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# Discovering the King's wall: excavations at 144–166 Cowgate, Edinburgh

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TABLE OF CONTENTS

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List of illustrations	v
List of tables	vi
<b>1. Abstract</b> . . . . .	<b>1</b>
<b>2. Introduction</b> . . . . .	<b>1</b>
<b>3. Historical background</b> <i>by Morag Cross &amp; Magnar Dalland</i> . . . . .	<b>1</b>
3.1 Town walls	3
3.2 The site, the properties and the owners	4
<b>4. The excavations</b> . . . . .	<b>6</b>
4.1 Introduction	6
4.2 Evaluation	6
4.3 The excavation	7
4.4 Watching brief	7
4.5 Results	8
4.6 Entire site Phases 1 and 2	9
4.7 West end	12
4.8 East end	19
4.9 Entire site Phases 8 and 9	21
<b>5. Discussion</b> . . . . .	<b>22</b>
5.1 Original topography of the site	22
5.2 Midden deposits east of the building	23
5.3 Town walls	24
5.4 The building	27
5.5 Post-medieval buildings	27
<b>6. Conclusions</b> . . . . .	<b>28</b>
<b>Appendix 1 Land use and ownership history of 144–166 Cowgate and</b> . . . . .	<b>29</b>
<b>33 Old Fishmarket Close</b> <i>by Morag Cross</i>	
A.1.1 Livingston’s tenement	29
A.1.2 Rhynd’s tenement	30
A.1.3 Notes to Appendix 1	30
<b>Appendix 2 Finds</b> <i>by Julie Franklin with contribution by N M McQ Holmes</i> . . . . .	<b>32</b>
A.2.1 Summary	32
A.2.2 Introduction	32
A.2.3 Pottery	32
A.2.4 Coins <i>by N M McQ Holmes</i>	40
A.2.5 Copper alloy	41
A.2.6 Lead alloy	43
A.2.7 Iron	44
A.2.8 Stone and lead spindle whorls ( <i>stone identifications by Stephen Carter and Dianne Dixon</i> )	46
A.2.9 Stone objects	47
A.2.10 Bone objects	47

A.2.11 Glass and clay pipes	47
A.2.12 Ceramic building material	48
A.2.13 Dating discussion	48
<b>Appendix 3 Animal bone</b> <i>by Catherine Smith</i> . . . . .	<b>51</b>
A.3.1 Methods and measurement	51
A.3.2 The Cowgate bone assemblage	51
A.3.3 Species present	52
A.3.4 Age of animals at death	53
A.3.5 Distribution of bones over the site: evidence of past activities	56
A.3.6 Worked bone and antler	57
A.3.7 Abnormal bone	58
A.3.8 Size and type of animals	58
A.3.9 Discussion	58
<b>Appendix 4 Analysis of soil thin sections</b> <i>by Stephen Lancaster</i> . . . . .	<b>61</b>
A.4.1 Summary	61
A.4.2 Introduction	62
A.4.3 Methods	62
A.4.4 Results	62
A.4.5 Discussion	66
<b>Appendix 5 Analysis of waterlogged plant remains</b> <i>by Scott Timpany</i> . . . . .	<b>69</b>
A.5.1 Introduction	69
A.5.2 Methods	69
A.5.3 Results	70
A.5.4 Discussion	75
A.5.5 Conclusions	78
<b>7. References</b> . . . . .	<b>79</b>
7.1 Documentary sources	79
7.2 Printed primary sources	79
7.3 Secondary sources	79

## LIST OF ILLUSTRATIONS

1. Location plan	2
2. Extract from Gordon of Rothiemay's plan of Edinburgh from 1647 showing ruinous wall segments within St Giles' kirkyard to the south of Parliament House	3
3. Medieval streets and burgage plots in the area of the site	4
4. Excavation areas	6
5. Crane pit (HP01)	7
6. Site phasing	8
7. Walls [066/210] and [281]	9
8. Top of Wall [210]	10
9. East end of Wall [210]	10
10. Section across Wall [210]	11
11. West-facing section across Wall [210] with ditch(?) fills to the south	11
12. Wall [281]	12
13. West end of Wall [281]	12
14. Building at west end of site	13
15. Twin doorways in north wall of building	14
16. Apparent scar in east wall at south-east corner	14
17. Section across revetting clay deposit along Wall [103]	15
18. Drain at north-east corner of building	16
19. Line of vertical slabs along south wall of building	16
20. Remains of wooden door frame	17
21. Blocked doorway	18
22. Wall [047] dividing the building into two rooms	18
23. South-facing section in crane pit	19
24. Extent of early 16th-century midden deposits containing smithy waste seen in relation to medieval burgage boundaries	21
25. Barrel set into the ground	22
26. Wooden piles underpinning post-medieval walls	23
27. West-facing section of crane pit (HP01), showing full cross-section of Wall [210] with ditch fills to the south	25
28. Proposed revised line of the King's wall	26
29. Wooden piled foundation exposed after removal of Wall [023]	28
30. Medieval and early post-medieval pottery	33
31. Jug sherd with applied stamp decoration (Illus 30.6)	35
32. Jug sherd with applied and incised face mask decoration (Illus 30.5)	35
33. Jug sherd with applied and incised face mask decoration (Illus 30.11)	36
34. Jug handle with scratched cruciform cross (Illus 30.9)	37
35. Jug sherd with applied and thumbled decoration (Illus 30.12)	37
36. Jug sherd with incised wheatear decoration (Illus 30.13)	37
37. Copper alloy, lead, iron, stone, bone and glass finds	42
38. Lead seal matrix (Illus 37.46, SF611)	44
39. Stone spindle whorl (Illus 37.64, SF648)	45
40. Lead spindle whorl (Illus 37.61, SF338)	46
41. Stone spindle whorl (Illus 37.62, SF350)	46
42. Stone spindle whorl (Illus 37.63, SF359)	47
43. Variation with depth in the percentage of culturally derived coarse material in soil thin sections	66

