising and stabilizing ground levels, comprising a series of interrelated contexts, **134**, **3061** and **3064**, took place.

A thick sloping layer of angular, crushed sandstone retained by two low sandstone walls, **3061** at the north end, and **3064** at the southern end, extended the platform some 11m further south than in phase 1. Both retaining walls butted up against the town wall **3000** on the west and were aligned perpendicular to it. Both were of clay bonded sandstone construction, comprising randomly coursed, roughly faced blocks. While **3061** was traced only 1.5m east from the town wall, **3064** was traced for 6.5m (as a result of later observations made during construction) and it is likely that **3061** and layer **134** extended a similar distance. These three contexts, (**134**, **3061** and **3064**), would seem to represent a deliberate attempt to consolidate and level-up the area to the east of the town wall. The fairly homogeneous nature of **134** suggests that it may have been brought onto site with this specific intention. The layer appears to be either quarry waste or waste associated with stone dressing.

Phase 3

Following this initial extension of the platform a series of deposits (**315**, **310**, **306**, **299**, **292** and **289**) were then dumped to the south of **3064**. As in the pre-town wall phase, some of the contexts would appear to be river deposited (**315** and **292**) whilst others are likely to be river affected to some degree, presumably suggesting that an open, sloping river bank still existed at this time. Many of the contexts in this area were black in colour, which was the result of the large amount of coal (both dust and small fragments) in their make up. Given the open nature of the riverbank at this time this material could indicate that coal was being handled in quantity either in the immediate

area or elsewhere on the river. Initially only a thin layer of sandy loam (**286**) overlay **134**, **3064** and **3061**. It is likely that the layer did not accumulate to any depth because of constant water action over the slope on which it lay.

Above the southern end of **286** there was an accumulation of sandy clays (**281** and **261**) lensed with a loam sand layer (**278**). The southern ends of **281** and **261** were truncated by cut **1038**, a linear trench which is likely to have removed a wall butting the town wall (**3000**). This feature may have retained material deposited to the north, or it may have been positioned as a barrier to the river. There was certainly a discontinuity in the deposits on either side of the cut. Both layers **287** and **277**, to the south of the feature contained high proportions of sand and were probably river deposited. The feature was robbed out after the accumulation of **277** to the south and **261** to the north. Trench **1038** was filled by a sandy clay layer (**251**).

Immediately to the north of wall **3061**, a fragmentary wall (**3057**) comprising a single course of roughly dressed sandstone blocks, abutted the Town Wall. The wall lay within a wide trench (**1046**) which cut into both the top of wall **3061** and layer **186** to the south. Precise interpretation was difficult due to the limited area available for excavation, but this wall appeared to represent part of the foundations of an early building, and may have been associated with the possible wall robbed out by trench **1038** to the south.

Overlying the fill of robber trench **1038**, layer **273** comprised a single thickness of angular sandstone fragments and river pebbles which probably represent cobbling, though they were sparse and discontinuous in some areas. The layer lies on a fairly gradual slope and may represent either an attempt at stabilization of the river margin or, more formally, a cobbled strand.

It was not possible to physically link the deposits discussed above to those in the area to the east of the tower and north of the river wall. All relationships had been severed by later walls and comparisons between context descriptions and levels from either area sim-

ilarly failed to produce convincing linkages between contexts.

The deposits to the east of the tower which were related to land reclamation consisted of a heavily packed layer of large cobbles (276) retained on the south side by two close, parallel lines of vertical wooden posts (2007-2014) each supporting wattling (2015 and 2016), and two large horizontal timbers of circular cross-section (2005 and 2006) lying north-south, one above the other. Both 2005 and 2006 were embedded in layer 276 to the north and projected through the lines of wattling (2015 and 2016). Their exposed southern ends were shaped to flattened and faceted points and each was cut through by a near vertical mortise hole. It seems likely that the vertical posts and the related wattling functioned as a revetment for the landfill material (276) to the north (see

reconstruction drawing, fig.10), and the embedded horizontal timbers may have acted as ties for a vertically planked waterfront edge which was subsequently robbed away. All the timbers, except for 2014, were oak and although samples were taken for dating purposes, the largest timbers did not contain sufficient rings.

Although the timber structure cannot be satisfactorily linked to layers lying to the north, it seems likely that this waterfront was constructed only slightly later than the phase 2 revetment walls, 3061 and 3064. As such it was probably constructed shortly after the town wall, possibly as a later element of the general reclamation of the area to its east. The original western end of the waterfront must have butted the east side of the town wall (in the area subsequently covered by the Tower) but still

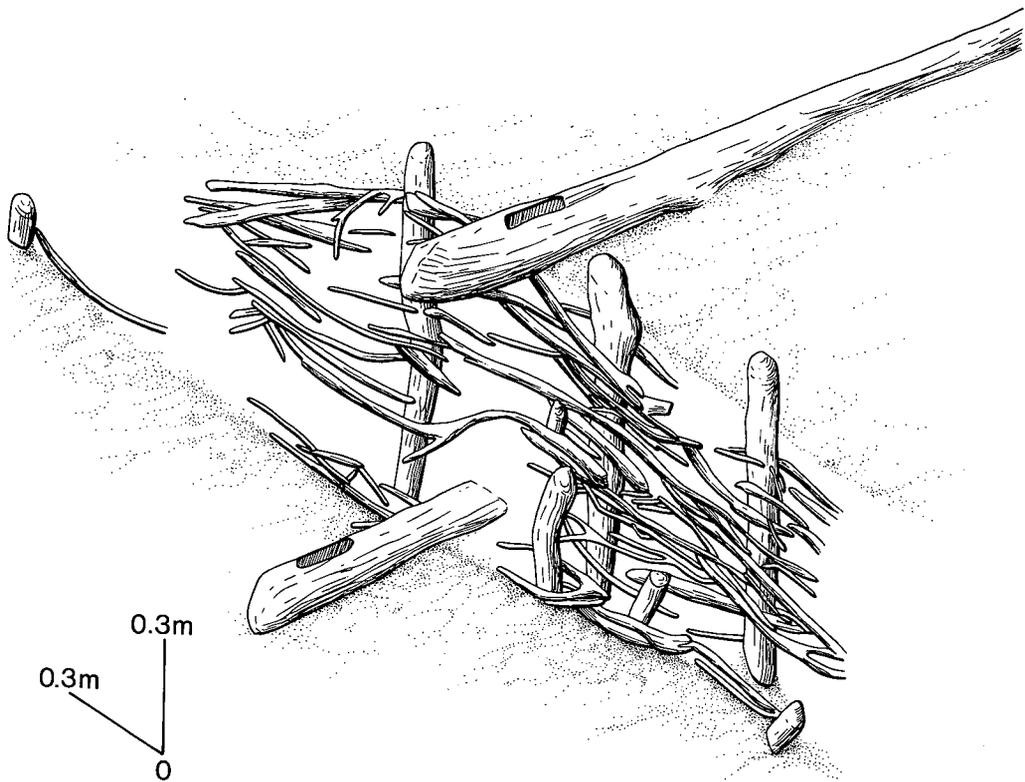


Fig. 10 Axonometric drawing of timber revetment.

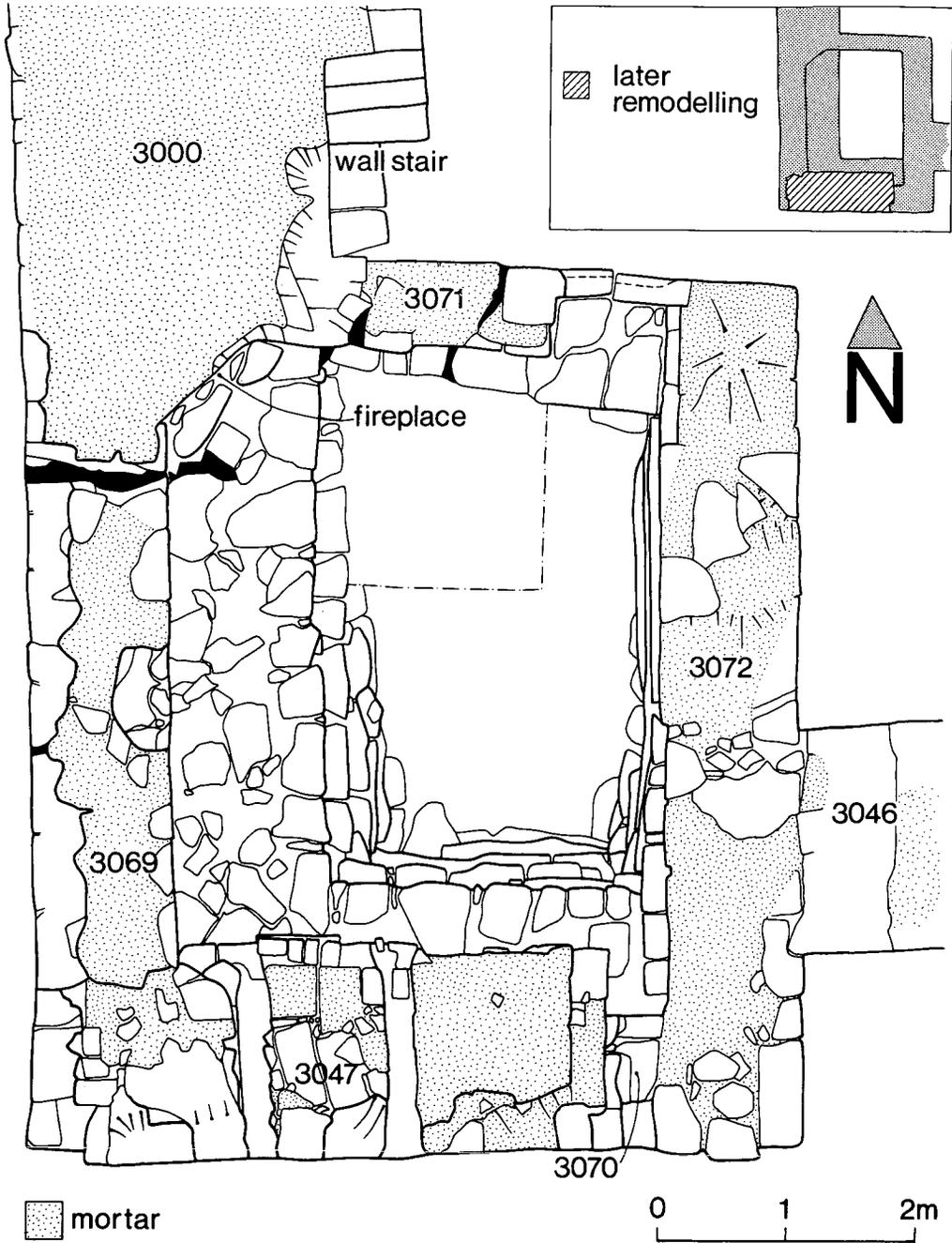


Fig. 11 Plan of Riverside Tower.

some distance north of the southern end. It is impossible to estimate the original height of the waterfront since it was truncated by the construction trench (1043) for the new stone-built river wall (3046). Its eastern extent could not be established as the structure continued beyond the limit of excavation.

In the area to the east of the town wall, above the possible strand 273, layer 260, a sandy loam containing a high proportion of coal fragments, appeared to be a large rubbish deposit. This layer was sealed by 253, a slightly sandy clay, which was cut at its southern end by 1040, the cut for the north wall of the riverside tower. Where layer 253 butted the town wall it was spread up the side of the wall and pushed into the joints between the ashlar.

Phase 4

The Riverside Tower and the return of the town wall eastwards, parallel to the river, represented a later addition to the main section of town wall (3000) already described. The construction trench (1041/1043) for these elements was traced on the north and east sides where it cut context 253 to the north of the tower, and both the timber revetment and layer 276 which lay east of the tower and to the north of the river wall (3046).

The tower lay mainly in the angle formed by the junction between the town wall and the river wall. The tower abutted and partially overlaid the southern end of the town wall and although both the tower and the river wall were of one build, the south wall of the tower projected 1.45m to the south (fig. 11).

The tower was rectangular in plan, measuring 6.54m (north-south) by 6.00m (east-west) externally. The walls of the tower, above foundation level, averaged between 1.02-1.10m wide, although the north wall was considerably thinner (0.74m). The south and west walls were set on very broad foundations (2.1-2.3m wide) which are offset internally a further 0.6m towards the base. The foundations to the north and east walls were considerably thinner (1.20m wide) although the latter did offset to 1.6m wide at the base. At foundation level both the north and south walls of the tower

abutted the west wall.

The lower part of the west wall (3069), as mentioned above, incorporated the south end of the town wall (3000) as its footing, but no change in build could be identified on the external (west) face. East of the butt joint on the south face of the tower, the wall comprised well dressed, coursed ashlar set above two consecutive chamfered plinth courses. The coursing of the stonework and the chamfered plinths were continued from the south wall of the tower, round the south-east corner and onto the river wall indicating an unbroken sequence of building.

North of the river wall the external face of the east wall of the tower comprised roughly dressed large rectangular blocks, suggesting that these elements were footings which would have been hidden below ground level.

At its west end, the north wall of the tower had fractured away from the west wall mainly as a result of settlement caused largely by the insubstantial nature of its foundation. At its east end the wall was pierced by a doorway, of which the sill and the western jamb survived. Both elements had plain chamfers externally while internally the sill formed a raised threshold and the west jamb was splayed with a square rebate. The eastern jamb, although largely robbed away can be positioned in the angle between the north and east walls of the tower. The door was hinged on the eastern jamb and opened into a shallow recess which survived in the face of the east wall.

In the angle between the north and west walls of the tower, signs of heat-reddening on the wall face and on adjoining fragments of flagging appeared to indicate the location of a fireplace. Later robbing had removed any vestiges of a hood, most of the hearth stones and any related floor surfaces. The oblique angle of the fire back suggested that this was a primary feature. No trace of the original floor surface (which was probably stone flagging) survived within the tower.

North of the tower the east face of the town wall (3000), was rebuilt to incorporate an external stair which rose against the face of the wall. A series of steps survived *in situ* and at

the base of the stair a small step was let into the wall face indicating the level of the ground surface immediately to the east of the wall.

East of the tower the river wall was initially uncovered over a length of 4.70m. A further 2.30m was subsequently observed to the east during redevelopment. The river wall measured c. 1.74m wide (N-S) and stood to a maximum of 4.42m high (fig. 12). Its south face had a minimum of two chamfers at its base, with finely dressed ashlar above. The lower 3m of stonework on the north face was more roughly dressed, presumably because it was intended to be below ground level. The wall core comprised large irregular sandstone fragments, bonded with a brown coarse sand mortar.

The line of the wall was subsequently traced for a total of 47m to the east of the tower, through a sequence of 1m wide machine trenches, excavated during development. The degree of preservation of the wall along this length was very variable, the profile recorded in trench 1, 34m to the east, being the most complete. No trace of the town wall was recorded in trench 2 which lay a further 85m to the east.

Phase 5

Following the construction of the tower, ground levels to the north were raised through the deposition of a sequence of layers. Immediately to the north of the tower these deposits (247, 235) survived fairly intact, and whilst adjacent to the tower they are more or less level with the threshold of the doorway, further north ground levels continued to be raised. The northernmost elements of these deposits (205) were heavily truncated by later features and were badly fragmented.

Phase 6

This phase is represented by a small number of contexts to the north of, and within, the tower. Feature 1023, the foundation trench for an east-west wall 3054, lay 1.2m north of the tower, and cut layer 122. The masonry, which appeared to be largely part of a wall foundation, butted the side of the wall stair on the east face of the town wall. In this position the wall may represent a division between the tower and the ground to the north, access to the tower being via the steps onto the wall walk.

Within the tower lay a sequence of thin and often patchy layers (250, 220, 202) which may represent occupation deposits (fig. 13). They

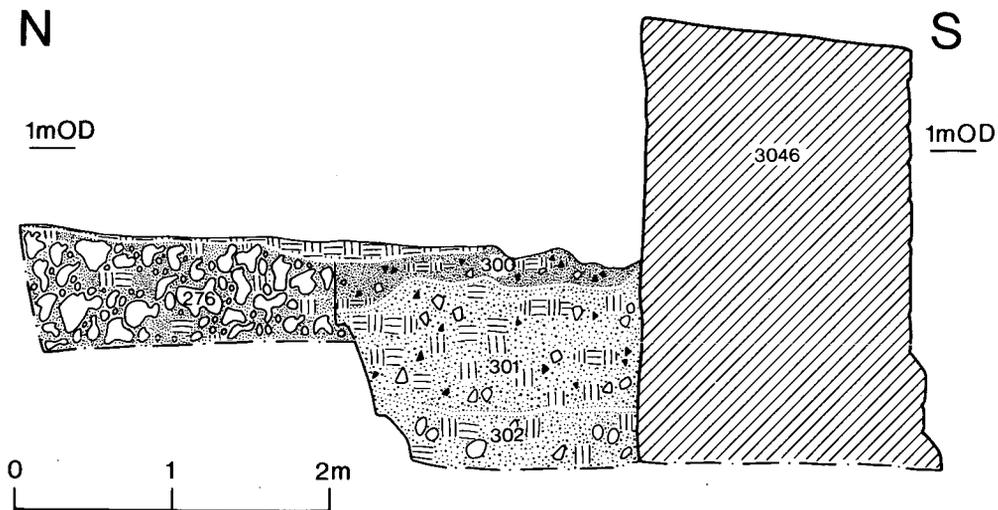


Fig. 12 North-South section across the Riverside.

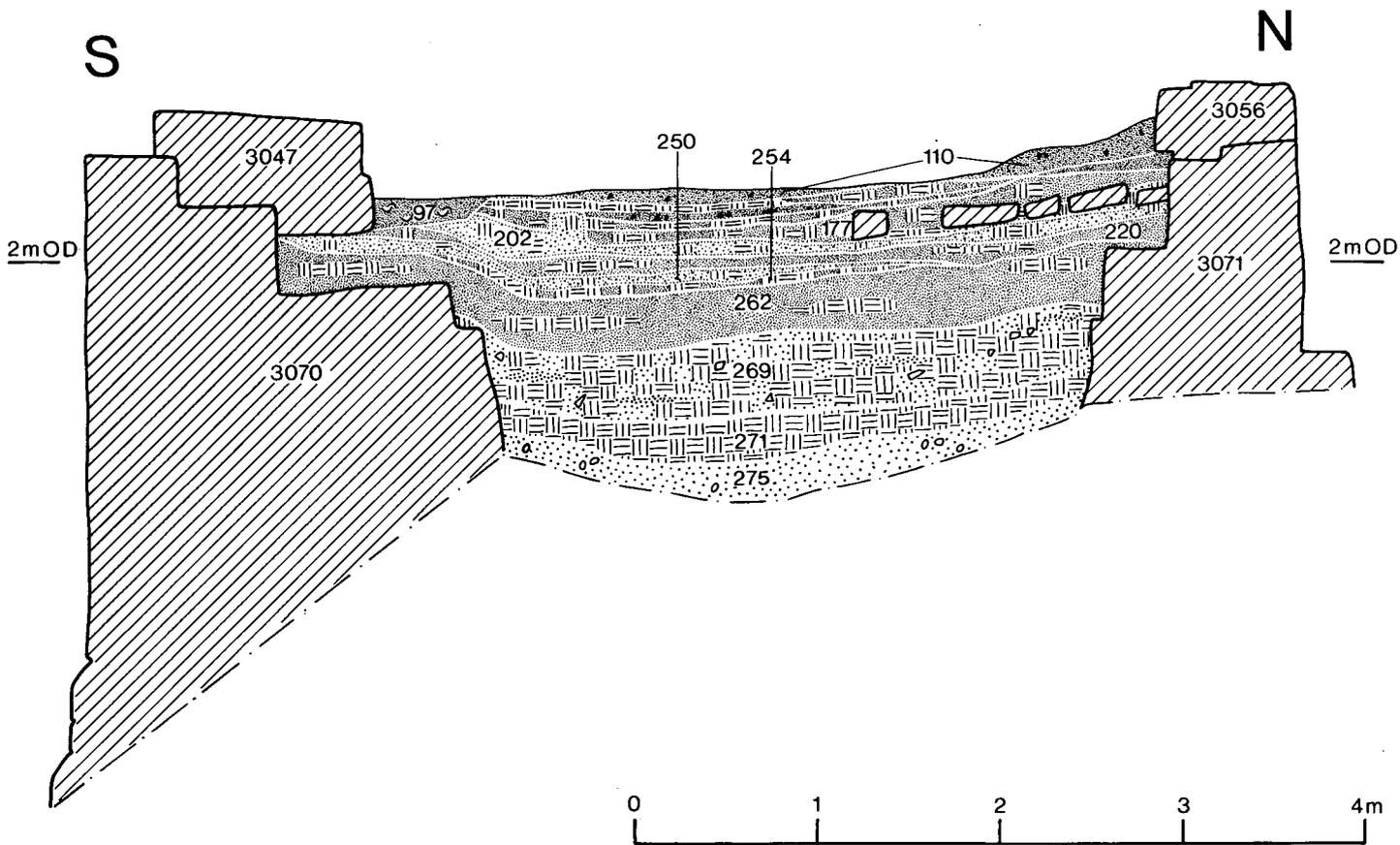


Fig. 13 North-South section through tower.

overlay, but also reflected the dished shape of the earlier fill deposits, and extended into the doorway area. The central area of layer **202** also formed a marked depression and may have been the remains of a heavily worn surface. A sandy clay containing flat sandstone fragments, **197**, lay in the north-east corner of the depression and may represent the remains of a flagged floor. Above much of **197** and covering most of the flagging were four other thin deposits (**177**, **184**, **178** and **174**).

