IV

The Medieval Town Defences of Newcastle upon Tyne: Excavation and Survey 1986–87

J. Nolan, R. Fraser, Barbara Harbottle and F. C. Burton

INTRODUCTION

Barbara Harbottle

During 1986 and 1987 five sections of the defences of the medieval town were subjected to a fresh programme of disengagement, excavation, consolidation and, in one instance, destruction. Four of these projects are now complete and, as well as our individual reports, we can offer a combined statement based on new information about certain aspects of the town wall and its ditch.

We are grateful to colleagues in the Departments of Planning, Estate and Property, and Engineers of the City of Newcastle for a variety of assistance. In particular we thank Susan Hedley who not only directed the excavation at Bath Lane for a short period, but who also helped with the survey of the wall on the Quayside and prepared the section on pottery for Report 2.

The archive and finds from the two excavations have been deposited in the Museum of Antiquities, the University of Newcastle.

It must be emphasized at the outset that virtually no new evidence has emerged with which to refine the dates of the defences, or to alter the present understanding of the sequence and direction of their construction. The first grant of murage was in 1265,[1] and later documentary references suggest that building was carried on from north to south on both sides of the town. The stretch of wall running through the precinct of the Black Friars (see Report 2) was described as new in 1280 when the friars were given licence to make a postern here,[2] and in 1312 they were allowed to bridge the "new dyke" at this point.[3] The wall above Close Gate (Report 1) appears to date from the 14th century since it lay south of the western re-entrant, probably laid out in 1311,[4] and south of the second precinct of the Carmelite Friars who had petitioned for compensation for loss of ground to the defences, probably in 1333.[5] Though the stretch north of Close Gate was thought to have been finished by 1334,[6] the archaeological evidence (Report 1) now suggests that the date of completion may be as late as the middle of the century. On the other side of the town there can be no doubt that the eastern re-entrant resulted from Newcastle's acquisition of Pandon in 1298,[7] and that the wall east of Corner Tower (Report 3) can be dated to the first decade of the 14th century.[8] The wall along the Quayside (Report 4) was the last addition to the defences since it could only have been constructed after the quay had become a continuous street, perhaps in the 1370s.[9]

Although it seems clear that the town ditch was finished earlier than the wall, and that its completion can be dated with confidence to 1316, the argument in favour of its being begun as late as 1312 is much less satisfactory.[10] The documentary evidence, such as it is, suggests the wall and ditch were, in some places at least, contemporary in construction and earlier than 1312, i.e. both lines of defence being planned to go through the Carmelites' first house on Wallknoll in 1308, and down the hill from the western re-entrant in 1311.[11] Whether the stretch of ditch in the Black Friars' precinct must really be as late as 1312, that is, some thirty years later than the wall beside it, could not be answered during the recent excavation (see Report 2) since no

archaeological evidence emerged for the precise date of construction of either wall or ditch, nor, indeed for the relationship between them.

Some accepted beliefs about the nature of the defences were confirmed, and a few will have to be revised in the light of this recent work. It was long ago noted that the curtain differed markedly in height and thickness from place to place,[12] and that these differences can be explained by local topography, probably by the "availability of men, money and materials", and presumably also by the length of time taken in building.[13] Even those stretches which survive today show a range in height from the top of the footings to the wall walk of 4·40 m (14 ft 5 in) to 6·60 m (21 ft 8 in), and of thickness above the external base chamfers of 1·98 m (6 ft 6 in) to 3·30 m (10 ft 10 in). Though the two surviving sections of parapet, between Ever Tower and Morden Tower, and between Forth Street and Hanover Street, have not been surveyed in detail, differences between them are readily apparent. At the first site the parapet is 1·68 m high from the wall walk to the top of the coping, and is pierced by embrasures nearly square in shape (*c.* 0·92 m wide by 0·80 m high) set *c.* 1·87 m apart. On the second stretch the parapet appears to be slightly lower, at 1·53 m, the embrasures nearer oblong (*c.* 0·70 m wide and 1 m high) and much farther apart (*c.* 4·20 to 5·14 m). Finally, it becomes increasingly clear that the ashlar of the wall face varies considerably in character and quality, and shows apparent building breaks which might well repay further study.

Since no tower was deliberately included in the recent programme it was by accident that evidence was forthcoming to support an earlier observation concerning the relationship of the towers and curtain on the west side of the town. Parker Brewis seems to have been the first to point out that, on their north sides at least, the Durham and Heber Towers were not bonded with the curtain, and he appears to have believed that the construction of the towers therefore preceded that of the wall on either side.[14] The junction of the curtain with the south side of Morden Tower was fully exposed in trench 2 across the town ditch (Report 2), and here there was indisputable evidence that the tower was built before the curtain.

The turret east of Corner Tower (Report 3) was found not only to differ from the other extant turrets in its plan, but also to be the result of a change of design during the building of this stretch of the curtain. These observations prompted a cursory reconsideration of what is known of the design and date of Newcastle's turrets, said to be without parallel in other English towns.[15]

Of the forty or more turrets supposed once to have existed,[16] fragments of only eight, including the two which constitute Corner Tower, are visible today. In this small sample there are no significant differences, the only differences of detail being the wide internal recesses in Corner Tower, and the forward projection of the neighbouring turret to the east. Eighteenth and 19th-century engravings and drawings of turrets since destroyed show no variations from this norm.

If the turrets were indeed built to a common design right round the circuit then one may infer either that the builders adhered fairly strictly to the same pattern during the main period of construction of the wall, (at least forty-five years), or that the turrets were contemporary with one another but additions to the wall. Since the turret east of Corner Tower appears to have been built as one with the wall beneath and to the east of it, and to date from the first decade of the 14th century, is it possible that its construction marks the point at which the other turrets were added to the town wall?

The available evidence does not provide a conclusive answer. On the one hand, masonry of the curtain gives hints that some turrets are additions, and in several cases they possess two features which are perhaps more likely to be early 14th-century than late 13th; on the other, there are documentary references which are difficult to reconcile with this structural data.

There are at least three places on the town

wall where one might argue from the extant stonework that the turrets are secondary. At the eastern re-entrant it seems that the original curtain was raised to provide a platform for the Corner Tower. This is suggested both by the pattern of long horizontal stones and breaks in the courses on both faces of the curtain, and also by the existence of a possible earlier parapet which is visible in section at a lower level, its inner (west) face masked by a higher wall walk. On the west side of the town, on the south side of the turret north of Heber Tower, there is another example of an apparently buried parapet. Finally, the turret in St. Andrew's churchyard is made of large, well-cut, blocks which are in marked contrast to the rubble of the curtain. It would require a more detailed study of the whole wall, comparable with that in Report 3, to confirm and illustrate this interpretation and perhaps to locate other examples.

The two architectural features which might be diagnostic of date are the pair of openings beneath shouldered arches through which a turret was entered from the wall walk, and the machicolations at the top of a turret, over the external foot of the wall. It has been suggested that this type of arch was first used in Edward I's Welsh castles, which were under construction from the late 1270s, and it therefore seems unlikely that the "Caernarvon arch", as it was once called, would have been used in Newcastle as early as 1280. An example in Northumberland, for example, is that in the Egyncleugh Tower at Dunstanburgh Castle, where building began in 1313.[17]

While there are machicolations on the turrets at Newcastle, the Heber and Durham Towers retain the stone corbels which once supported brattices, or temporary wooden galleries. Several authorities believe the latter was the earlier method of protecting the base of a tower, and the machicolated stone parapet a later improvement, introduced towards the end of the 13th century but not in general use until the 14th.[18] Since the two methods were not mutually exclusive, and could co-exist for a time, one can but suggest that their possession of machicolated parapets might indicate the turrets were later additions to the curtain.

Though the evidence cited so far might be thought to support an early 14th-century date of construction for the turrets, there are two much later documentary references which do not readily accord with this hypothesis. In 1386 the mayor and bailiffs of Newcastle were authorized to re-erect turrets on the walls,[19] and in 1407 the town was allowed to collect money for "the construction of a high tower on the walls".[20] Parker Brewis used the earlier document,[21] and Hilary Turner the later,[22] to back the theory that the turret north of Heber Tower was rebuilt during the medieval period. The grant of murage of 1407 will not be further considered since it refers to only one structure, and that need not be a turret. The writ of 1386 implies the rebuilding of existing structures and this, of course, cannot be reconciled with the evidence in favour of, apparently single-phase, turrets being added to the defences in the early 14th century. Without having seen the original document, it is impossible to know whether "re-erect" would be better translated "repair".

"The Foss or Ditch, that has anciently surrounded the walls of Newcastle, is, in most places at present, filled up, and made level with the adjoining ground. The space, however, which it occupied, is still called 'The King's-Dikes'. It appears to have been uniformly of the breadth of twenty-two yards, [20·13 m], or a chain. It is claimed as the property of the corporation . . .". So wrote John Brand towards the end of the 18th century,[23] and it was not he, but Sheriton Holmes, who first postulated a ditch 15 ft (4·75 m) deep.[24]

In the event the excavation of the town ditch between Heber and Morden Towers (Report 2) showed that, in this section of the defences at least, these dimensions were not far from the truth. Brand's figure roughly accords with the sum of the widths of the berm and ditch (*c.* 21 m), that is, the whole strip of ground called the King's Dykes, and Holmes' suggested depth is fairly close to the excavated depth of 4·50 m. While the exceptionally wide berm

would not necessarily exist at the same width for the whole circuit it now seems unlikely that Holmes actually saw the ditch outside the wall in Gallowgate.[25]

I am grateful to Eric Cambridge for his constructive, if sometimes astringent, comments on this introduction.

1. AN EXCAVATION ON THE TOWN WALL BETWEEN THE CLOSE AND HANOVER STREET

J. Nolan

During the summer of 1986 a short excavation took place against the eastern side of the medieval town wall between the Close and Hanover Street. This work was undertaken on behalf of the City of Newcastle, and was prompted by their desire to complete the consolidation of the surviving fabric and to landscape the adjoining embankment. The object of the archaeological investigation was to expose, by manual excavation, the full extent of the surviving medieval stonework, to examine the wall footings and recover dating evidence for the construction of this section of the town's defences. It was also hoped that traces of pre-town wall development along the Close might be revealed. On the steepest part of the bank only limited areas could be opened, but at the southern end of the site, adjacent to the Close, a larger area was taken in which ultimately proved the most rewarding, yielding evidence of 13th-century activity on the site.

The excavation would not have been possible without the assistance and support of Graham Snowdon and Brian Royce of the City of Newcastle, and Ivan Stretton formerly of the City and now retired. I would also like to thank the excavation team, D. Fletcher, G. McFadd, D. Ross, B. Morris and Mrs. J. Vaughan, without whom no soil could have been moved.

HISTORY OF THE SITE

The area of excavation is shown in Fig. 1. The

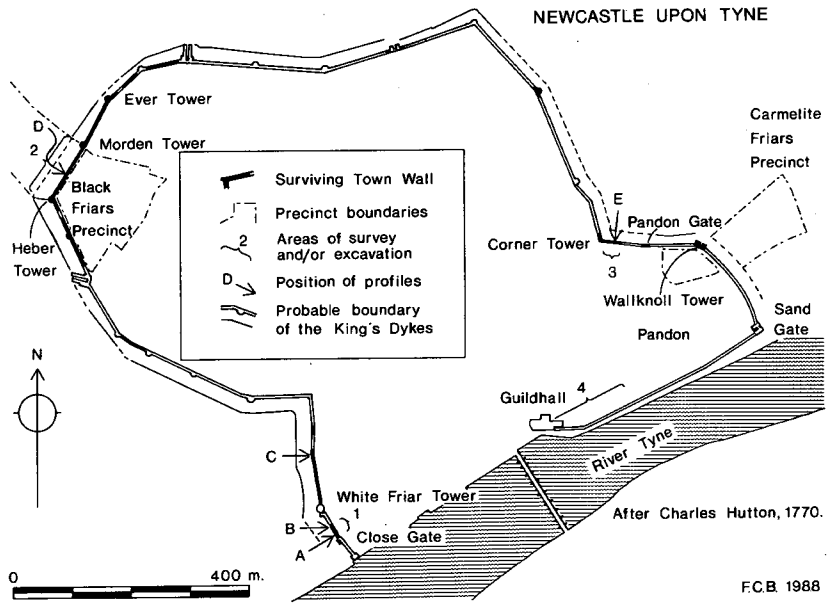


Fig. 1.

principal feature of the site is a substantial section of the medieval town wall which runs from the present line of the Close northwards up a steep bank for a distance of 24·52 m. The town wall south of the Postern, which includes the stretch under consideration, represents a deviation from the line originally intended to take in properties in the Close, a street believed to have been laid out in the mid-13th century.[26] The decision to alter the alignment of the wall was taken in 1311, but the work of construction cannot be closely dated from documentary sources. A petition survives dated as late as *c.* 1333 from persons claiming compensation for land lost to the wall and its attendant works, but it is unclear if this is a direct or a delayed reponse to wall construction.

The wall and gate figured prominently in the Civil War siege of 1644, the former being breached at a point "low by Clossegate".[27] Repairs were put in hand in 1648,[28] and the Jacobite risings of the early 18th century briefly revived its importance.[29] By 1797 however the narrowness of the passage through the Close Gate itself had become a hindrance to traffic, and the gate was demolished.[30] Further road widening in the 19th century, and the creation of Hanover Street *c.* 1842 in particular, reduced this section of the town wall to its present length.[31]

The early history of the lands immediately adjacent to the town wall is obscure, and the documentary sources patchy and unhelpful. An early 14th-century deed, concerning land on the north side of the Close belonging to one Walter de Cougate, bears an endorsement indicating the western boundary of the property to be "the stairs leading to the Freretoure".[32] This property almost certainly lay to the east of the wall and, since the wall itself is not named as the boundary, may be an indication that it had not then been constructed. Similarly the lands of the *c.* 1333 petitioners can only be located upon the line of the town wall by inference.[33]

The documentary material does not improve following the completion of the defensive circuit, but archaeological and pictorial evidence shows that although substantial timber-framed houses lined the north side of the Close by at least the end of the 16th century, there was no building actually abutting the town wall until a relatively late date.[34] James Corbridge's plan of Newcastle (1723) is the first to show a continuous line of buildings running along the north side of the Close and adjoining the town wall.[35] These appear in more detail in Oliver's maps of 1830 and 1840,[36] where a range of structures, with the reference number 59, is shown spreading up the bank and clinging to the town wall. The appearance and arrangement of the buildings at the site of the Close Gate are shown in a drawing apparently dated 1826 (Plate II), and in a sketch by Richardson of 1842.[37] About this latter date a considerable length of the town wall at the head of the bank, including the White Friar Tower, was destroyed by Amos Spoor in the construction of Hanover Street,[38] while quantities of earth and other rubbish were tipped on the west side of the wall, almost completely burying the face to the level of the wall-walk.[39] The buildings sketched by Richardson seem to have been rebuilt *c.* 1858, when the two distinct structures forming No. 59 on Oliver's maps were reconstructed in one style though seemingly preserving the earlier ground plan.[40] By the middle of the 19th century this property, known as Jones' Buildings, connected with the houses built at the top of the escarpment in Hanover Street by a steep flight of stairs called Granary Stairs.[41] This arrangement survived into the present century, the buildings being cleared by the 1940s.[42]

Archaeological investigation of the site began in 1968, when an exploratory excavation was undertaken by Barbara Harbottle across the line of this section of the town wall. On the western side of the wall the massive modern rubbish deposits mentioned above were encountered, but a portion of the wall face was exposed. On the eastern side, part of the footings were excavated, and peculiarities in the fabric of the wall were noted. A more comprehensive survey of the wall itself was undertaken in 1972.[43]

The Closegate in 1826, showing the building described in Phase 10.

THE EXCAVATION

Three areas were excavated, all adjacent to the inner (east) face of the town wall, and labelled A, B and C on the main site plan (fig. 3).

The object of excavation in Area A was to discover what, if anything, survived of the town wall to the north of the visible masonry.

Investigation was confined to a strip of ground a little wider than the existing wall but following the same alignment up the slope. Below topsoil and very recent building debris, a steeply sloping bank of hard, stony clay was exposed, abutting the west wall of a house fronting on to Hanover Street and therefore deposited after *c.* 1842. Part of this clay deposit, which just overlay the surviving town wall, was removed to a depth of 18·54 m O.D. at which point a level surface was reached. Excavation was continued for almost another 2 m producing china, glass and clay pipes datable to the mid-19th century.[44] By this stage the modern deposits were cut well into a thick deposit of sand underlying the town wall, and digging ceased when water began flooding the trench at a depth of 15·23 m O.D. Upon examination the sand and underlying boulder clay at Hanover Street proved to be an alluvial deposit forming part of a river terrace.[45]

In Area B the wall face was largely concealed by a substantial modern revetted platform (B/53, fig. 4). Here it was hoped to recover something of the original profile of the embankment and to establish how the wall builders had coped with the problems of construction on so steep a slope.

A narrow cut was opened against the inner

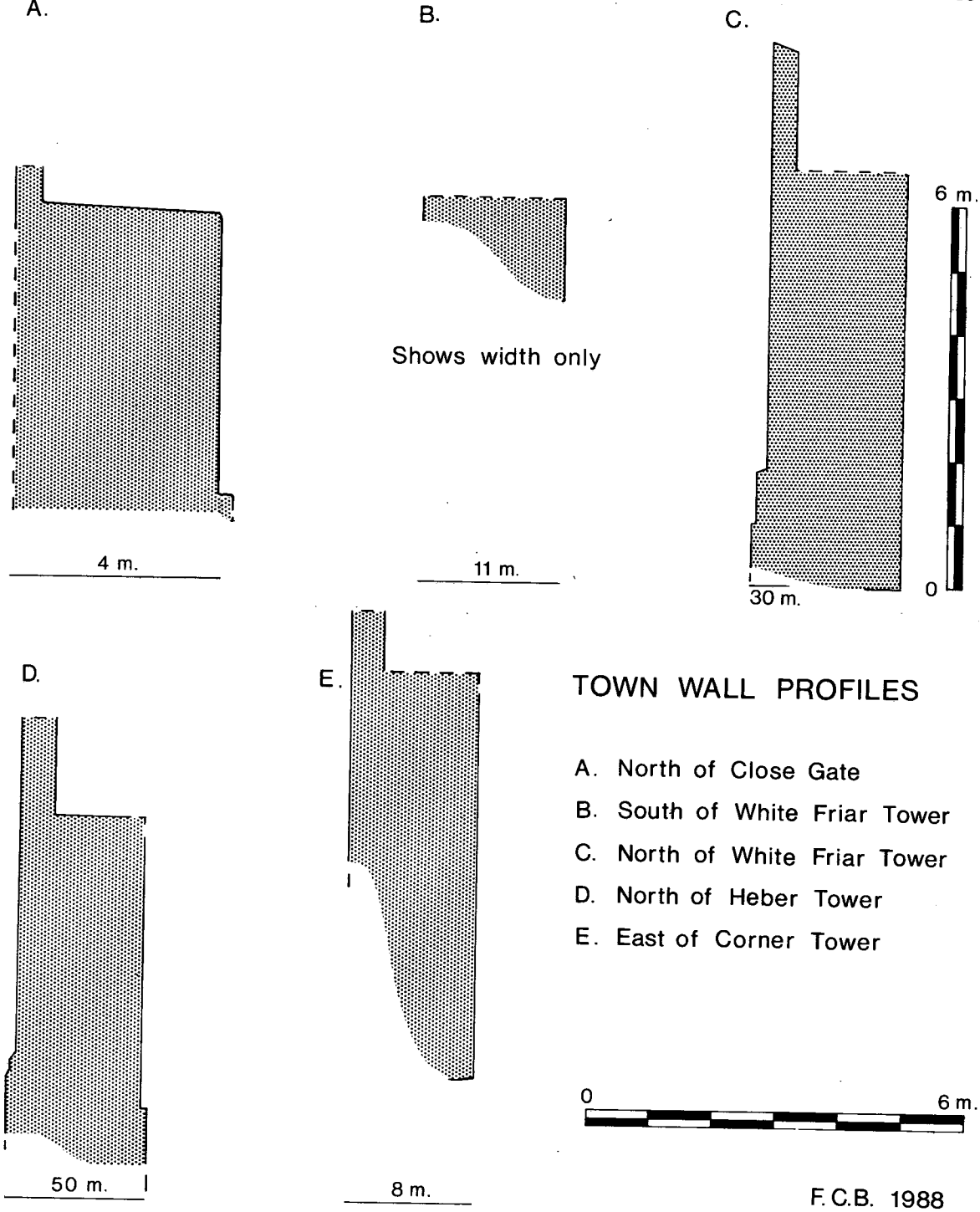

A.
B.
C.
Shows width only
4 m.
11 m.
30 m.
6 m.
0
D.
E.
50 m.
8 m.
TOWN WALL PROFILES
A. North of Close Gate
B. South of White Friar Tower
C. North of White Friar Tower
D. North of Heber Tower
E. East of Corner Tower
0
6 m.
F.C.B. 1988

Fig. 2.