44. Change with depth in the mean diameter of the ten largest clasts in soil thin sections	67
45. Plant macrofossil occurrence, HP01 south face	71
46. Plant macrofossil occurrence, HP01 west face	72

## LIST OF TABLES

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1. Pottery sherd count by fabric and phase	34
2. Total number of bones from contexts within building	51
3. Cattle bone elements found in contexts within building	52
4. Sheep/goat elements found in contexts within building	53
5. Total number of bones from contexts to the east of building	54
6. Total number of bones contained within Barrel [163]	54
7. Cattle bone elements found in Barrel [163]	55
8. Sheep/goat bone elements found in Barrel [163]	55
9. Cattle long bones arranged by age category	56
10. Sheep/goat long bones arranged by age category	57
11. Age stages of sheep/goat mandibles	57
12. Bone size range summaries	59
13. Thin-section samples and corresponding contexts	62
14. Thin-section descriptions	63
15. Plant macrofossils	73
16. Nut and fruit stone identifications	75

## 1. ABSTRACT

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This report details the discovery of a late medieval building and the remains of extensive walls running along the north side of Cowgate, excavated in advance of a housing development. The wall remains were dated to the late 14th century and are believed to have been part of Edinburgh's early town defences. Edinburgh's medieval town wall is referred to as the 'King's wall' and is linked to a James II charter of 1450. However, there are references to the King's wall in property documents as early as 1427, indicating that a town wall had been built prior to the charter of 1450. The remains uncovered at Cowgate are likely to be part of this early town wall.

Previously the line of the King's wall was thought to have been located approximately halfway up the slope between Cowgate and the High Street. In view of the new discoveries a revised line is proposed that runs further south along the north side of Cowgate.

The clay-bonded stone building was constructed up against the north side of the wall, probably in the late 15th century. It may have been an animal shed, possibly a stable that was the only medieval stone building erected in this area along Cowgate, leaving most of the site as open wasteland as described in late medieval documents. It was replaced by more substantial mortared buildings at the beginning of the 17th century.

## 2. INTRODUCTION

---

The excavations took place on the site of a housing development at 144–166 Cowgate, Edinburgh, situated on the Cowgate frontage, at the foot of Old Fishmarket Close. Initial phases of work were funded by Castle Rock Housing Association, and the later phases through to publication were funded by Hart Builders (Edinburgh) Ltd. The development extended 53m eastwards from Fishmarket Close and up to 14m back from the street (Illus 1). The west half of the site was formerly occupied by a nursery school with associated playground; the eastern half comprised an access road and off-street car parking. The surrounding area is heavily developed and characterised by multi-storey buildings separated by narrow closes.

## 3. HISTORICAL BACKGROUND

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*Morag Cross & Magnar Dalland*

This is a summary of Appendix 1, which contains more detail on land ownership and full references to documents and manuscripts.

The early origins of Edinburgh are focused on a primary defended settlement, situated on Castle Rock from at least the early historic period, possibly earlier. The Castle Rock is a volcanic plug of hard igneous rock that protected the softer sedimentary

rocks on its east side from glacial erosion flowing from the west, forming a geological craig-and-tail formation with the High Street running down the tail from the Castle towards the east. The valleys on either sides of the High Street (Princes Street Gardens and Cowgate) were formed as the ice carved into the softer sedimentary rocks. The valleys carried two small streams, both called the Tumble, which possibly converged in the area of Holyrood Abbey. The watershed between the streams was at the head of the Grassmarket, with one taking the long way round the Castle Rock, into the Princes Street Gardens basin and down along the valley between Calton Hill and the Canongate; the other took the shorter and steeper route down to Holyrood (Makey 1987). The latter would have a fairly limited catchment area and may only have been a seasonal stream that carried water during periods of heavy rain.