Cut into the upper surface of layer **174** were a series of twelve stakeholes (**1034**). Most were vertical or near vertical. Eleven of the twelve run in a roughly north-south line from the south-west corner of the doorway, the six southernmost being grouped in pairs (fig. 14a). The twelfth stakehole is not on this alignment but sits close to **3071** and to the west of the northern end of the alignment. None of the stakeholes contained fills or the extant remains of stakes but were voided suggesting that the stumps of the posts they contained had rotted *in situ*. The stakeholes were part either of a screen or partition, shielding the doorway from the body of the chamber. The stakeholes were sealed by a series of thin silt and clay spreads which represented a later floor or floors within the tower.

Phase 7

Within the tower the demolition of the north wall was represented by a layer of crushed sandstone and mortar fragments (**121**) which overlay the top of the medieval wall (**3071**). Feature **3056**, a small group of unmortared stones sat on top of this demolition layer and partly within the space of the earlier doorway. This feature may have been truncated by the east wall of the later warehouse, but it did not extend any further westwards. On this evidence it seems unlikely that the north wall of the tower was rebuilt and the structure must have therefore been ruinous from this date. Context **110**, a compact layer of black sandy loam, extended from the area to the north of the tower across the layer **121**, into the tower to form the latest surviving "floor" layer within that structure (fig. 14b).

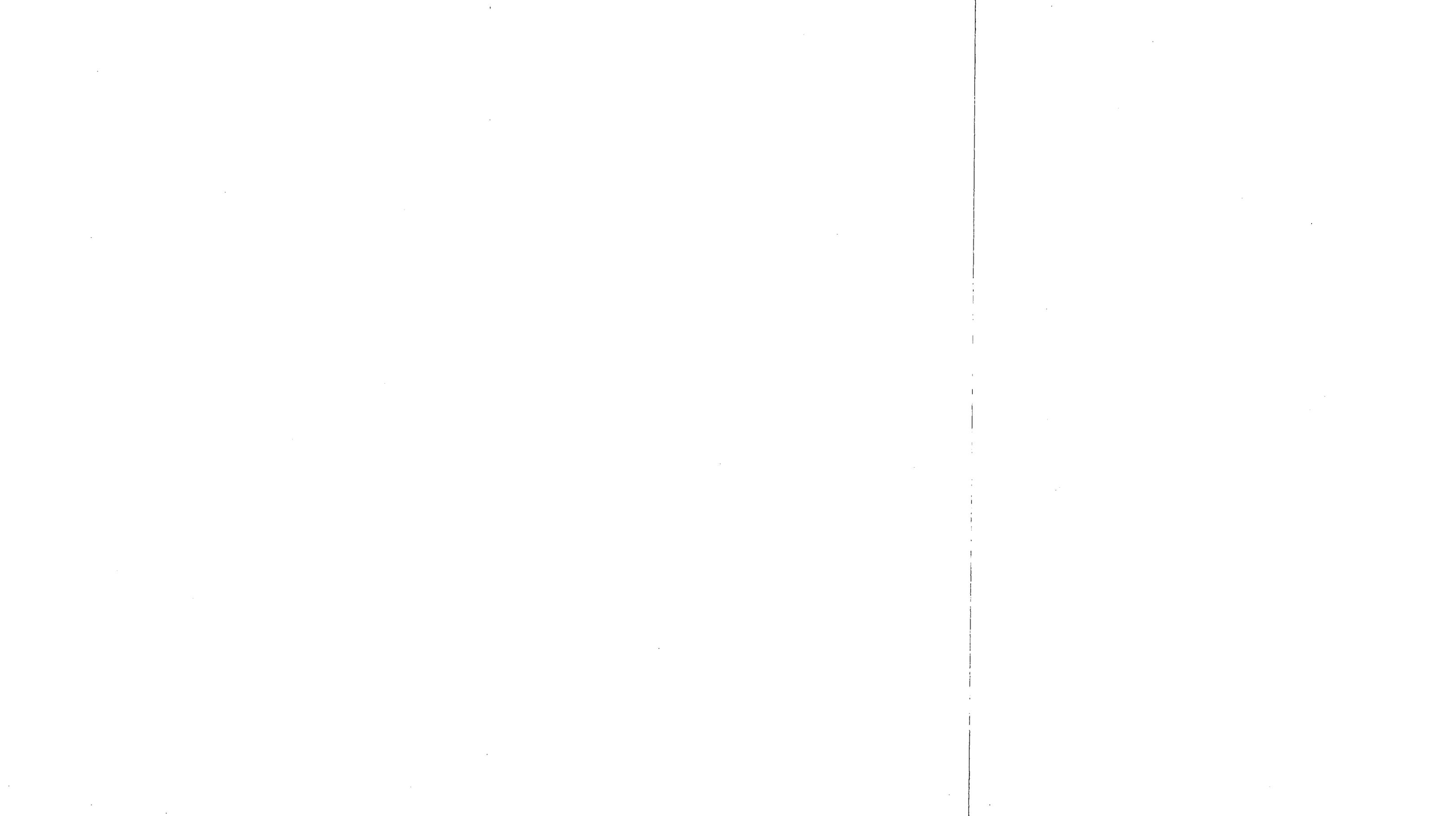
The top of the east wall of the tower was truncated by the east wall of the later warehouse and it is impossible to say whether or not it too became ruinous at the same time as the north wall. However, a document of 1835 (NRO ZCK 1/1/6) contains a plan which shows both the north and east walls as having disappeared by that date.

At some point after the north wall of the tower became ruined the south wall was substantially rebuilt. The construction trench (**1016**) was cut through the latest floor (**110**) and a much broader wall (**3047**), measuring 1.7m wide was built on top of the earlier foundation re-using the same masonry and bonded with white lime mortar. The wall was pierced by six slots which must have anchored timbers supporting a projecting wooden quay to the south of the tower. The slots measured 0.26 by 0.26m in section and ran the full width of the wall. This wall remained extant until the construction of the warehouse in 1867.

To the north of the tower an L-shaped wall fragment (**3009**), a series of brick built bases (**3048**, **3049**, **3050**, **3051**, **3052**, **3053**), and a north-south wall (**3004**) 6.5m to the east of the town wall, would appear to have formed elements of a large building. This structure, which abutted the Town Wall to the west, extended from the street on the north to a point 3.3m north of the tower and may have been the malthouse mentioned in late 18th-century documents. The north end and the eastern half of the building was completely destroyed by the walls of the 1867 warehouse.

Feature **1022**, the construction trench for the southern wall of the structure (**3009**), truncated a sequence of earlier dump deposits and appears to have been associated with extensive terracing (lowering) of ground levels to the north. A series of eight square, brick built bases set on sandstone footings were constructed in shallow rectangular pits cut from the base of this terrace. These structures were set approximately 3.2m apart in a line parallel to the town wall and probably represent joist supports.

In a second phase, the building was substantially altered internally. The brick bases



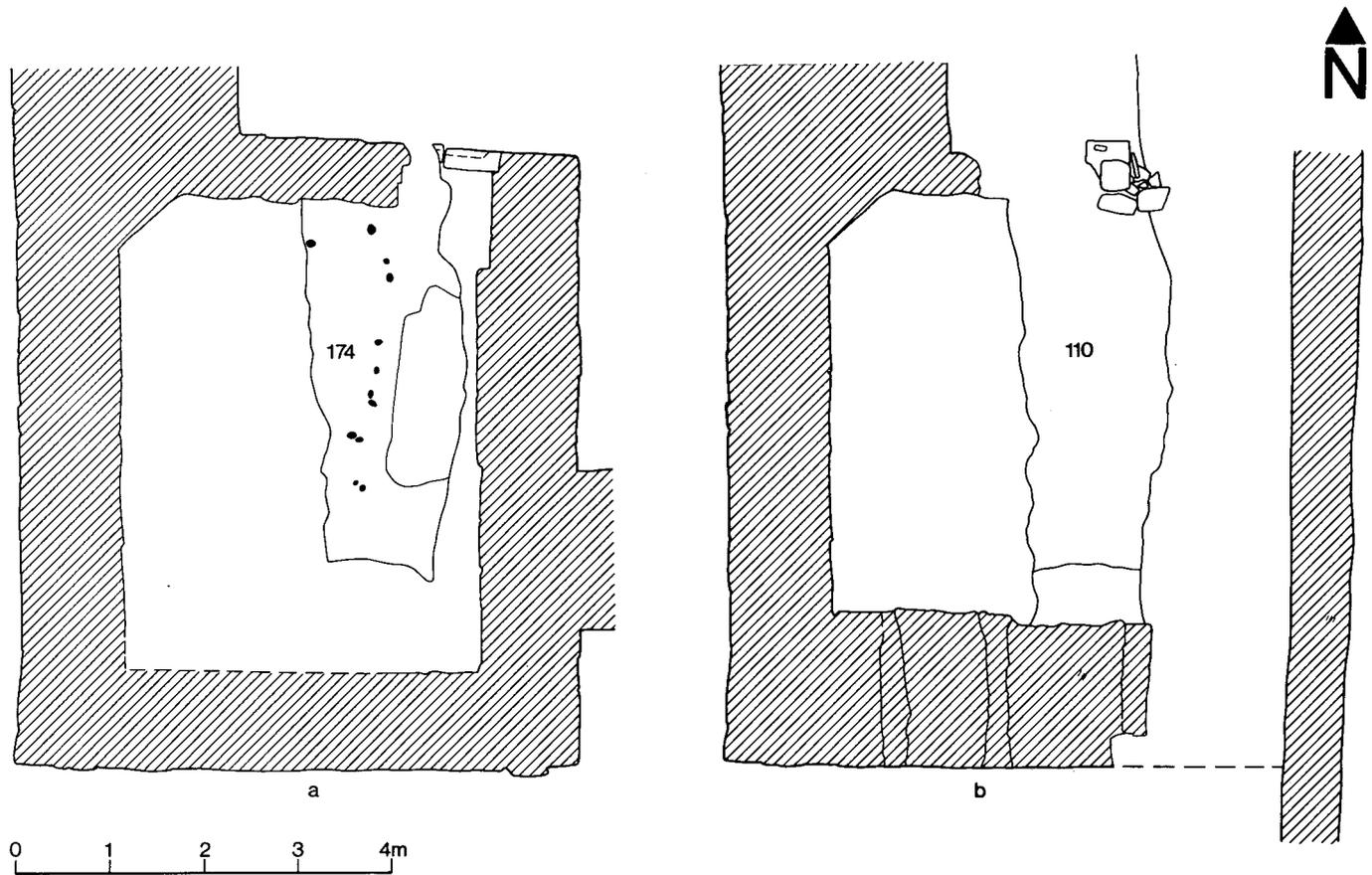


Fig. 14 Tower plans: (a) Phase 6, (b) Phase 7.

were covered by a sequence of mixed deposits which formed the make-up for a metalled surface. This survived in a very truncated form and was recorded as a number of separate sections. The surface butted against the town wall to the west and was truncated on the east and to the north by the walls of the later warehouse. The metalling was comprised of a variety of materials including brick, sandstone fragments, flagstones, and rounded river pebbles set in a slightly sandy silt and clay matrix.

In a third phase the structure was split into six bays by a series of brick walls which ran east–west between the town wall and the east wall of the building (3004). These walls (3010, 3016, 3027, 3036, 3037) were cut through the earlier metalled floor, which was then repaired and remained as the floor surface within the building.

Phase 8

Following the demolition of the phase 7 building and the town wall, a large building was constructed on the site. This structure for which deposited plans exist (Twas T186/2243) was a five-storey warehouse built in 1867, which fronted the Close to the north and the river to the south. The building had three aisles, divided by two rows of north–south columns which were supported on continuous masonry foundation walls. The base of the town wall was retained to form the eastern column foundation. The south end of the building was formed by a new river wall set 7.0 m to the south of the tower.

AREA 2: WEST OF THE TOWN WALL

The excavated area was very narrow and although a section approximately 28.8 m long north–south was recorded immediately west of the town wall (fig. 15), the excavated area measured only 0.5 m in width, which made the recording of east–west sections impossible. The deposits to the west of this narrow strip were truncated by two large foundation walls associated with the mid-19th-century warehouse which straddled the site. Consequently, while the profile of deposits north–south has been

fully recorded, the east–west profile of these same deposits is a matter for some conjecture.

Phase 3

To the west of the town wall the earliest deposits comprised a series of sandy loams (309, 272/274 and 267) which butted up against the Town Wall itself and partially overlay the protruding footings. No foundation cut for the town wall was identified and it seems probable that initially after construction the footings were left to be covered by river sediments, although the quantities of finds within the latter two layers suggested that rubbish was being dumped here too. Layer 267, comprised mainly of smooth river cobbles, and measured 0.08–0.30 m thick. The upper surface of the layer was traced for the full length of the section and may represent the formalization of the riverbank to the west of the wall, possibly as a strand.

Phase 4

No deposits equivalent to those associated with the construction of the Tower were encountered west of the Town Wall.

Phase 5

The cobble layer 267 appears to have remained as a surface for some time as the deposits which build up over it contained finds which appeared to be significantly later in date. The layers immediately above 267 (236/255, 231/243, 219, 216/152), contained relatively few finds, and the presence of very distinct sand and coal lenses within them suggested that the river had played the major role in their accumulation. Layers 225 and 266 at the north end of the section contained significantly more finds and which may be attributable to their proximity to the gate and the road.

While cut from higher in the section, trench 1004 marks a distinct break between the deposits to the north and south of it. It seems likely that this feature represents the robbing of a masonry structure, possibly a retaining wall. To the north of it layers 210, 201 and 190 appeared to be quite different in composition to 211, 204, 203, 200, 198, 194, 189 to the south

of it. This difference is evident in the contrast in the soil matrices between the two groups. While those to the north are all sandy loams, those to the south are more sandy with heavier concentrations of gravel and subject to distinct banding, which is probably indicative of water action.

Context **180** could be identified to the north and south of the "feature" robbed out by **1004**, and it may be that it became redundant from this time, although it was not robbed until phase 8. A small sequence of deposits then built up to the south (**188, 185, 183, 179**).

Phase 6

In this phase deposits continued to accumulate against the town wall, sloping from north to south, i.e. towards the river. Layers **175, 171, 95, and 161** were principally a group of silty sand lenses covered by a thin spread of white mortar.

The whole of the southern half of the sequence was then truncated by feature **1031**, which marked the construction of a large masonry wall, aligned east-west, which butted up against the town wall. This structure which was faced on the south side, but not to the north was constructed torevet those deposits to the north of it. To the south a large inlet or tidal dock had been effected by the removal of over 1.25m depth of deposits. It clearly represented an attempt to create an inlet on the west of the wall, and in the light of the 18th-century date of the finds in the associated layers, this could be a wall of the barge house made reference to in the early 19th century.

A small depth of deposits accumulated to the north of wall **3045**, (**145, 141, 138, 136 and 98**). These are generally quite sandy, but the range of 18th-century finds which they contained and the dearth of residual materials suggests that they are not the upcast resulting from the emptying of the area to the south of wall **3045**. The presence of large quantities of glass suggested that ground levels were being built up largely through the tipping of waste possibly from the nearby glasshouses in The Close.

Phase 7

The inlet appears to have been reduced in size by the placement of a post and plank timber revetment (**2001, 2002**), 9m to the south of **3045**. This structure retained a thick sand and pebble layer (**96**) which completely filled the intervening space. In the early 19th century the space to the south of the timber revetment was filled in, and the inlet went out of use. This event probably occurred sometime after Cookson obtained the lease on the premises from the town in 1823, when he received a licence to demolish the barge house of which this is likely to have formed a part.

THE FINDS

Finds from other Newcastle upon Tyne excavations may be referred to in abbreviated form as e.g. *Ditch 4*, or *Blackfriars 19*. The key to these excavations is at the beginning of the bibliography. Context numbers are given in square brackets with phase given where appropriate thus: [ph.6/141] with W, E or T indicating west, east or tower, and * indicates item is not illustrated. Because the animal bone assemblage from the site was not large, the material was analysed together with the assemblage from the Mansion House site and the results have been incorporated into the subsequent report on that site (Fraser, forthcoming) as the combined assemblage was thought to produce more statistically viable conclusions.

THE POTTERY

J. E. Vaughan

The pottery assemblage provides a sequence from the early 14th through to the 19th century, although by no means evenly spread. Buff white wares made up about 14% of the total assemblage from the site with an estimated 140 vessels. They are dominant in the first two phases, which would accord with phases 3 and 4 in the Castle Ditch (Ellison 1981, fig.6) but the quantities are small. The later reduced

Table 1 Analysis of pottery assemblage by phase (quantities expressed as percentages)

WEIGHT	PHASE	COUNT
19	8	13
17	7	11.5
9.5	6	19.5
34.5	5	37
3	4	3
14.5	3	12.5
0.5	2	0.5
1	1	1.5

greenwares made up 40% of the total assemblage (approximately 200 vessels), nearly two-thirds of this coming from phase 5. However, phases 3 and 5 show a gradual increase relative to the buff white wares rather than the abrupt change to dominance seen in the Castle Ditch. More noticeable is the abrupt falling off of these later reduced greenwares in phase 6. This would seem to reflect the lack of deposits representing large scale dumping of domestic rubbish during the 16th and early 17th centuries. This is also indicated by the absence of reduced greenware type 5 and the relative scarcity of some other types (e.g. Cistercian

Table 2 Analysis of occurrence of main fabric groups by phase

	PHASE	1	2	3	4	5	6	7	8	WEIGHT IN KG
Early Reduced Greenware		18	1	3	11	0.5	1	1	1	2.6
Buff White Ware		73	64	37	32	6	12	4	3	21.7
Later Reduced Greenware		3	6	44	51	75	17	6	16	63
Scarborough Ware		2	29	✓	1.5	✓		✓		0.5
Low Countries Red Ware				1	2	12	10	2	4	9.8
Rhenish Stonewares				1	1.5	3	3	1	1	2.9
French Whitewares				✓	✓	1	✓			0.5
English Redwares						✓	42	11	6	11.5
Cologne Frechen						✓	2	✓	✓	0.4
17thC English Whitewares							2	✓	✓	0.5
Later Red Earthenware								48	42	26.5
White Glazed Earthenware & Porcelain								12	14	7.5
TOTAL WEIGHT IN KG OF ALL POTTERY IN PHASE		1.3	0.9	22.6	4.5	54.3	14.8	26.9	30.3	

ware, early Blackware, Weser). Phase 6 also produced a fairly large quantity of residual and abraded material.

Table 1 shows the proportion of the total assemblage from each phase by sherd count and weight. Over a third of the assemblage came from phase 5 and less than 2% from the first two phases. The discrepancy in phase 6 is particularly noticeable and results both from the greater fragmentation of the material and the presence of thin walled, easily broken types such as Cistercian ware and the English white-wares. For Table 2 twelve fabric groups only are represented; chosen as the most predominant or significant elements in the assemblage. They are compared by weight only. One square represents 100% and the actual percentage of each type per phase is included.