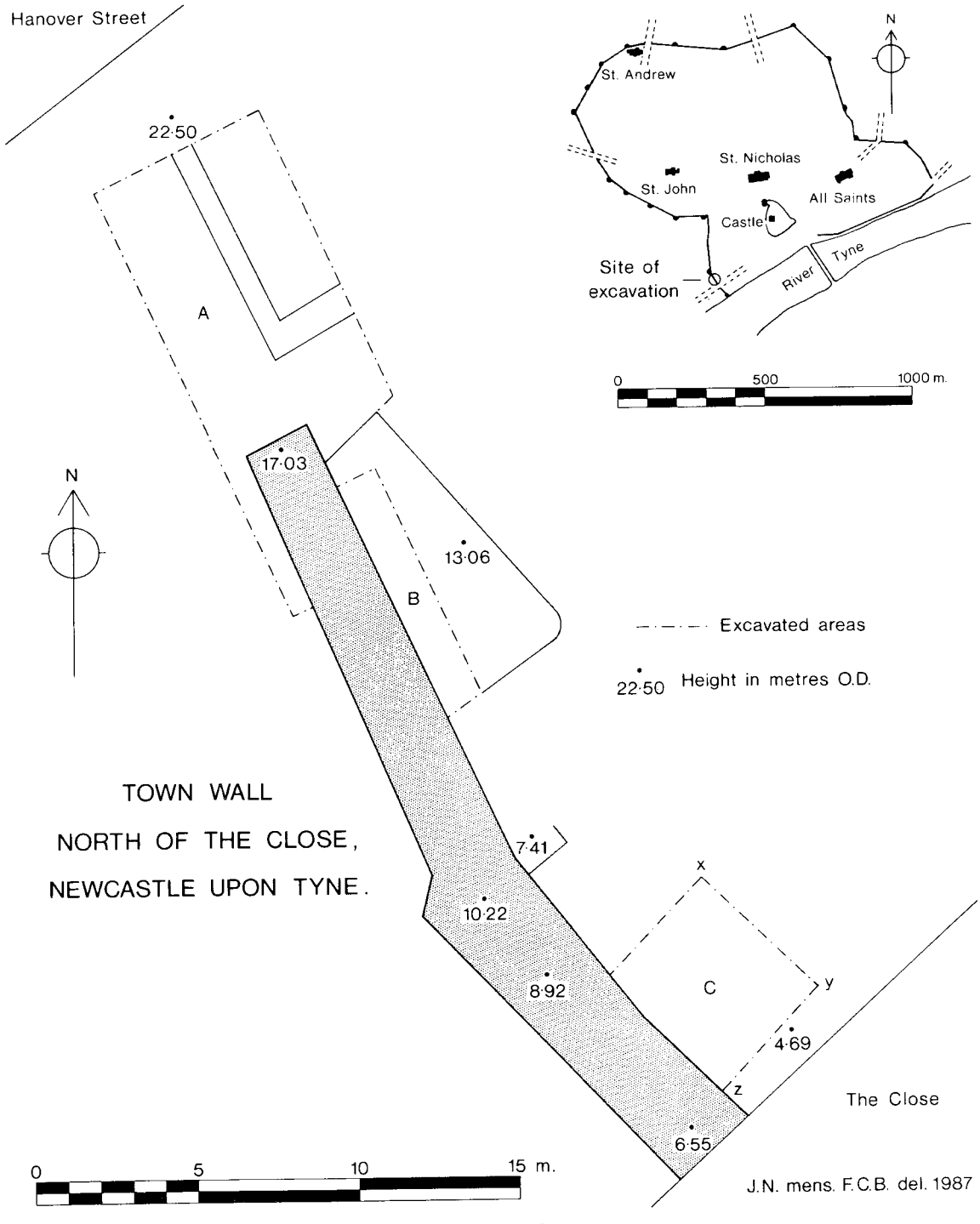

Hanover Street
22·50
A
17·03
B
13·06
N
St. Andrew
St. Nicholas
St. John
All Saints
Castle
Site of excavation
River
Tyne
0 500 1000 m.
Excavated areas
22·50 Height in metres O.D.
TOWN WALL
NORTH OF THE CLOSE,
NEWCASTLE UPON TYNE.
7·41
10·22
8·92
x
y
z
C
4·69
6·55
The Close
0 5 10 15 m.
J.N. mens. F.C.B. del. 1987

Fig. 3.

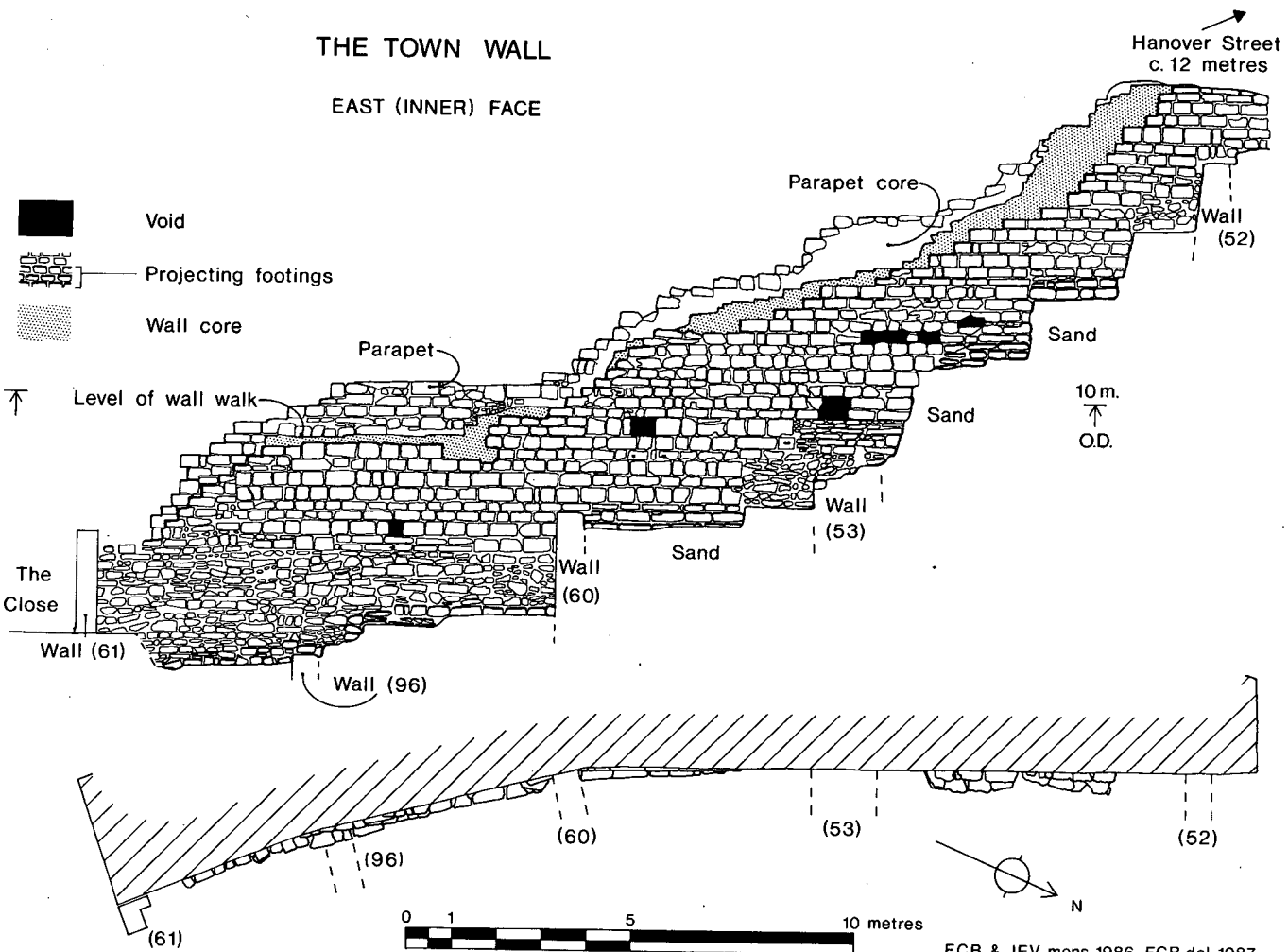

THE TOWN WALL
EAST (INNER) FACE
Hanover Street
c. 12 metres
Void
Projecting footings
Wall core
Level of wall walk
Parapet
Parapet core
Wall
(52)
Sand
10 m.
O.D.
Sand
Wall
(53)
Sand
Wall
(60)
The
Close
Wall (61)
Wall (96)
(60)
(53)
(52)
(96)
(61)
0 1 5 10 metres
N
F.C.B. & J.E.V. mens. 1986, F.C.B. del. 1987.

Fig. 4.

(eastern) face of the medieval wall to the north of the revetment. It was discovered that some 4·75 m of rubbish had been dumped here in the 19th century to create a level platform. Removal of these deposits exposed two "flights" of projecting stepped footings on which the town wall had been built as it climbed the bank. Only the uppermost of these retained any trace of a foundation trench, which was cut through a thin layer of greenish clay into the sand below. Here the footings consisted of two layers of large, irregular sandstone slabs, the upper projecting 0·20 m from the wall face and the lower 0·44 m. The foundation cut, which was narrow and filled with broken stones and loose sand, produced no finds. The greenish clay layer mentioned above followed the slope of the bank and may have been deposited as a deliberate cladding to the underlying sand, which eroded rapidly when exposed. From this set of projecting footings there was a drop of about 1·44 m in the wall face to a similar set below. There was then a sudden drop of over 3·00 m to the remains of another step, most of which had been destroyed when the revetment wall was built.

Very little can be said of the archaeological results from Areas A and B. The absence of any medieval or even pre-19th century stratification can be clearly ascribed to the extensive remodelling and terracing of the bank associated with the construction of Hanover Street and the erection of later buildings.

Excavation in Area C took in an area of some 22·5 sq. m. Only here was a relatively undisturbed sequence of medieval stratification discovered, and within this area eleven phases of occupation or activity could be distinguished, spanning the 13th to the 19th centuries (figs. 5–7).

PHASE 1, 13th century
The lowest level of excavation, reached at a depth of 3·25 m O.D., was naturally deposited firm sand with a ripple-marked surface. Because of the limitations of time and space it was not possible to investigate how, if at all, this related to the sand encountered on the bank above. This deposit was sealed by a thick band of clay, which in turn was covered by several successive washes of pure sand. Two of these bore traces of intense burning on their surfaces. Possibly these deposits represent periodic flooding of the river foreshore interspersed with occasional human activity. The few sherds of pottery recovered from the layers of burnt sand suggest a 13th-century date.

PHASE 2, 13th century (fig. 5)
The uppermost of the sandy layers described above was cut by a series of features which could be interpreted as forming a rather flimsy wooden structure. This "building" may have been burnt down, the features being sealed by a thick layer of ash.

PHASE 3, 13th century
Above the ash, two thick deposits of clay and sand separated by another wash of burnt sand covered the excavated area, suggesting that a modest and unsuccessful attempt was being made to raise the level of the ground against flooding.

PHASE 4, 13th century (fig. 5)
The uppermost of the Phase 3 deposits was overlain by the principal pre-town wall feature in Area C, a low revetting wall of unmortared rubble running roughly parallel with the line of the Close. The short stretch of this wall (C/96) which was exposed showed no signs of having had any return or associated features nor was there any definite evidence for the original height, consequently its function must remain uncertain. The possibility of its having been a property boundary cannot be ruled out, but the east-west orientation and the backing of redeposited clay rather suggests some sort of embankment of the river foreshore, though nothing so substantial as a quay.[46]

Whatever the intention behind the construction of wall 96 there were no further blanket deposits of sand, from which it may be inferred that in some way the flooding problem had been overcome. It is possible that other works had been undertaken a little further to the south of the excavated area to prevent tidal

flooding, and that wall 96 was part of the formal laying out of the Close as a street.

PHASE 5, 13th–14th century
A quantity of interleaved clay and ash subsequently built up against the face of wall 96, and was cut by the random features also shown in Fig. 5/2. These were then covered by a thin deposit of ash and mortar containing random stake holes. Below the south section lay a more substantial post hole (C/160), from which gulleys radiated at right angles. The impression given was of a large timber upright with smaller bracing posts, but not enough could be seen for satisfactory interpretation.

PHASE 6, early 14th century (fig. 5)
Above the layers and features of Phase 5 a more formal use of the site seems to have begun. The remains of wooden beams, levelled up with packing stones, suggests that a small timber structure abutted wall 96. Within the beams a layer of compacted mortar, ash and clay resembled a floor surface, but there is insufficient evidence to suggest that this represents permanent domestic occupation actually on the site.

PHASE 7, mid-14th century? (fig. 5)
The Phase 6 structure would seem still to have been in existence when the town wall was constructed across the site. The inconclusive nature of the documentary evidence for the precise date of building of this section of the town's defences has already been mentioned.[47] Archaeologically the problem was compounded by modern disturbance of layers adjacent to the town wall, making it impossible to identify the exact point at which the footings cut pre-existing deposits. All that can be said with any certainty regarding the date of the town wall construction is that pottery of reduced greenware type 4, considered to be a mid-14th century introduction, first appears in this phase and is present in significant quantity. The surviving documentary sources would be consistent with the broadly mid-14th century date of building suggested by the pottery.

Turning to the wall itself, there can be no full discussion of its form or constructional details without exposure of the western face. The elevation (fig. 4) shows the eastern face of the wall and its footings after excavation in 1986. Of the visible structure little can be added to that which has previously been written, but two features were more fully exposed and are worthy of further comment.

As described under Area B the wall ascends the steep bank above the Close by a series of steps or ledges cut into the slope, at each of which stepped footings were provided. Where these survived they were constructed of large undressed sandstone slabs. Lower down however, to the north of wall 60, the ground is more level and the footings consist of regularly cut and laid ashlars running at an angle to the face of the town wall. There is no obvious explanation for this difference, and no reason to suppose that the lower footings were ever intended to be seen. Another feature noticed in the earlier excavation is the extensive use of small, roughly coursed rubble on the lower part of the inner face. Where this is clearly part of the original design, between the Close and wall 60, it occupies about half the surviving height. The existence of stepped footings below this rubble work and clearly contemporary with it precludes the possibility that this represents a cutting back of a projecting part of the superstructure, and there is no archaeological evidence to suggest that this part of the wall might have been concealed by an earthen backing. It has been suggested that the use of rubble in the original design was prompted by economic considerations;[48] equally the speed with which rubble could be laid may have made it an attractive alternative to ashlar work for the less vulnerable parts of the structure. Persistent Scottish incursions in the first half of the 14th century must have added urgency to the work of fortifying the town, and speed as much as economy might have been the governing factor in erecting a defensive barrier across the level ground at the Close.

Elsewhere on this stretch of the town wall rubble only seems to have been employed at a later date as in-filling where terracing of the bank had destroyed and undermined the pro-

jecting footings. An example of this can be seen on the elevation near the northern end of the wall. Apart from these patches there is little other sign of interference with the wall face. A few small areas of irregular masonry and vertical joints can be seen on the elevation, but cannot be assigned to any particular phase or date. It is possible some of these are connected with repairs to the wall after the Civil War or at the time of the Jacobite risings.

PHASE 8, 14th–15th century

As part of the defensive barrier, a strip of open ground or lane seems to have been required running along the inside of the town wall and free from civilian encroachment.[49] Certainly the excavated material post-dating the construction of the wall in Area C, designated Phase 8, would suggest that the site at this time was a vacant plot: there were no features, the deposits consisted of clay, stones and soil and large quantities of pottery and bone were present. That this is probably the result of rubbish dumping is indicated by the battered condition of much of the bone, some bearing dogs' teethmarks, and the number of pottery joins between layers. The latter also suggests a relatively short deposition period, or that domestic waste was being brought from a midden site elsewhere and used to make up the ground.[50] The pottery appears to span a period as wide as the late 14th–15th century, adding weight to the possibility of its being secondhand rubbish.

PHASE 9, mid-17th century

The Phase 8 material was completely sealed by layers and features which can be firmly dated to around the middle of the 17th century. The absence of any clearly identifiable 16th-century pottery suggests that either the dumping of waste had ceased by that period or that a certain amount of stratification had been removed, perhaps at the time of the Civil War. The latter interpretation is supported by the level of the 17th-century deposits being slightly lower than the top of the town wall footings in places. It is possible that a piece of waste ground sited so near to the Close Gate was a convenient quarry for soil for some temporary defence works.

The features and finds comprising this phase are distinctive enough to be assigned to the period of Civil War activity in Newcastle, *c.* 1644–50.[51] In Area C three large patches of burnt coal and wood ash, possibly the remains of watchmen's fires, were discovered. Associated with these features were four lead bullets and a farthing of Charles I. Fragments of clay tobacco pipes were also recovered from the areas of burning; those with sufficient diagnostic features suggested a date of *c.* 1645–55.

Two of the hearths were sealed by a thin layer of rubble, clay, charcoal and mortar (C/106) which produced a slightly worn coin dated 1637, the remains of two slipware tankards, and more clay pipes of the period *c.* 1645–55. It is possible that the deposit represents repair work to the war-damaged wall and gate put in hand in 1648.[52] The artifacts may have been discarded by members of the English garrison, who in 1650 were using premises "near the Closegate" as a guard-house.[53]

PHASES 10–11, post-Civil War–19th century

These phases represent the construction of, and subsequent alterations to, the first substantial building encountered in Area C. The appearance of this structure, which butted the inner face of the town wall, is of particular interest bearing in mind the restrictions imposed on encroachments upon the defensive circuit previously mentioned.[54] Stratigraphically this structure was clearly post-Civil War and seems to be present on maps as early as 1736, but the finds associated with the construction (Phase 10) preclude any closer dating. In early 19th-century views this building appears as a low, roughly-built stone structure which by *c.* 1858 had been substantially rebuilt in brick.[55]

The excavated remains were scant and difficult to reconcile with the illustrations described above. Two large stone features, possibly forming the foundations of a fireplace, lay partly under the east section (fig. 6) and may have belonged to the earlier building. Against the town wall and partly overlying the projecting footings, a trench containing mortared

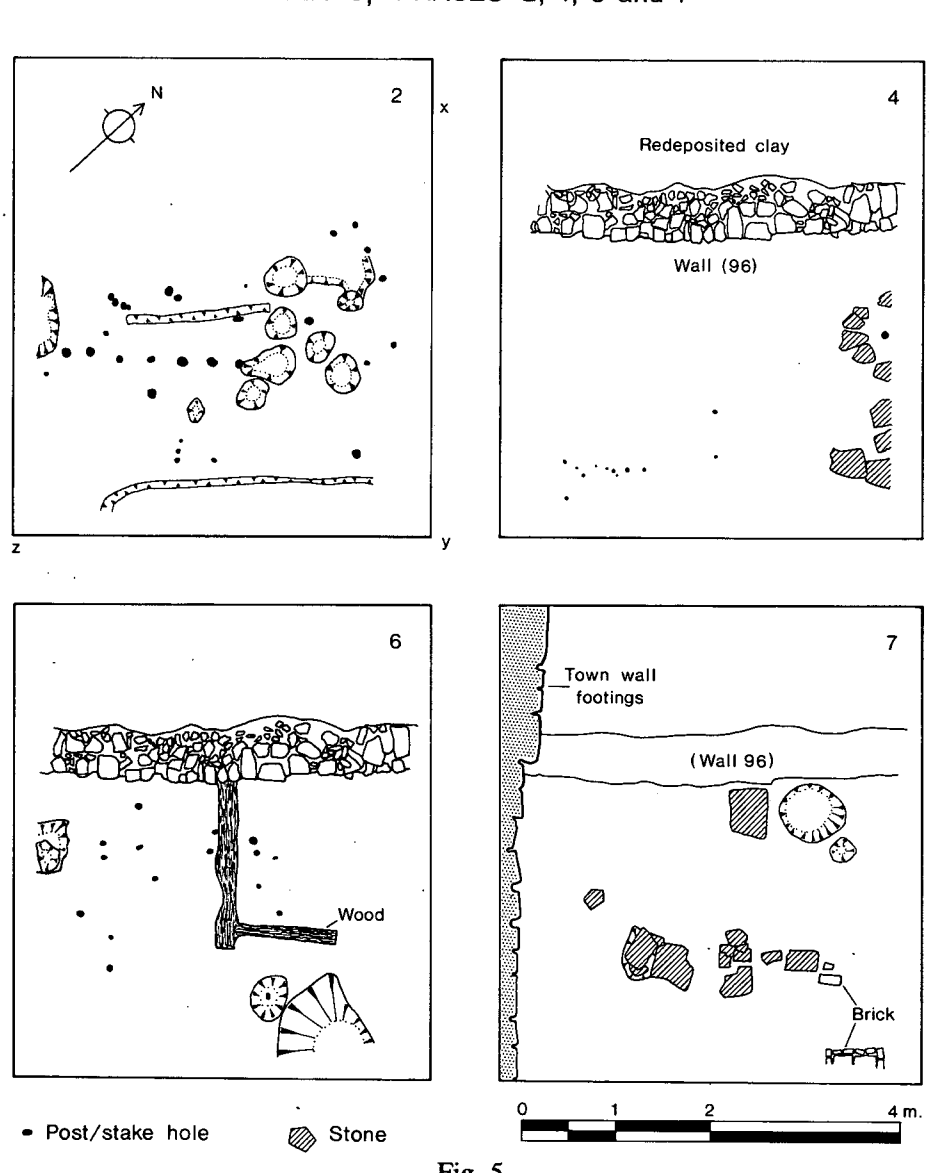


Fig. 5.

stonework was discovered. Here the stone carried the remains of a brick wall (C/61), the south-west angle of which survived to a height of over 2·00 m. The foundation cuts for all the stone features, assigned to Phase 10, were sealed by a layer of building debris containing a coin dated 1822. It seems likely that this deposit and the brick walling belong to the *c.* 1858 alterations, designated Phase 11, which may have re-used the foundations of the earlier stone structure.