The early development of Edinburgh is thought to have expanded eastwards from the castle along the High Street. The settlement along the High Street was a ribbon development with a series of burgh plots laid out in long narrow strips at right angles to the street down the slopes on both sides. On the south side they may have stretched as far south as the Cowgate at the bottom of the slope. The Cowgate appears to have been formally laid out in the 14th century and runs along the bottom of the valley on the south side of the High Street.



Illus 1 Location plan



Medieval Edinburgh extended eastwards roughly halfway down the Royal Mile with the Nether Bow Port defining the boundary between Edinburgh and Canongate to the east. The buildings were at first confined to the High Street frontage, but as the population expanded, new buildings were built down the steep slopes on either side of the High Street, eventually covering most of the area between the High Street and Cowgate.

### 3.1 Town walls

Edinburgh is known to have had several town walls, three of which are known as the King's, the Flodden and the Telfer walls, dating to the 15th, 16th and 17th centuries respectively. However, documentary references to west and east gates in the late 12th and early 13th centuries respectively suggest that the burgh may have had some sort of defensive enclosure as early as the 12th century (Addyman & Kay 2001). Old documents state that the gates of the town – the Nether Bow and the Over Bow Ports – existed in 1369 (Miller 1887).

The King's wall is associated with a charter of James II from 1450 that orders the inhabitants of Edinburgh to build town defences to protect it from 'our auld enemyis of England' (Marwick 1871: 70). However, there are references to the 'King's wall' in property deeds as early as 1427 (Miller 1887), again indicating that there were some sort of defences in place by the time of the James II charter.

A second charter relating to the wall was issued in 1472 by James III whereby he gave powers to the Sheriff of Edinburgh to demolish or modify houses built up against the wall as part of the efforts to strengthen the town defences. However, the efforts appeared to have been fairly limited, as some 40 years later the beginnings of the Flodden wall were built as an emergency measure to protect the town from a possible imminent attack from the English in the aftermath of the Scottish defeat at the battle of Flodden.

The line of the King's wall is not well known. It is generally assumed that the south line runs halfway down the slope between the High Street and Cowgate, although the charter of 1450 orders the inhabitants to join together the 'hede roumys'. These are assumed to be the ends of the burgage plots, which on the south side of the High Street

extended down to the bottom of the slope, thus implying that the wall ran along the Cowgate.

A substantial wall 15m long and up to 6m high, likely to be a stretch of the King's wall, was uncovered in 1832 when building foundations were excavated some 3m south of the Advocates' Library. Further wall remains were discovered in 1845 to the east during extensions to the Court of Session buildings (Miller 1887).

Fragments of the old wall may also be depicted on Gordon of Rothiemay's plan of Edinburgh from 1647 (Illus 2). The plan shows what appears to be two ruinous wall segments aligned roughly east/west within St Giles' kirkyard some 5m to the south of Parliament House. The shorter segment to the west appears to be offset to the south in relation to the other segment. Together they cover almost the entire width of the kirkyard.



**Illus 2** Extract from Gordon of Rothiemay's plan of Edinburgh from 1647 showing ruinous wall segments within St Giles' kirkyard to the south of Parliament House

Originally the kirkyard to the east of St Giles' stretched roughly halfway down to the Cowgate, with the house and the garden of the Vicar occupying the land between the kirkyard and Cowgate. Later the kirkyard expanded southwards into the gardens to the south. The wall segments could therefore be the remains of the original southern boundary of the Kirkyard. However, assuming that the King's wall would have crossed the land to the south of St Giles', it is likely that the original subdivision of the land would coincide with the line of the wall and that the mapped segments from 1647 are remains of the 15th-century town wall.

### 3.2 The site, the properties and the owners

The western boundary of the site is formed by Old Fishmarket Close that runs from the High Street down to Cowgate. It owes its name to the fish market first recorded in the Town Council Minutes of 1539. Previously the close had been known as Swift's Wynd after Thomas Swift who owned land on the west side of the wynd in the first half of the 15th century.

To the east the site is presently bounded by a two-storey building, which stands on the east side of the former Burnet's Close. The site crossed several medieval boundaries. Edgar's map from 1765 indicates that the site extends across five closes. These are (from west to east): Humph's Close, Borthwick's Close, Old Assembly Close, Conn's Close and Burnet's Close (Illus 3). Borthwick's Close and Conn's Close are also shown on Gordon's map from 1647.

The old burgage plot boundaries are to large extents fossilised in property boundaries surviving up to modern times. Boundaries shown on the 1st edition OS map (surveyed in 1849) indicate that the site spans the full width of seven burgage plots (see Illus 3).

#### 3.2.1 Livingston's tenement

The plot at the west end of the site between Fishmarket and Humph's Close was called 'the late Thomas Livingston's land' in 1501. The Livingston family's plot ran the entire length from the High Street to the Cowgate.