LOCAL WARES

Dog Bank Type (Bown 1988)

Fabric 1?: Four coarsely gritted sherds in a pale buff fabric. One from [ph.3/260] had green glaze on the exterior surface, there was a base sherd from [222]. Two others were from the trial trench to the east of main excavation.

Fabric 2: Two sherds of a coarsely gritted reddish-yellow fabric—one found in the north-east corner of the site [304], and one in [ph.3/260]. The sherd from [260] appears to be part of a handle.

All these occurrences are residual.

Buff White Type

These wares were initially divided into Buff White wares as originally identified and defined by Margaret Ellison, in the Castle Ditch report (Harbottle and Ellison, 1981), and "Orange" wares. Both these groups, however, contained hard-fired mid- and dark grey fabrics. Further study of the assemblage, and reference to the material from the Castle Ditch, suggested that these two groups were too closely related to be treated separately and they are grouped together here.

The majority of the Buff White wares found on the site were pale grey with buff exterior

margins and often a red-brown exterior surface where not glazed. There were very few sherds of the softer, pinkish, fabric. The "Orange" ware was a light red-brown, sometimes streaked with a lighter clay. Various sizes of red and black iron oxide inclusions are typical of both the wares. Many have occasional medium and large opaque white inclusions (quartz aggregate) as well as fine and medium quartz grits. Some of the over-fired sherds were a purplish grey with no inclusions visible apart from black flecks of iron oxide. A sherd of "orange" type from [ph.3/267] was stuck by green glaze to a sherd of a coarsely gritted mixed grey fabric, probably the same clay but unrefined.

Because the fabric varies so much brief individual fabric descriptions are given for the catalogued vessels in this section.

Jugs seemed to be the most common form (31 vessels, with 4 possible jug bases) but many of the vessels were identified by only small fragments of rim. There were 14 cooking pot/jars, while 26 vessels were represented only by handles or fragments of handles. Amongst the 50 bases there were at least four large storage vessels. The vessels within the form groups are presented in the order in which they appeared on the site.

Cooking pots/jars: 14 vessels, Nos 1-11 below also 2 as *Ditch* 4 and one as *Ditch* 5 from phase 3 contexts.

- 1 Buff fabric with no large inclusions, light brown surfaces and a patch of yellow glaze inside. Similar to *Queen Street* 128. [ph.1/249]
- 2 Orange buff fabric, unglazed except for very small spots. [ph.1/242]
- 3 Coarse orange buff fabric with some large quartz aggregate inclusions. Sooted externally. Similar to no.1. [ph.2/305]
- 4 Light pinkish orange with a few very small specks of glaze and a patch of sooting. [ph.2/305]
- 5 Coarse orange buff with dark red sur-

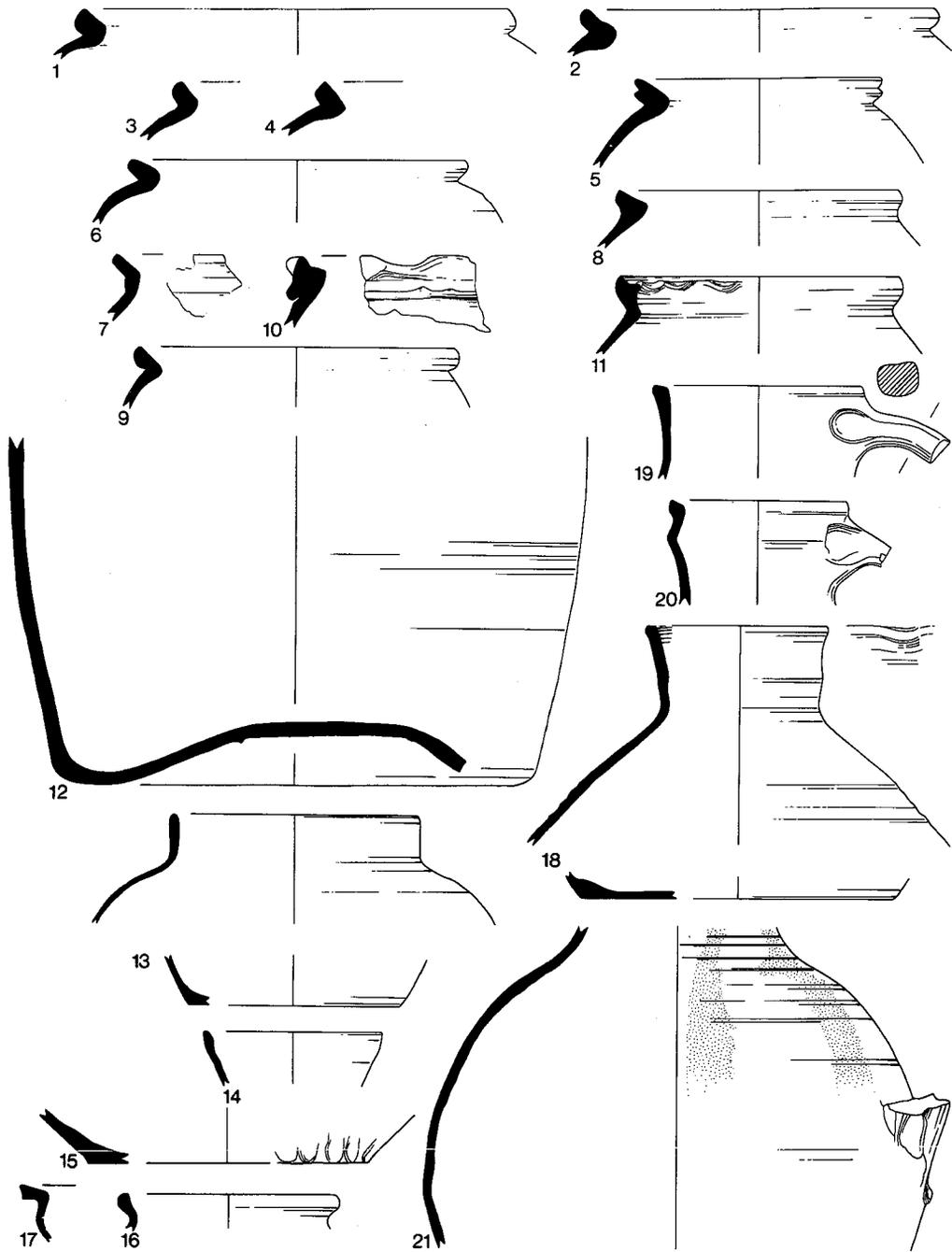


Fig. 16 Pottery: nos 1-21 (scale 1/4).

faces. Unglazed. [ph.2/305]

- 6 Buff white with light red external surface and grey internal. Unglazed. [ph.2/134]
- 7 Coarse buff fabric with light brown surfaces, unglazed. [ph.3/272]
- 8 Orange buff fabric with red brown surfaces. Sooted externally, small patch of green glaze inside. [ph.3/286]
- 9 Orange buff coarse fabric with thin reduced core, unglazed. [ph.5/48]
- 10 Orange buff coarse and hard fired with dark red external surface and brown internal surface with patch of green glaze. [48]
- 11 Orange buff fabric, sooted externally. Similar to *Ditch 36* though this did not have the finger impressions and was a reduced greenware form. [ph.8/25]

Other Hollow Vessels/Jars: Nos 12-17

- 12 Base of a vessel deformed in firing with the scar of the rim of the vessel it was standing on in the kiln. On the underneath of the base are patches of greenish glaze and a red brown surface. On the joining sherds further up the side the glaze becomes purple/brown and cracked. [ph.3/286]
- 13 Rim and base possibly the same vessel, base knife trimmed. Thin glaze gives a purplish brown sheen to the exterior surface. Where the glaze is thicker it becomes green/mottled brown. [286]
- 14 Orange buff type hard fired. [ph.3/261]
- 15 Base with finger tip impressions round. Buff fabric with light grey internal margin and light brown external surface. Unglazed. [ph.4/269]
- 16 Buff fabric with pink surfaces, unglazed. Similar to *Queen Street 125* [ph.5/218]
- 17 Small rim sherd. [ph.5/215]
- 18 Orange buff fabric, hard fired with occasional large inclusions. [ph.1/249]

Jugs Nos 19-23

- 19 Rim and rod handle of similar form to *Ditch 9*, there were 5 others of this form. [ph.2/134]
- 20 Hard fired with small traces of glaze under the handle. [ph.3/272]
- 21 Light orange fabric, external margins reduced to light grey. Glazed externally a slightly speckly green, with an unglazed patch. Broad vertical brownish stripes of iron staining. A small fragment of a rim with spout, unglazed, may be the same vessel. [ph.3/186]
- 22 Orange buff hard fired. Light red/brown margins, buff exterior surface. Spots of glaze which become cracked higher up side of pot. [ph.3/182]
- 23 Rim and half handle. [ph.4/262]

Other Forms: Nos 24 and 25

- 24 Chamber pot type rim in very pale fabric with splash of copper green glaze. [ph.8/224]
- 25 Hard fired grey fabric with frequent iron inclusions. Possibly a dripping pan, see *Queen Street 184*. [ph.5/217]

Reduced Greenware Type

The Reduced Greenwares in the Castle Ditch report (Harbottle and Ellison 1981), were divided into six types. The three early gritty fabrics only occurred in small quantities on the site as did the oxidized gritty fabrics. As there are no significant distinctions in dating or fabric between these four types (see Ellison 1981, p.105 and Bown 1988, p.52) they have been grouped together here. The later Reduced Greenwares were divided at first simply on colour: the standard Reduced Greenware type 4, dark grey wares with no visible inclusions; and grey wares with buff or light red oxidized surfaces. Unfortunately no significance, beyond erratic firing conditions, could then be assigned to this distinction although it remains in the archive. Types 5 and 6 were not identified on the site.

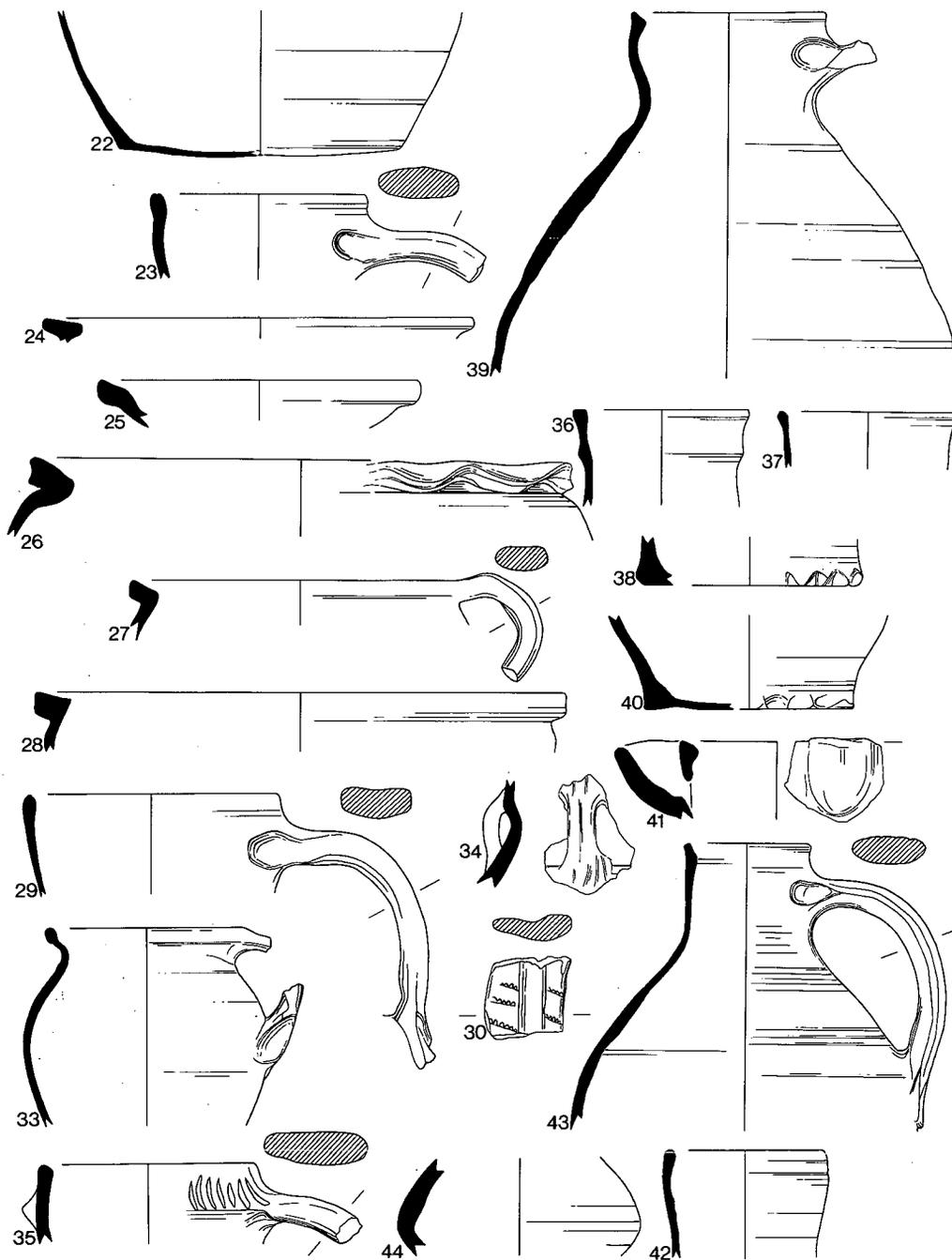


Fig. 17 Pottery: nos 22-44 (scale 1/4).

*Early Gritty Wares: Nos 26-33**Cooking Pots/Jars: Nos 26-8*

Although the fabrics are different the cooking pot forms would appear to be part of the same tradition as the Buff White wares in the first group. Two of the examples illustrated are similar to forms illustrated in Fig. 22 of *Queen Street*.

- 26 Large vessel similar to *Queen Street* 151 and 152 and there called Dairy Pans. Patch of sooting on rim, small patches of crackled glaze. [ph.1/242]
- 27 Cooking pot/jar. Oxidized fabric with occasional quartz grit. Patch of green glaze. [ph.2/134]
- 28 Cooking pot. Patches of sooting externally, glazed internally but abraded. Also similar to forms illustrated in *Queen Street* as Buff White wares. [ph.3/286]
- 29 Rim and strap handle with no grooves. Mid grey fabric with oxidized exterior surfaces and patches of green glaze. Similar to *Ditch* 29. [ph.3/278]
- 30 Fragment of strap handle with short rows of stabbing see *Queen Street* 89. Whitish margins, grey core, green glaze on outer side. [ph.4/262]
- 31* Fragment of very small handle, cross section 16mm by 10mm, with patch of glaze. [ph.5/239]
- 32* Body sherd with fragment of small handle attached. Handle is in dark grey gritty fabric with red-brown surface. Body sherd appears to be a lighter fabric like the "orange" wares of the previous section, light grey with light orange inner surface. [ph.5/222]
- 33 Finely quartz gritted fabric with grey core and oxidized orange buff internal surface. External surface red-brown with a patch of green glaze and some sooting. [ph.8/51]

Later Reduced Greenware: Nos 34-43

- 34 Small handle for hanging, see *Ditch* 105. [ph.3/260]
- 35 Rim with strap handle with incised grooves. Handle attachment possibly the same vessel. Another rim like this in [251]. [260]
- 36 Jug rim with cordon round neck, see *Ditch* 29. [260]
- 37 ?Jug rim. [ph.4/300]
- 38 Pinched decoration round base, oxidized internally. [ph.5/210]
- 39 Cistern, similar to *Ditch* 45 but only one handle. Bottom of handle oxidized. [ph.5/201]
- 40 Base sherd. [ph.5/247]
- 41 Bridge spout. [ph.5/205]
- 42 Jug or cistern. Sandy fabric with occasional quartz grit. [ph.5/208]
- 43 Cistern. [ph.5/208]
- 44 Money box fragment with bit of red-ware stuck to it. Glossy green glaze with black specks. [ph.5/208]

Oxidized Fabrics: No. 45

Completely, or nearly completely, oxidized fabrics otherwise similar to the later reduced greenware type occurred as a small percentage of the total. In a similar fabric were a few sherds, mostly unglazed or with patches of glaze, of small thick walled vessels. They occurred in both pre- and post-Tower contexts.

- 45 ?Money box. Few small spots of glaze. Knife trimmed round lower half and with wire marks on the underneath of the base. A similar base from Tower [262] has the same wire marks. [ph.3/287]

NON-LOCAL WARES

Scarborough Ware: Nos 46 and 47

Only 36 sherds were identified, 9 of them were from one vessel.

- 46 Rilled jug in Phase 2 fabric. This design is specific to rilled jugs (Bown 1988, no. 55). [ph.2/172]
- 47 Horizontal handle. [ph.4/300]

- 48 Rim and handle. [ph.3/267]
- 49 Rim. [ph.3/260]
- 50 Rim. Similar forms at King's Lynn (Clark and Carter 1977, fig.102, nos 3, 4, 5), also see Chapelot 1983, fig. 5-2. [ph.5/247]
- 51 Rim and broad strap handle with faint incised pattern. [ph.5/201]

Non-local Whitewares

A few sherds of a sandy whiteware were found in medieval contexts, possibly an early Southern Whiteware. No forms were identifiable.

CONTINENTAL IMPORTS

?French Whitewares: Nos 48–51

This small group (49 sherds, 551 grms) was less than 0.5% of the total assemblage. The fabric is fine, micaceous and off white with occasional fine and medium quartz grits. Some of the sherds have spots or patches of green glaze. Four of the nine form sherds were detached strap handles.

Early Stonewares:

Sieberg: Nos 52 and 53

- 52 Simple rim and handle. [ph.5/217]
- 53 ?Biconic jug. Rim and base possibly the same vessel. 1350–1450 see no.260 in Beckman (1974, fig. 14). [ph.5/215]

Langerwehe: Nos 54–8

- 54 Frilled base. Mid grey fabric with buff

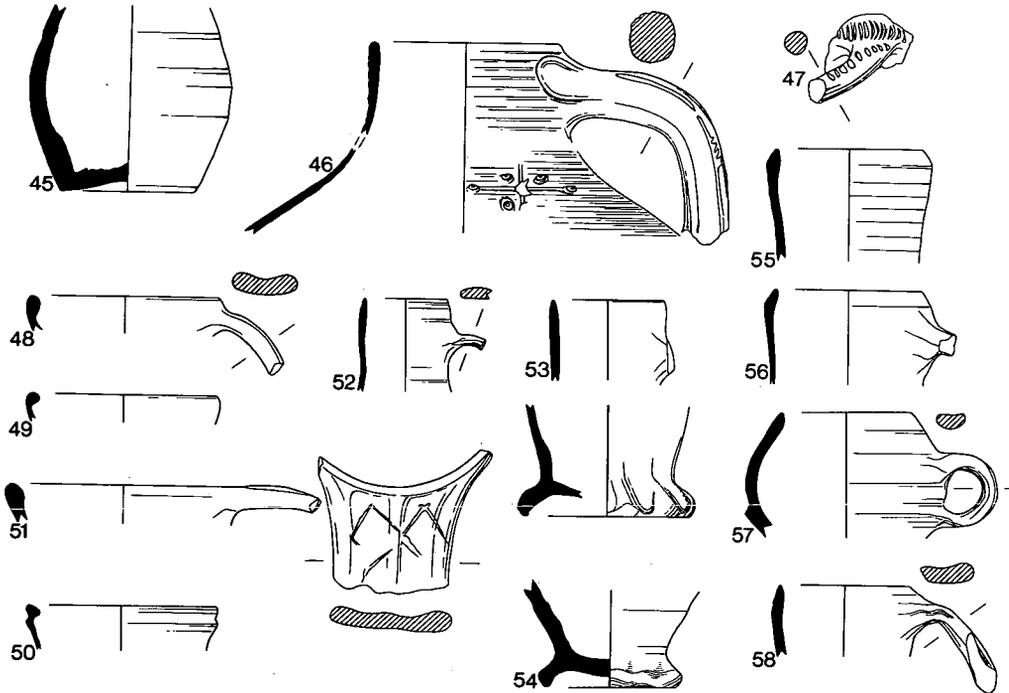


Fig. 18 Pottery: nos 45–58 (scale 1/4).