No documentary evidence for the construction of this building can be found in the records of the Corporation, which is a little surprising

as it clearly represents an encroachment upon the town wall. It is just possible that the early stone structure was erected by the authorities towards the end of the Civil War period to serve as a guard-house, since the use of private dwellings for this purpose seems to have been unpopular.[56]

THE FINDS

In Reports 1 and 2 * indicates an object is not illustrated.

THE POTTERY

A total of 1,726 sherds of pottery was recovered from all areas of excavation. Of these, 641 came from the 19th-century deposits in Areas A and B, and consisted predominantly of china and late earthenwares. There were also a number of residual medieval to 18th-century fragments, but only two pieces were remarkable enough to be included in the catalogue, nos. 11 and 14.

The remainder of the pottery came from well-stratified contexts in Area C and ranged in date from the 13th century to the 19th century, the bulk being in the medieval and Civil War phases. All the pottery was well fragmented and no complete medieval vessel profiles survived; the Civil War period deposits however did produce two more or less complete slipware tankards. The degree of fragmentation was such as to make a maximum vessel count meaningless, but some distinctive form elements did survive, such as jug spouts and tripod cooking pot rims, to provide an indication of common vessel forms. The relatively small quantities of pottery involved at Hanover Street limits the conclusions which can be drawn from the sample, but the broad trends in fabric types accord with those from other excavations in Newcastle and are presented in histogram form in Fig. 7.

LOCAL WARES

GRITTY WARES

These are the dominant local fabric (in percentage terms) in the earliest deposits, but decline in favour of the whitewares from Phase 1a (13th century) onwards. Where an indication of a vessel form survived both jugs and cooking pots were represented.

MEDIEVAL WHITEWARES

The term medieval whiteware has been chosen to include the buff-white fabric defined in the *Castle Ditch* report[57] and a wider group of white-firing local fabrics. This group is composed of reddish-pink, sandy, sometimes soft fabrics with white or pale streaks or specks, and occasional iron inclusions, and a grittier white or off-white fabric of varying hardness, also with occasional iron inclusions. The distinction between the latter fabric and some oxidised gritty wares is not always clearly defined.

The whitewares are dominant in Phases 3–7 (? late 13th century to mid-14th century) but then decline in favour of reduced greenware type 4, and are residual in Phase 9. Common forms in this fabric are cooking pots, while a possible urinal fragment occurs in Phase 8.

1.* Jug, in a hard, sandy, reddish-pink fabric with occasional quartz and mica inclusions, and random specks of clear glaze externally. C/162, Phase 5.
2.* Jug?, in a sandy, reddish-pink fabric with occasional quartz and rich inclusions, even yellow-green glaze externally. Decorated with a single incised wavy line around the shoulder. C/162, Phase 5.
3. Cooking pot, in a whitish-pink, sandy fabric with frequent iron inclusions, unglazed. C/152, Phase 5.
4. Cooking pot, in a whitish-buff, gritty fabric, unglazed and sooted externally. C/157, Phase 5.
5. Jug, in a soft, buff, sandy fabric with iron

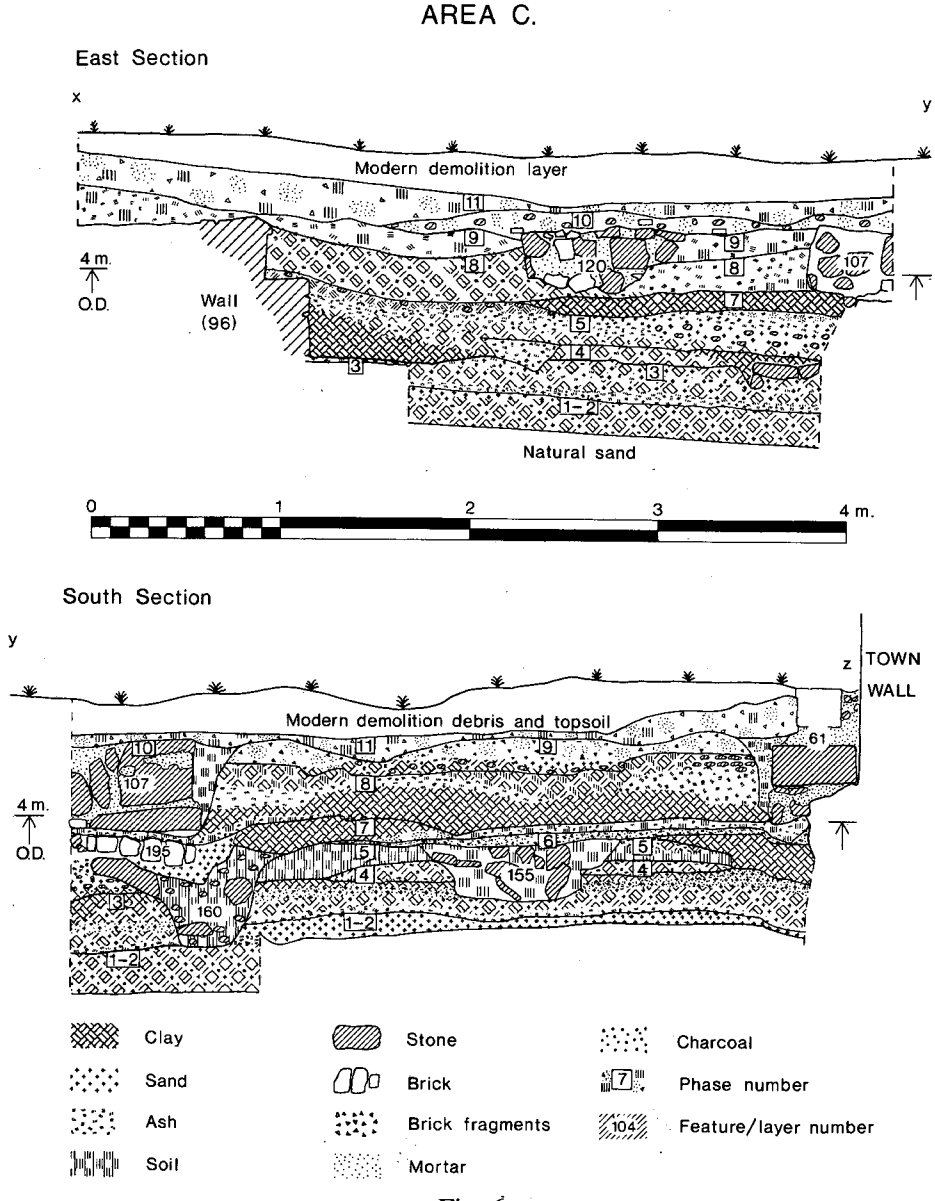


Fig. 6.

inclusions, and even dark green glaze externally. Decorated with concentric incised lines on the shoulder. C/123, possibly another fragment in C/115, Phase 8.

6. Urinal?, in a soft, reddish-pink, sandy fabric with patchy, thin, green glaze externally. The atrophied rim is typical of a urinal. C/115 and 116, Phase 8.

REDUCED GREENWARES

The early reduced greenware fabric types 1–3

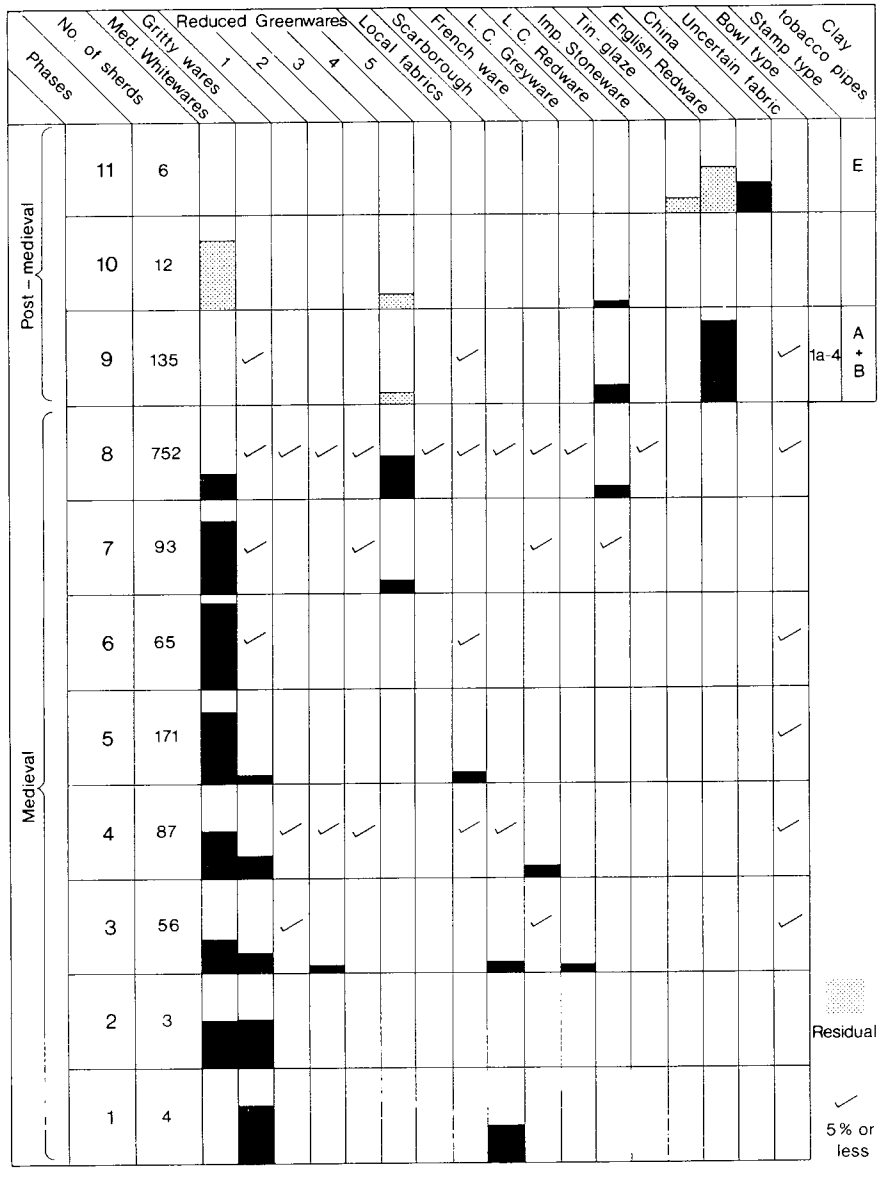


Fig. 7.

are hardly in evidence, but reduced greenware type 4 appears suddenly in Phase 7, associated with or possibly just post-dating the construction of the town wall. The mid-14th century date suggested in the *Castle Ditch* report for the first appearance of this fabric type would be consistent with the documentary evidence for the date of the construction of the town wall. Reduced greenware type 4 becomes dominant in Phase 8 and is residual in Phase 9. A single sherd of reduced greenware type 5 occurs in Phase 8. All the identifiable forms

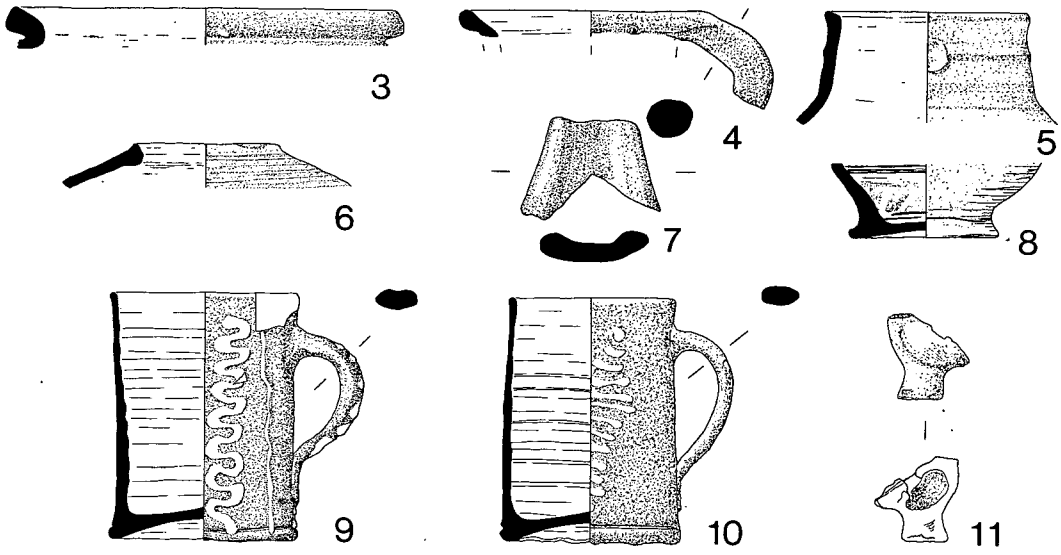


Fig. 8.

are jugs, with the exception of no. 7 in the catalogue.

7. Fragment, possibly a spout from a dripping pan, or a lug handle. Type 4 fabric. C/115, Phase 8.
8. Pedestal base, possibly part of a jug, in type 4 fabric but partly oxidized, thick yellow-green external glaze on body. B/25, residual.

OTHER MEDIEVAL ENGLISH WARES

The only identifiable non-local fabric in the medieval deposits was Scarborough ware, represented by a small number of sherds in Phase 1–Phase 4 contexts. Two fragments in Phase 8 are residual.

POST-MEDIEVAL ENGLISH WARES

English redwares appear in Phase 9, where they are the dominant fabric. Most of the fragments recovered belonged to the two slipware tankards illustrated in Fig. 8. These vessels may be Metropolitan products. There are also two clearly Metropolitan plate rims, one from Phase 9 and another residual fragment in Phase 11.

9. Tankard, in a hard, light red fabric, glazed light brown with external slip-trailed decoration. C/68, Phase 9.
10. Tankard, in a hard, dark red fabric with noticeable pale streaks and iron inclusions. C/68, Phase 9. Cf. *Black Friars* nos. 71–4.[58]
11. Bird whistle. Area A/46.

CONTINENTAL IMPORTS

These are not present in any significant quantity. French wares and Low Countries greywares first appear in Phase 3 and are absent after Phase 8. The common forms appear to be jugs. Low Countries redwares occur first in Phase 7 and continue into Phase 10. The forms appear to be small, cauldron-shaped cooking vessels some of which had tripod bases. Imported stoneware is only present in Phase 8, where there are a few sherds of Siegburg, Langerwehe and Raeren. The only indication of a form is a frilled Siegburg base, probably from a mug. A single sherd of Delft occurs in Phase 11 where it is clearly residual.

12.* Jug?, in a fairly thin-walled, whitish-buff, slightly gritty fabric with occasional larger inclusions and a dark green external glaze. Decorated with concentric bands of rouletting. Although French in appearance, there are affinities with local whitewares. C/165, Phase 4.
13.* Fragment of ring base of Low Countries greyware, with traces of impressed external decoration and a small hole piercing the body (? repair). C/115, Phase 8.
14.* Fragment of a stoneware flask or bottle with impressed mark HERZOGTHUM NASSAU. An identical mark was found at the Castle.[59] 18th or 19th century. A/41, residual.

CERAMIC SPINDLE WHORLS

15.* Spindle whorl (half), ceramic; traces of at least one incised groove around the circumference. Overall diameter 29 mm, centre hole 9 mm. C/150, Phase 7.
16. Spindle whorl, ceramic; two incised grooves around circumference. Overall diameter 30 mm, centre hole 10 mm. C/153, Phase 6.

THE GLASS

Only 98 fragments of glass were recovered from all the areas of excavation, and all but two of these came from the 19th-century deposits in Areas A and B. Many of these fragments carried tradenames identifiable in local trade directories, confirming their relatively recent date. Area C yielded two fragments, both from Phase 6. One, a solid, spirally twisted rod in a dark green metal, is probably contamination from the 19th-century layers above, but is very similar to the stirring rod illustrated in the *Bastion* report (no. 90).[60] The other, a small fragment of light green window glass, seems to be of *17th-century Pit* type 1 metal.[61]

The paucity of glassware finds was surprising in view of the extensive glass-making activities of the Dagnia and Cookson families just to the west of the Close Gate between the 17th and 19th centuries.[62] A quantity of glass waste in the form of small droplets was noted however among the 19th-century deposits in Area A.

CLAY PIPES

A total of 284 pieces of clay tobacco pipe were recovered from the three excavated areas. These have been analysed using the Tyneside bowl and stamp typology introduced in the *Black Friars* report.

The majority of the fragments were found in 19th-century deposits in Areas A and B, and could be dated by form, decoration and maker's marks to a period after *c.* 1820. Amongst this material were a few earlier fragments, two of which bore previously unpublished forms of maker's mark. These have been illustrated.

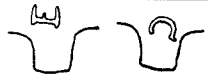
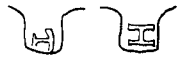
Area C produced 59 stratified fragments, the bulk of which came from Phase 9. Here the bowl and stamp types give a date range of *c.* 1630–60, but centre on the period *c.* 1645–55. This group, which includes the maker's mark NW,[63] would therefore seem to belong to the period of Civil War activity in Newcastle, a conclusion supported by the other finds from this phase of site activity, nos. 20, 21, 31, 32.

BUILDING MATERIALS

BRICKS

No bricks were kept from the 19th-century deposits in Areas A and B, but 42 complete and fragmentary examples were recovered from Area C. These were identified using the type series devised from bricks found in the *Castle Ditch*.[64]

No bricks occurred in Phases 2–6, but Phase 7 produced twenty-five fragments of type i brick, most of which had been formed into an open hearth (C/95). The mid-14th century date suggested for this phase puts the appearance of this brick type slightly earlier than at the Castle.[65] Phase 8 yielded twelve fragments of types i, iii, vi and x; Phase 9 merely two fragments of types i and iii.

Maker's mark	Pipe no.	Maker's name	Tyneside bowl type	Tyneside stamp type	Stem bore	Comment and context
	3	Edward Craggs *c.* 1678–1717d.	9	E	7/64	E on left and C on right of heel. A/66.
	17	Unknown; mid-17th century context.	N/A	A or B	7/64	London origin, *c.* 1635–75. Cf. *17th-C Pit* no. 76. C/68.
	77	?John Newton, Gateshead. 1801–41.	17	E	4/64	I on left and N on right of heel. B/86.
	5	Unknown, 19th-century context.	N/A	E	4/64	N on left and I on right of heel. C/94.
	44	Unknown, possibly local. *c.* 1635–75.	2a/2b	A	7/64	Similar marks from *Black Friars*. C/71, Phase 9.
	2	As 44.	2a	B	8/64	A/66
	88	?Thomas Hardy, Gateshead. 1850–58.	N/A	E	5/64	T on left and H on right of heel. A/41.

The marks are illustrated at 1 : 1.

CLAY ROOF TILES

Pantiles occurred in the 19th-century deposits in Areas A and B. Area C produced only fragments of plain clay roof tiles, the earliest appearing in Phase 3. The largest group, 13 pieces, came from a single context in Phase 6. Fabrics were reddish-brown, sandy, sometimes with reduced cores; thicknesses ranged from 8–15 mm. Only one fragment showed a means of attachment, a circular nail-hole pushed through the unfired clay.

STONE ROOF TILES

One large sandstone flag was found in Phase 9, reused as part of an improvised hearth (C/72) in the mid-17th century.

STONE OBJECTS

17. Fragment of hone or whetstone in schist,[66] worn smooth on three sides. 48 mm long, 17 mm wide, 7 mm thick. C/159, Phase 5.
18.* Fragment of hone or whetstone in schist, only one side appears to have been used. C/123, Phase 8.

THE COINS

G. D. Robson

19.* Farthing; George III, 1822. C/62, Phase 11.

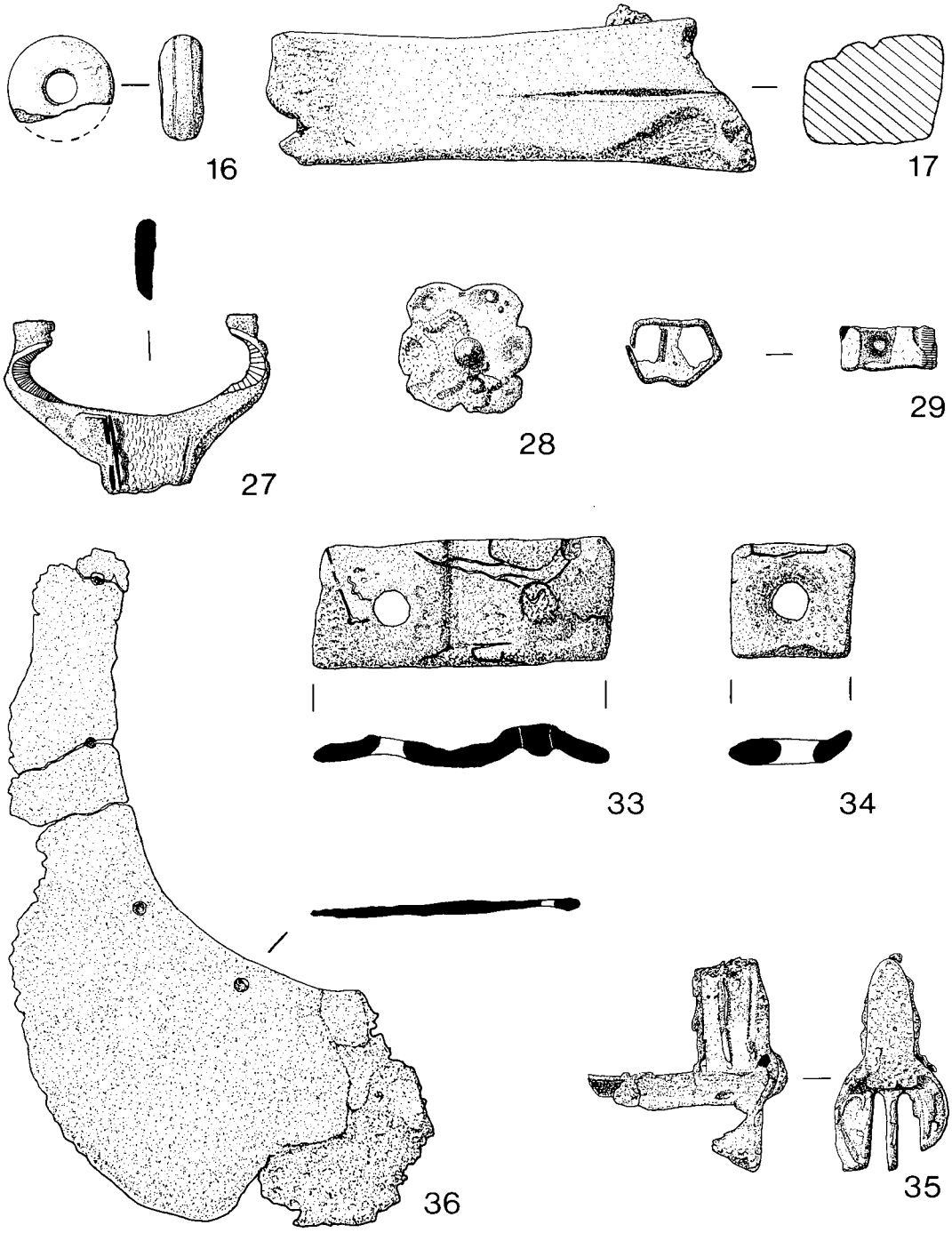


Fig. 9. Ceramic, stone, copper alloy and iron objects ($\frac{1}{2}$) except for nos 27–29 ($\frac{1}{1}$).