Illus 3 Medieval streets and burgage plots in the area of the site

As with the plots on both sides, it was separated from the line of the Cowgate by waste ground which may have been considered too waterlogged to build upon. The same linear strip of waste appears to run parallel to the north side of the Cowgate, and occurs further west. Poor drainage combined with the accumulation of waste from the densely populated areas further up the steep slope would create fairly unpleasant conditions along the Cowgate and may be the reason why the land was left as waste ground.

George Livingston was dead by 1498, and by 1502 John and Thomas Carkettill, the latter a burgess, owned property in Livingston's tenement, with a neighbour nicknamed 'Dic the Lard'. Some 15 years later the owner of the property is David Gillespie, a baker and burgess, who began buying land fronting the Cowgate and adjacent to it around 1517. Gillespie also bought properties further east in the adjacent Borthwick's and Rhynd's lands in the 1520s. His own house was probably in Rhynd's land, where he had his 'nethir hous quilk is now his stabill'.

In the second half of the 16th century the property was owned by Alexander Arbuthnot, a printer and bookbinder, who had been granted a licence to print Bibles, including that for the burgh church (St Giles') in 1579. It was to have been 'bund in blak lether', but was delivered unbound, with the Council demanding a partial refund.

The next securely identified owner of the property is Sir Thomas Kennedy of Kirkhill, the lord provost of Edinburgh from 1685 to 1687. A supporter of James VII and II, with another former provost he later tried to bribe government arms procurers to accept artificially inflated prices for firearms, for which he was merely fined. William Glover, a lawyer who became Rothesay Herald in 1676, was the next proprietor. His tenure at the Court of the Lord Lyon was cut short when he was permanently suspended, for reasons unspecified, in 1694.

Kirkhill's son, Sir Thomas Kennedy of Dunure (their Ayrshire estate), 1673–1754, a distinguished judge, next owned the corner property. He joined the Faculty of Advocates in 1696, becoming Solicitor General, and was elected MP for the Ayr Burghs in 1720–21. He sold to Robert Cumming, flesher in Edinburgh, who rebuilt the tenement in the early to mid 18th century. Cumming, who was from Spynie in Aberdeenshire, was economically

active from 1706, when he was apprenticed to an Edinburgh flesher.

The Town Council had moved the fishmarket to open ground in Swift's Wynd by 1539. Cumming's interest in the property becomes clearer when he is revealed as a large-scale fishmonger, selling salted herring. He protested at the customs levied on fish at the town ports by the Council in 1732. He supposedly owed the collector 3 shillings Scots for each of 200 loads of herring sold in the previous two months, but he was exempt, as a burgess.

Cumming's son sold the property lot to Thomas Ruthven, an unmarried Edinburgh lawyer. Ruthven practised from the 1760s until his death *c* 1793. After Ruthven's death, the Dick family inherited the property.

The appearance of the buildings fronting the lower end of Old Fishmarket Close can be seen in the planning applications from 1763 onwards, dealt with by the Dean of Guild Court. The outline façade of the corner building is shown at the edge of several drawings. It is a utilitarian, five-storey tenement, with five by seven pane windows, and an elaborately moulded doorway facing into the close. A block plan shows it had a turnpike stair tower on its northern side, and a truncated close (Humph's) forming its back court.

### 3.2.2 Lord Borthwick's tenement

This property is situated to the east of Livingston's tenement. The two burgage plots are separated by Humph's Close. The tenement occupies the land between Humph's and Borthwick's Closes. The land is named after William Borthwick who owned the property around the middle of the 15th century.

### 3.2.3 Rhynd's tenement

Rhynd's tenement is situated on the east side of Borthwick's Close. It occupies the western half of the land between Borthwick's and Old Assembly Close. At the beginning of the 16th century the southern end of Rhynd's burgage plot, fronting the Cowgate, was owned by William Fortune.

There are two men called William Fortune, probably father and son. The first became a burgess in 1488 and was active from at least 1500, although his occupation is unspecified. His namesake,

William Fortune, was a smith and made a burgess in 1517. He owned the property at the southern end of Rhynd's burgage plot from before 1518 until his death between 1522 and 1526. After that, his land passed to David Gillespie, a baker, who was also buying wasteland in the southern tail ends of the neighbouring tenements (see 3.2.1 above).