- core, brown speckled exterior surface, interior pink/buff unglazed. [ph.5/247]
- 55 Bevelled rim. Exterior surface iron washed and glazed, interior washed. [ph.5/222]
- 56 Bevelled rim, beige fabric grey interior margin with surface iron washed light brown. Exterior speckled brown glaze. [ph.5/216]
- 57 Simple rim. Mid grey fabric, grey and brown glazed exterior, interior patchy buff and brown. [ph.5/180]
- 58 Bevelled rim with grooved handle. Buff fabric with grey margins, shiney grey mottled exterior, trace of iron wash on interior. [ph.5/224]

Low Countries Redwares: Nos 59-79

Cooking pots:

- 59 Trefoil foot. These were common by the 14th century (Hurst *et al.*, 1986, p.130). [ph.5/301]
- 60 Collared rim in buff orange fabric, unglazed. In the material from the Castle Ditch this form first occurs in the 15th century (Ellison 1981, p.134) *Castle* 168 is similar. The fabric is unlike the majority of the Low Countries redwares but two vessels from *Ditch* (171 and 248) also have a paler buff fabric with only splashes of glaze. The same form in greyware occurs in [ph.5/208]. [ph.5/247]
- 61 Rim with lid seating similar to *Ditch* 163 and 164, a 15th-century form. Externally sooted with the upper part glazed. There are splashes of glaze round the rim internally. [ph.5/201]
- 62 Cooking pot with rather angular flattened handle, unglazed and sooted. The handle and lack of glaze suggest an early form, probably early 15th century. [ph.5/180] A similar flattened handle occurred in [ph.5/201].
- 63 Unglazed rim with finger impressions round which suggest a date in the sec-

- ond half of the 16th century (Ellison 1981). [ph.7/94]
- 64 Collared rim with flat lid seating, similar to *Ditch* 171. Some sooting. [ph.8/11]

Frying pans:

- 65 Greenish brown slightly speckly glaze over base and unevenly up sides inside with traces on external surface. Rim sooted on one side. [ph.5/247]
- 66 Similar to above. [247]
- 67 ?Frying pan. Sooted, splashes of glaze internally. [247]
- 68 Rim similar to *Ditch* 194 (late 14th/15th century form). Glazed over base and partly up side. [ph.5/235]
- 69 Orange red fabric partly reduced inside, making glaze greenish on side and orange on base. [ph.5/217]
- 70 ?Frying pan. Simple rolled rim. [217]

Other vessels:

- 71 Possibly a pitcher with four pulled feet (see Jansen 1983, p.163). The feet were replaced by a continuous base ring in the 15th century. Dark brown speckly glaze inside, sooted on the bottom. [ph.3/260]
- 72 Dish rim. Splashes of glaze on the flange. [ph.5/235]
- 73 ?Jug rim. [235]
- 74 Sooted vessel with glaze along rim. [ph.5/190] There were two very similar rims in greyware also in phase 5.
- 75 Dish rim with full cover of greenish glaze. [ph.5/188]
- 76 ?Dish with pulled foot. Unglazed but with a white slip on inside surface. Outside surface a matt grey. The fabric is light red sandy. [ph.6/196]
- 77 Cup. Fragment of rim and handle with traces of slip decoration inside and out but surface very abraded. The only glaze remaining is on top of the rim and handle and inside rim. A North Holland

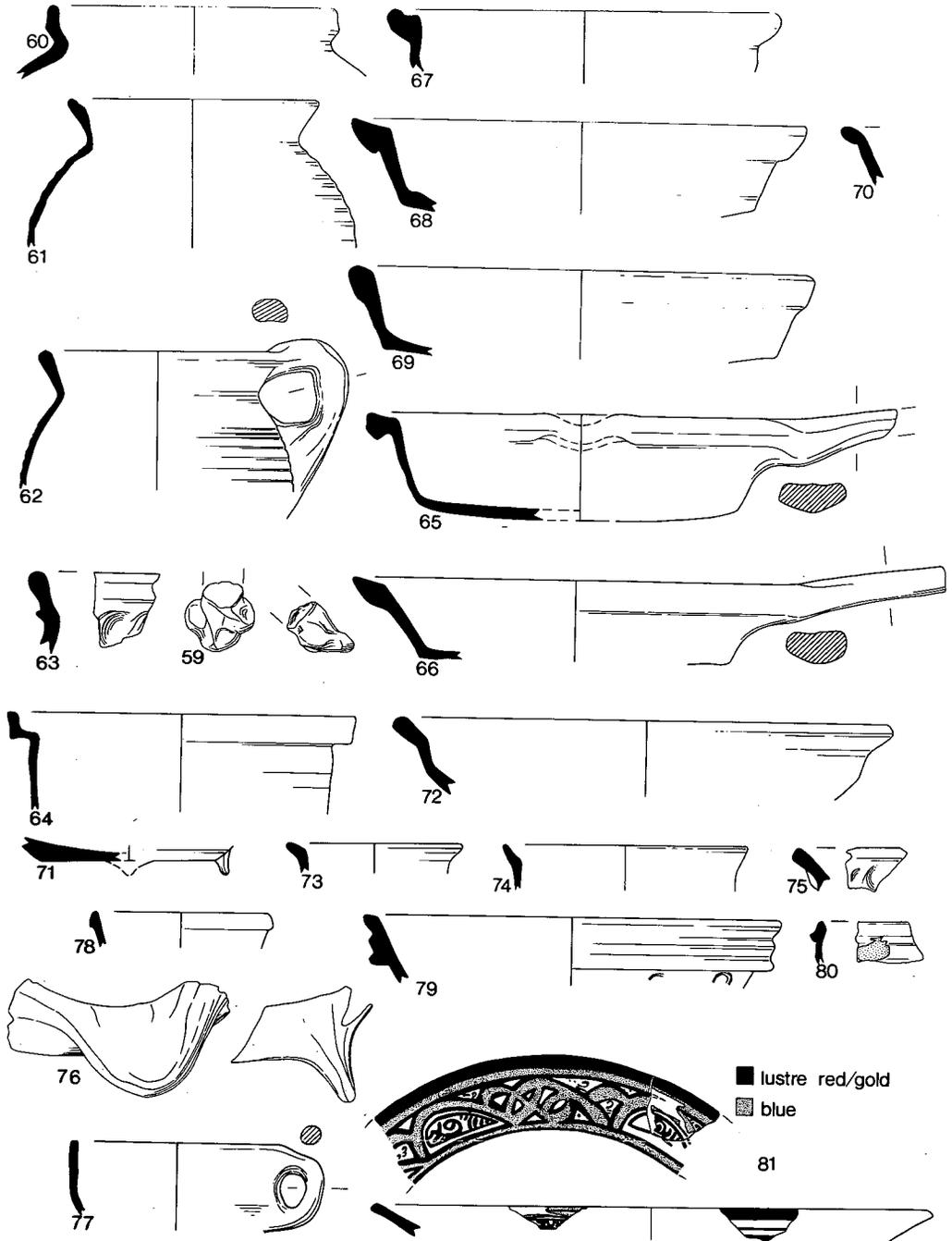


Fig. 19 Pottery: nos 60-81 (scale 1/4).

- product of the 17th century (Hurst et al. 1986, fig. 81, no. 247). [ph.6/95]
- 78 ?Jug. Small rim sherd with patchy glaze. [ph.7/4]
- 79 Collander rim. Full cover of yellow/brown glaze though patchy on exterior surface. [ph.8/5]
- 80 ?Low Countries. Sandy light red fabric with darker exterior surface with splashed glaze covering a small patch of white slip (shaded in on the illustration). [ph.3/287]

A small number of redware sherds with white slip and copper green glaze occurred mostly in 17th-century and later contexts. A fragment of a ring base from a small bowl probably similar to *Ditch* 230-2 and *Blackfriars* 29 came from [223]. This form is noticeable for its almost complete absence from the site. One example in plain redware came from [258] and a small ring base in [185] is probably another. Two rims with copper green glaze, as *Ditch* 215 a 17th-century vessel, came from [11] and [107] (19th- and 18th-century contexts).

A fragment of a sandy redware with patchy copper green glaze covering a rather sandy white slip inside came from [287]. The sherd was either from a rounded base or indicated a sharp change in body angle. There was a very small rim sherd with it.

Low Countries Greywares

A small number of sherds were found. See sherds noted above under nos 60 and 74.

Early Valencian Lustreware: No. 81

- 81 Small abraded rim fragment of a shallow bowl. [ph.5/208]

The reconstruction of this very distinctive pattern is based on a complete example published in Hurst *et al.*, 1986, pp. 41 and 43. The date given for this is 1375-1425.

POST MEDIEVAL WARES

Cistercian Ware

The small quantities of this ware came mostly from the West side of the Wall with two decorated sherds from the Tower and two sherds from just outside it. They provide useful evidence of date but only two sherds gave any indication of particular forms: a fragment from a vessel with a pedestal base in [ph.5/188] and a fragment from an apparently twelve handled cup in [ph.7/96].

16th/17th-century Blackwares

Sherds of this ware were even less frequent than the Cistercian. Again there were only two sherds from east of the wall, from [176] and an 18th-century context.

17th-century English Redwares

Large assemblages of these wares have been discussed and illustrated in three previous reports of excavations in Newcastle (Ellison 1979; Ellison 1983; Vaughan 1987). The same common features were present in the material from the site. The illustrated vessels are, in general, single occurrences of unfamiliar forms. Many of them, it will be noted, are from [96], a large 18th-century deposit. However, the fabrics of these vessels are clearly distinguishable from the consistently hard and darker red earthenwares, probably of local manufacture, which come to dominate the 18th- and 19th-century pottery assemblages in Newcastle, and are present in this same context. These later wares are covered in more detail in a recent report on the Castle in the post-medieval period (Nolan 1990).

Nos 82-96

- 82 Inturned rim, ?urinal. [ph.5/183]
- 83 Bowl rim similar to *Blackfriars* 36 but

- with outside edge rolled down. [ph.6/202]
- 84 ?English lid seated rim similar to *Ditch* 165. Finger impressions round are a feature of Low Countries vessels of the second half of the 16th century. [ph.6/161]
- 85 Bowl rim with basket handle. [ph.6/115]
- 86 Jar rim similar to *Blackfriars* 19. Hard fired, dark green/brown internal glaze, slightly sandy. [ph.6/145]
- 87 Jar rim. [ph.7/96]
- 88 Simple jar rim with external cordon. [96]
- 89 Vertical handle, see Clarke and Carter 1977, 83b and 84. [96]
- 90 Dish rim as *Blackfriars* 35 but shallower. [96]
- 91 Thick walled fully glazed rim sherd with rather crude applied lug with finger tip impressions. [96]
- 92 Dish rim. [ph.7/79]
- 93 ?Dish rim, similar to frying pan form as *Ditch* 202. [ph.8/5]
- 94 Rolled rim typical of Metropolitan slip decorated vessels. [ph.7/111]
- 95 Plate rim as *Bastion* 46 and *Blackfriars* 51/52. No demarcation of the flange. [ph.6/184]
- 96 Plate rim as *Bastion* 42, no flange. Glaze only runs up to inner ridge of rim. [ph.7/96]

Whitewares: No. 97

Four different types of whiteware were found in the 17th-century contexts, which were mainly in the Tower or west of the Wall.

Green and yellow glazed: smooth white fabric with some fine light orange/pink inclusions. Bright green glaze on the outside and yellow on the inside. The only form identifiable was from a later context; a flat flanged rim with handle springing from it—a chamber pot. Two sherds in [161] had blobs of quartz chips applied and then glazed over. This encrusting appears to be a mid-17th-century technique (see Moorhouse 1970, p.56) although the

examples from Basing House have large encrusted zones. Haslam illustrates a vessel with encrusted blobs (Haslam 1975, no.131) from a site in Oxford dated to second quarter of 17th century. Some of the other sherds have rilling where the green glaze is thicker and darker.

Brown and yellow glazed: as above but with brown 'manganese' glaze, sometimes quite pale and sometimes streaky. Form sherds were: two rims from chamber pots, one with a flat flange, one with a very everted rim; most of the sherds seem to be from this vessel, possibly including a clubbed base and a sherd with the scar of a handle, also a sherd with a smaller handle scar.

Plain yellow glazed: a few abraded fragments had yellow glaze only. A complete pedestal base (7cm diam.) and part of a clubbed rim (12cm) from [197] and [176] had a slightly orange yellow glaze internally only. The fabric of this vessel was a pale buff colour.

Combinations of all the three varieties of whiteware described above were found at The Cove, Hampshire (Haslam 1975).

Yellow glazed, coarser: the illustrated vessel had plain yellow glaze too but the fabric was coarser, it was the only example of its type.

- 97 Whiteware with fine black specks, occasional fine to medium orange inclusions and occasional fine quartz grits. Complete base, fully glazed with yellowish lead glaze. [ph.6/153]

Tin glazed wares ("Delft")

A hundred sherds were recovered. Many of them were very badly chipped and abraded, e.g. an everted chamber pot rim with strap handle from [141] was totally without glaze. Form sherds from a few flatwares and drug jars were found.

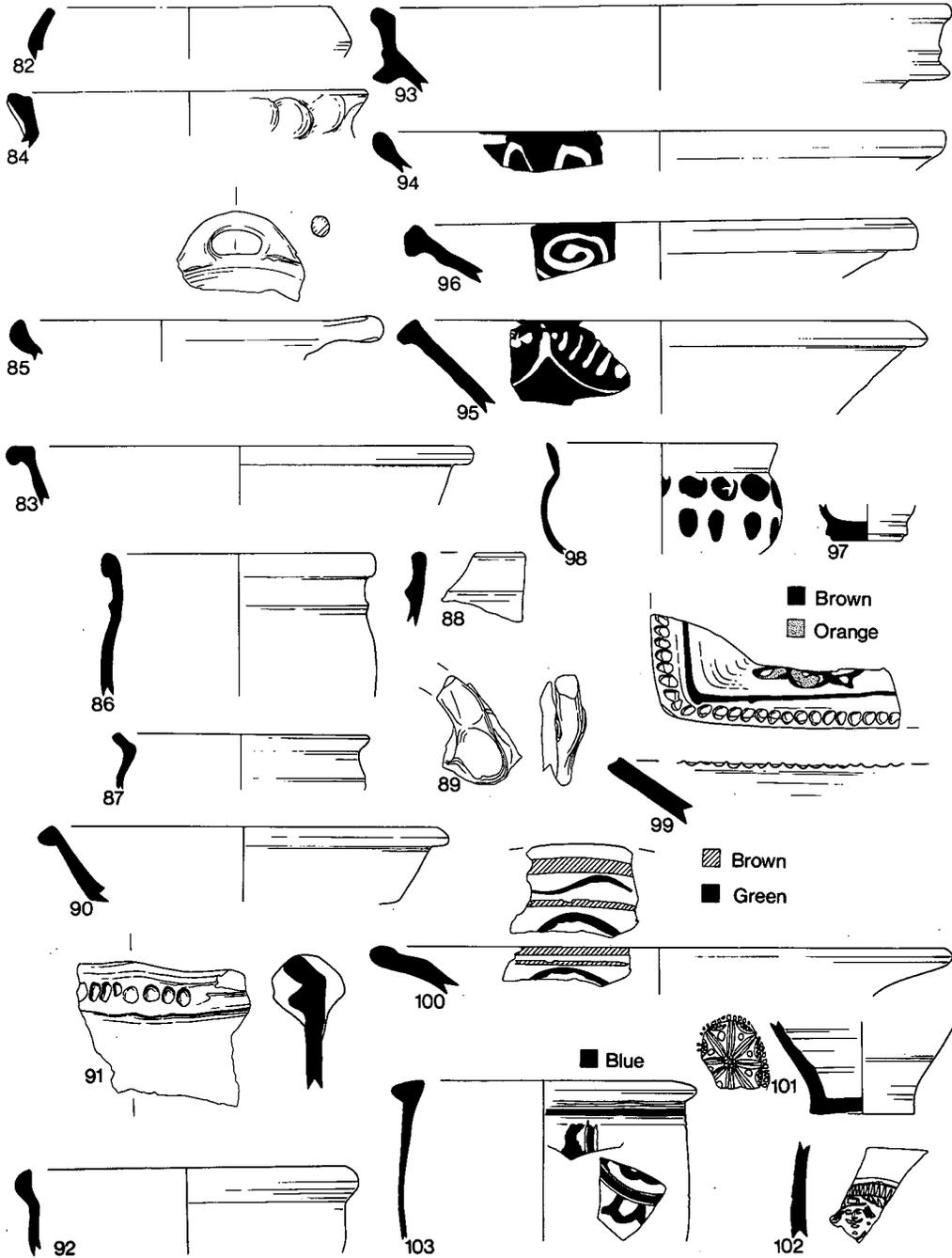


Fig. 20 Pottery: nos 82-103 (scale 1/4).

Staffordshire type slipwares: Nos 98 and 99

Twenty-five sherds of yellow slipwares with applied, trailed or combed patterns in brown occurred in late 17th- and 18th-century contexts. These included four piecrust rims of press moulded plates, three in red fabric and one in a hard buff fabric with fine and medium red iron oxide and quartz inclusions. In the same context as the latter sherd, [96], was another sherd of a flatware in a softer buff fabric with abundant very fine black and red flecks and occasional coarse red inclusions of iron oxides, but with occasional coarse yellow quartz. These distinctive inclusions also occur in the red fabric of no. 99.

- 98 Rim fragment of press moulded rectangular dish. Internal white slip with pattern in tan and brown, lead glazed. External unglazed. Fabric is a hard red brown with occasional medium quartz grit and yellowish streaking and inclusions which may be a lighter firing clay. There is some blackening under part of the rim. [ph.7/110]
- 99 ?Cup/"posset pot", with overall white slip and blobs of applied red clay appearing brown under the lead glaze. Fabric is light red/brown and gritty with distinctive yellow quartz inclusions, also reddish quartz inclusions. Form and decoration are similar to Staffordshire wares but the fabric is not. [ph.7/119]

IMPORTED WARES

Weser

Eight sherds, but five of them occurred residually. Of the other three one was a hammer-head rim, in [258], one a very small fragment

with incised lines, in [183], and one a sherd in [161].

Lower Rhine: No. 100

- 100 Plate rim very similar to *Blackfriars* 60. Top of rim unglazed, but with white slip coat. The white slipped stripes show traces of flaking pale green glaze. [ph.8/55]

Later German Stonewares: Nos 101–3

- 101 Cologne/Frechen. Base and sherd with medallion probably from the same vessel. Brown salt glaze fading out towards base. Wire marks on the bottom. [ph.6/174]
- 102 Cologne/Frechen. Medallion. Mottled exterior, shiny light grey interior. [ph.8/46]
- 103 Westerwald. Chamber pot rim. Sherd of same vessel had a handle scar. [5]. Sherd of probably same vessel in [ph.7/96].

UNKNOWN

There were many burnt and unidentifiable sherds. The four illustrated vessels were from phase 5 (15th century) contexts and seemed distinctive enough in form and/or fabric to merit inclusion in the published catalogue.

- 104 Finely thrown, mainly dark grey (?burnt) fabric with a portion buff. Generally well sorted fine quartz inclusions with occasional fine and very fine black and red (iron oxides) specks. Unglazed except for one spot on exterior. [ph.5/180]
- 105 Light yellow brown sandy fabric with

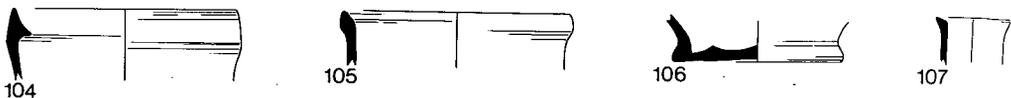


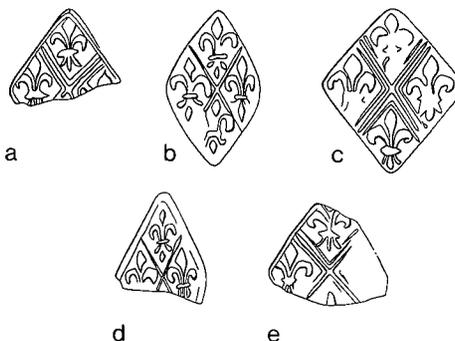
Fig. 21 Pottery: nos 104–7(scale 1/4).

brown surfaces. Interior has crackled brown glaze, and there is a patch at the bottom of the sherd on the exterior surface. Rolled lid seated rim. [ph.5/247]

106 Slightly clubbed base with pronounced internal ridge inside from wheel. Moderately gritted with medium sized grits. Dark grey core with orange margins and grey brown surfaces. The core disappears as the sherd gets thinner. [247]

107 Orange fabric with moderate fine quartz inclusions and occasional red iron oxide. Fully glazed dark brown. [ph.5/218]

Yorkshire Bulbous bowl which he dates 1650-1690, although it is also associated with spurred bowls (Parsons 1964, p.240). There were five different dies used here. Type "a" was on a stem with a spur from [196]. Types "b" and "c" were from [197]. No. 108 shows the stamp (as type "b") on a spurred bowl, type 5 (1645-1680). Types "d" and "e" were from [122]. No. 112, a Yorkshire Bulbous bowl, came from the same context as "e" and the fabric of the fragments suggested they were of the same pipe.