20.* Æ Rose (or Royal) Farthing, type 1d; Charles I 1644–49; 13 mm. C/71, Phase 9.
21.* Æ German States?, perhaps Darmstadt; 1637; 20 mm. C/68, Phase 9.
22.* Æ German States?; first half 17th century; 18 mm. C/62, Phase 10.
23.* Æ Rechenpfennig?; early 17th century; 20·5 mm. C/113, Phase 8 (intrusive).

METALWORK

COPPER ALLOY

24.* Hollow button formed from two dished plates, attachment loop missing, traces of cross-hatched decoration on outer surface. 12 mm diam. C/68, Phase 9. From a mid-17th century context, but probably contamination from the 19th-century layers above.
25.* Disc, slightly dished with centre hole. Possibly the cap from a knife handle. 28 mm diam. C/71, Phase 9.
26.* Fragment of sheet bronze, irregular and twisted. 2 mm thick. C/123, Phase 8.
27. Buckle, bar missing, with traces of engraving and gilding on the upper surface. There is an almost identical example from Norwich Castle.[67] C/157, Phase 5.
28. Stud, the edges scalloped and decorated with punched dots. Remains of an iron rivet for attachment. A similar piece was found at Battle Abbey.[68] C/117, Phase 8.
29. Unidentified object, possibly a binding strip from a knife handle. C/116, Phase 8.

LEAD

Only six pieces of lead were found. The 19th-century deposits in Area A produced a thin lead rod resembling a surgical probe. The remaining five pieces were found in Area C, and include four bullets from Phase 9.

30.* Rod, circular in section tapering at both ends. Possibly a farrier's fistula probe? 105 mm long. A/63, 19th-century context.
31.* Pistol ball. 13·5 mm diam., 11·79 gm. C/102, Phase 9.
32.* Musket balls, three examples. 17·5–18 mm diam., 27·25–32·1 gm. C/71 (two), C/110 (one), Phase 9.

IRON

A total of 81 iron objects were excavated, all from Area C. Of these 60 were nails or fragments of nails, few of which could with any certainty be described as being of a particular type. The majority of the nails came from medieval contexts, and the dicehead form seemed to predominate.

33. Strip of iron, both ends cut with a chisel, while an uncompleted cut divides the strip into two roughly rectangular sections through each of which a hole has been punched. 5 mm wide by 88 mm long. C/136, Phase 6.
34. Iron washer, evidently cut from the above strip. C/136, Phase 6.
35. Barrel padlock, iron with traces of copper alloy (spelter?) on the outer surfaces. Very corroded and fragmentary. C/165, Phase 4.
36. Iron plate (damaged), curved slightly along its length with evenly spaced rivet holes along the thickest edge. Tentatively identified as being from the armpit of a "coat of plate", a type of 14th-century body armour.[69] Found with nos. 33 and 34. C/136, Phase 6.
37.* Iron bar, heavily corroded. 513 mm long by 18 mm thick. C/146, Phase 5.

THE ANIMAL BONE

L. J. Gidney

Of the 206 fragments catalogued 13·5% were not identifiable to bone or species, 18·4% were recorded as large mammal or large ungulate and 10·1% as small ungulate, while 49% were identifiable to species. This suggests that the collection as a whole is in a moderate state of preservation. However, differences in preservation were observed. The small quantities

TABLE 1. Fragment counts for the species present

	Phase 1	Phase 3	Phase 4	Phase 5	Phase 6	Phase 7	Phase 8	Phase 9	Phases 10–11	Totals
Ox			4	1	4	1	38	2	1	51
L. Mammal		1		2	2	1	8	2	3	19
Goat		1								1
Sheep/Goat		1		2		1	20		2	26
Pig		1		1			12		1	15
Horse							1			1
L. Ungulate			1		1	2	15			19
S. Ungulate	1	1		2	1	2	8	2	4	21
Indet. Mam.				1	1	3	18		5	28
Chicken		1			1	1	2			5
Duck									1	1
Goose			1							1
Indet. Bird							1			1
Fish	4	9			4					17
	5	15	6	9	14	11	123	6	17	206

of bone from Phases 1 and 5 were in particularly good condition, while the large group from Phase 8 was more variable with over a third of the bone recorded as worn/rolled/eroded. This suggests that at least some of this group had been exposed to erosional forces prior to burial with only the more robust fragments surviving. The survival in good condition of a juvenile sheep/goat maxilla from Phase 8 suggests that conditions on this site did not adversely affect the preservation of bone and that the poor state of much of the bone from this phase is indeed due to weathering prior to burial. This would confirm the excavator's interpretation of this phase representing make-up deposits which would be expected to incorporate a mixture of fresh and ancient rubbish.

A high proportion of the bones from Phases 7 and 10/11 are also probably redeposited as over 40% of the fragments are in poor condition. The poor state of preservation of so much of this collection probably explains the unusually high proportion of cattle to sheep/goat fragments in the later medieval phases. A greater number of sheep/goat fragments would be expected but the sheep/goat counterparts to the weathered cattle fragments have probably failed to survive at all.

The paucity of bone from the majority of phases and the weathered nature of much of the collection suggests that primary food refuse was never the main source of faunal debris on this site. The goat and sheep/goat remains from Phase 3 were both horn cores, not noted for their meat yield and more indicative of slaughterhouse or hornworkers' waste. However it may be presumed that many of the bones found, with perhaps the exception of the horse, were originally domestic waste. Butchery marks were noted on thirteen fragments, principally from Phase 8. No particular evidence was noted to suggest selection of any parts of the skeleton which would imply preferential consumption of certain joints.

Only five fragments were burnt so this method of destruction would seem to have had little impact on the collection. Seven fragments with tooth marks comparable to dog gnawing were found, again mostly from Phase 8.

REFERENCES

Rackham, D. J. (1987). "Assessing the relative frequencies of species by the application of a stochastic model to a computerised database of fossil or archaeological skeletal material", in Wijngaarden-Bakker, L. van, ed., *Data Management of Archaeozoological Assemblages*, PACT.

Silver, I. A. (1969). "The Ageing of Domestic Animals", in Brothwell, D. and Higgs, E., eds., *Science in Archaeology*.

2. EXCAVATION OF THE TOWN DITCH

R. Fraser

INTRODUCTION

The demolition of Rutherford College, and a proposal to landscape the ground in front of the town wall between Morden and Heber Towers provided an opportunity to examine the construction of the wall and its towers, to determine the size and position of the town ditch in this area, and also to look for traces of the Black Friars' bridge across it. To this end, two trenches were excavated, and as a result of other works in preparation for a car park, two further sections were recorded. These areas all lay within the precinct of the Dominican Friary, within the close outside the town wall.

HISTORICAL BACKGROUND

At the time of the construction of the town wall through the friary precinct in 1280, the area which was to be left outside the wall is referred to as a garden.[70] It is also apparent from this document that the friars' postern was actually incorporated into the design for the construction of the town wall, which had yet to be built, rather than being a later alteration. The wall through the friary appears to have been complete by 1282–83.[71]

Subsequently, in 1312, with the excavation of the dyke or ditch in front of the wall, the friars petitioned the king again to acquire right of access across the town's defences to their close, this time via a swivel bridge.[72] Further details of the close also emerge, since the friars also got permission at the same time to replace the wall, which formerly surrounded the close, by a paling.

In a lease, dated 1477, the friars' "great close" outside the town wall had once again been surrounded by a stone wall.[73] Furthermore, it is clear from this document that the friars' lead water pipe ran through this close, which also contained fishponds. These were subsequently reported as earthworks by Bourne, who interpreted them as fishponds and gardens,[74] and by Brand, who thought they were traces of a small fort and breastworks dating from the siege of 1644.[75]

There are no medieval references to the scouring of the ditch at Newcastle, although such references are common for other towns at this period. Lithgow, in his account of the measures taken by the beseiged townsmen of Newcastle, at the time of the English Civil War, says that the trench outside the walls had been deepened.[76]

After the surrender of the friary to the king in 1539, the close was leased by the Lawson family until 1608. For one year in this period, however, it was rented to a Christopher Blunt, when it was referred to as "Wardell's Close".[77] Subsequently, in 17th-century documents, it is referred to as the "Warden's Close".[78]

In 1718, John Kelly was granted a 21 year lease of the Warden's Close, in which he agreed to level and fill up such parts as were necessary to improve the premises.[79] It was probably at this time that both the fishponds, and/or breastworks, and the town ditch were filled in. Certainly Brand, writing in 1789, says that the ditch was largely filled up.[80]

The close appears to have been let by the town as an undivided space until 1765, when part was let for a lunatic asylum. In 1805 another part of the close, including an area of the town ditch, was leased for a fever hospital, and in 1824 a section was let for a bowling green. In 1826 Locke, Blackett & Co. leased the section in front of Morden Tower to construct a pond. With the construction of the Bath Lane Church, and the laying out of Corporation Street connecting Gallowgate and Bath Lane, the close achieved its present shape.[81]

GEOLOGY

The drift geology in this area comprised a stiff grey-brown stony boulder clay overlain by a

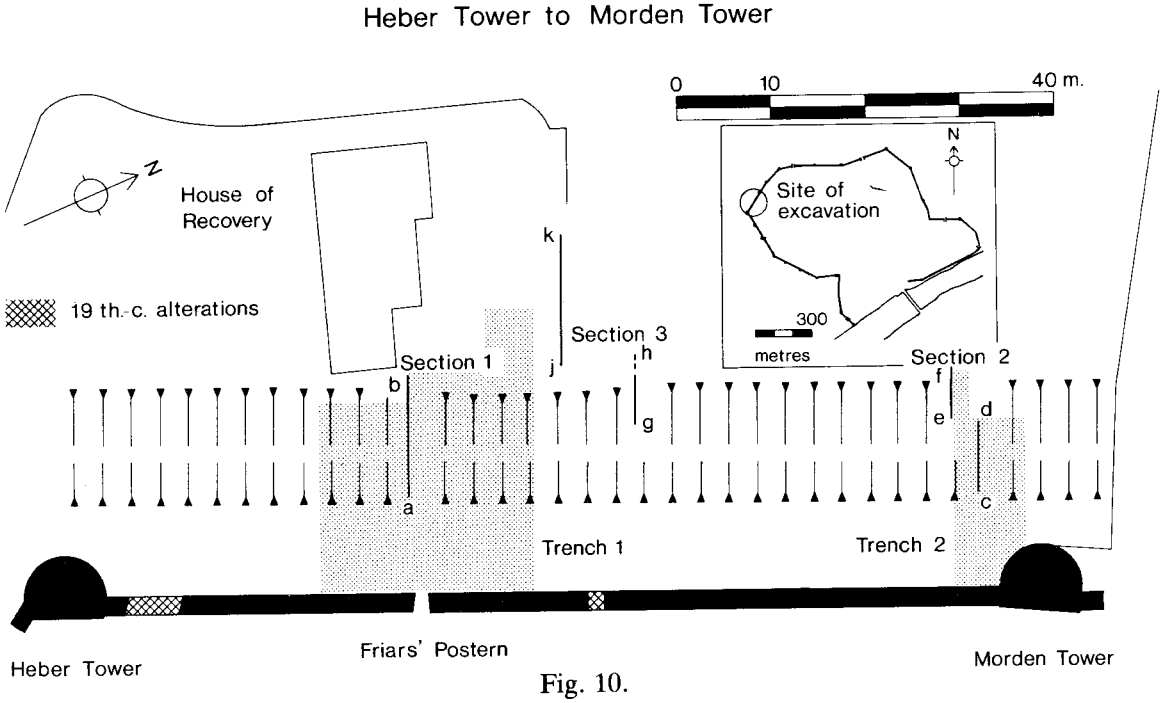


Fig. 10.

mixed layer of compact pink-brown clay and medium grained silty sand, interspersed with layers of gravel.

THE EXCAVATION (fig. 10)

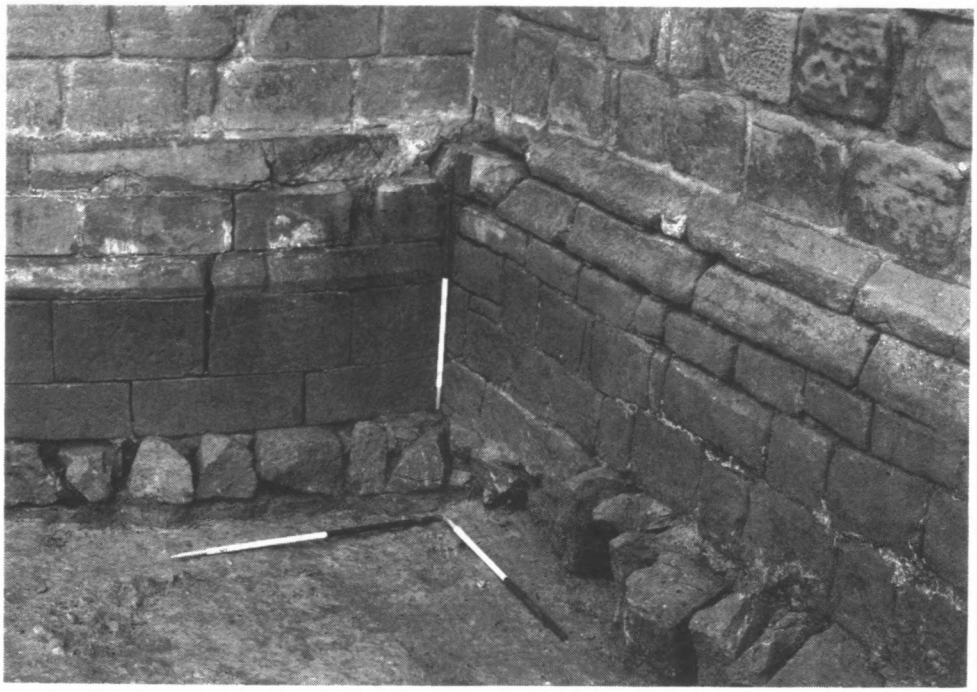
Trench 1, sited in front of the Black Friars' postern, measured 20 m square. It was opened and lowered mechanically by 1 m. Initially, two test sections, 2 m wide, were dug against the north and south sides of the trench to test the location of the ditch and the nature of the stratigraphy. On the basis of these sections a large trench 10 m × 6·60 m was excavated mechanically through the uppermost fills of the ditch. The remainder of the ditch deposits were then dug by hand. The trench was subsequently extended by 5 m, in the north-west corner, in order to examine the nature of the deposits on the outer edge of the ditch.

Trench 2, sited in front of Morden Tower, was excavated mechanically to remove the fill of a large pond between two later sandstone walls. A section of the clay lining to the pond was also removed in a trench 1·75 m wide, and a section was then hand dug through the surviving ditch deposits.

PRE-TOWN WALL PHASE

Cut into the subsoil, in Trench 1, and truncated by the town wall were a series of long, linear soil-filled furrows, aligned roughly north-south. The furrows were separated by subsoil ridges, measuring *c.* 0·95 m between crests. Within each furrow were groups of two or three striations, which were V-shaped in section. The striations within one furrow were not continuous but comprised an intermittent series of scored depressions. These features are the result of the subsoil being scored by the plough-share when creating ridge and furrow, although the dimensions here are more reminiscent of "cord rigg" than medieval broad rigg.

Associated with these striations, and also



Junction between Morden Tower (left) and Curtain Wall to south (right).

truncated by the town wall, was a shallow linear gully, which measured 9.10 m long × 0.40 m wide × 0.13 m deep. This feature may have been a ditch or field boundary, although its edges were not respected by the plough-marks.

No plough-marks were observed in the gravelly-clay subsoil outside the town ditch in Trench 1, or in front of the town wall in Trench 2, but in all areas the subsoil was sealed by a thick dark brown clay loam, heavily mixed with coal and charcoal fragments, (0286/0158, 0100/0303, 1025A/1049, 1065). This agricultural horizon was cut by the construction trenches for both Morden Tower and the town wall, and also by the ditch.

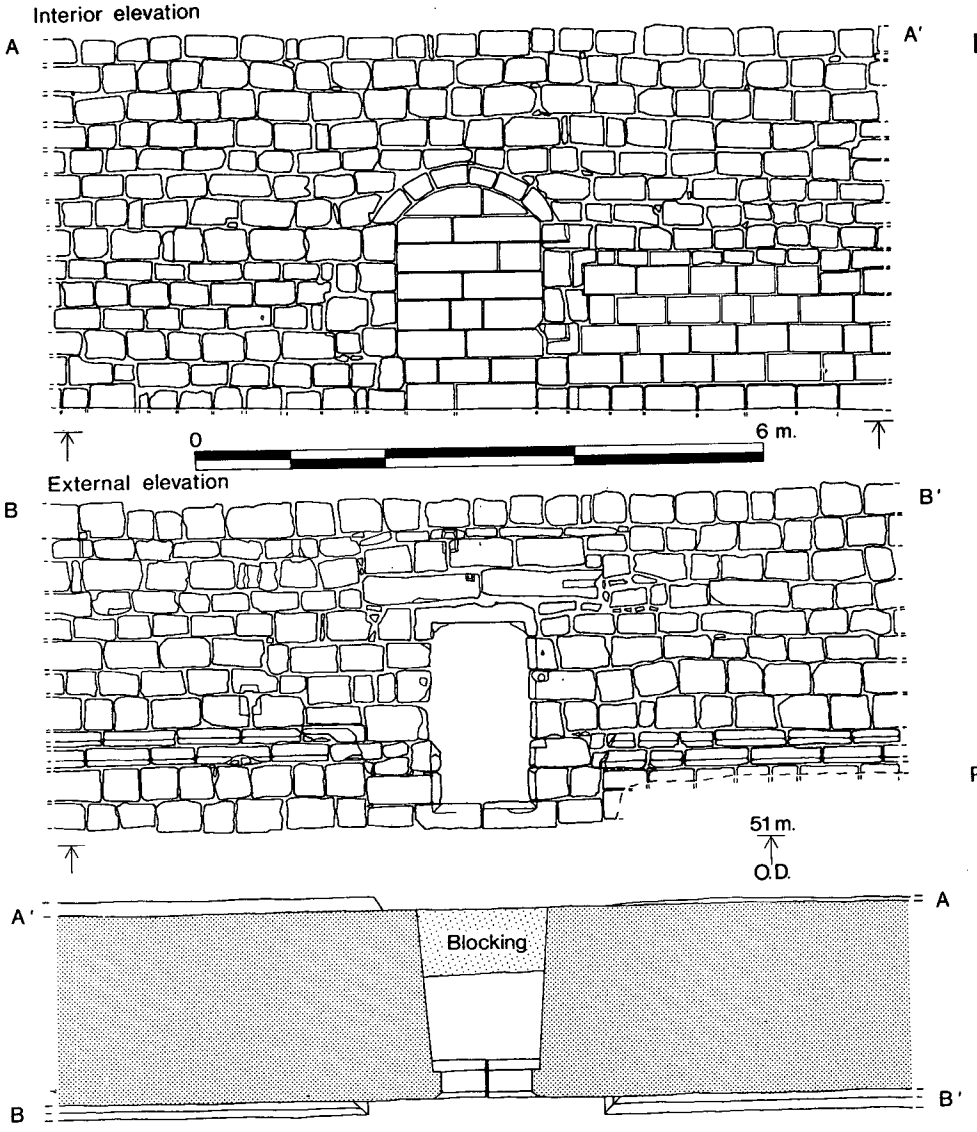
THE TOWN WALL

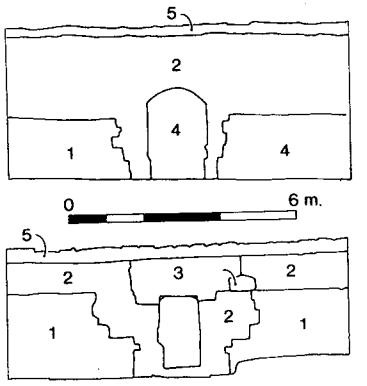
The footings of the town wall were laid in a trench cut through a thin soil horizon (0100/0303, 1065), and only slightly into the clay subsoil. The lowest course comprised roughly dressed angular sandstone blocks, laid on their narrow sides, and bonded with soil. The mortar-bonded wall above was inset 0·20 m from the footings. Between two and three courses above the footings were two chamfer courses set one above another. Above the chamfers the wall was 2·07 m wide and built in large square sandstone ashlars.