#### 4. THE EXCAVATIONS

##### 4.1 Introduction

The archaeological fieldwork undertaken by Headland Archaeology took place between October 2002 and November 2004. The work was carried out in four stages (Illus 4):

1. An initial evaluation was carried out while the nursery buildings were still standing in mid October 2002. Three trenches were excavated along the south side of the site totalling 45m<sup>2</sup>.
2. A phase 2 evaluation was carried out at the end of January 2003 after the buildings on the site had been demolished. Two trenches were excavated in the area previously

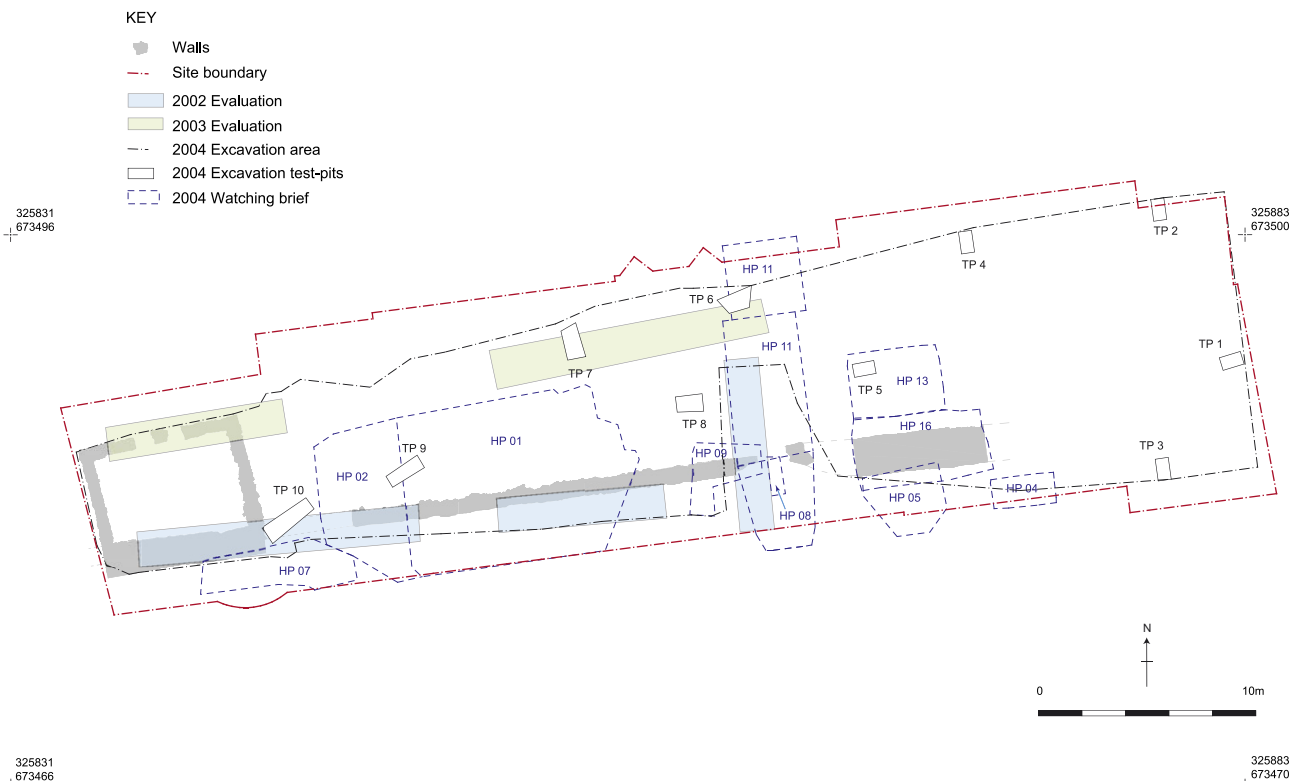
unavailable along the north side of the site totalling 34m<sup>2</sup>.

3. The main excavation of the site was carried out from March to May 2004 including several test-pits below the excavation limit.
4. A watching brief was carried out, from September to November 2004, recording features and sections exposed during the construction work.

During the main excavation and the watching briefs the surveying was carried out with a total station connected to a field computer running CAD software. Thus the extent of general deposits, levels and drawing reference points were recorded directly into CAD. This was very useful during post-excitation, especially in linking features and deposits recorded in separate pits during the watching briefs.

##### 4.2 Evaluation

The evaluation uncovered a number of structures including walls, culverts and cobbles, all from the post-medieval period. The structures were all built upon medieval midden deposits that, according to



Illus 4 Excavation areas



the borehole survey, were up to 2m deep in places. However, no medieval structures were uncovered during this phase of fieldwork.

### 4.3 The excavation

Initially an area measuring 51m by 8–12.5m was machine-stripped of recent overburden, leaving a 1–2m-wide buffer zone along the edge of the site. The main discoveries during the excavation comprised a clay-bonded building at the west end of the site and the top of a 27m-long wall that ran parallel with the Cowgate. The building continued beyond the site edge to the west and the excavation area was subsequently extended some 2m to the west to expose its full extent.

The excavation strategy was adapted to work within a set of constraints set by the development design. As a result, the excavation stopped once pre-determined formation levels of the proposed buildings were reached. These levels varied from 64.9m OD at the west to 63.9m OD at the east end of the site. Due to the soft ground largely

made up of medieval midden deposits below the formation level, the new buildings were to be founded on piles drilled into the ground. A few selected pile locations were therefore investigated by the excavation of test-pits to sample the deposits below the formation levels.