THE CLAY PIPES

J. E. Vaughan

The typology used in this report and in the archive is that introduced by Lloyd Edwards in the Black Friars post-medieval report (1987) and expanded later (Edwards 1988). Unless otherwise stated the dates for the makers are taken from these sources. A total of 802 fragments were found during the excavation, although 75% of these were plain stem fragments.

A series dating from the middle of the 17th century to the early 18th came from the Tower. Some of these are illustrated (nos 108 to 114). A fragmentary bowl of the small earliest Tyneside type 1 (1635-50) occurred in [202], with another early bowl in [196]. The latest dateable piece is a fragment of a bowl with a round heel from [153]. This has the maker's initials on the sides of the heel (stamp type E2) which appear to be MP—most probably Michael Parke (1692-1737). A Michael Parke oval stem stamp (type D) occurred in [163] (no. 114). Type D appears to be superseded by type E so this pipe could be an earlier product of the same maker (but see discussion below).

There were nine examples of the lozenge shaped stamp, quartered with four fleur-de-lis, from the tower (there were also two from Phase 8 contexts, [1] and [11]). Parsons notes this type of stamp in association with the

One example was found of a lozenge stamp with the initials of the maker, John Bowman in this instance (Edwards type C). His dates are 1645-89, though the fragment is from a late context [45]. This type of maker's mark seems to have been relatively short lived on Tyneside c. 1670-80 (Edwards 1988, p.20).

The pipes in context [3] formed an interesting group. They all appear to be 18th century although the context is Phase 8-19th century. There were seven type 14 bowls including no. 117 with spur stamp "TP". The Thomas Parke D type stamp illustrated also came from this context. The bowl was missing but the spur remaining indicated the same bowl type. Parsons lists three Thomas Parkes. One died in 1675, one was active 1661-82 and the third he dates 1731-9. If all the pipes in this context are contemporary these stamps could both be the third Thomas Parke. This extends the life of a D type stamp well beyond the date range given by Edwards. No. 116, a type 13 bowl with a roses heel stamp (Type E4)—a group mentioned by Parsons as dating to

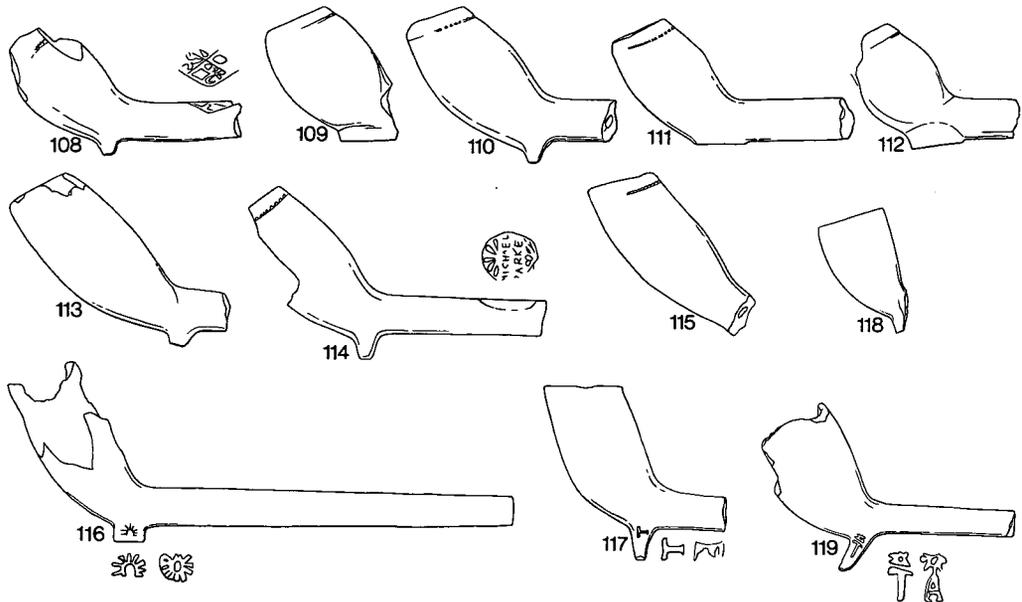


Fig. 22 Claypipes; nos 108-19 (scale 1/2).

1710-50 (Parsons 1964, p.247)—would seem to confirm this, as the same pipe has an indecipherable oval stem stamp.

A stamp reading "Blackett & Fenwicke AM" is illustrated with the type D marks. In the first half of the 18th century a Blackett and a Fenwicke were returned several times as joint members of parliament for Newcastle. The election campaign of 1741, when Walter Blackett and Nicholas Fenwicke were returned together for the second time, was a particularly hard fought one and was known as the great contest. The result was disputed (unsuccessfully) by the two losers, Matthew Ridley and William Carr (Straker 1819). It is possible that this stamp came from a "special edition" clay pipe produced either as part of the campaign, or to celebrate the result. AM perhaps stands for "anti-ministerial". Blackett was known as "the Opposer of the Court".

Amongst the later pipes no.119 could be attributed to Taylor Ansell (1762-82, given in Parsons 1964, p.249). The spur stamp also occurs on two decorated bowls: no.126, where an E is discernible, and a fragment of a ribbed

bowl in [ph.7/70] with "TE". These initials occurred at Blackfriars and were there identified as Thomas Elsdon c.1841-90. Parsons lists two Thomas Elsdons with dates of 1811-51 and 1859-90. The decorated pipes appear to have a date range of 1780-1860 (Parsons 1964, p.236) so perhaps our stamps are the earlier Thomas. If Taylor Ansell and then Thomas Elsdon are using this stamp it seems most probable that it was in use continually from its first appearance c.1680 up to the middle of the 19th century. No.127 is another example although the maker cannot be identified (a "G" is discernible).

There is another type of maker's mark (called by Parsons "e") on one of the decorated bowls, no.125, where the letters "AS" appear beneath the shield. There were some Gateshead pipe manufacturers in the late 18th century called Smirke and Andrews (Parsons 1964, p.254).

- 108 Type 5 spurred bowl c.1645-60, with fleur-de-lis stamp on stem as variation "a". [ph.6/196]

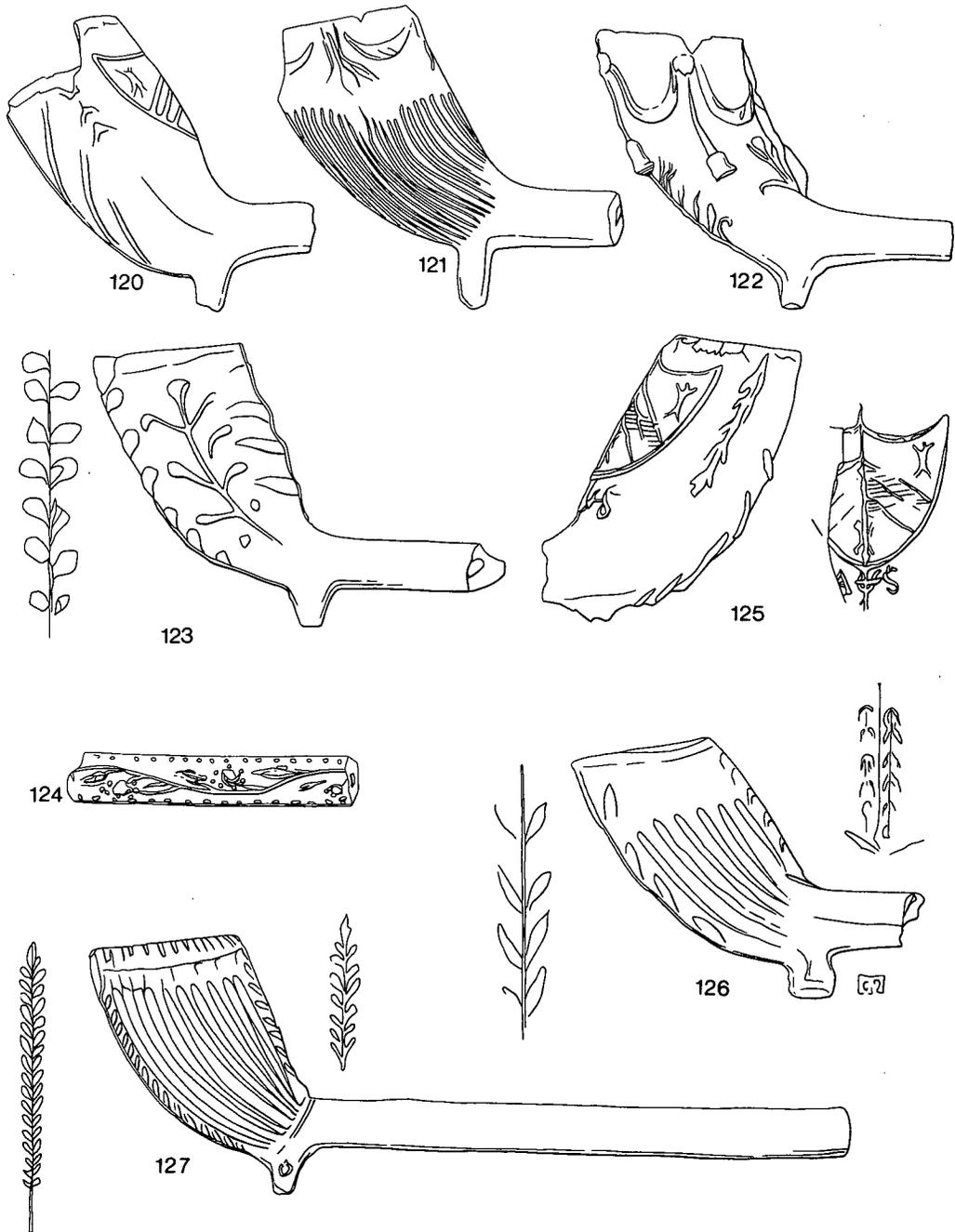


Fig. 23 Claypipes: nos 120-7 (scale 1:1)

The Makers and their marks

Tyneside type B. Round mark impressed on the base of the heel. 1635–75.

Tyneside type C. Lozenge on stem. 1670–80.

Tyneside type D. Oval stem stamp. 1675–1710 (but see text).

TYPE B



CONTEXT
Phase 6[161]W

MAKER
“NW” 1635–75

OTHER STAMPS
“NW” also in [171]W

TYPE C



Phase 8[45]W

John Bowman
1645–89

TYPE D



Phase 6[174]T

Edward Crages
1678–1717

As *Blackfriars* pipe
134 in [161]W Ph. 6



Phase 8[45]W

Leonard Holmes
1671–1707

Broken in [161]W. As
Blackfriars pipe 35 in
[163]T. Frag. in [174]T.
All Phase 6



Phase 8[80]

John Hastings
1672–1720



Phase 6[163]T

Michael Parke
1692–1737

Broken “PAR” in
[ph.7/96]W, is probably
Michael.



Phase 8[3]

Thomas Parke
(see text)

Unstratified fragment



[1]

Blacket Fenwicke
AM (see text)

One found in Gosforth
Park by Ian Atkinson.
Fragment of stamp from
Castle Garth (J.Nolan,
pers. comm.)

- 109 Yorkshire Bulbous bowl with round heel c. 1650-90 (Parsons 1964, p.239). [ph.6/177]
- 110 Type ?8 c. 1680-1720. [ph.6/184]
- 111 Type 7 c. 1660-80. [ph.6/178]
- 112 Yorkshire Bulbous bowl with round heel associated with the fleur-de-lis stamp "e". [ph.6/122]
- 113 A type 9 shape bowl c. 1680-1720 but seems very large [122]
- 114 Type 9 bowl with D type stamp on stem of Michael Parke 1692-1737. See 1:1 stamp illustrations. [ph.6/163]
- 115 Bowl, rather narrow in relation to its length. Other pipes in this context late 17th century (1678-1707). [ph.6/161]
- 116 Type 13 bowl c. 1710-50, see text above. The stem stamp, which proved unreadable, had perhaps been intentionally wiped off. [ph.8/3]
- 117 Type 14 bowl c. 1700-80, with spur stamp TP, see text above. The oval stem stamp of Thos. Parke illustrated is also from this context. [3]
- 118 Cut down bowl. [ph.8/46]
- 119 Type 15 bowl with spur stamp TA. See text. Unstratified.
- 120 Fragmentary bowl with stylized foliage and a shield. [ph.7/14]
- 121 Ribbed bowl with swags. [14]
- 122 Bowl with swags. [14]
- 123 Bowl with stylized foliage. [ph.7/75]
- 124 Decorated stem. [75]
- 125 Fragment of bowl with shield and initials. See above. [ph.8/55]
- 126 Bowl with ribs and stylized foliage and spur stamp, E visible. Probably Thomas Elsdon, see text. [ph.8/60]
- 127 Ribbed bowl, with spur stamp, possibly a G. [ph.8/63]

CERAMIC OBJECTS

R. Maxwell

Three sub-circular ceramic counters were recovered. These presumably represent gaming counters though may have been usable as

weights. Two occurred in Phase 3 contexts (58mm × 52mm × 11mm in light red (?tile) fabric and 40mm × 40mm × ?mm in RG4 fabric) and one much smaller in Phase 6 (12mm × 10mm × 5mm in off white fabric)

GLASS

R. Maxwell

Vessel Glass

Bowls

- 128 Light green. Simple everted rim, diameter 142mm. Paralleled by a similar form from Basing House (Moorhouse 1971, pp.66-7 and fig.28, no.26) and is likely to be of local manufacture. [ph.5/192]W.
- 129 Clear, royal blue. Mould blown ribbing. rim diameter 70mm. [ph.7/89]T.

Bottles/Flasks

- 130 Flask/bottle with simple everted rim. Three joining sherds plus one other probably from same vessel. Probably clear, colourless though with slight surface weathering. A form common from the late 15th/16th century onwards (e.g. Charleston 1975, p.220, fig.223, nos.1531-2). [ph.5/188 and 192]W.
- 131 Flask/bottle. Clear?, almost colourless. [ph.5/185]W.
- 132 High sided conical base of circular bottle with a slight membrane of clear glass at the bottom of the kick. Clear, slightly greenish blue with slight surface iridescence. [ph.7/110]E.
- 133 Base of square bottle. Clear, light green, bubbled. [ph.6/161]W. 17th century, possibly of local manufacture.

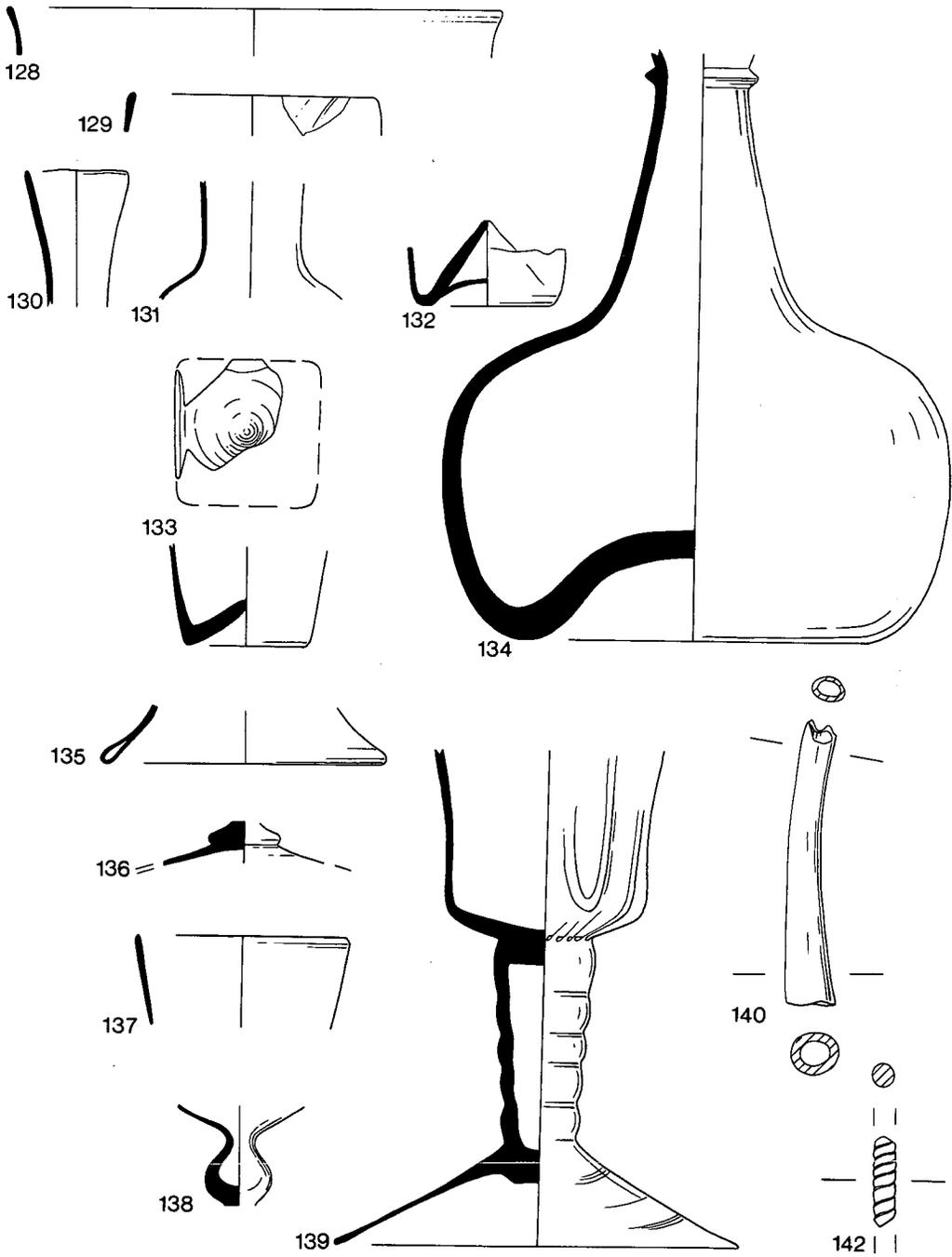


Fig. 24 Glass: nos 128-42 (scale 1/2).

134 Two sack bottles of very similar form. Thin string band below rim, top of rim missing. Dull green, very weathered surfaces. [ph.6/145 and 161]W.

133 and 134 are paralleled at Basing House (Moorhouse 1971, fig. 29, Nos 54 and 27 respectively).

135 Pushed-in base fragment. Clear bluish glass, slight surface weathering. Very lightly bubbled? 17th century. See *Bastion* 84 and p. 182-3. [ph.6/177]T.

Drinking Glasses—all from Phase 6

136 Merese from a base. Probably clear, very pale blue with weathered blue surfaces. [171]W.

137 Rim fragments of wine glass. Clear, colourless with light iridescent surface weathering. [115]E.

138 Hollow knop and part of base/bowl of wine glass. Clear, greyish/colourless. [141]W.

139 Wine glass with bucket shape bowl and moulded, ribbed hollow stem. Clear, greyish/colourless, slight surface iridescence. [141]W.

Tubing and Rods

140, 142 and 143 are likely to be of local manufacture.

140 Fragment of tapering, slightly curved tubing. Oval cross-sectional shape. Light green metal, weathered surface. Probably a piece of distillation equipment. [ph.6/197]T.

141* Two fragments of tubing, clear colourless. One has a subsquare cross-section, c. 2 mm bore. Surface iridescence. One has a circular cross-section. c. 3 mm bore. [ph.7/96]W.