The footings of Morden Tower were square in section and relatively shallow. As such, they were quite different in character from those of the town wall (Plate III), although both were unmortared. Two courses above the footings were two chamfer courses, which were separated by an intermediate ashlar course. At the junction between wall and tower, the tower footings turned through 90 degrees, and ran south-west for 1.00 m beneath the town wall. Above this, alternate courses on the tower overlapped the line of the wall, but the different depths of the courses on the town wall meant that, with one or two exceptions, the bed joints did not coincide.

The face treatment of the ashlars on the tower was quite different from that on the town wall. The lower two courses of ashlar on the

BLACK FRIARS POSTERN





Phase 1 } 1280 ?
" 2 }

" 3 Unknown, ? medieval

" 4 Late 19th.-Century

" 5 ? late 1950s

R.F., R.B.H. mens., F.C.B. del. 1988

Fig. 11.

tower had diagonal tooling, which gave a very fine finish. While the faces of the ashlar courses above had weathered away, they showed no sign of the punched finish which characterized the dressing of the stones in the town wall. There were no examples of diagonal tooling on the town wall.

Although the tower and the wall were bonded into one another, below the moulded string on the tower, there were major constructional differences between the two structures. Whilst this would suggest that they were not of one build, there was no evidence to suggest a substantial time gap between their construction. The footings of the tower and the town wall were both covered by a layer of dark brown silty clay (1013/1067), which contained significant quantities of medieval pottery and animal bone, which may represent the tipping of refuse from the tower.

The postern also appears to represent phased construction of the town wall (fig. 11). It was associated with major constructional breaks in the stonework in the sections on either side of it. This is most apparent on the outer elevation of the wall where the bed joints in the courses of these two outer sections are not at the same level. This would suggest that there was a deliberate break in the building of the wall so that the postern could be incorporated, rather than that a section of the wall was demolished to accommodate it. At some later date the head of the doorway on the outer elevation was substantially remodelled with the insertion of a flat lintel and two very large rectangular blocks above. Originally, the doorway probably had an arched head similar to that on its interior elevation.

THE DITCH (fig. 12)

The ditch lay approximately 9·50 m in front of the town wall and measured 11·30 m wide by 4·50 m deep. Like the town wall, the ditch (0309) was cut through a pre-existing soil horizon (0286/0158; 1025A/1049). The original profile was asymmetrical, with the inner, west facing slope having a much steeper angle of rest than the outer, east-facing slope (40 and 25 degrees respectively from the horizontal). Although recut, the surviving profile of the lowest deposits would suggest that there was a U-shaped gulley in the bottom of the ditch as a primary feature. The natural fall in the ground was from south-west to north-east, in both sections the bottom of the ditch was at 48·50 m O.D. It proved very difficult to identify distinct phases of cleaning and recutting within the medieval deposits of the ditch and it is likely that the excavated sequences represent only the latest silting in the medieval life of the ditch.

In Trench 1 (fig. 13) the lowest layers stratigraphically, 0294 and 0301, accumulated under very wet conditions at the bottom of the ditch. On the outer, east-facing slope, a series of layers appears to have accumulated at the same time. 0249 contained a distinct layer of iron panning separating an "A" horizon soil[82] from a "B" horizon subsoil, suggesting that this layer remained stable and open for a considerable period of time. The interface between this layer and 0301 was complex and can only be explained in terms of water action. Layer 0301 represents only the latest silting of the bottom, possibly after several recleanings, which might explain the vertical division between the two layers and the subsequent accumulation of 0249 over 0301. Layers 0289 and 0290 appear to derive from the instability and weathering of the upcast and the original soil horizons on the top edge of the ditch (0287 and 0286 respectively). In contrast to 0249, layers 0288 and 0271 on the inner, west-facing slope, adjacent to layer 0294, were relatively thin and undeveloped. It is likely that the inner slope of the ditch was cleaned much more vigorously than the outer slope and that a combination of this and the steepness of the slope produced this effect.

Due to the construction of a pond over the site of the ditch in Trench 2, *c.* 1826, the ditch section there was heavily truncated, with only the bottom 2·00 m surviving. The evidence for the upper half of the inner slope was completely destroyed, but it was possible to reconstruct

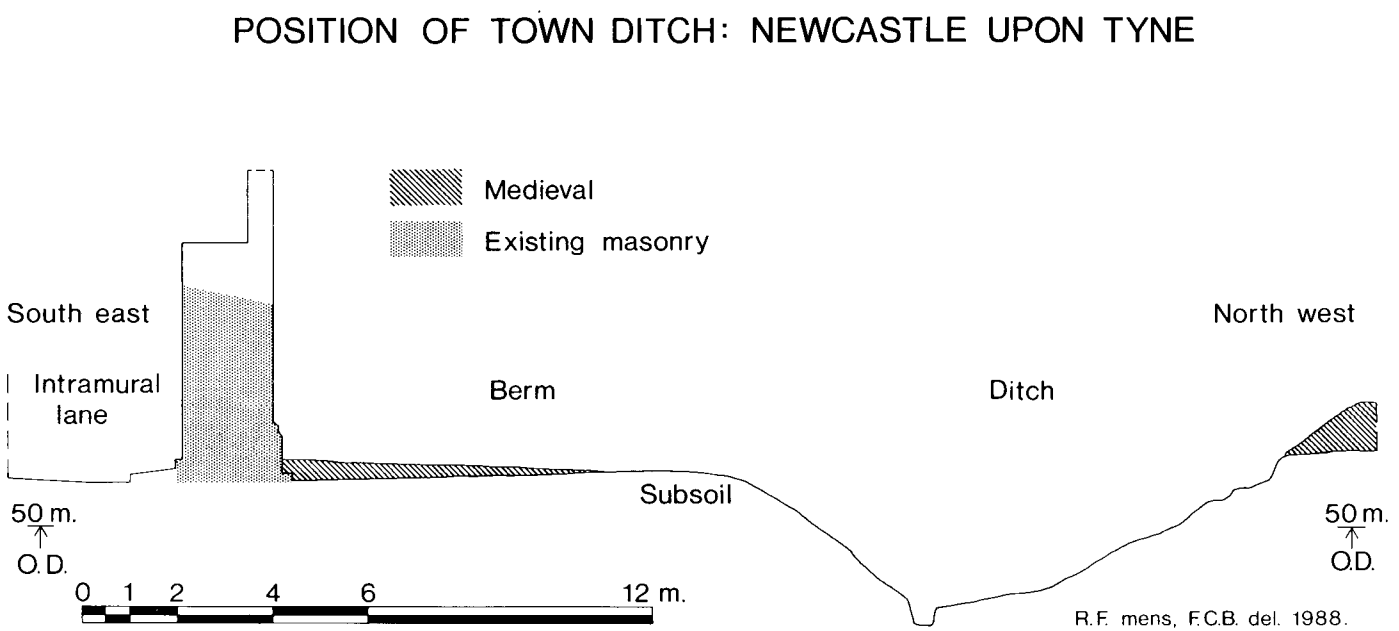

POSITION OF TOWN DITCH: NEWCASTLE UPON TYNE
Medieval
Existing masonry
South east
North west
Intramural lane
Berm
Ditch
Subsoil
50 m.
O.D.
50 m.
O.D.
0 1 2 4 6 12 m.
R.F. mens, F.C.B. del. 1988.

Fig. 12.

the outer profile by combining two overlapping sections (fig. 13).

Although there were broad similarities between the two sections, the size, postion and depth being very similar, the detail in Trench 2 does suggest a different sequence from Trench 1. The finds from the ditch and the different character of the deposits themselves suggest that here there was a relatively undisturbed sequence of medieval deposits. Within the ditch, above a lens of silty sand and gravel (1040), there was a thick layer of dark grey-green silty clay, which originally extended right across the bottom. This layer was very similar in composition to 0294/0301 in Trench 1, but it extended much higher up the outer slope. Only a very thin layer (1036) had accumulated on the outer slope prior to the cleaning out of the central gully (1042). It is possible that this round-bottomed gully, which measured 0·70 m deep × 1·20 m wide, was an original feature. As in Trench 1, the gully seems to have been refilled with material very similar to that which was removed. The subsequent layers of fill (1034, 1035) had a very different character, comprising medium brown silty sands. Above these layer 1015 (a chocolate brown silty sand, mixed with charcoal, sandstone and brick fragments), was of a very different colour and composition from any in Trench 1.

Only one major reworking of the ditch profile was identified in Trench 1 (figs. 13 and 15). Some time during the 17th century, the medieval deposits in the ditch bottom and on the sides were truncated and partially removed. From the position of these layers it would appear that there was between 1·30–2·00 m of accumulated silts in the bottom of the ditch by this date. In the course of recutting and cleaning the ditch a large channel, 1·25 m wide, was cut through these deposits, possibly enlarging an original gully in the process. On both sides of the ditch, the recutting left very pronounced steps in the slope profiles. As a result of this activity the whole ditch was widened by 1·00 m.

Following this, the ditch stood open for some time, although layer 0285 accumulated quite quickly, since its make-up, and the finds it contained, were broadly similar to 0294/0301. Layer 0248 gradually accumulated over the top of them in very wet conditions. Layers 0247 and 0246, however, represent the beginning of a sequence of infilling of the ditch with relatively sterile "B" horizon-type material over short periods, interspersed by long periods of inactivity when there was further ponding in the remaining dish-shaped depression. While these layers were tipped in from the inner lip of the ditch, subsequent infilling (i.e. layers 0272 and 0244), took place from the outer lip. This sequence appears to have continued until the end of the 18th century.

To the west of the ditch in Trench 1, above the primary soil horizon 0286/0158, layer 0160 comprised a series of deposits of sandstone pebbles (0.01–0.20 m) interleaved with patches of stone and gravel and occasional thin lenses of dark grey-brown silt in a yellow-brown clay matrix. Although this was a very mixed layer, it appeared to be the result of a single operation. It was of a uniform thickness (0.34–0.36 m), and contained no evidence of weathering between the lenses and patches. It is likely that this layer represents the spreading out of part of the upcast from the original excavation of the ditch, over an area 10 m wide beyond the outer lip, although not in the form of a bank. Layer 0160 was subsequently sealed by a relatively thin (0·16 m) soil or turf layer (0153) (fig. 14).

DEPOSITS AGAINST THE TOWN WALL

Above soil horizon 0100/0303, immediately in front of the postern, and extending north towards the ditch was a thick layer of sandstone fragments in a light brown sand matrix (0302). Although it was badly cut about by later features in this area, it did not extend north-east of pipe trench 0269, but ran north diagonally from the postern towards the ditch. A small lens of the same material was observed on the outer lip of the ditch on this alignment. This layer is interpreted as being a metalled surface or pathway, and could therefore indicate that the position of the friars' bridge across the

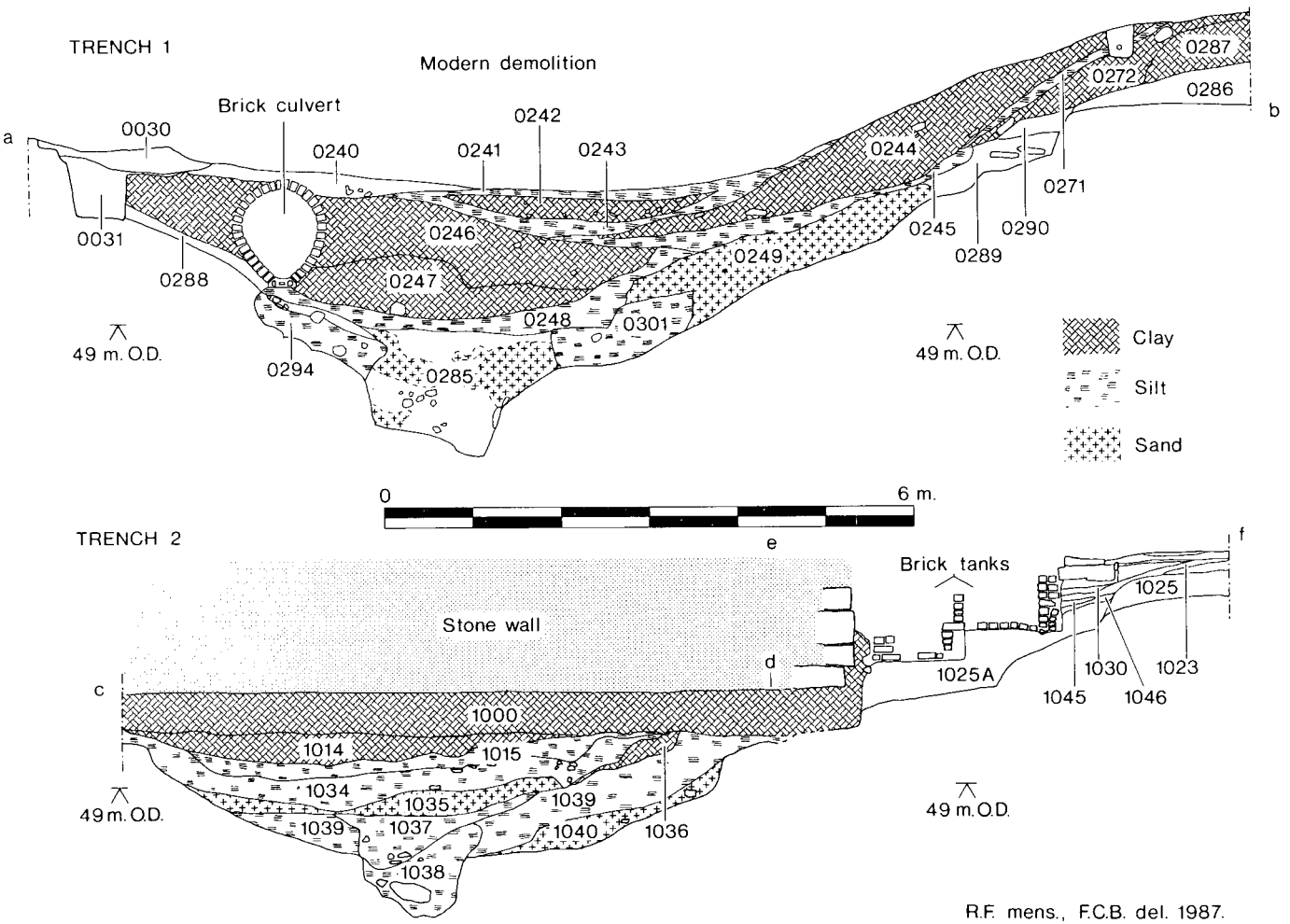

DITCH SECTIONS IN TRENCHES 1 & 2
TRENCH 1
Modern demolition
Brick culvert
a
b
0030
0240
0241
0242
0243
0244
0272
0287
0286
0271
0031
0246
0245
0290
0289
0288
0247
0249
0248
0301
0294
0285
49 m. O.D.
49 m. O.D.
Clay
Silt
Sand
0
6 m.
e
TRENCH 2
Brick tanks
f
Stone wall
d
c
1025
1025A
1030
1023
1045
1046
1000
1014
1015
1034
1035
1039
1039
1037
1040
1036
1038
49 m. O.D.
49 m. O.D.
R.F. mens., F.C.B. del. 1987.

Fig. 13.

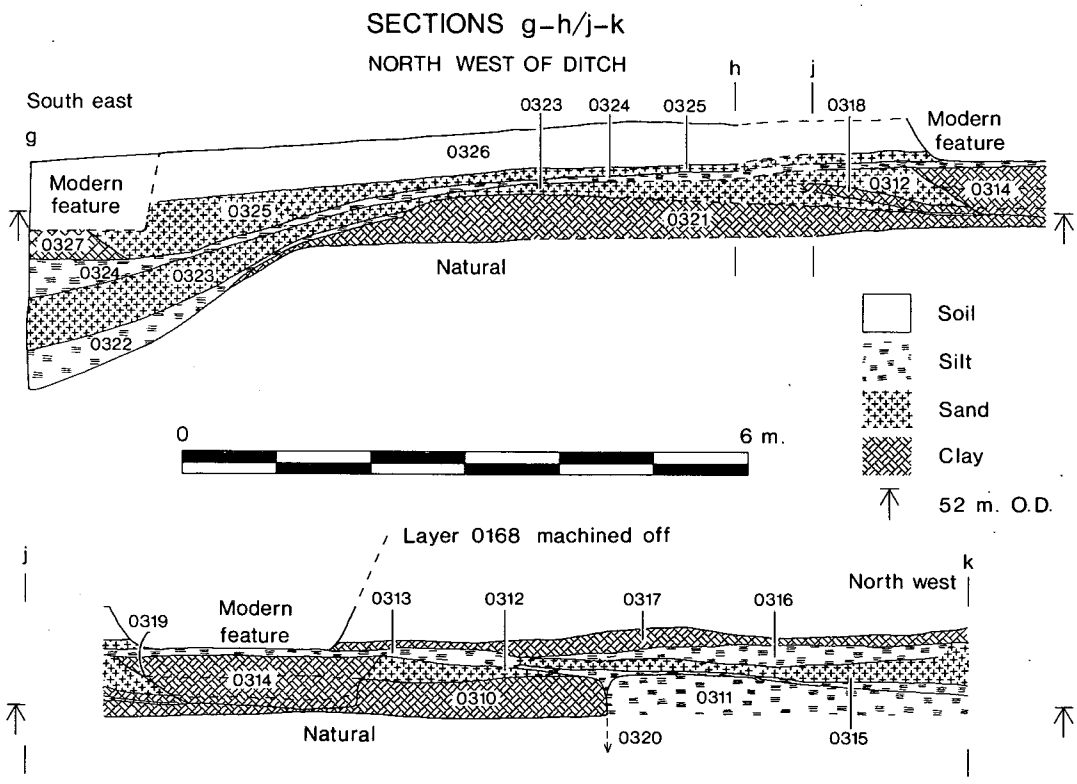


Fig. 14.

ditch was not in front of the postern, or perpendicular to it, but was offset from the postern and angled across the ditch.

Cut from the level of layer 0302 was a broad flat bottomed trench (0269). Surviving clay packing (0284), and stonework (0283) within it, and inside the postern, would suggest that the gully contained a pipe. Truncated elements of the same feature occurred adjacent to the ditch edge, which suggests that the pipe crossed the ditch, and may therefore have been incorporated into the structure of the bridge. There was no trace of this feature on the outer bank of the ditch. It is possible that this was the conduit which brought water into the friars' precinct.

In the mid-17th century, clay layer 0206 was dumped over layer 0100/0303, in front of the town wall. The pipe trench was robbed out through this layer, and levels were then subsequently raised with the accumulation of a mixed dark brown mortary soil (0235). As a result of this, levels were raised within the postern, and a new sill (0237) was placed on top of the medieval one. That the postern was still in use at this time was demonstrated by a fine black silt (0210), which lay in a depression or track which led south-west, away from the postern. At the end of the 17th century a very large rectangular pit (0229), measuring 3·70 m × 1·60 m × 1·40 m deep, was dug 1·00 m in front of the postern. It would seem, given its position relative to the opening, and the late date of the finds in its fill, that it did not serve a defensive purpose.

At this time, or possibly even before the 17th century, a trackway became established along the inside lip of the ditch. Its latest surface (0099) comprised medium—small sandstone fragments, pebbles and brick frag-

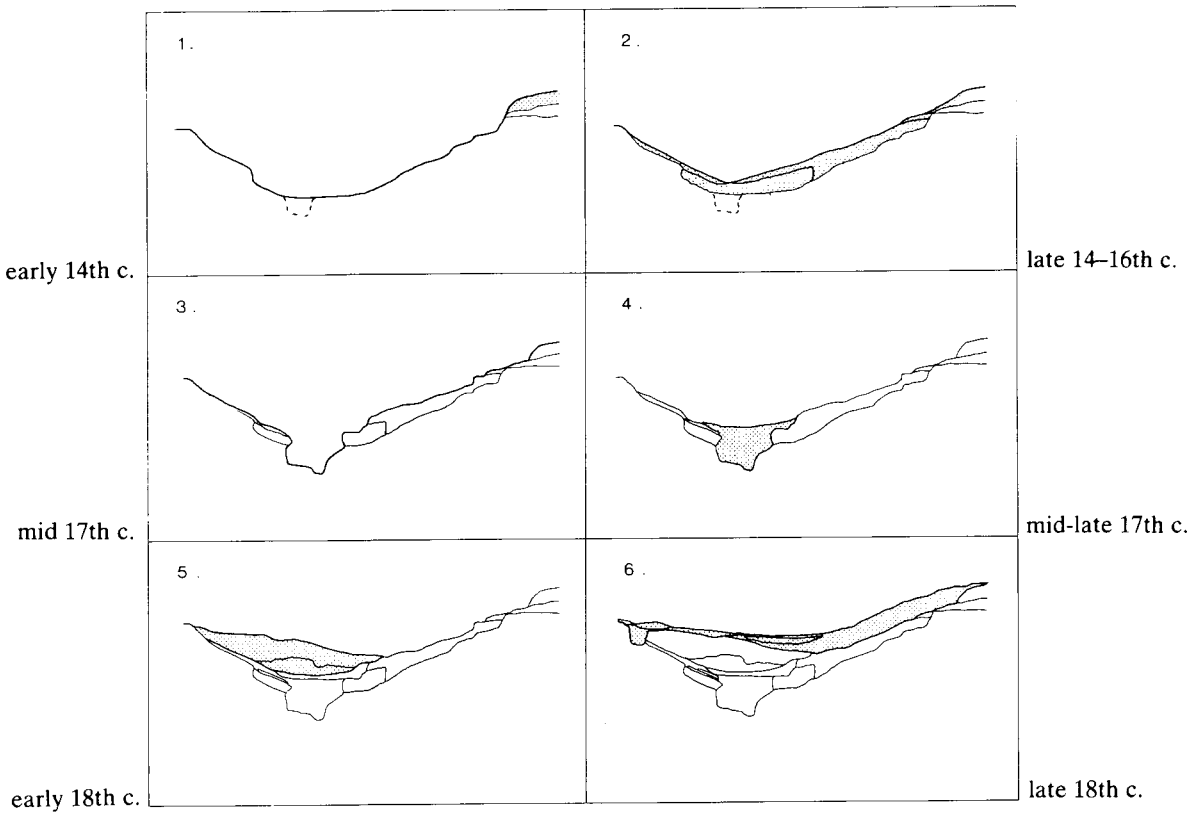


Fig. 15. Evolution of ditch profile.

ments rammed into the natural clay below. Embedded in this surface were two deep ruts, which were 1·45 m (4 ft 9 in) apart, i.e. a standard cart-axle width. As a result of the infilling of the ditch, a rubble-filled drain was made on the outside of the cobbled surface.