### 4.4 Watching brief

During the construction work, a large rectangular crane pit (HP01) 7.5m by 9m was excavated down to bedrock and the archaeological team was called in to record selected sections of this pit and to sample the deposits (Illus 5). A series of Kubiena tin samples were also taken to study the composition and formation processes of the earliest deposits at the site. Following the recording of the large pit, a programme of watching briefs was carried out during the excavation of the remaining cuts below the formation level. The pits were excavated to facilitate the casting of large concrete blocks (pile-caps) that were anchored to the piles to form the foundations of the building.



Illus 5 Crane pit (HP01). Facing west

### 4.5 Results

Due to the nature of the excavation, a shallower main investigation followed by a series of deeper watching briefs, it was difficult to link all the deposits stratigraphically across the site. The restrictions imposed by pre-defined formation levels, highest at the west end, meant that there was little or no stratigraphical overlap between deposits and features within the building and those in the area to the east. The site has therefore been divided into a west and east half that have been phased separately. The only exceptions are the two earliest and latest phases, which cover the entire site. The phasing is based on a combination of stratigraphy and finds (mainly pottery) dating evidence (see A.2.13).

The result of these investigations is described in nine major phases (Illus 6).

Entire site:

- Phase 1: Pre-wall deposits – mid to late 14th century

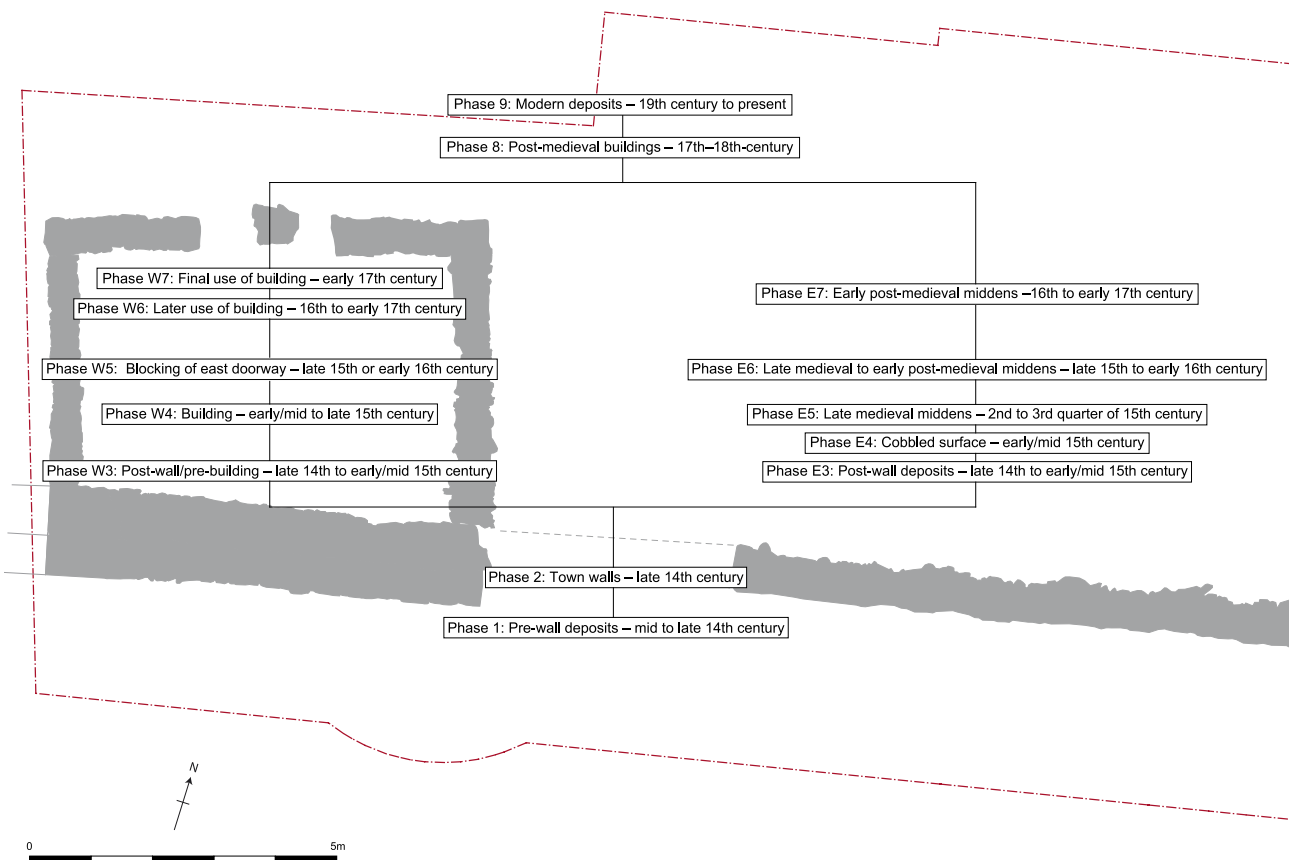
- Phase 2: Town walls – late 14th century