142 Stirring rod, clear light green. Solid twisted. See *Bastion* 90 and pp. 183-4. [ph.6/184]T.

143* Fragment of solid curved rod in light

green glass surface weathering. Oval cross section. [ph.6/161]W.

Beads

144* Yellow. Round with incised grooves running down its sides. 2 mm diameter, 1 mm high. [ph.6/202]T.

145* Oval with slightly flattened ends. Hole through the long axis. Totally decayed, colour not discernible. 4 mm diameter, 5 mm high. [ph.5/222]E.

Window Glass

Glass was produced in and around Newcastle from 1618 by Lorraine glass makers working for Sir Robert Mansell and previously based in the Weald. In both places they were involved mainly in the production of window glass, specifically broad (or cylinder) glass. In Newcastle, by the end of the 17th century, no fewer than six glass houses were operating. The earliest documented glass house producing crown glass opened in 1734, but one other is known to have been in operation before this.

Very small quantities of window glass do occur from the mid-14th/early 15th century. The largest collections were found in contexts from the late 17th century onwards although in fact the majority of the material came from one single late 17th/early 18th century context [161] on the west side of the town wall. This context assemblage is discussed separately below.

Other than more modern uncoloured glass, which occurred in quantity in 19th century contexts, and amber coloured glass which is discussed below, the material consisted of light green fragments (133 pieces) comparable with Ellison's type 1 metal (1979, p. 169) and light blue and blue/green fragments (40 pieces), Ellison's type 2 metal. Where it was possible to tell, the majority would seem to be of cylinder (or broad) glass type thought to be of local production. Only one example of likely crown glass was found, a green fragment from [158] (late 17th/early 18th century) in phase 6 on the west side of the town wall.

The glass from [161] occurred as a distinct

layer within the deposit. It was not counted, but has a wet weight of 5808 g. Amber and light green glass were in approximately equal quantities. The amber coloured glass is unusual in Newcastle assemblages and the colour may be a product of the burial environment rather than that of the original metal. Certainly there is no other difference between the amber and green examples.

There is a relatively large number of pieces from the edges of manufactured sheets. These usually have very slightly thicker and slightly upturned, heat rounded edges. Though often fairly straight, occasional misshapen or folded over edges do occur. Three edge fragments had small patches of ruby red surface colouring, a feature not noted on other pieces from the site (except one red flashed fragment in [1]). Presumably this colouring is accidental but it may suggest that red glass production or flashing was taking place in the same glass house.

Many of the fragments have parallel surface striations. These, the even thicknesses (generally c. 1–2 mm) of the fragments and the generally straight edge pieces all suggest cylinder glass manufacture for the assemblage, certainly no obvious crown glass was identified.

Many fragments had straight single and parallel lines incised in one of their surfaces. Occasionally the fragments are broken along these lines, more often straight grozed edges occur. Incised lines and grozing are presumably produced during the cutting and shaping of individual panes from larger pieces. Only two possible examples of shaped quarries occur, both are incomplete, one being a triangle and the other a triangle or diamond shape.

In general the assemblage would seem to comprise many unusable edge pieces and broken offcuts from quarry cutting. This, together with the large quantity of material present in this context, may suggest that it represents glaziers waste rather than the results of building demolition or in situ window breakage.

COINS

R. Maxwell

- 146* Copper alloy. Very worn, Roman, possibly Constantine I. [ph.3/186]E.
- 147* Silver. Long Cross Penny, further identification impossible. [ph.3/267].
- 148* Copper alloy. Very worn. Beaded edge on one side and wording . . . MAV H. . . . Diameter 20 mm, thickness c. 0.5 mm. [ph.6/161]W.
- 149* Copper alloy. Halfpenny. Obv. is totally worn. 18th century. 27 mm diameter c. 1 mm thick. [ph.7/94]E.

COPPER ALLOY OBJECTS

R. Maxwell

Belt Equipment

Buckles

- 150 Frame made from shaped and soldered sheet metal. [ph.2/134]E Phase 2.
- 151 Circular frame. Pin still in place. Forked spacer with fragment of plate still attached to one side. Frame and spacer are cast in one piece. The plate fragment is of sheet metal and the pin is wire. [ph.3/267]W. A 14th-century type paralleled locally by a similar buckle from Queen St. Newcastle (O'Brien 1988, p. 107, no. 255).
- 152 Trapezoidal frame with pin hole (pin missing) and loop for attachment. [ph.5/201]W.
- 153 Long sheet metal plate folded around frame. The plate has one rivet through its open end for attachment to a leather strap. Another small rectangular plate pivots on one side of the frame, folding back onto the end of the longer plate. This small plate would hold the strap in place when pushed down. Both plates are decorated on their upper surfaces

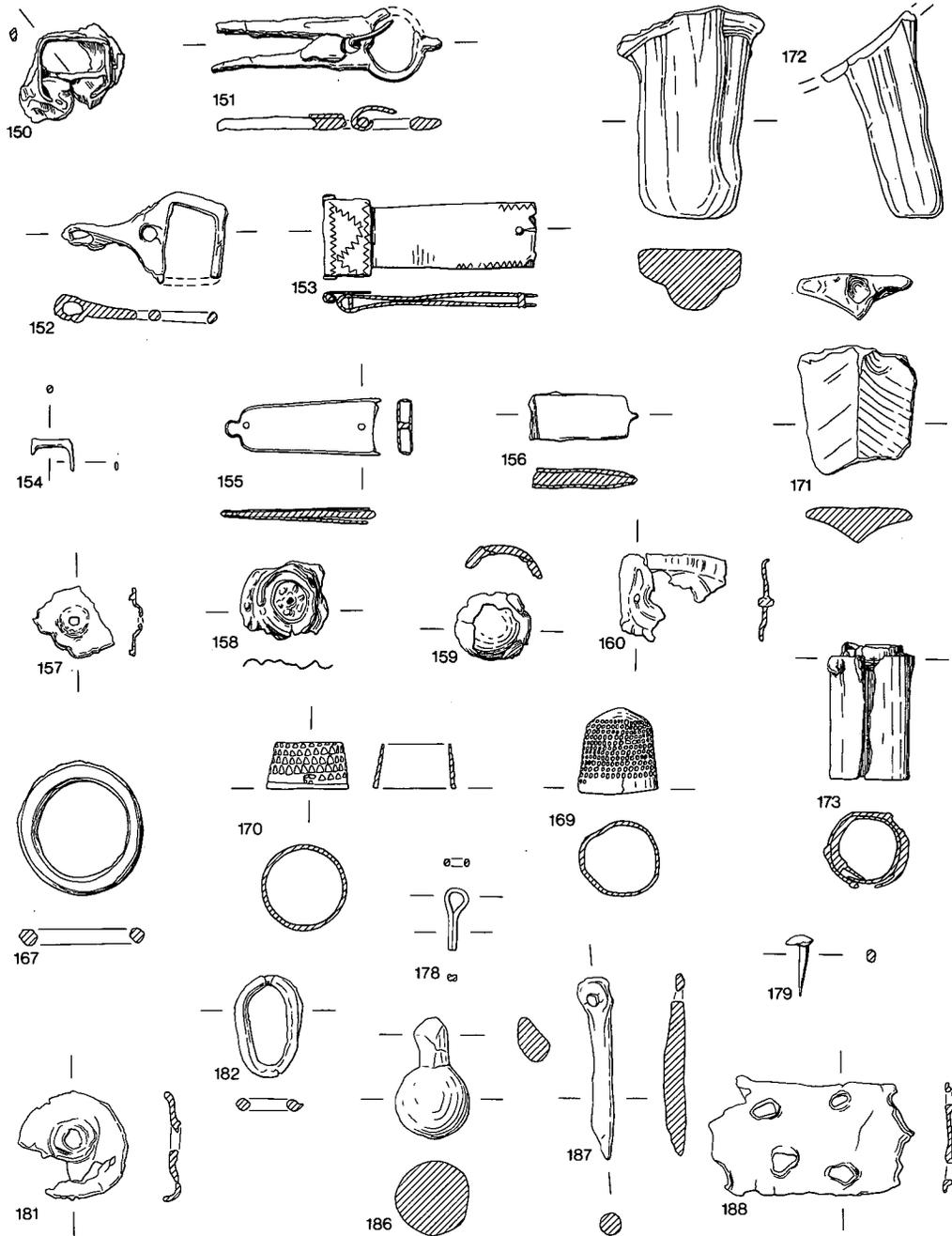


Fig. 25 Copper alloy and lead objects: nos 150-88 (scale 2/3).

with an incised zig-zag decoration. [ph.5/266]W.

- 154 Originally rectangular or square frame. The sides are of rectangular cross-section, the surviving end bar is of circular cross-section. [ph.6/223]T.

Strap ends

- 155 Two shaped sheet metal plates with forked spacer between. Held together by two rivets. Fragment of leather still in place within the plates. [ph.7/151]W. This type dates to the second half of the 14th century (Goodall, A.R. 1981, p. 67).
- 156 Two plates sandwiching the remains of a leather belt end. Ogee ended, rivet visible on X-ray towards this end. [ph.3/186]E.

Bosses

- 157 Domed centre with central rivet hole. Two rivets still in place on rim. [ph.3/260]E.
- 158 Manufactured from sheet metal. Probably circular originally. Central rivet hole surrounded by punched six "petal" motif enclosed in a series of three raised concentric rings produced by close punching. [ph.5/247]E.
- 159 Hemispherical. Tinned? [ph.6/174]T.

Miscellaneous

- 160 Mount/surround of rectangular sheet metal. Surviving edge pieces show a raised border produced by close punching with a broad punch. Within this are the remains of a raised circular(?) design possibly defining a central hole. One rivet survives towards one edge. Possibly a key hole surround. [ph.7/104]E.
- 161* Fragment of metal strip/binding with one long edge folded slightly. One rivet hole visible on X-ray. [ph.3/186]E.

Pins

The wound-wire headed pins are classified as types defined by Caple and Warren (1982). Type A pins have a piece of wire wrapped around the end of the pin fixed in place by glue or flux. Type B pins have a piece of wire attached to the pin end in a manner similar to type A pins but subsequently worked into a spherical shape.

- 162* Type B. Incomplete, wrapped and hammered head. Length 25.5mm, head thickness c. 3.25mm. Draw lines visible on the shaft. [ph.5/201]W.
- 163* Type B, two complete turns. Incomplete. [ph.5/190]W.
- 164* Type A, two complete turns. Length 35mm slightly bent. [ph.5/179]W.
- 165* Incomplete, cast spherical head. Head and shank are of one piece. [ph.5/222]E.

Rings

- 166* Incomplete. Worn area at one point on the surviving circumference. [ph.3/267]W.
- 167 Two cast in two piece moulds. Diameters c. 27mm. Polygonal cross-section. [ph.6/177]T.
- 168* Cast, 27 × 26mm diameter, circular cross-section. [ph.8/3012]W.

Thimbles

- 169 Domed. Plain 3mm high band immediately above rim. Above this a spiral of hand punched circular indentations. These are very variable in their depth and diameters. Some pierce the metal. No indentations on the crown which is very slightly pointed. [ph.5/217]E.
- 170 Cast. Plain band immediately above the rim, above this is a spiral of hand punched triangular indentations. At the lower end of the spiral is a punched makers mark in the form of a cross within a circle. This is a tailor's type of thimble and probably comes from Nuremberg, dating between 1520 and 1620 (Holmes 1989, p. 3). See also *Ditch* 479

from a late 16th-century context. [ph.6/202]T.

Vessel Fragments

- 171 Cast. One side is flat, the other has a central fillet running along its length. The object tapers along its length. [ph.3/267]W.
- 172 Cast, solid leg of a vessel. Tri-lobe shaped cross-section, broad central rib. Maximum length 42mm, vessel body thickness 2.25-2.75mm. [ph.7/96]W.

Miscellaneous

- 173 ?Ferrule. Made from two pieces of sheet metal shaped into cylinders and soldered together. Long cylinder 17mm diam., shorter (ring) 14mm diam. [ph.3/267]W.
- 174* Rectangular hinge leaf, 3 countersunk rivet holes down length. Incomplete. [ph.6/95]W.
- 175* Rectangular hinge leaf of sheet metal with one rivet and two rivet holes surviving. Fragment of iron pin survives in its housing along one of the long edges of the leaf. Fragments of wood attached to the corrosion products on the underside. [ph.8/2]E.
- 176* Lace tag. Rolled, crushed end. 30mm long. [ph.4/262]T.
- 177* Lace tag. Rolled. 18mm long. [ph.5/124]E.
- 178 Split pin made from shaped metal strip of sub-rectangular cross section. [ph.6/153]T.
- 179 Three identical tacks. Each has a sub-circular head, slightly convex. Square cross-sectioned shank, not central to head. Possibly unused since not misshapen. [ph.6/177]T.
- 180* Rolled sheet metal, 16mm long. Lace tag? [ph.4/262]T.

LEAD

R. Maxwell

- 181 Boss, slightly domed with central hole punched up from within. Traces of iron corrosion products adhering to underside. [ph.3/267]W.
- 182 Buckle? made in two piece mould. [ph.5] Parallels come from Goltho (Goodall, I.H. 1975, p.96 and fig.45, no. 42), Wharram Percy (Goodall, A.R. 1979, pp.114-15 and fig.59, nos 2 and 17) and Sandal Castle (Goodall, A.R. 1983, p.231 and fig.1, no.19).
- 183* Fragment similar to above. [ph.5/215]E.
- 184* Two fragments came, mis-shapen. H-shaped cross-section. [ph.5/124]E.
- 185* Roughly formed disc, raised outer border on both surfaces. Diameter c. 30mm, thickness c. 4mm. [ph.5/188]W.
- 186 Musket ball c. 20-21mm diam. appears unused with a sprue of lead attached. Probably dates from the time of the Civil War. [ph.6/223]T.
- 187 Possibly a mason's plumb bob. Thick rounded shank c. 5mm diam. Traces of concentric marks round hole. Uncertain whether other end is a point or object is broken. Similar examples come from Coventry (Woodfield 1981, pp.99-100 and fig. 8, nos Ac and Ad). [ph.3/286]E.
- 188 Sheet fragment, broken at both ends. Possibly edges of another 2 or 3 holes at broken ends. [ph.6/250]T.

IRON OBJECTS

R. Maxwell

Buckles

- 189 Square frame, complete. Roller bar on one edge and pin both survive. [ph.6/177]T.
- 190 Double buckle frame and plate. Incomplete. Part of the central bar survives with a fragment of plate (presumably

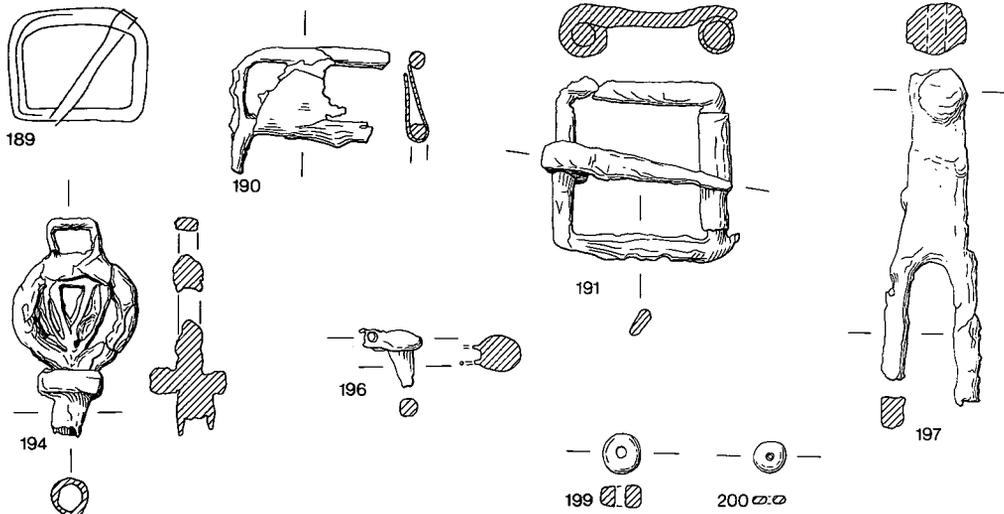


Fig. 26 Iron and amber objects: nos 189–200 (scale 2/3).

for belt attachment) wrapped around it. [ph.5/219]W.

- 191 Subrectangular frame, complete. Pin survives. [ph.3/267]W.
 192* Small, square ?buckle frame. [ph.5/201]W.
 193* Rectangular incomplete plate, two rivet holes punched through the plate, slot for pin at one end. [ph.3/287]E.

Miscellaneous—all phase 5

- 194 Handle ?complete. Circular with internal openwork decoration within. Square loop for suspension on top, square collar below. Hollow, circular cross-section shank protrudes from below the collar. Traces of copper alloy survive over portions of the object. [ph.5/190]W.
 195* Two small joined chain links and a portion of a third. Each is c. 5 mm in diameter. [ph.5/226]W.
 196 Hinged nail/stud. Square shank with circular dome head and two small, parallel, holed hinge plates protruding from the head. [ph.5/124]E.
 197 Unidentified object. Forked bar, broken at forked end. Other end is pierced by a broad, flat headed rivet with a central

hole (now filled with corrosion product). [ph.5/185]W.

Clench Bolts and Roves

Six clench bolts and twenty-two roves were identified from X-rays and checked by examination of the unconserved objects. Clench bolts and roves are used to join overlapping planks or boards and are generally associated with boat construction.

They occur from the mid-14th/15th century until the 17th century (in phases 3, 4, 5 and 6). The roves occur on both sides of the town wall and within the tower deposits, and may represent both used and unused examples. Clench bolts, however, occur only to the west of the town wall and may be derived from driftwood washed onto the foreshore or into the later inlet in this area.

Nails

A total of 692 nails or nail fragments were recovered. Most of these were very corroded, and analysis has been based solely on an examination of X-rays of the objects. Very few whole nails were identified and examination has been restricted to the identification of head types, which was possible for 327 of the frag-

ments, and the spatial distribution of the fragments across the site.

Three head types were identified:

Type A—A circular, flat head.

Type B—A circular, domed head. Large and small variants of this type were identified.

Type C—Sprigs. These have a slight head protruding from one side.

Type A heads were by far the most common type represented (306 examples) whilst Types B and C accounted for only a very small proportion (15 and 6 examples each). All three types are likely to be woodworking nails, though the Type B examples may have been used for specifically decorative purposes.

37.6% of the nails come from the area to the west of the town wall, 27.7% from the area to the east and 34.7% from deposits within the tower. The earliest fragments (2 only) come from Phase 1 deposits to the east of the town wall but do not have heads. Large numbers occur from Phase 3 onwards, 146 examples come from this phase and are divided equally on either side of the wall. Only a few fragments (8) occur in the tower construction fills in Phase 4. In Phase 5 217 nails are divided more or less equally between the east and west sides of the town wall. The truncated deposits in Phase 6 on the east of the wall produced predictably few examples (18) against 54 from the west side. In this phase most examples (230) come from deposits within the tower, including three of the six Type C nail heads found. The large number from this area may be derived from fixtures and fittings within the structure. In Phase 7 the numbers drop dramatically to fifteen, the majority of these occurring to the west of the wall. No nails were kept from Phase 8 contexts.

Other than the nails from Phase 6 tower contexts (see above) most of the rest may be from deposits of rubbish and building rubble, although those from the west side may come from driftwood as suggested for the clenched bolts.

SHALE

R. Maxwell

- 198* Boss. Hemispherical, black. 17 mm diameter. Hole 2 mm diameter runs through middle vertically. Smooth polished curved surface. Rough unworked underside. Presumably decorative. [ph.5/201]W.

AMBER

R. Maxwell

The two beads may be from simple necklaces as they are not of a size and shape which suggests they were rosary beads. Other amber beads from medieval excavations are generally spherical or oval in shape, e.g. from Coventry (Woodfield 1981, pp. 102-13 and fig. 10, nos 1f and 1k) and Southampton (Platt and Coleman-Smith 1975, p. 276 and fig. 249, no. 1956).

- 199 Bead. Circular with straight sides. Diam. 8 mm, thickness 4 mm. Hole through the centre 2 mm diam. [ph.3/287]E.
- 200 Bead. Circular with straight sides. Diam. 6 mm, thickness c. 2.5 mm. Hole through the centre, ? mm diam. [ph.5/201]W.
- 201* Unworked and unabraded fragment, <1 g in weight. Unlikely to represent a natural occurrence of amber on the site. Possibly an accidental import but more likely a craftsman's raw material. [ph.5/201]W.