The trackway may have been associated with a series of large posts, set parallel, and 5·00 m in front of the town wall. The posts were set 3·20 m apart, and every alternate post-pit contained a pair of posts. The post holes were paralleled by a series of slots cut into the face of the town wall which could suggest that they were part of a series of lean-to structures against the wall.

At the beginning of the 19th century, with the construction of the House of Recovery, these structures were demolished and a small stone building, marked as the "dead house" on the 1st ed. O.S. map of 1861, was erected against the town wall. In an attempt to create level ground between the two buildings, possibly for a garden, the last remnant of the ditch depression was buried beneath huge quantities of building rubble, up to 2·20 m deep.

In Trench 2, soil gradually accumulated against the town wall until 1826, when a large pond (1000) was dug only 2·40 m in front of it and around the tower. Both the sides and the base of the pond were clay lined. The pond is depicted on Thomas Oliver's map of Newcastle in 1830, but had disappeared by 1861. A series of sandstone walls, drains and a brick floor were constructed over it, and against the tower and the town wall, as an extension to the adjacent leadworks of Locke Blackett & Co.

NOTE ON WATCHING BRIEF

The lowering and stabilization of ground to the west of the excavation, for a car park, destroyed a complex series of ditches or ponds, and allowed no satisfactory opportunity for their adequate excavation or recording. The fill of these features was a uniform dark grey sandy silt. The machining out of this material produced finds of 18th-century date. The features appeared to be large, and linear, although no precise dimensions were recorded. It was impossible to confirm, therefore, whether these were the remains of the friars' fishponds, or much later earthworks.

ACKNOWLEDGEMENTS

I would like to thank all the people who took part in the excavation for their hard work in often difficult conditions, and especially Rob Maxwell, who acted as site supervisor.

THE FINDS

The finds assemblages from the site suggest that before the construction of the town's defences the area was cultivated and the ground manured with domestic refuse, which latterly came from the friars themselves. Following the construction of the defences, the ditch and the area immediately in front of the wall became a waste ground, inhabited by the appropriate flora and fauna. Due to the lack of access from the town, the area never became a midden like the Castle ditch. Not even the friars or subsequently the tenants of their close used this area extensively as a tipping ground, although the limited medieval finds must originate from these sources. This general pattern continued after the Dissolution, and it was only with the end of the town wall and ditch as defensive structures in the 18th century, that the pattern of activity in the area in front of the wall changed to one of widespread dumping and construction.

The two main trenches (1 and 2) displayed distinct differences in the material recovered from the ditch sections in each. Both the soil analysis and the environmental sampling also tended to reflect this difference. The sequence of deposits in the ditch section in Trench 2 appear to represent a continuous sequence of medieval deposits, while in Trench 1 the medieval sequence was severely truncated in the mid-17th century, probably at the time of the Civil War.

Given the size of the area examined, the quantity of finds from the site was small. Interestingly, the ditch section in Trench 2, which was considerably smaller than that in Trench 1, produced a greater number of finds. The sequence in the former may well be indicative of more extensive tipping activity in the late medieval period, evidence which has been destroyed in the latter. The deposits against Morden Tower, however, also contained a much higher quantity of rubbish than the equivalent layers against the town wall in Trench 1. It may be that the tower is a contributory factor here, with associated activity on the wall being focused on the tower, resulting in the localized concentration of refuse around its base.

THE POTTERY

Susan E. Hedley

Only 1012 sherds were recovered from 23 medieval contexts in Trenches 1 and 2. Although the sample indicated the presence of certain pottery types before the construction of the wall (1280–2) and ditch, it was too small and too fragmented to be typologically or statistically significant. The presence of reduced greenware type 4, the fine buff/orange fabric, and the later medieval imports in the medieval soil horizons against the wall and in the earliest ditch fills, would suggest that these deposits do not date before the mid-14th century.

The pre-wall soil horizon in both Trench 1 (0303) and Trench 2 (1065), and the later soil horizon against the town wall (0100) in Trench 1, all contained distinctive sherds of whiteware

and of gritty ware which bear strong resemblances to small jugs found in the lowest contexts outside the southern end of the east range of buildings at Black Friars, excavated in 1979. Although there were no crossfits, it is likely that these distinctive sherds are indicative of the manuring of this garden area with rubbish from the friary.

The post-medieval contexts from the site produced very little pottery. There were 750 sherds in pre-19th century contexts, of which 264 were residual, and 318 were late 18th-century biscuit-fired white earthenware. The paucity of domestic refuse being discarded into the ditch in the late 17th and 18th centuries was shown by the fact that these layers, in Trench 1, only produced 26 post-medieval sherds.

The medieval pottery is described in accordance with that in Report 1. The majority of the vessels in each fabric are represented by only one sherd.

FABRICS (Number of sherds in brackets)

LOCAL WARES

GRITTY WARES (489)

Rim and handle fragments indicate at least 2 bowls, 10 jars, 5 jugs. Rims were mostly represented by small fragments, but included a variety of forms familiar in Newcastle, for example V117, V195, V343, and V434 which correspond to nos. 18, 63, 106, 143 from the south curtain wall at the Castle.[83]

38. A less familiar rim form. Trench 2, context 1013.

39. One of two rims decorated with finger impressions. Trench 1, context 0100.

WHITEWARES (215)

Rim and handle fragments indicate at least 3 jars and 4 jugs.

40. An unfamiliar rim form. 1/0290, ditch fill.

REDUCED GREENWARES (125)

There were very few reduced greenwares present in this assemblage. The earlier fabric types 1 and 2 were present, but not in significant quantities compared with the gritty wares and whitewares. As in Report 1, type 4 did not occur in pre-wall contexts, but it does occur in the earliest deposits in the ditch. Type 5 was present only in the later ditch deposits in Trench 2 and in the soil horizon against the town wall.

41. Strap handle fragment with unusual stamped motif. Type 1 fabric. 2/1014, ditch fill.

FINE BUFF/ORANGE WARE (15)

This fabric appears to be a development or variation of buff/white ware and is equivalent to oxidized buff/white ware in the Castle Ditch.[84] A fine, hard, homogeneous fabric with only occasional or sparse inclusions visible to the naked eye. These are no greater than 1 mm in size and comprise, in varying quantities, the white, irregularly-shaped, in-

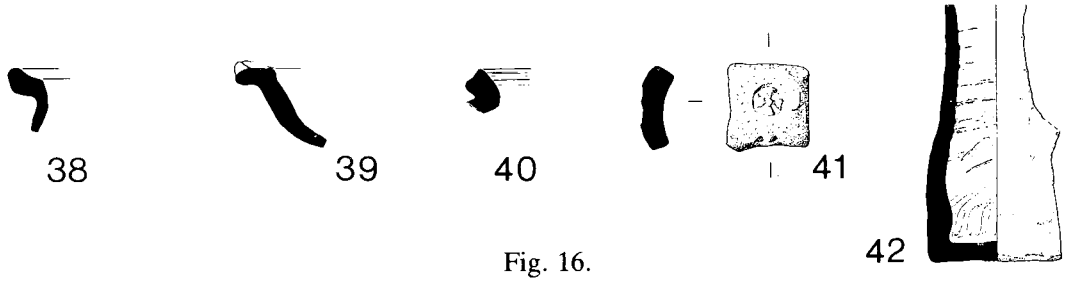


Fig. 16.

clusions familiar in buff/white ware and red iron ore. At ×20 magnification, sparse to moderate sub-rounded quartz inclusions are sometimes visible. The colour is buff or pink/orange, a combination of the two, or pink/orange with buff streaks.

Large numbers of sherds from jugs in this fabric are found in contexts around the chancel at Black Friars, with only occasional white or pale grey sherds of buff/white ware, and it may therefore be a 14th-century development.

Sherds were found only in Trench 1, in the primary ditch fills and the soil horizon against the town wall.

UNCERTAIN FABRIC (probably local)

42. A small narrow jug, in a semi-fused overfired orange fabric. Moderate sub-angular quartz (0·5–1 mm); sparse irregular white inclusions (1 mm) as in buff/white ware. 1/0294, ditch fill.

OTHER MEDIEVAL ENGLISH WARES

SCARBOROUGH WARE (78)

Rim and handle fragments indicated the presence of at least three jugs from both pre-wall and later medieval deposits. There was also a fragment of applied decoration in the form of a hand, presumably from a knight jug from 1/0100.

CONTINENTAL IMPORTS

SAINTONGE (7)

Fine white fabric with a mottled green glaze. From the pre- and post-town wall horizons in Trench 1.

RAEREN STONEWARE (2)

Two fragments, including a frilled base. 2/1013, against the town wall, and 2/1034, a ditch deposit.

DUTCH RED EARTHENWARES (11)

Other than V726, which has a copper green glaze, all have a dark brown lead glaze. 1/0100, a late medieval soil horizon against the town wall; 1/0273, a ditch fill; 2/1034, a ditch deposit.

GLASS

Twenty-eight pre-19th century contexts produced a total of 78 fragments of glass, of which the majority occurred in 18th-century contexts. The small amount of glass in medieval contexts occurred only in Trench 2. The later contexts in the ditch there produced two fragments of a rectangular bottle in a pale green metal (1014), and a fragment of a quarrel with two grozed edges, in a pale green metal with severe surface pitting on both sides (1015).

43.* An almost complete quarrel, badly devitrified, with two cut edges, with a third raised and curved, suggesting that it was cut from the edge of a piece of crown glass. 2/1065, 13th-century.

CLAY PIPES

The site produced 86 fragments of clay pipe from pre-19th century contexts. Only one 17th-century context (0206), however, contained clay pipes, including a Tyneside Type 6 spurred bowl with a Tyneside Type D Leonard Holmes (Type 3 pattern) stamp on the stem. There were examples of bowl types 1b, 2a, 2b, 3b, 6, 7, 8 and 13 from the site, together with Henry Walker, Michael Park and Thomas Parke stamps, all of which occurred on the Black Friars site.[85]

TABLE 2. Brick types

	I	II	III	IX/X	XI	XIII	XIV	XV	XVI	Total
Contexts										
18thc.	–	–	3	7	–	–	1	61	1	73
17thc.	2	–	11	3	–	–	–	–	–	16
Medieval	–	–	66	–	8	1	–	1	3	79
Total	2	–	80	10	8	1	1	62	4	168

BUILDING MATERIALS

BRICK

The site produced 184 fragments of brick, of which 55 could be recorded in detail (i.e. in two or more dimensions), while 16 were totally unidentifiable. None of the bricks were from *in situ* structures, but occurred residually in various deposits in the ditch fill and against the town wall. All the types have been recorded on the site of the Dominican friary, immediately inside the town wall, and the type series is based on one developed for that site.[86]

Other than type XI, the bricks from medieval contexts were all late types. Fragments of these types all occurred in late medieval and Dissolution contexts at Black Friars. There was very little brick in 17th-century contexts, where the types were largely residual, except for type IX/X. The 18th-century contexts were dominated by type XV which also occurred profusely in contexts of this date at Black Friars. Type IX/X may go into the 18th century, but must be largely residual by this time.

TILE

Forty pre-19th century contexts produced 183 fragments of tile, of which most were medieval roof and floor tiles. There were 99 fragments of medieval roof tile, all in the local fabrics, with some in pre-town wall contexts. Thirty-two fragments of medieval glazed floor tile, 5 in × 5 in, were recovered, some examples with white slip, but no other decoration, as at Black Friars. Forty-five fragments of pantile occurred mainly in 18th-century contexts, but 3 fragments were found in 17th-century contexts.

STONE

44.* Whetstone, quartzitic schist, broken, rectahgular in section, 27·5 mm × 18 mm. 2/1013, late medieval.[87]

METALWORK

COPPER ALLOY

45. Cast buckle frame with moulding on front edge. Only one side of the sheet metal plate survives, attached to the frame by a wire pin. Two rivet holes survive towards the buckle end of the plate, with part of a third at the broken end. 2/1013. Moulded buckles of similar form from 13th- and 14th-century contexts at Wharram,[88] Goltho,[89] and Writtle.[90]

46.* Trefoil-shaped plate (34 mm × 27 mm), with stud (14 mm long) on rear, probably cast but badly corroded. The face of the plate is decorated with champlevé enamel, possibly around and within a shield defined by a raised metal border. The edge of the trefoil is also defined by a similar border. The stud is placed centrally on rear of plate, and tapers to a rounded point. 1/0273, late medieval, ditch fill. Possibly part of a decorative panel on a casket or wooden object.[91]

47. Large curved, shield-shaped brooch. In-

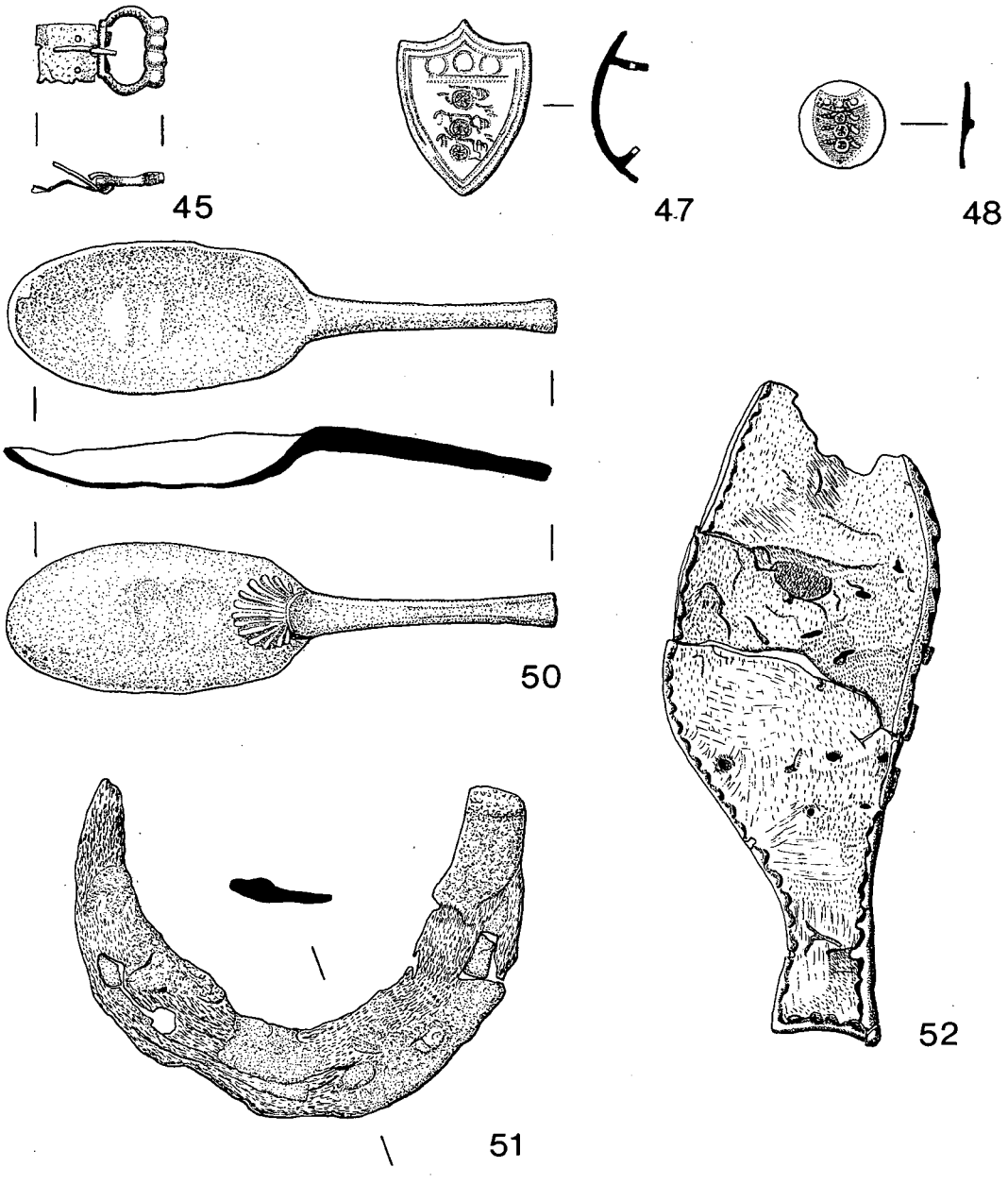


Fig. 17. Objects of copper alloy, pewter, iron and leather ($\frac{1}{2}$).

cised on it are three cannons passant, in chief three cannon balls. The fastening pin on the back has broken away, together with part of one of the attaching shanks. 1/0025, 18th-century, ditch fill.

48. Button, mould-made, decorated with a shield containing three cannons passant in relief on a striped field, in chief three cannon balls. The rear shank is broken off. 1/0031, 18th-century.

Both nos. 47 and 48 appear to contain the same device of three cannons firing, below three cannon balls within a shield-shaped border. This device, with slight modifications, is the badge of the Royal Army Ordnance Corps. The pre-19th century context of these two items makes them of special interest since the corps was not given this insignia until 1919. In the 18th century the Board of Ordnance was a civilian branch of the British army with, it would appear, no insignia, since as civilians they did not wear uniform. It may be that these are early artillery badges. (Officers did not have regimental insignia on their buttons before 1767, while other ranks did not acquire them until *c.* 1855).[92]

LEAD

There were four fragments of lead came from medieval contexts on the site, including one badly abraded fragment from 0303, a pre-town wall context; two fragments occurred in the ditch in 2/1015, 1037, and a further fragment in 1/0100.

49.* Spherical lead spindle whorl, or lead weight, 20 mm in diameter, pierced. The sides of the holes have been slightly flattened. 1/0228, 18th-century, ditch fill.

PEWTER

50. Spoon, the handle is broken. The bowl measures 85 mm × 41 mm and is decorated on the underside with a small floral design. 1/0025, 18th-century, ditch fill.

IRON

51. Horseshoe, incomplete, but with several rectangular nailheads still in situ, which measure 10 mm × 6 mm. Traces of a turned down calkin also survive. The shoe was badly bent. 1/0294, late medieval, ditch fill.

LEATHER

52. Turnshoe sole with edge/flesh stitch holes with an average stitch length of 7·0 mm. Forepart of a two piece butt-jointed construction, probably cattle-hide. Large irregular stitch holes in central portion may indicate patching. 1/0294, late medieval, ditch fill.

WOOD

Sandra Nye and Judy Turner

Context 1/0285 contained a large number of waterlogged wood fragments which varied in size from a piece of oak 28·0 × 9·0 × 4·0 cm to one 1·5 × 1·0 × 0·5 cm. It included willow (17 pieces), alder (9 pieces), oak (9 pieces), ash (4 pieces) and *Prunus* sp. (1 piece). Many of the pieces of wood looked as if they had been used for some purpose, e.g. construction, but all are native species. The willow and alder might well have been growing along the ditch side.

53.* Turned wooden bowl, very fragmented, made from ash (*Fraxinus excelsior*), a hard, elastic wood which is used in general carpentry. Base diameter 160 mm. 1/0285, 17th-century, ditch fill.

BOTANICAL REMAINS

Sandra Nye and Judy Turner

A total of seventeen ditch deposits and buried soils found during the course of excavation

TABLE 3

Waterlogged seeds		Deposits		
		other med.	ditch med.	ditch post med.
Ranunculis acris type	(buttercup)			48
Stellaria media	(chickweed)			2
Rumex sp	(dock)		2	53
Urtica dioica	(nettle)			96
Chenopodium sp	(fat hen)			1
Prunella vulgaris	(self heal)			8
Gramineae	(grass family)	1	5	11
Labiate cf *Stachys sp*	(woundwort)			1
Viola sp	(violet)			1
Achillea millefolium	(yarrow)			31
Compositae cf *Carducus*	(thistle)			1
Rubus fruticosis	(bramble)		4	81
Empetum nigrum	(crowberry)			10
Sambucus nigra	(elder)	173	6	1
Sonchus asper	(spiny milk thistle)			1
Potentilla sp	(tormentil)			1
Stellaria alsine	(bog stitchwort)			3
Carex sp	(sedge)			1
Polygonum sp	(knotgrass)	1		1
Polygonum persicaria	(redshank)	1		
Atrichum undulatum	(moss)			√
Eurynchium sp	(moss)			√
Plagiomnium rostratum	(moss)			√
Pseudoscleropodium purum	(moss)			√

were sampled for environmental analysis. With the exception of four samples from medieval ditch deposits (weighing 0·75–9·95 kg), 1 kg of each sample was wet seived using a stack of seives, mesh sizes 1·7, 0·5, and 0·35 mm. The three fractions were bagged separately and kept damp, before sorting using a stereoscopic microscope (magnification ×10). Usually all the 1·7 mm fractions and only a sub-sample of the 0·5 mm fractions were scanned. The waterlogged seeds recovered were identified using Dr. Nye's reference collection. The nomenclature is that of Clapham, Tutin and Warburg (1962).