West end:

- Phase W3: Post-wall/pre-building – late 14th to early/mid 15th century
- Phase W4: Building – early/mid to late 15th century
- Phase W5: Blocking of east doorway – late 15th or early 16th century
- Phase W6: Later use of building – 16th to early 17th century
- Phase W7: Final use of building – early 17th century

East end:

- Phase E3: Post-wall deposits – late 14th to early/mid 15th century
- Phase E4: Cobbled surface – early/mid 15th century
- Phase E5: Late medieval middens – 2nd to 3rd quarter of 15th century



Illus 6 Site phasing

- Phase E6: Late medieval to early post-medieval middens – late 15th to early 16th century
- Phase E7: Early post-medieval middens – 16th to early 17th century

Entire site:

- Phase 8: Post-medieval buildings – 17th–18th-century
- Phase 9: Modern deposits – 19th century to present

**4.6 Entire site Phases 1 and 2**

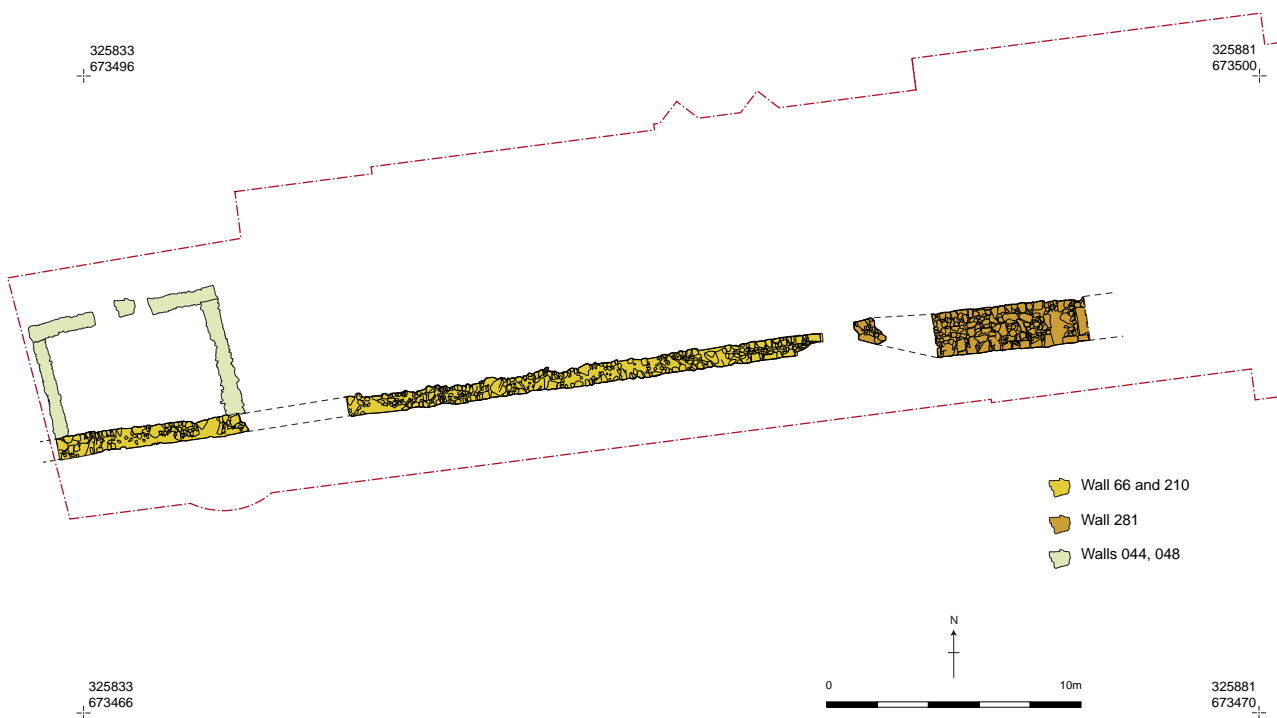
4.6.1 Phase 1: Pre-wall deposits

This phase contains the lower midden deposits exposed in the section of the large crane pit that had been excavated down to bedrock. The pit was aligned with the Cowgate and situated some 14m from the west end of the site. Within the pit the bedrock sloped down northwards away from the Cowgate at an average gradient of 1:10 to 1:20. This slope was also reflected, although less pronounced, in the midden layers at formation level some 2m above bedrock.

The excavation of the crane pit exposed the early sedimentary sequence on the site. To examine

the sedimentary process in more detail, a series of Kubiena tin samples were taken across the profile, and thin sections from these were analysed by a soil scientist. The result of this analysis highlighted some contradictory evidence. The organic elements of lower sediments in the section had been humified and thoroughly mixed with the mineral component that would indicate a relatively well drained and aerated environment, ideally suited to earthworm activity. However, vivianite crystalline pedofeatures were observed throughout most of the profile and these indicate wet, phosphate-rich and highly reducing conditions. A wet phosphate-rich environment was also indicated through the examination of waterlogged plant remains in samples taken from the same lower deposits. The plant remains included species from a plant community that today inhabits extremely nitrogen-rich, periodically wetted and disturbed ground, such as the manured surrounds of streams where cattle water.