BONE OBJECTS

R. Maxwell

Fragments of three bone handles were recovered. These are likely to come from small domestic knives and were all of two leaved

type i.e. two D-shaped cross-sectioned bone pieces riveted together (both iron and copper alloy rivets occur) around a tang.

- 202* Fragment of one leaf. Tapers slightly towards the blade end. One copper alloy rivet still in place and one rivet hole. [ph.5/235]E.
- 203* Incomplete. Two joining leaves with two iron rivets still in place. [ph.5/217]E.
- 204* Fragment of one leaf with one iron rivet still in place. U/S.

LEATHER

J. E. Vaughan

Fourteen fragments of shoe leather were recovered. These included three fragments of turnshoe sole from [301]; two were foreparts showing the typical medieval pointed and slightly inturred toe. A fragment from [ph.3/272] appeared from its stitch holes to be a repair patch.

BUILDING MATERIALS

R. Fraser and R. Maxwell

Brick

Approximately 320 fragments of brick were recovered from the site. These were classified using and extending the type series of bricks developed in the Castle Ditch report (Harbottle 1981). Prior to phase 7, where samples were taken from structures to the east of the Town Wall, these were all derived from secondary landfill-type contexts. No brick was recovered from any context in phases 1 or 2. The earliest occurrence was of a fragment of type i brick in context 289, in phase 3. A total of seven contexts in phase 3 contained chips or fragments of brick and all were of this early fabric. In phase 4, four contexts associated with the construction of the tower and riverside wall also contained small fragments of the same

brick type. Following the construction of the tower, brick became a relatively common find within those contexts immediately to the north, associated with the formation of level ground surface. It was in phase 5 that the smaller type iii brick and the larger but related type xiii made their first appearance. Type xiv bricks occurred in phases 6 and 7, and it is in the latter phase that bricks of this type were recovered from pillars and sleeper walls used as two separate phases of floor supports to a building abutting the east side of the Town Wall. It is perhaps the absence of significant 16th- and 17th-century contexts from this site which could explain the absence of the otherwise common type ix/x, which is so prevalent on other sites in Newcastle.

Ceramic Floor Tile

Sixty-three fragments of medieval ceramic floor tile were recovered. Seventeen of these came from Trench 2, the rest from the main excavation area.

All the fragments are of one fabric, all but one being oxidized, generally orange, though occasionally light red/orange. The fabric is fairly hard and clean, containing sparse sub-rounded inclusions >1mm. The one reduced example is overfired, with a very bubbled glaze. Glaze colours vary from yellow (a clear glaze over a white slip) and shades of green (which make up the majority) to brown, black/brown and purple/brown colours. Six fragments appear to be unglazed though it may have simply worn off. Where they survive all the bases are sanded and only two examples are possibly (and if so, crudely) keyed. Edges are bevelled, some only slightly. Five tiles have firing scars on their surfaces. Thirteen of the tiles have holes in their upper surfaces. These have been noted on similar tiles from the Castle Ditch (Harbottle and Ellison 1981, p.171) and are thought to result from nails protruding from templates used in trimming the tile edges to size (Eames 1980, p.18). This method of trimming is thought to be a Low Countries practice (*ibid.*), suggesting a Low Countries origin for the tiles, or Low Countries influence in their manufacture.

One fragment, from [ph.5/189], deserves especial mention. Though small and very abraded a small area of impressed decoration is visible on the surface (see 208). Unfortunately, no reconstruction of the original pattern is possible. No parallels for this tile occur in Newcastle, indeed only one other fragment of decorated tile has been recovered from the town, a small fragment of a two-colour tile from excavations beside the Plummer Tower (Nolan, J. 1993, fig. 22, no. 9).

Within the main excavation area tile fragments were recovered from both sides of the town wall and from within the tower. The earliest stratified examples come from the east side of the wall, from contexts dating to the mid-14th/early 15th century. Most of the fragments recovered come from 15th-century contexts.

Stone Roof Tiles

Eleven fragments of sandstone roof tile were found in phases 3 (mid-14th century) to 7, though most examples came from 15th-century contexts. Eight had a single peg-hole and one had two holes. Two were fragments of wrestler tile, one from a mid-14th/early 15th-century context, the other residual.

Nine fragments of slate tiles were found in phases 6, 7 and 8, i.e. from early 18th-century contexts onwards.

MASONS' MARKS

R. Fraser

A total of 253 masons' marks were recorded on the section of the town wall north of the Riverside tower. None were seen on the tower itself and only one mark was recorded on the riverside wall. The marks were quite fine although they had been cut into, rather than scratched on, the face of the stone. They most probably represent the marks of individual masons and relate to either quality of work or its quantity for payment purposes.

The marks occur on both sides of the wall, and both above and below the chamfered plinth (where this exists) on the west face. They were most frequent on the east face of the wall where the surviving face had been covered by the deposits butting against it. On the west face they were frequent towards the northern end where the face of the wall had been covered quite quickly after construction. They were more sparse towards the southern end where the wall face had been continuously exposed.

Of the sixteen different marks recorded, nine were very common while three occurred only once and one mark (Y) represented almost a quarter of the total (23%). As has been discussed earlier, six main sections could be discerned in the building of the wall and

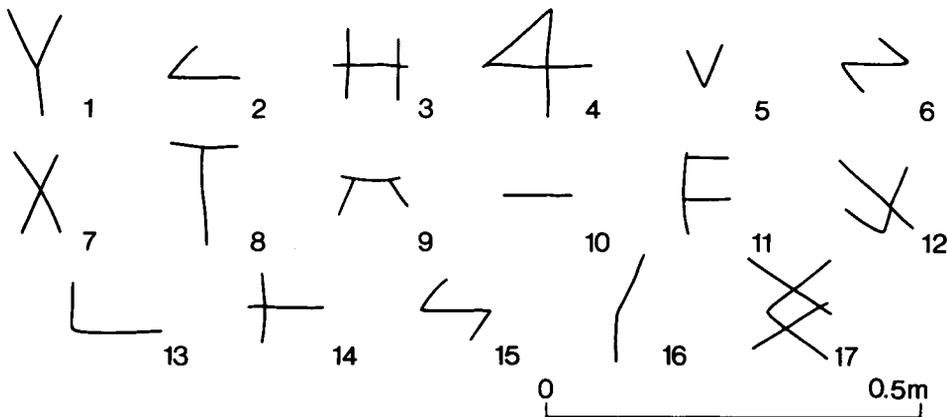


Fig. 27 *Masons' marks.*

Table 3 illustrates the occurrence of the different marks within each section; section 1 being at the north end of the wall. While it can be seen that the proportions vary in the different sections, the repeated occurrence of certain marks in adjacent sections suggests that the first five sections were all built within a relatively short time scale.

GRAFFITI

R. Fraser

On the west face of the town wall, immediately north of the tower "TF" and on an adjacent stone the inscription "TD 1724" would seem to relate to the period when there was a barge house and inlet on the west side of the Town Wall. On the south face of the tower "WS" and "I.H" appear to be in earlier, though differing, lettering styles.

PLANT REMAINS

J. P. Huntley

Methods

An extensive on-site sieving programme was carried out sampling all feasible contexts. Between one and two buckets of material were floated to 500 microns, the residues (to 1 mm) were retained, dried and sorted predominantly for small mammal and fish bone and the flots for carbonized plant remains. Some of the deeper contexts were waterlogged and contained non-carbonized seeds. Such samples, although floated, were kept wet.

To aid overall evaluation of the material and recommendations for full analytical work required a two stage process was carried out. Fourteen randomly selected samples were fully analysed. All remaining flots and wet samples were scanned for their plant remains. Of these, a selection contained only large amounts of

Table 3 Distribution of masons' marks on sections 1-6 of the town wall

SECTION	Y	←	⊕	4	∨	↶	X	T	∩	F	⊗	⊥	+	~	/	
6					■											
4/5	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
3	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
2	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
1		■	■	■						■		■				■

coal and clinker and were rejected for further analysis. Some contained limited numbers of hard, resistant and easily-identifiable seeds, such as elderberry and blackberry. These were fully identified but interpreted with caution since they were felt to represent differential preservation. The completely waterlogged samples were fully analysed.

The flots were sorted under a Wild M5 Stereoscopic microscope at magnifications of up to $\times 50$ and identified by comparison with modern reference material held in the Durham Biological Laboratory. Nomenclature follows Clapham, Tutin and Moore (1987).

The data in the tables are expressed as counts of seeds per original volume of material taken. Although the original volumes taken varied slightly approximately 2 buckets were sampled in all cases and this was considered unlikely to make *significant* differences in interpretation.

The data were analysed using numerical techniques in the attempt to determine any patterns present which would aid an archaeological interpretation. They were classified using a divisive, hierarchical method (TWINSPAN, Hill 1979a) which initially treats all of the samples as one group. This is split into two upon the basis of dissimilarity of one or more of the constituent taxa. The resultant two groups are themselves split and so on. The classification was performed to see if there were groups of samples with similar botanical assemblages and then to determine if they had an archaeological relationship as well. The ordination (DECORANA, Hill 1979b) was performed to seek axes of variation within the data based upon the species' composition of those samples. Due to the vast amount of computational time required even for a dataset of this size, the raw counts of seeds cannot be used. Seed counts were therefore grouped, by the program, into the following, user-defined, categories—1-5 seeds, 6-25, 26-50 and >50. In this way it was hoped that the overbalance of elderberry seeds in some samples would be obviated.

Results and discussion

In total, 58 samples were taken and processed. Twenty-two, including both those (a) rejected following scanning and (b) randomly chosen and fully analysed, contained only large amounts of clinker or industrial waste with varying amounts of coal also present. None apparently contained any definite plant remains although there were often large numbers of fragments of the right shape and size for cereal grains but with no diagnostic features at all. These may have been cereals once but may equally, or perhaps more likely, have been solidified molten-industrial clinker. They derive from contexts both west (outside) the town wall and east of/within it and spanned all major periods of the site. Archaeologically they result from human activity in that they form large dump deposits and it is suggested that they simply reflect industrial waste being used to reclaim waterfront land. Botanically they have no interest at all.

As stated earlier both carbonized and waterlogged material was recovered although the former was in very low amounts. Material preserved by carbonization often relates to human activities and is therefore often from economically important crops. On the other hand waterlogging preserves material from locally growing vegetation as well as that derived from human usage.

Table 4 presents the carbonized data as counts of seeds per original volume of material taken. Of the 36 samples containing identifiable botanical material only 14 samples contained any carbonized seeds and these were always in low numbers. They clearly demonstrate that wheat, some at least bread wheat (*Triticum aestivum*), hulled barley (*Hordeum* sp.), rye (*Secale cereale*) and probably oats (*Avena*) were used, the oats may have been wild oats present as a weed amongst other crops. The only other evidence for a crop plant was one pea (*Pisum sativum*). The other carbonized remains included grass caryopses and seeds from ruderal species, plants growing in waste ground. This material therefore does relate to human activities and shows that a

Table 4 Carbonized plant remains

Context number	229	230	289	245	251	345	291	231	301	301	237	236	199
Phase	1	1	3	1	3		1	5	4	4	5	5	5
Avena grain	1	1	1		2	1							
Triticum sp(p). grain				1	6		2	2					
Triticum aestivum grain						1							
Cerealia undiff.				2	1								
Hordeum hulled					1	1	2		2	2			
Hordeum indet.											2		
Pisum sativum											1		
Secale cereale grain					1								
Sinapis arvensis					2								
Chenopodiaceae undiff.												4	
Gramineae undiff.													1

variety of cereals were in use in Newcastle during the Medieval period. Too few remains were present to determine whether there were differences between phases.

Table 5 presents the waterlogged data with the samples arranged in order of phase and position relative to the Town Wall, and the taxa in order of broad ecological categories (subjectively derived). Thirty-four samples contained such material and the quantity varied from few occurrences to several thousand elderberry seeds (a value of 999 indicates >1000 seeds estimated as being present).

Looking at the individual ecological categories represented there are moderate numbers of weeds of cultivation present. These may have been from plants growing in local garden areas—particularly species such as chickweed (*Stellaria media*) and annual nettle (*Urtica urens*) which demand high nutrient levels. Some, such as corn marigold (*Chrysanthemum segetum*), are perhaps more likely to have been brought in with straw or cereal waste which has been dumped in the area although interestingly there is little evidence of straw or cereal waste. In addition, those samples with most corn marigold seeds have few if any cereal caryopses. However, cereal caryopses do not preserve well and may have been lost this way. Taking the overall evidence from these groups of plant it is suggested that soil could have been dumped and/or that there was some, rather poor, cultivation nearby but that there is little

evidence of, for example, straw debris being dumped.

Of the exotic, economic taxa there are 4 representatives and again none are abundant. Dill (*Anethum graveolens*) seeds are scattered through a few contexts and figs (*Ficus carica*) are common in a few. These both produce edible fruits/seeds and may represent faecal material although their numbers are so low as to suggest very limited deposition. The material is certainly not "night soil" being dumped. Flax (*Linum usitatissimum*) and hemp (*Cannabis sativa*) seeds occasionally occur. Both of these could have derived from ropes or fibres which could no doubt have been common along any quayside site.

An interesting species in this group is *Hyssopus officinalis* (hyssop) whose characteristic seed coat separates it from other members of the Labiatae, a family of medicinal and culinary herbs. Hyssop has been widely used in the past as a medicinal plant although nowadays it is predominantly used in the perfume and liqueur industry and as a border plant. Its strong flavour appears not to find favour with modern taste. It was used as a cure to various chest and pulmonary complaints and, externally, to relieve muscular rheumatism and aid healing of cuts and bruises (Grieve 1931; McLean 1981).

Grassland plants are moderately well represented with taxa characteristic of species-rich communities on calcareous soils the most common. None are abundant and may simply

reflect a few grassy patches in the vicinity although they could represent a dump of animal dung. Remains of heather and bracken are present in a few contexts and are likely to indicate that such material was brought through the area for some reason—possibly packing, thatching or bedding. Quantities are too low to represent usage actually at this site.

Ruderals are the most commonly represented species. There were almost certainly patches of waste ground in the area and opportunistic plants would soon have sprung up. Nettles (*Urtica dioica*) are abundant and indicate high levels of nitrogen and phosphorus as does hemlock (*Conium maculatum*). An interesting taxon in this group is *Reseda luteola*, weld. Although this is a plant of waste ground it also produces a green dye. Thousands of its seeds were recovered from the excavations at Crown Court, Newcastle upon Tyne (Huntley 1988) and which lay only a few hundred metres to the east of the current site. There it was considered as a possible indication of a local dyeing industry. Here the evidence is more tenuous but could indicate dumping of material from such a local industry.

Woodland and scrub taxa are moderately well represented. They may represent odd bushes growing in the area, for example, elderberry and blackberry or may represent fruit being consumed and excreted in the area. Elderberry bushes do grow in urban situations today and are present on the steep banks above the Tyne at the site. Seeds will therefore almost inevitably become incorporated, naturally, into archaeological deposits. The seeds are also extremely resistant to decay, as are those from blackberry, and may represent differential preservation. This is considered likely in some contexts where no other, or very little other, material has been preserved.

Other woodland taxa remains include alder and birch catkins—which could have blown onto the site, rose thorns and gorse needles. Although not very abundant they do suggest that there were some limited areas of scrub quite close by.

Taxa representative of wet ground are present but not as abundant as they often are in an

archaeological, urban situation. Although a variety of unidentifiable sedge nutlets were present they are not dominant and are not considered to represent the dumping of flooring material. The identifiable species are characteristic of edges of water with mineral substrates and may well have been growing on the edge of the Tyne or have been brought in with dredged material. Some, at least, are indicative of brackish water although none are characteristic of salt water.

One of the prime aims of the excavation was to determine if there were differences between the periods of activity. Table 5 presents the samples in phase order and the taxa arranged in the subjectivity determined, ecological order as before. The classification group numbers are appended.

Phase 1 is dated from the 13th to mid-14th century and consists of pre-Town Wall deposits. The samples analysed are all from east of the Wall. They are varied in composition and were classified in four different groups indicating varied origins of material. One in particular, context 291, was particularly species-rich with large numbers of seeds from taxa indicating cultivated soil. If it is assumed that this is not dumped material it could indicate that there were areas of cultivation in the vicinity prior to the building up of the area.

It is interesting to note that the grassland element during this phase consists of several taxa characteristic of calcareous grassland—*Daucus carota* (wild carrot), *Leontodon taraxacoides* (hairy hawkbit) and *Thalictrum* sp (meadow rue). This element is lacking in later phases when acid grassland species are more common. It is difficult to interpret this. It may be that material from phase 1 represents the natural grassland on glacial tills along the River Tyne. The phase 5 samples, in particular, could always represent material being brought from elsewhere and dumped. They could, however, indicate the local vegetation which is growing on soil that has become more acidified following leaching through disturbance.

Phase 2 is represented by Town Wall construction deposits from the mid-14th century. Only one sample was analysed from this phase

and indicated moderately wet conditions but overall species-poor composition.

Phase 3 consists of the mid-14th to early 15th-century reclamation deposits. Of the nine samples analysed, two were from the west of the Wall and the remainder from east of it. There is little difference between any of them. They are predominantly species-poor and also fall into four of the classification groups. Although they may, for this reason, be considered to be heterogeneous in origin their species paucity may relate to the relatively rapid reclamation of the area. There is little evidence of organic material being dumped or of vegetation then colonising the site.

During phase 4 the tower and river wall were constructed and have been dated to the late-14th or 15th century. The samples were only from east of the Town Wall and are generally species-poor again. They have slightly more arable weed and ruderal representatives than from the previous phase possibly indicating the build-up or dumping of soil.

Phase 5 consists of 15th- to early 17th-century general build-up. Whilst some of this may have been deliberate dumping and levelling it could also represent cultivation in garden or allotment-type plots. The four samples from east of the Town Wall all indicated differential preservation with only elderberry seeds present on the whole. Of the remaining eight samples, all from the west of the wall, two (contexts 199, 225) also indicated differential preservation. The others were all from the species-rich groups indicating cultivated soil. Were these cultivated areas just outside the wall or was it dumped soil from gardens, etc. inside the wall. There is little evidence of dumping of coarse organic debris and this is not considered to relate to preservational bias. Preservation is good in these samples.

Phase 6 is later general build-up (17th to mid-18th century) and the one sample from east of the wall, is very similar to those eastern phase 5 samples.

Two samples (contexts 345 and 333) were from an adjacent trench. The former was rich in remains and indicated soil whereas the latter demonstrated the probable differential preser-

vation. The excavator considered that they were best examined with samples from the Mansion House (Huntley, in prep.) for archaeological reasons.

Table 6 summarizes the ecological data by phase and takes into account both the different numbers of samples and taxa in each phase/ecological group, i.e. the numbers of seeds were divided by the number of samples in that phase and by the number of taxa in that ecological group. The resultant figure was multiplied by 100 simply for ease of comparison and rounded to the nearest integer.

The table clearly shows the abundance of arable weeds, including weeds of general cultivation, in phase 1. It demonstrates strong similarities between phases 1 and 5 with the exception of the elder/blackberry class. It is interesting to note that the samples from phase 1 are from east of the Town Wall whereas those comparable, with respect to their botanical content, from phase 5 are from west of the wall. It is suggested that they could both represent areas under cultivation, initially from the land upon which the Town Wall was subsequently built, and later upon land just outside the wall. In other words, that the land outside the wall remained under cultivation after the wall had been built.

Wet ground taxa are most abundant during phases 2 and 5, the former perhaps indicating areas with impeded drainage or the dumping of clays and river silts during wall construction and the latter perhaps deliberate dumping which itself impeded surface water drainage. These percentages have been calculated from the data presented as in Table 6 and allow a mathematically more valid comparison between phases. The table shows the dominance of elderberry except in phase 3 which has generally rather sparse remains—perhaps indicating a rapid build up of material. Today elderberry grows on the steep slope landward of the site and probably did in the past. Does phase 3 indicate a period when this bank was used in some way? Had it become unstable thus preventing the establishment of vegetation?