The sediments sampled contained waterlogged seeds generally considered to indicate disturbed, damp, enriched conditions, such as occur along ditch banks today. The post-medieval deposits in the ditch in Trench 1 differed markedly from the medieval deposits on the site in the quantity of waterlogged seeds present. The latter contexts contained few seeds, with the exception of context 2/1065, which contained abundant whole and broken elder pips. The pips of edible fruits such as bramble, crowberry and elder could have come from sewerage, although only the crowberries could not have grown locally.

This report was undertaken through the Department of Botany Palaeoenvironmental Studies Service at Durham University.

REFERENCE

CLAPHAM, A. R., TUTIN, T. G. and WARBURG, E. F. (1962). *Flora of the British Isles* (Edition 2, Cambridge, 1962).

THE ANIMAL BONE

L. J. Gidney

The site produced a small collection of 521 fragments of animal and bird bone, and for this report the faunal material from the deposits against the town wall in both Trenches 1 and 2 was compared and contrasted with material from the ditch. The contexts in the ditch section in Trench 2 however, contained no faunal material, and all references to the ditch below refer only to material from Trench 1.

Three main periods of deposition were recorded, namely late seventeenth to eighteenth century, seventeenth century and medieval. Although the medieval deposits could be divided into those pre-dating and those post-dating the construction of the town wall and ditch, little faunal material (mostly in poor condition, was recovered from the earlier medieval deposits. For this reason all the medieval material is considered together in this report.

The medieval deposits were richest in animal bone, with 62·5% of the total collection; the later seventeenth and eighteenth century deposits were not as rich (only 24·5%); and the seventeenth century deposits produced the smallest group of bone (only 12·8%), though this may partly be a reflection of the comparatively short time span relative to the two other groupings. It is worth noting that the ditch produced the least bone, only 8·4% of the collection.

The species identified together with fragment counts for each shown in Table 4. In each period sheep/goat remains were numerically and proportionally dominant, although with a lower frequency in the seventeenth century group compared to the late seventeenth/eighteenth century and the medieval groups. Cattle remains were less numerous and proportionally less frequent than those of sheep/goat. Since taphonomic factors usually affect the smaller, more fragile sheep/goat bones to a greater extent than cattle bones, the abundance of sheep/goat remains, even in the seventeenth century group, is indicative of the disposal of a greater proportion of refuse from sheep/goat than cattle carcasses on this site.

Pig remains were uncommon, occurring

TABLE 4. Fragment counts for the species present

	Ditch			Trench 1			Trench 2		ALL			Total
	LC17/18	C17	Med	LC17/18	C17	Med	LC17/18	Med	LC17/18	C17	Med	
Ox		1	2	16	9	2	9	2	25	10	54	89
L. Mammal		5	1	4	1	1	2	19	6	6	21	33
Sheep/Goat			3	21	13	2	18	102	39	13	107	159
Pig				4	1			6	4	1	6	11
Horse		5	3	2	3	1		5	2	8	9	19
L. Ungulate		2	6	2	3	1		24	2	5	31	38
S. Ungulate			1	3	3	2	1	12	4	3	15	22
Cat	1			10				2	11		2	13
Dog			10	25	10		1	17	24	10	27	63
Hare							1		1			1
Human				1					1			1
Indet. Mam.			4		10	1		38		10	43	53
Chicken				5	1			2	5	1	2	8
Goose								4			4	4
Crow						1					1	1
Peacock								1				
Swan								1				
Indet. Bird				1				2	1		4	5
Indet. Fish				1					1			1
	1	13	30	95	54	11	32	285	128	67	326	521

only in the two later groups in Trench 1 and the medieval group in Trench 2.

The remains of horse may not appear numerically important but in fact were more frequent than those of pig. The horse bones from the ditch were relatively complete but in poor condition. Most of the seventeenth century horse bones from the ditch could derive from one individual but at least two animals were represented. A further two animals were represented in the medieval deposits. The horse remains from other contexts in Trench 1, with the exception of a pelvis from the latest group, were in smaller fragments and were more dispersed through the contexts. Three largely complete leg bones from the medieval post-town wall deposit in Trench 2 are very probably from one animal.

A single cat bone was the only bone recovered from the late seventeenth/eighteenth century deposits in the ditch. Otherwise the cat bones were concentrated in the late seventeenth/eighteenth century deposits in front of the town wall in Trench 1 where they occurred in two contexts. There was no duplication of skeletal elements so it was not possible to determine if more than one animal was represented. The two medieval cat bones from Trench 2 were probably from the same animal.

Dog remains were overall the third most commonly identified fragments after sheep/goat and cattle. However, in the two later periods dog and cattle bones were identified in equal numbers. At least one puppy and two adult animals were represented in the late seventeenth/eighteenth century deposits in Trench 1. Of these one animal was massive, larger than the largest dog in the reference collection which has an estimated shoulder height of *c.* 70 cm (Harcourt 1974, 154). The seventeenth century dog remains from Trench 1 represented at least two individuals, one larger than the other though not as massive as the later animal. The medieval dog bones from the ditch appear to represent the partial skeleton of a single animal similar in size to a modern fox in the reference collection but of stockier build. Two animals of similar stature and possibly one slightly larger animal were represented in the medieval post-town wall deposit in Trench 2.

Bird bones were not numerous and were only recovered from Trenches 1 and 2 where they occur in similar numbers to the pig bones. Chicken was present in the two later groups in Trench 1 and the medieval group in Trench 2. The medieval deposits in both trenches contained a range of birds, goose, crow, swan and peacock with unidentifiable fragments of smaller species.

Dr. Enid Allison kindly confirmed the identification of the peacock bone. A single peacock bone has been identified from sixteenth century deposits in the Castle Ditch (Allison 1981, 231–2) so the bird is not unknown in Newcastle. However, to find a peacock in such a small collection is unusual.

A single unidentified fish bone was recovered from the latest deposits in Trench 2. Shellfish were also scarce, being confined to the medieval deposits in Trenches 1 and 2. These were largely oyster shells with only one whelk and one mussel present.

Interpretation

The relative abundance of dog, horse and cat fragments, many of them deriving from the same individuals, suggests that domestic food refuse was not a major source of faunal material on this site. Of the commonly consumed domestic species pig bones were extremely scarce, and even for cattle and sheep/goat the proportion of meat bearing bones (ribs, vertebrae and limbs) to the largely inedible extremities (heads and feet) was low. This pattern was evident in all three periods under consideration which implies a continuity of waste disposal patterns on this site.

As further confirmation that this collection was not primarily food refuse only eleven fragments with butchery marks were noted. Perhaps surprisingly, given the number of dog bones present, only seven fragments with gnaw marks were recorded. The lack of gnawing may indicate that bones on this site were soon buried. A mere two burnt fragments were recorded so it would seem that canine scavenging and fire have not been major des-

tructive agencies affecting this collection.

The large number of sheep/goat toe bones from the medieval deposits is unusual especially as the majority are first phalanges with only seven second phalanges and one third phalanx present. Some whole feet were probably discarded but even allowing for a large number of the smaller toe bones to have been missed during excavation the high proportion of first phalanges is inexplicable. Feet can be discarded by the butcher or left in the skin and discarded by the tanner. Metapodials can be used for pegging roof tiles. Whether these toes are waste from any of these activities cannot be ascertained.

The most frequent cattle fragments from the medieval deposits were from horn cores with very few other cranial fragments present. This may suggest a small amount of hornworkers' rather than butchers' waste finding its way onto the site. However the quantity of horncore fragments is too small to suggest a hornworker in the immediate vicinity.

REFERENCES

ALLISON, E. (1981). "The Bird Bone", in Harbottle and Ellison, op. cit.

BAKER, J. and BROTHWELL, D. (1980). *Animal Diseases in Archaeology*.

HARCOURT, R. A. (1974). "The Dog in Prehistoric and Early Historic Britain", *Journal of Archaeological Science*, Volume 1.

LIMBREY, S. (1975). *Soil Science and Archaeology*.

RACKHAM, D. J. (1987). "Assessing the relative frequencies of species by the application of a stochastic model to a computerised database of fossil or archaeological skeletal material", in Wijngaarden-Bakker, L. van, ed., *Data Management of Archaeozoological Assemblages*, PACT.

SILVER, I. A. (1969). "The Ageing of Domestic Animals", in Brothwell, D. and Higgs, E., ed., *Science in Archaeology*.

SOIL PARTICLE ANALYSIS

R. S. Shiel

Thirteen soil samples taken from Bath Lane were subjected to particle size analysis using the method of Avery and Bascombe (1974) with a number of minor modifications. These included not drying the soil before analysis, not removing organic matter, and not removing any mineral carbonates. Such changes have been justified elsewhere (Shiel 1986). All the analyses were carried out in duplicate.

The results show substantial variation from sample to sample and divide into three main groups (1 to 3 on Table 5) plus a single sample (0153X) which is substantially different. Group 1 can be categorized (Table 6) as being of relatively high silt content, while group 2 is particularly high in fine sand, and group 3 is relatively high in coarse sand. Sample 0153X is high in gravel, but even if this is overlooked, it does not fit satisfactorily into any of the other three groups. Of the samples in group 1, 0301 has some affinity to group 2, while 1037 has some affinity to group 3.

The two "natural" samples (0158 and 1065) are both in group 1 and are very similar in composition. In Trench 1 three layers (0245, 0248, 0249), of group 2 soils overlie a small area of group 1 (0301), and the centre of the ditch which contains soil from group 3. There therefore appears to have been a complex period of infilling, but some care must be used because 0301 is the sample similar to group 2 (referred to earlier). It may be therefore that 0249 grades gradually into 0301. Sample 0153X, on the upcast from the ditch is unusual and must contain soil from a source different from all the other samples. 0153Z is however similar in composition to the "natural" soil.

In Trench 2 the banding of layers is much more horizontal. A pair (1039, 1037) of group 1 deposits is overlain by a group 2 layer, much higher in coarse sand, which itself is overlain by a further layer of group 1 soil. The layering in the two trenches is quite distinct, although it may be that a layer of group 1 originally covered the base of both but has been subsequently partly removed from Trench 1. It is unfortunate that none of the samples 1035, 1038, 0246 or 0247 were available.

Group 1 soil is most likely to have arrived in the trench from a local situation, and to have

arrived rapidly, perhaps by slumping. Group 3 soil is high in coarse sand and appears to have originated from some unknown distant site. It may have arisen due to rapidly moving water entering a larger slow-moving pool and depositing coarse sand preferentially. The group 2 soils are higher in fine sand, which is more likely to have arrived over a period of time either by water erosion, but without there being any large unstable area of bare soil to slump.

This report was compiled using the facilities of the Department of Agriculture and Environmental Science, University of Newcastle upon Tyne.

REFERENCES

AVERY, B. W. and BASCOMBE, C. L. (1974). *Soil Survey Laboratory Methods*, Soil Survey Technical Monograph No. 6, Harpenden.

SHIEL, R. S. (1986). "Variation in amounts of carbon and nitrogen associated with particle size fractions of soils from the Palace Leas, meadow hay plots", *Journal of Soil Science*, 37, pp. 249–57.

TABLE 5. Particle size contents (%) of soil samples and a suggested grouping of samples

Sample	Gravel >2 mm	Coarse sand 2 to 0·2 mm	Fine sand 0·2 to 0·063 mm	Silt 0·063 to 0·002 mm	Clay <0·002 mm	Group
0153X	17·0	18·7	34·3	12·4	17·8	4
0153Z	0·9	21·8	32·6	33·9	10·9	1
0158	2·5	18·2	32·3	30·0	17·0	1
0245T	1·1	18·4	56·8	13·5	10·2	2
0248S	0·9	16·1	69·2	1·5	12·3	2
0249Q	4·3	15·3	63·4	12·1	4·8	2
0285	3·7	25·1	35·0	21·7	14·4	3
0301	2·2	16·7	39·8	25·3	16·0	1
1015	1·7	18·0	34·9	28·9	16·4	1
1034	2·4	34·4	32·5	16·3	14·4	3
1037	8·5	24·2	22·7	28·8	15·7	1
1039	1·4	19·7	22·2	34·5	22·2	1
1065	3·1	19·6	30·6	26·9	19·9	1

TABLE 6. Average composition of the soil groups

	Particle size fraction				
Soil group	>2 mm	2 to 0·2 mm	0·2 to 0·063 mm	0·063 to 0·002 mm	<0·002 mm
	% Content				
1	3	20	31	30	17
2	2	17	63	9	9
3	3	30	34	19	14
4	17	19	34	12	18

3. THE TOWN WALL EAST OF CORNER TOWER

Barbara Harbottle and F. C. Burton

This stretch of the wall and its turret were the subject of a short report in 1974.[93] In 1980 Ivan Stretton, on behalf of the City Estate and Property Department, investigated the gap between this piece and the Corner Tower and, finding that little medieval masonry remained here, built up some core work to replace the missing section and so link the two surviving stretches. For some years thereafter full access to the wall and turret was impossible, and it was not until late in the summer of 1987 that their consolidation could be completed. At that point we were invited by Brian Royce, now in charge of the work, to make a full record of the wall while it was in scaffolding. Though most of the modern additions have now been removed, one post-medieval piece of masonry has been left across the east end of the wall walk to stabilize the front of the turret, and the concrete which underpinned the base of the wall itself has been replaced by heavily battered rubble. This can on close scrutiny be distinguished from the sheer medieval masonry above it.

A 12·80 m length of curtain here stands to at least the height of the wall walk. It was broken off at the east end when City Road was constructed in the late 19th century; it survives at a much lower level, and only partly visible, westwards towards Corner Tower. Though much of the north face of the wall is buried,[94] its stepped foundations are largely exposed on the south side. Because of the post-medieval terracing and revetting in this area there is no certainty that these footings are as they originally were, and at its east end the bottom of the wall has not been uncovered. On both faces of the western half of this section abrupt changes in the height of the courses and in the length of individual stones create apparent steps and butt joints in the masonry, and these are discussed below.

The principal feature of this length of curtain is the turret. Apart from its projection of 0·50 m from the external face, and hence its greater internal width, it resembles, at least in its first phase, turrets elsewhere on the town wall. Its external length of 4·34 m, the width and asymmetric position of the loop, the corbels beneath the flagged course on the inner face, can all be paralleled in the remnants of turrets between Stowell Street and St. Andrew's churchyard. If there were a ninth corbel, as is usual, then the spacing and size of the ashlars in this corbel course suggest it should be located at the east end of the row. Those corbels which lie beyond the main structure of a turret, in this case numbers eight and nine counting from left to right, exist to support the lower part of the external stair to the top of the turret, and it is thus clear that here the stair rose from right to left (east to west).

It will, however, be apparent from Fig. 18 that the turret was altered in the medieval period. For reasons and at a date unknown the curtain on the east (downhill) side of the turret was widened by *c.* 0·50 m, so producing the vertical joint visible on the north face. This required the rebuilding of the north-east corner of the turret so that its front (north) wall no longer returned to the south but instead joined the new parapet which the thicker curtain would have made necessary. This junction is still just perceptible on the south elevation. It is unlikely that the turret as such could survive this reconstruction, and unless it too was rebuilt it seems possible that it was reduced in height to become little more than a length of parapet.

The building history of the wall east of Corner Tower is, however, more complicated than has so far been outlined. The pronounced near-vertical joint in the lower part of the south face can be traced westwards and upwards in a series of steps one or two courses in height to the broken west end. The uppermost of these so-called steps there coincides with the bottom of a vertical joint visible in the core of the wall. There are also changes in the horizontal courses of the north face, though there may be more than one of these, together with a possible blocked opening. On both sides, however, the principal vertical break in

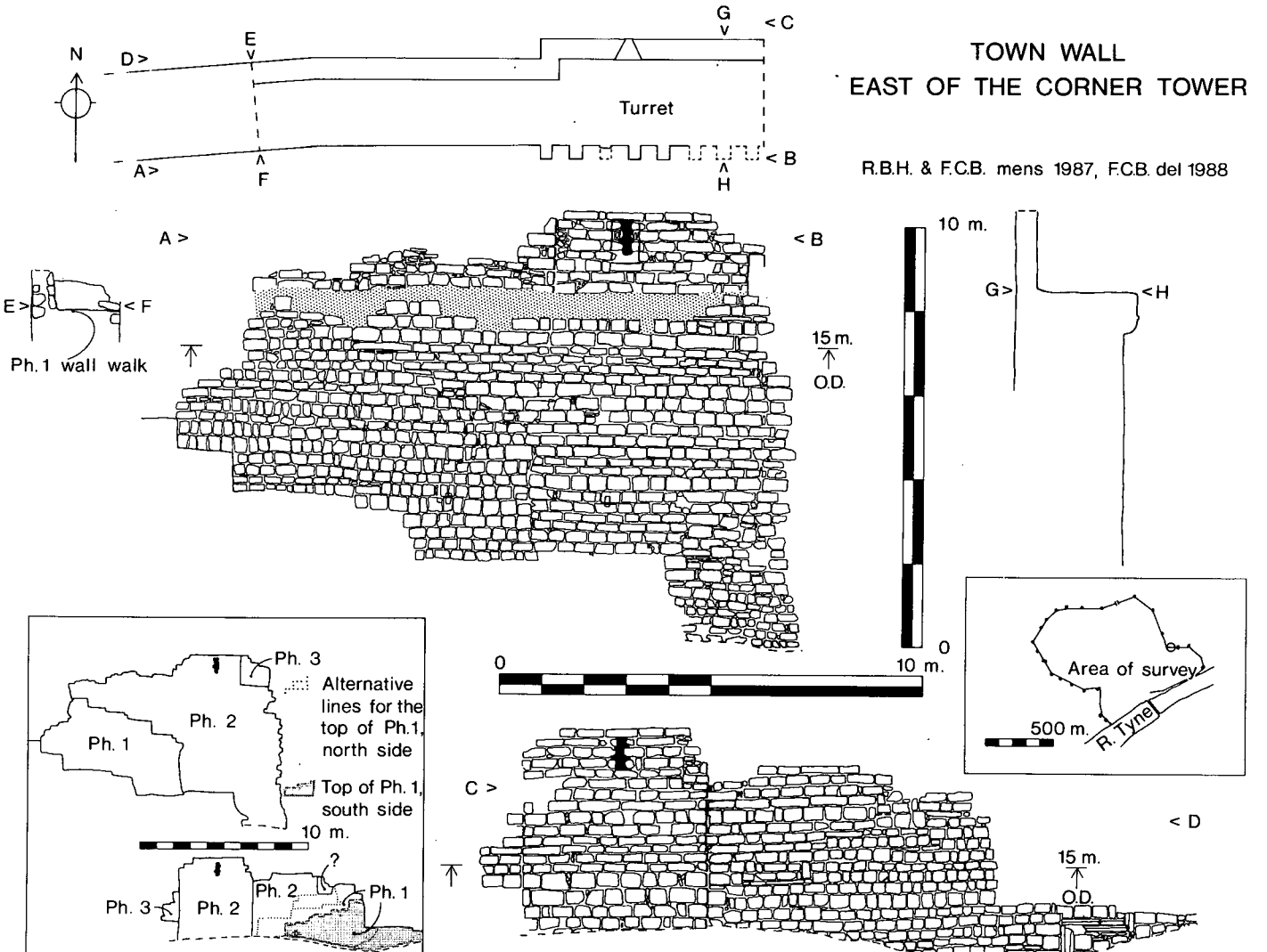

TOWN WALL
EAST OF THE CORNER TOWER
R.B.H. & F.C.B. mens 1987, F.C.B. del 1988
N
D >
E
G
< C
Turret
A >
F
H
< B
A >
< B
E >
< F
Ph. 1 wall walk
15 m.
O.D.
10 m.
0
10 m.
G >
< H
Area of survey
500 m.
R. Tyne
Ph. 3
Alternative lines for the top of Ph.1, north side
Ph. 2
Ph. 1
Top of Ph. 1, south side
10 m.
?
Ph. 3
Ph. 2
Ph. 2
Ph. 1
C >
< D
15 m.
O.D.

Fig. 18.

the courses occurs at about the same distance west of the turret.

The existing visible evidence suggests that this stretch of wall was developed in three phases of construction. In the first phase the wall was being built in a series of steps down the slope to the Pandon Burn when work was abruptly stopped. Of this original masonry there perhaps survives a small piece of buried parapet, a possible embrasure and, particularly clearly on the south face, the gentle descent of the stonework—the wall walk perhaps—at an approximate fall of 1 in 2 as far as the vertical joint. In this way it would have continued what we may assume was the design of the curtain across the gap east of Corner Tower where the wall would have descended a maximum of 11 m in a distance of about 20 m.