Of necessity such summaries must be broadly

Table 6 Summary of distribution of ecological groups between phases

Ecological category	Phase					
	1	2	3	4	5	6
number of samples	7	1	9	4	12	1
carbonized (11)	12	—	14	5	8	—
arable (14)	225	14	57	50	99	—
cereal grain (3)	86	—	15	—	17	—
exotic (4)	32	100	8	—	131	23
grassland (10)	74	10	3	15	50	—
heathland (2)	14	—	—	—	17	—
ruderal (26)	167	15	14	106	189	4
elder/blackberry (2)	471	1250	35	313	10859	5100
tree excl above (14)	22	—	4	13	54	7
wet ground (17)	60	182	9	50	199	—
unclass (22)	62	9	37	50	190	—
totseeds/tax/samp	1222	1581	196	602	11813	5134

(Figures in brackets after ecological group refer to number of taxa. Bryophytes excluded from sums.)

Table 7 Percentage summary data

Ecological category	Phase					
	1	2	3	4	5	6
carbonized	1	—	7	1	0.1	—
arable	18	1	29	8	—	—
cereal grain	7	—	8	—	0.1	—
exotic	3	6	4	—	1	0.5
grassland	6	1	2	3	0.5	—
heathland	1	—	—	—	0.1	—
ruderal	14	1	7	18	2	0.1
elder/blackberry	39	79	18	52	92	99
tree/scrub excl above	2	—	2	2	1	0.1
wet ground	5	12	5	8	2	—
unclass	5	1	19	8	2	—

interpreted because it cannot be assumed that all seeds have equal chances of being preserved. Plants do not produce the same numbers of seeds, distribution of seeds is not even, some of the identified categories are at genus or family level and thus may not represent only one species of plant. However, they can be useful to examine differences between phases etc., as shown here.

In summary, there are large amounts of dumped industrial waste at this site and which have no plant remains present. Of the samples with plant material present some have very

few, and resistant to decay, seeds and probably indicate differential preservation. The site was not completely waterlogged although the lower levels were regularly inundated by the tide. This has, no doubt, aided preservation in some cases but probably hindered it in others with alternate wet and dry periods enhancing degradation.

As with many urban sites the most abundant ecological groups of plants represented were the ruderals and weeds of cultivation. Ruderals will grow on the site and spring up once any ground is disturbed. The cultivation weeds may

have been growing on local garden plots or may have been brought in with soil used to level the site at various times. There is evidence of local scrub and woodland and suggestions that the local grassland communities have changed from calcareous to more acidic, probably as a result of human activity. There is very little evidence of exotic taxa indicating that the site was not used as a dump for faecal material, animal bedding etc. Even the well-preserved material contains little coarse, vegetative material—being predominantly of rootlets and monocotyledonous stems, probably fine grasses. The material used for levelling and reclamation seems to have been either botanically sterile, industrial waste or soil.

There are few differences between the phases itself suggesting usage of the site for similar purposes over a long period. Initially there seems to have been cultivated land on the site with large numbers of seeds from weeds of cultivation. During the building and reclamation phases there may have been small areas under cultivation but the site, overall, is considered to have been for industrial, in the broad sense, purposes. It does not seem to have been just gardens or allotments. There are also no simple or clear differences between samples from either side of the Town Wall. The occupants of Newcastle did not throw their rubbish over the wall at this place—but perhaps the river was a more convenient dump. The samples from outside the Wall during phase 5 indicate some cultivation and are similar to the samples from phase 1 prior to construction of that Wall.

Overall the botanical evidence from this site indicates a well-used area with some plots of cultivated land and a certain amount of ruderal vegetation. There were no dumps of faecal material nor domestic rubbish and the land was apparently levelled with soil, clays and sands. This may be compared with some of the general dumps encountered further down-stream at Crown Court where some domestic rubbish was disposed of. This picture has lasted for a considerable length of time indicating continuity of use of the area.

SOILS

Robert S. Shiel

Introduction

The situation of the site, between the steep North bank of the River Tyne and the modern river frontage, ensured that the soils were likely to be highly disturbed by river action, including marine tidal fluctuation, so that well-developed soil profiles would be rare or absent. In addition the area had been heavily developed over a long period, so that any natural soil succession would have been disturbed at frequent intervals.

In such a situation, examination of the soil offered the opportunity to distinguish: (a) any areas in which the soil had been stable for a period—as might happen in a “garden”, (b) the wetness of the environment, (c) the origin of the materials making up the soil, (d) the uses to which the site had been put—or in a wider context, the uses to which the surrounding area from which the soil forming materials were obtained had been put.

Analyses performed

Eighty-four samples from contexts on site were sampled and were examined in the laboratory for particle size distribution, colour of the individual particle fractions and particle composition of coarse sand and gravel. The methods of analysis are described in the technical report, where the results are published for each context. The particle composition of coarse sand and gravel was recorded on a presence/absence basis and has not been statistically analysed. The continuous measurements have been subjected to principal component and cluster analysis.

Conclusion

The soils data suggests that the site has been created from relatively sandy alluvial materials

obtained from the river, to which had been added a large but variable amount of gravel. This gravel contained much coal, coke, sandstone and clinker; it appeared to have arisen from industrial activity on or near the site. The sediments deposited on site varied randomly in particle size distribution, presumably due to piecemeal reclamation and variation in river sediment loads. The upper materials tended to have a slightly higher clay content. The colour of the sediments had been altered by three processes. The deepest contexts have been gleyed, resulting in dominantly olive grey or yellow colours. Nearer the surface many of the samples have been reddened, presumably by fire, while throughout the sections were sediments with colours more typical of the surface or moderately well drained soils in the North of England (10YR Hues) although these were more common in the upper parts of the sections. The coal content increased from bottom to top and the upper parts of the sections were very much blackened by this. The colours formed a consistent pattern as opposed to the random variation of the particle size distribution.

PETROLOGY

Tim Pettigrew

The Upper Carboniferous Lower and Middle Coal Measure rocks (Westphalian) upon which Newcastle is built consist of mudstones, shales, thick sandstones and seams of coal. The sandstone of which the Town Wall is built can be matched with local exposures of sandstone in the Coal Measure succession, and there is little doubt that these rocks were the source of the blocks used in the construction of the wall.

On the exposed section of Wall south of Close Gate, all of the stones appear to be composed of blocks of medium to coarse-grained siliceous sandstones; some of the sandstones contained appreciable amounts of muscovite mica flakes. The flakes were orientated parallel to stratification. In some of the blocks stratification including small-scale cross

stratification was clearly visible. This may represent preferential weathering and erosion of mica rich laminae. (Mica is a soft mineral easily decomposed). The blocks had been utilized so that stratification (representing incipient planes of weakness) was sub-horizontal within the wall. This would have used the sandstone to its maximum advantage to give the wall maximum strength.

Layers of rock debris abutting the wall consisted of small angular fragments of sandstone, again of local derivation. The lack of rounding would preclude a river gravel origin for this material. Likewise, they are unlikely to be of fluvioglacial or glacial origin. One possibility is that they represent quarry waste, or perhaps more likely, on-site waste generated from the dressing of the blocks used in the construction of the wall.

DISCUSSION

Previous excavation at the base of the river cliff, adjacent to the town wall, suggested that the process of reclamation of The Close began in the early 13th century (Nolan 1989). Excavation to the south of Close Gate has now shown that reclamation had created a platform approximately 25 m deep by the mid-14th century, prior to the construction of the Town Wall. There was also some evidence to suggest that the platform was much shallower west of the site and it would seem likely that the alignment of the wall reflected the extent of significant reclamation.

The material used to construct the platform in phase 1 differed substantially from that deposited after the construction of the wall. The initial deposits were predominantly mixed clays and sands containing only a small quantity of rubbish and waste material. Although a wall was seen on the north side of the road (Nolan 1989), no revetting or retaining structures were seen within the pre-Town Wall deposits to the south, and the ground simply sloped down to the water's edge. No structural remains were recorded on top of the early platform, however, any evidence is likely to

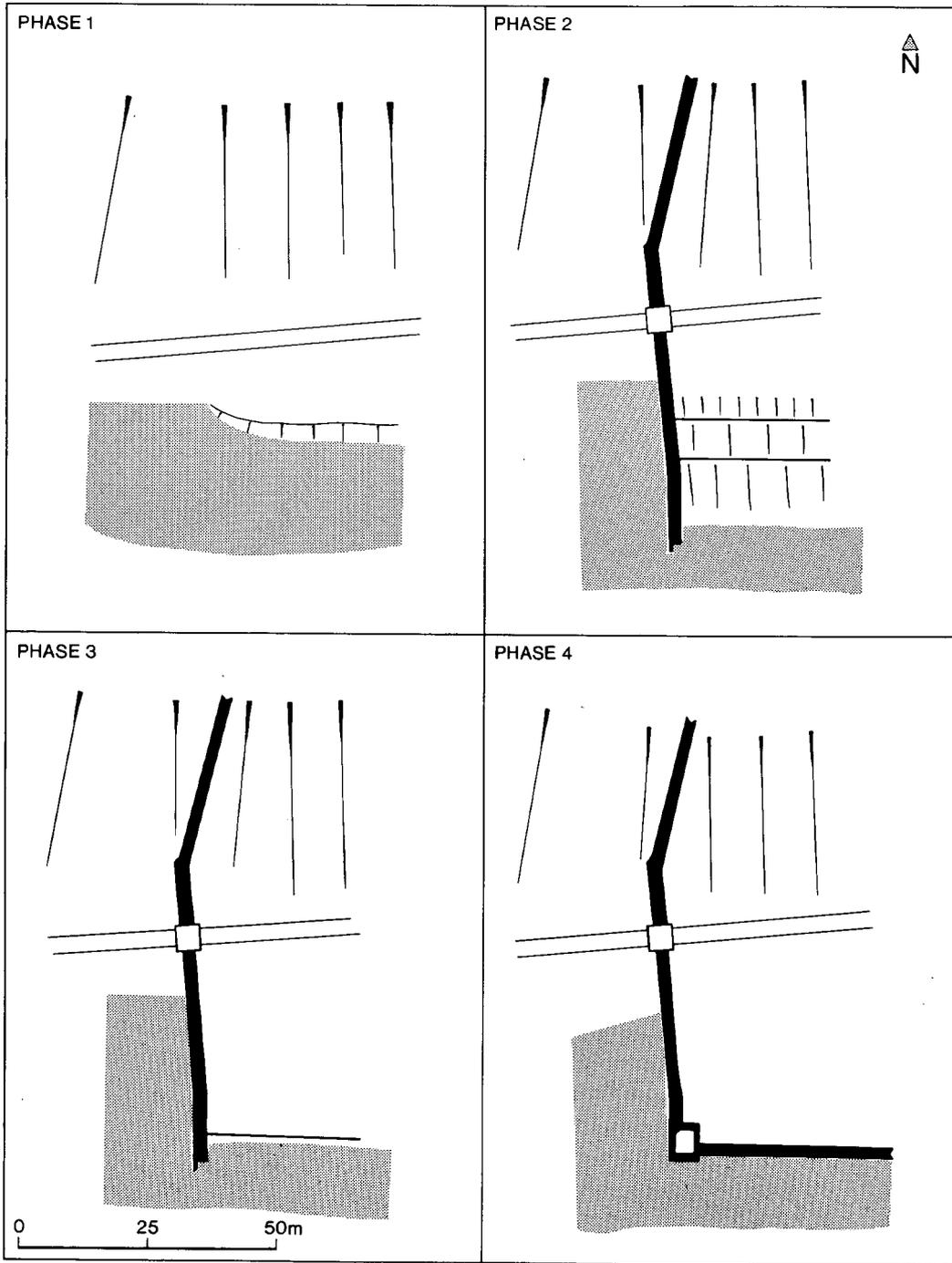


Fig. 28 Stylized sequence of development through first four phases. 1: early 14th century, 2: mid-14th century, 3: late 14th/early 15th century, 4: 15th century.

have been removed by later floors and walls which truncated the upper deposits.

The Town Wall in The Close was built in two distinct phases (2 and 4) in the mid-14th and early 15th centuries (fig. 28). Despite six different sections being evident in the build of the curtain south of the Close Gate, the first phase would seem to have been built in one operation from north to south. The foundations were placed in a construction trench cut across the existing terrace, but thereafter, although there was evidence of the creation of terraced steps, the wall was built directly onto the river sand forming the foreshore without any attempt being made to provide a stable building base (in the form of timber piles or a stone rubble raft).

Following primary construction, the ground surface was formalized on both sides of the wall. To the east of the wall ground levels were raised by 1.0m with stone chippings, and consolidated by two low east-west retaining walls. To the west, two very sandy layers accumulated quite rapidly before being covered by a thick layer of stone cobbles which may have formed a strand. Both surfaces were subject to tidal action.

East of the wall, below the southern retaining wall, a sequence of river derived deposits accumulated possibly as a result of silting caused by the projection of the town wall into the river stream. These deposits and the formalized banking above them were then covered by a sequence of deposits with a distinctly higher rubbish content. These latter deposits contained significant quantities of coal, clinker, pottery, bone and macrobotanical fractions. These deposits were retained by a timber revetment of posts and wattle, although no direct stratigraphic link survived. This structure was more substantial than the low retaining walls to the north and it is possible that it formed the base of a larger wooden quay. Above the reclamation deposits themselves, there was also evidence for two walls which may have related to buildings close to the river edge, but their subsequent robbing and the truncation of deposits makes interpretation difficult.

Although dumping to raise ground levels did

not cease with the construction of the tower and the river wall in phase 4, these structures set an initial limit to these operations. The base of the wall stair and the threshold to the ground floor room in the tower effectively dictated the ground level immediately east of the town wall. The post-construction deposits which accumulated in order to achieve these levels are likely to have been deposited very quickly, given the links between the various contexts illustrated by the pottery assemblage. Once again, due to the truncation of deposits by later activity, it was not possible to define the extent and nature of land use immediately to the east of the wall between the late 15th-17th century.

The enclosure of a minimum of 47m of the river frontage by the river wall suggests that reclamation had proceeded sufficiently over several properties to the east of the tower for it to be enclosed in this way. However, this process would also have necessitated the restriction of river access along the river margin of these properties, but no evidence survives to suggest why this was possible here and not further to the east.

To the west of the Town Wall, the early phase 2 strand was covered by a sequence of deposits which only began to accumulate (on the basis of the finds assemblage), after the construction of the tower and river wall in phase 4. All of the deposits appear to be strongly influenced by water action. The deposits can be seen to slope in a very marked fashion from north to south, while the structure of the soil matrix in most layers reflected the grading action and sedimentation processes associated with tidal river margins. These features would suggest that the ground immediately to the west of the wall followed the natural profile of the river bank and that there was no berm or ditch in front of (to the west of) the wall. It seems probable that an area between the Town Wall and the next property to the west remained as open ground, sloping towards the river in the form of a strand or inlet, subject to a tidal river regime.

The Riverside Tower is the only tower on the wall circuit which is square in plan (fig. 29).

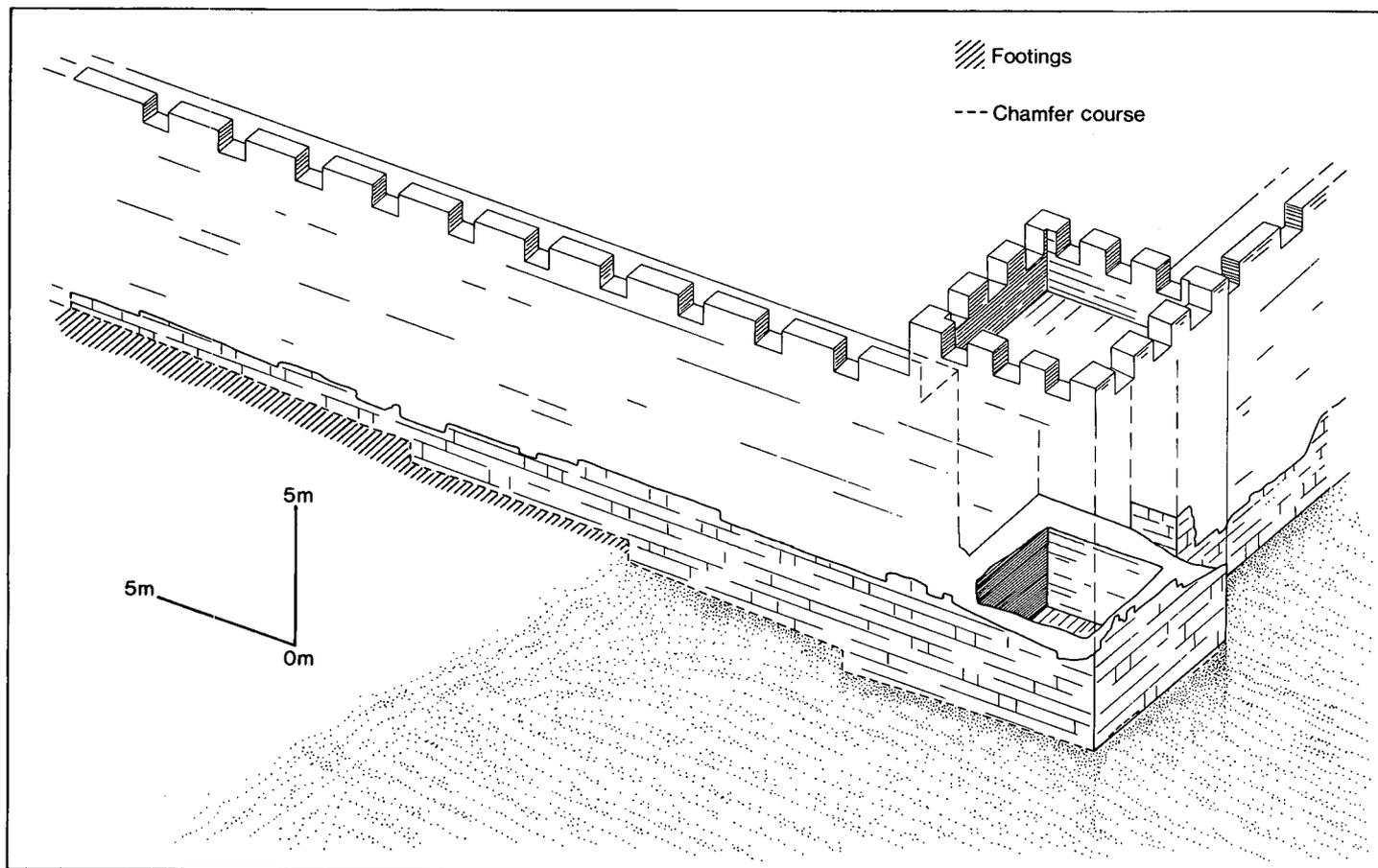


Fig. 29 Axonometric reconstruction drawing of the Town Wall and Tower.

Given that this tower belongs to a significantly later phase of construction, this plan form is not unusual and must reflect the change in military styles which by the 14th century had moved away from semi-circular towers. At Hartlepool, two types of tower are known to have existed on the circuit and the square towers were interpreted as forming part of a later remodelling of the defences in the late 14th-early 15th century (Daniels 1986, p.71). Other later medieval rectangular towers also occur at Dunstanburgh, Alnwick and Ravensworth Castles.

The Riverside Tower differs from the other towers in the circuit in several respects. It projects only slightly in front of the wall line and even then only on one side, while the D-shaped towers projected substantially in front of it. Its walls above foundation level are exceptionally thin and the provision of a fireplace within the ground floor room is also atypical. Unlike other waterside towers, e.g. York and Hartlepool, this tower does not appear to have served as a boom tower since there was no complementary structure on the south side of the river to which a chain could have been hung to block the river. In its later use as a meeting house by two of the Companies of Newcastle, it shared a common usage with many of the other gates and towers around the walls.

Archaeological evidence for the use of the ground floor or "low room" of the tower exists only from the early to mid-17th century. A sequence of floor surfaces accumulated in a dished-shaped depression caused by the removal of the original floor. The depression of the surface of subsequent deposits may indicate wear of these floor surfaces. The presence of ash and other burnt material in these layers, together with evidence of a light timber partition, suggests that the room was used regularly or occupied from this time. The removal of the earlier floor and the initial deposits may relate to the occupation of the tower during the Civil War while subsequent deposits must be associated with the tenant of the ground immediately north of the tower, who also had the "low room".

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