In phase 2 the decision was taken to raise the wall walk at the west end of the surviving stretch by *c.* 0·50 m, to continue it eastwards at this level for an unknown distance, and to include a turret in the new arrangement. In the third phase, as we have seen, the turret was altered and the wall widened before its crossing of the burn. It seems possible that it was the junction of the phase 2 and phase 3 masonry that caused Hooppell to suggest the wall had once turned south at this point.[95]

There can be little doubt that the re-entrant at Corner Tower and the line of the curtain to the east must postdate Newcastle's acquisition of Pandon in 1298. In 1300 the mayor and bailiffs were planning to build the wall through the Carmelites' first precinct and place a tower on the site of the friary church,[96] and by 1307 these works were completed.[97] It seems reasonable therefore to suppose that phases 1 and 2 of wall and turret date from these early years of the 14th century though the date of phase 3 cannot be determined.

The significance of a secondary turret is not easy to determine. Was this example merely a tardy response to local topography, an additional strongpoint midway between Corner Tower and Pandon Gate? Or could it have been an original concept of the first decade of the 14th century?

4. THE TOWN WALL ON THE QUAYSIDE

Barbara Harbottle and F. C. Burton

In 1762 the Corporation obtained an order of the Privy Council to demolish the stretch of wall along the Quayside.[98] Its line is therefore known only from early maps of Newcastle (Speed 1610, Corbridge 1723, Thompson 1746), which show it running between Sand Gate on the east and the "Merchant's Hall"[99] or Guildhall on the west, and its appearance from "The South-East Prospect of Newcastle upon Tyne" by the brothers Buck in 1745. Its precise position was known in only two places where it had been revealed in the course of construction work early this century and recorded by W. H. Knowles. The first of these spots was close to Sand Gate[100] and the second west of Fenwick's Entry.[101] It seems unlikely that the wall seen by Sheriton Holmes beneath the Guildhall[102] was in fact the town wall since its width here was a mere 1·37 m (4 ft 6 in), some 0·60 m (2 ft) less than the minimum thickness recorded anywhere else on the circuit.

In 1986 the Northumbrian Water Authority began to prepare their design for that part of the interceptor sewer which was to run along the Quayside parallel to the Tyne. To discover, and so avoid, the line of the town wall they dug a series of small trial trenches of which we were allowed to record the contents of two in May 1986 (nos. 3 and 5), and five in May 1987 (nos. 6–10). We are grateful to the Authority's site staff, in particular the clerk of works, Alan Spedding, for permitting access to the trenches and for providing copies of their site plans. Because the sewer had to be fitted between the concrete quay wall to the south and the services under the Quayside to the north it was impossible wholly to avoid the wall and so—regrettably—some of it was destroyed during the sewer's construction from July to September 1987. The scale and speed of digging the trench for the new pipe, and the flooding at high water, made further archaeological recording impossible. We were therefore restricted to the information acquired from the

seven trial trenches dug by the Authority's labourers, 1+ m × 2·5+ m, and available to us for up to an hour before they were backfilled with concrete, and to the observations made by the Authority's staff themselves, (trenches 1, 2 and 4, and stonework noted at a–e). Hence there can only be tentative conclusions about the actual line of the wall, and only limited information was obtained concerning its dimensions and construction.

The true width of the wall could not be measured since no trench revealed both faces. The north (or inner) face was seen only in trench 5, and the south face in trenches 3, 7, 8 and 10. The minimum width thus obtained was *c.* 2·15 m (7+ feet), which is wider than normal, and if one chooses to take account of an earlier sighting of the wall opposite the end of Trinity Chare, where it was recorded as 8 feet thick,[103] then the curtain along the quay was substantial indeed. The highest surviving stonework (at 2·88 m O.D.) was almost 1 m below the modern road surface, and had been much damaged by the insertion of gas and water pipes.

The usual external base chamfers were found in trenches 3, 7, 8 and 10. Three (probably the maximum number here) were present on the south face of the wall in trench 3, and—as one might expect—matched those

TOWN WALL, THE QUAYSIDE, NEWCASTLE UPON TYNE

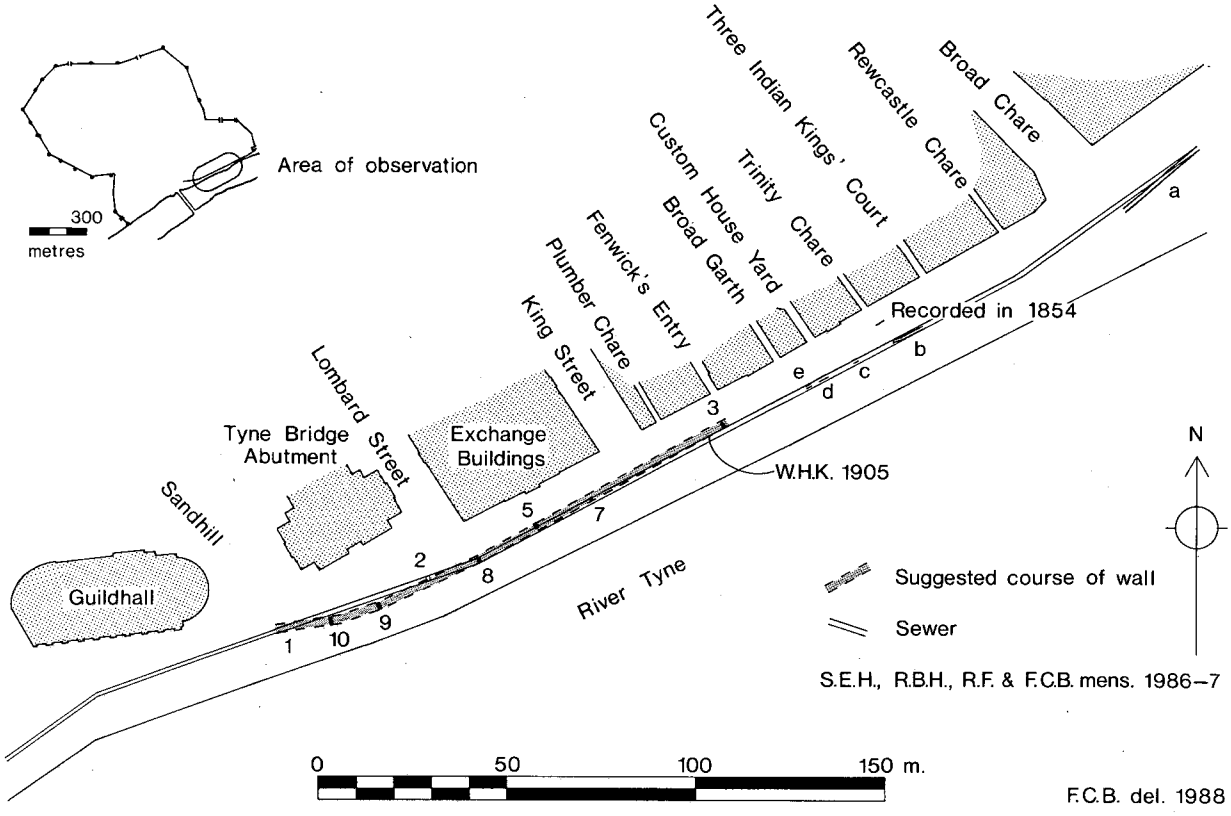


Fig. 19.

noted by Knowles a few metres to the west.[104] One chamfer was recorded in trench 7, its level being approximately the same as the bottom one in trench 3, and the two in trench 8 probably corresponded to the middle and lowest of the chamfers in trench 3. In trench 10 the design was different for, though the upper chamfer (2·58 m O.D.) was very close to the level of the highest example in trench 3 (2·56 m O.D.), its top edge was as much as 0·50 m above the chamfer below, a much wider separation than even between the top and bottom stones in trench 3 (0·38 m).

These small trenches provided only enough evidence for an approximate position for the wall, and this is shown on Fig. 19 west of Fenwick's Entry. The wall did not run straight, but changed direction at intervals to maintain a line midway between the buildings fronting the quay and the edge of the quay itself. At the west end, in trench 10, there was an indication that it veered slightly to the north to head towards the east end of the Guildhall, and this angle is apparent in the Bucks' view. We have not attempted to project this postulated line eastwards from Fenwick's Entry, but have merely recorded on Fig. 19 the various second-hand reports of masonry. In 1854 the wall was said to be "just below the paved roadway of the Quay and not more than six feet from the kerb of the footway" which would perhaps place it too close to the street frontage, and we are not convinced that the stonework in the sewer trench (a–e) was correctly identified as part of the town wall.

NOTES

[1] *Cal. Pat. Rolls 1258–66*, p. 415.

[2] *Cal. Pat. Rolls 1272–81*, p. 397.

[3] *Cal. Pat. Rolls 1307–13*, p. 461.

[4] Barbara Harbottle, "The Town Wall of Newcastle upon Tyne: Consolidation and Excavation in 1968", *Arch. Ael.* 4, XLVII (1969), pp. 72–4.

[5] C. M. Fraser ed., *Ancient Petitions relating to Northumberland*, Surtees Society 176 (1966), pp. 197–8.

[6] Barbara Harbottle, "Excavations at the Carmelite Friary, Newcastle upon Tyne, 1965 and 1967", *Arch. Ael.* 4, XLVI (1968), p. 170.

[7] *Cal. Charter Rolls* II, p. 474.

[8] *Cal. Chancery Warrants* I, p. 263; *Cal. Pat. Rolls 1301–07*, p. 533.

[9] Barbara Harbottle and Peter Clack, "Newcastle upon Tyne: Archaeology and Development", in D. W. Harding ed., *Archaeology in the North* (1976), p. 122.

[10] Constance M. Fraser, "The town ditch of Newcastle upon Tyne", *Arch. Ael.* 4, XXXIX (1961), pp. 381–3.

[11] See notes 4 and 8.

[12] Sheriton Holmes, "The Walls of Newcastle-upon-Tyne", *Arch. Ael.* 2, XVIII (1896), pp. 6, 8, 23; Sheriton Holmes, "The Town Wall of Newcastle, in Gallowgate", *Arch. Ael.* 2, XVIII (1896), pp. 109–12; Parker Brewis, "The West Walls of Newcastle upon Tyne. Between Durham and Ever Towers", *Arch. Ael.* 4, XI (1934), p. 5.

[13] Hilary L. Turner, *Town Defences in England and Wales* (London, 1971), pp. 56–7.

[14] Brewis, op. cit., pp. 19–20. H. L. Honeyman, "A New Plan of the Ever Tower", *P.S.A.N.* 4, IX (1942), pp. 37–8, when recording the excavation of the tower, makes no mention of butt joints but does comment on the awkward fit of tower and curtain here. There is absolutely no evidence for the refurbishment in stone of earlier earthen defences as is thought to explain the awkwardly postioned bastions at Hereford, *Med. Archaeol.* 11 (1967), p. 292.

[15] Turner, op. cit., pp. 108–9.

[16] Sheriton Holmes, "The Walls . . .", op. cit., pp. 12–13, 16–17, 19, supposes there were forty-one turrets. No attempt has been made to verify this figure, and it does not include the two which constitute Corner Tower.

[17] *Northumberland County History* II, p. 197.

[18] Sidney Toy, *The Castles of Great Britain* (London, 1953), pp. 234–5.

[19] *Cal. Pat. Rolls 1385–1389*, p. 243.

[20] *Cal. Pat. Rolls 1405–1408*, p. 380.

[21] Brewis, op. cit., pp. 6–7.

[22] Turner, op. cit., p. 108.

[23] John Brand, *History of Newcastle* I (1789), p. 6.

[24] Sheriton Holmes, "The Walls . . .", op. cit., p. 8.

[25] Sheriton Holmes, "The Town Wall . . . in Gallowgate", op. cit., pp. 110, 112.

[26] Harbottle and Clack, op. cit., p. 121.

[27] C. S. Terry, "The Siege of Newcastle upon Tyne by the Scots in 1644", *Arch. Ael.* 2, XXI (1899), p. 216.

[28]TWAS 589/4, Calendar of Common Council Book, Newcastle, 1645–50, p. 107.

[29]NRO ZRI 27/4/38. Three artillery pieces were mounted at Close Gate in 1745.

[30]E. Mackenzie, *Newcastle upon Tyne* (1827), p. 107.

[31]J. Latimer, *Local Records*, 1832–57 (1857), p. 135.

[32]A. M. Oliver ed., *Early Deeds Relating to Newcastle upon Tyne*, Surtees Society 137 (1924), p. 87, no. 128.

[33]Two names on the petition, Nicholas de Stockton and Adam Page, are known from property deeds to have owned land on the north side of the Close in the early 14th century.

[34]The archaeological evidence is presented in the report on Area C, Phase 8 et seq. A sketch of Newcastle dated *c.* 1590, which clearly shows a gap between the houses on both sides of the west end of the Close and the town wall, is reproduced in *Arch. Ael.* 1, III (1844), p. 124.

[35]James Corbridge, Survey of Newcastle upon Tyne, 1723.

[36]Thomas Oliver, A Map of Newcastle and Gateshead, 1830. All the properties are numbered and their owners appear in an accompanying reference book.

[37]The 1826 illustration appears in the *Monthly Chronicle of North Country Lore and Legend* for August 1889, p. 353. Richardson's view is contained in one of his sketchbooks, NRO ZAN M13 B11, p. 51.

[38]See note 9.

[39]The depth of 19th-century deposits here was revealed by Barbara Harbottle in 1968, see note 4.

[40]TWAS Building Plans T186/498 (1858).

[41]*Proceedings of the Council of the City of Newcastle*, 10 November 1879. See also O.S. 1st ed. 10·56 ft = 1 mile, sheet XCVII.7.19.

[42]O. S. 3rd ed. 25 in = 1 mile, sheet 11.16 (Durham) and XCIV.16 (Northumberland).

[43]See note 16.

[44]A few residual pieces of pottery and clay tobacco pipe were also found here. One of the pipes has been illustrated.

[45]Identification by D. Passmore, Geography Department, University of Newcastle upon Tyne.

[46]The quayside wall discovered by C. O'Brien in excavations further east at Queen Street was constructed on an altogether more massive scale. Colm O'Brien et al., *The Origins of the Newcastle Quayside*, The Society of Antiquaries of Newcastle upon Tyne Monograph Series III (1988), pp. 7–8.

[47]See "History of the Site".

[48]Harbottle (1969), op. cit., p. 91.

[49]Harbottle and Clack, op. cit., p. 120. The Austin Friars were required to leave a space between their buildings and the town wall sufficient "to ride down" in 1331, R. Welford, ed., *History of Newcastle and Gateshead in the 14th and 15th centuries* (1887), p. 76. See also TWAS 589/13, Calendar of Common Council Book, Newcastle, 1718–43, p. 311, 24th September 1733, for a late survival of this restriction.

[50]See Bone Report.

[51]Terry, op. cit., p. 221.

[52]See note 6.

[53]TWAS 589/5, Calendar of Common Council Book, Newcastle, 1645–50, p. 4, 27 September 1650. Petition of Christopher Walker respecting his house near the Close-gate "in which guard was kept ever since the English garrison came into this town".

[54]See note 30.

[55]See notes 14 and 17.

[56]TWAS 589/4, Calendar of Common Council Book, Newcastle, 1645–50, p. 143, 7 March 1648. Petition of Margaret Barker asking that her house "should not be made a Guard House".

[57]Barbara Harbottle and Margaret Ellison, "An Excavation in the Castle Ditch, Newcastle upon Tyne, 1974–6", *Arch. Ael.* 5, IX (1981), p. 105.

[58]Barbara Harbottle and R. Fraser, "Black Friars, Newcastle upon Tyne, after the Dissolution of the Monasteries", *Arch. Ael.* 5, XV (1987), p. 96, fig. 22.

[59]Barbara Harbottle, "Excavations at the South Curtain Wall of the Castle, Newcastle upon Tyne, 1960–61", *Arch. Ael.* 4, XLIV (1966), p. 139, no. 230.

[60]Margaret Ellison and Barbara Harbottle, "The Excavation of a 17th-century Bastion in the Castle of Newcastle upon Tyne, 1976–81", *Arch. Ael.* 5, XI (1983), p. 183, fig. 13.

[61]Margaret Ellison, Margaret Finch and Barbara Harbottle, "The Excavation of a 17th-century Pit at the Black Gate, Newcastle-upon-Tyne, 1975", *Post-Medieval Archaeology* 13 (1979), p. 169.

[62]J. Rush, *The Ingenious Beilbys* (London, 1973), pp. 33–6.

[63]This stamp appears elsewhere in Newcastle, see for example Lloyd J. Edwards, "The Clay Tobacco-pipes", in Harbottle and Fraser, op. cit., p. 109.

[64]Harbottle and Ellison (1981), op. cit., pp. 171–2.

[65]These bricks are usually dated to the late 14th or early 15th century.

[66]Possibly Silurian Greywacke, outcropping in

Berwickshire. Identification by T. Pettigrew, Sunderland Museum.

[67]Sue Margeson and Val Williams, "The Artifacts", in B. Ayers, "Excavations within the North East Bailey of Norwich Castle, 1979", *East Anglian Archaeology* 28 (1985), p. 28, no. 7.

[68]Jane Geddes, "The Small Finds", in J. N. Hare, *Battle Abbey* (1985), p. 161, nos. 53–5.

[69]Pers. comm., Ian Eaves, Keeper of Armour, Royal Armouries, H.M. Tower of London.

[70]*Cal. Pat. Rolls 1272–1281*, p. 397.

[71]Newcastle City Library, L942.82. Thomas Aubone (Manuscript, Jan 20, 1755). Typescript copy, Sept 9, 1933, p. 4, reproduces results of enquiry of 1282–83 into existence of "the King's Place", between the town wall and the friary. It was found that the town wall had been built on part of it.

[72]*Cal. Pat. Rolls 1307–1313*, p. 461.

[73]T. Madox, *Formulare Anglicanum* (London, 1702), no. CCXVII, p. 127.

[74]H. Bourne, *History of Newcastle* (1736), pp. 146–7.

[75]Brand, op. cit., p. 420 note n.

[76]Terry, op. cit., p. 189.

[77]Brand, op. cit., p. 421 note o.

[78]TWAS 544/76, p. 179 (1655).

[79]TWAS Long Box 10 24/45/50.

[80]Brand, op. cit., p. 6.

[81]For the more recent history of the Warden's Close see Harbottle and Fraser, op. cit., pp. 37–9.

[82]Soils are divided into a series of layers or horizons which exhibit different compositional characteristics.

HORIZON	CHARACTERISTIC
A	Upper humus horizon
E (A2)	Horizons from which mineral and organic matter has been lost by leaching or eluviation
B	Horizons of accumulation or illuviation
(B)	Horizons of chemical weathering below the A horizon, but lacking illuviation
C	The parent material

[83]Harbottle (1966), op. cit., pp. 108, 115, 121, 126, and figs. 7, 9, 11, 12.

[84]Harbottle and Ellison (1981), op. cit., p. 105.

[85]Harbottle and Fraser, op. cit., pp. 105–17.

[86]Fraser and Harbottle, report forthcoming.

[87]Identified by T. Pettigrew of Sunderland Museum.

[88]Alison R. Goodall, "Copper Alloy Objects", in J. G. Hurst, ed., *Wharram, A Study of Settlement in the Yorkshire Wolds*, I, The Society for Medieval Archaeology Monograph Series: No. 8 (1979), no. 5, pp. 108–9.

[89]Ian H. Goodall et al., "Copper Alloy Objects", in Guy Beresford, *The Medieval Clay-Land Villages: Excavations at Goltho and Barton Blout*, The Society for Medieval Archaeology Monograph Series: No. 6 (1975), no. 8, fig. 43.

[90]P. A. Rahtz, *Excavations at King John's Hunting Lodge, Writtle, Essex, 1955–57"*, The Society for Medieval Archaeology Monograph Series: No. 3 (1969), no. 129, fig. 51.

[91]Goodall A. R., "The medieval bronzesmith and his products", in D. W. Crossley, ed., *Medieval Industry*, CBA Res. Rep. No. 40 (1981), p. 69.

[92]Howard Ripley, *Buttons of the British Army 1855–1970* (1971), p. 3.

[93]Barbara Harbottle, "Excavation and Survey in Newcastle upon Tyne, 1972–73", *Arch. Ael.* 5, II (1974), pp. 83–5.

[94]Two steps of the double chamfer are visible today, see fig. 18. A third, two and a half courses below the second, and *c.* 2 m long, was dug out during consolidation, but re-covered before it could be recorded.

[95]Rev. R. E. Hooppell, "The Town Wall of Newcastle-upon-Tyne in Pandon Dene", *Arch. Ael.* 2, XI (1886), p. 237.

[96]C. M. Fraser ed., *Ancient Petitions* op. cit., pp. 19–20.

[97]*Cal. Pat. Rolls 1301–1307*, p. 533.

[98]Brand, op. cit., p. 5.

[99]Bourne, op. cit., p. 17.

[100]W. H. Knowles, "The Newcastle Town Wall near Sandgate", *P.S.A.N.* 3, II (1907), p. 63.

[101]W. H. Knowles, "Town Wall, Quayside, Newcastle", *P.S.A.N.* 3, III (1909), pp. 56–8.

[102]S. Holmes, "Remains of Town Wall, Quayside, Newcastle", *P.S.A.N.* 2, VIII (1899), p. 123.

[103]*The Newcastle Chronicle* 21 April 1854, p. 4, col. 4. Information from A. G. Chamberlain.

[104]Knowles, "Town Wall, Quayside", op. cit.

The publication of this report was assisted by a grant from the City of Newcastle upon Tyne.