The early midden deposits associated with Phase 1 were up to 0.6m thick and comprised dark grey silty clay deposits with inclusions of oyster shell, bones and pottery. The basal deposit represented the A/B horizon of the original ground surface beneath the middens.



**Illus 7 Walls [066/210] and [281]**





**Illus 8** Top of Wall [210]. Facing west



**Illus 9** East end of Wall [210]. Facing east

#### 4.6.2 Phase 2: Town walls

One of the major structures uncovered during the main excavation was a wall ([066/210]) that ran east/west along the south side of the area (Illus 7). It was clay bonded, built from quarried stone and was 0.8 to 0.9m wide and over 30m long (Illus 8). Only the very top of the wall was exposed during the main excavation and a 4m-long segment had been robbed out in the west half. The wall continued beyond the western edge of the site and dipped beneath the formation level to the east. However, the east end was later exposed during the watching brief stage (Illus 9). The east end of the wall had been truncated by the cut for a deep modern sewer pipe that had been inserted along the line of Old Assembly Close. A full cross-section of the wall was exposed in the west-facing section of the large crane pit. It was built on 0.4m-deep foundations, and survived to a height of 1m (Illus

10). Evidence from the south-west corner of the site where it was best preserved suggests that it had been over 1.4m high.

Most of the deposits excavated north of the wall were deposited as widespread layers indicating a gradual build-up of material. The same gradual build-up was evident in the south-facing section of the crane pit. However, the stratigraphy in the west-facing section of the crane pit indicated a rapid infill of dumped material on the south side of the wall (Illus 11). Deposits of this nature are usually seen in pits and ditches and may therefore be taken as evidence for a ditch running along the south side of the wall. The section only extended 2.6m south of the wall and does not show any evidence of the south side of the putative ditch. However, looking at the shape of the deposits, the width could be estimated at around 4m.

A segment of a second wall ([281]) was uncovered in one of the pile-cap pits recorded





**Illus 10** Section across Wall [210].  
Facing east

**Illus 11** West-facing section across Wall  
[210] with ditch(?) fills to the south







**Illus 12** Wall [281]. Facing south-east (left picture), west (right picture)



**Illus 13** West end of Wall [281]. Facing east

during the watching brief (Illus 12). It was exposed over a distance of 6m, the entire length of the pit. The wall was in line with Wall [066/210] but on a slightly more east/west alignment.

The wall was clay bonded, 1.8m wide and faced on either side with sub-rectangular quarried sandstone blocks with a rubble infill in the middle. Only the top surface was exposed. However, in a sondage pit excavated on the north side of the wall the height was measured at over 0.9m. It is not known if the wall extended to the east end of the site, but its west end was exposed in a pit some 2.5m to the west. This end tapered off, probably due to modern disturbance (Illus 13).

The gap between the two walls was 1.4m and coincided with the cut of the modern sewer pipe that had destroyed the presumed interface between the two walls.

#### 4.7 West end

##### 4.7.1 Phase W3: Post-wall/pre-building

This phase includes only three layers, all of which are dark grey to black midden deposits with high organic content. They were recorded at the lowest level within the building during the main excavation, and in a watching brief pit to the south of the building.

##### 4.7.2 Phase W4: Building

A sub-rectangular clay-bonded building had been constructed up against the thinner Wall [066/210] at the west end of the site (Illus 14). The building was 7.5m long east/west and 6 to 6.5m wide externally. There were twin doors separated by a pillar of masonry in the middle of the north wall (Illus 15). The walls were 0.55 to 0.75m wide and



**Illus 14** Building at west end of site

survived up to a height of 1m. The high degree of preservation is probably due to rapid accumulation of deposits and long period of use, and what started out as a free-standing building might have ended up as a part-submerged cellar.

*Construction details*

At first it appeared that the south end of the building had been truncated for the construction of the wall. A sloping scar in the east wall at the south-east corner seemed to support this, although the south

wall barely survived above floor level at this corner (Illus 16). The trapezoidal outline of the building also suggested that the long wall had cut across its south end at an angle.

However, at the south-west corner of the building, which was five courses high, there was clear evidence that the west wall abutted the existing Wall [066/210]. The building was built at an angle to the south wall because it covered almost the entire width of the Livingston burgage plot and had therefore to be aligned





**Illus 15** Twin doorways in north wall of building. Facing north



**Illus 16** Apparent scar in east wall at south-east corner. Facing east





**Illus 17** Section across revetting clay deposit along Wall [103]. Facing west

with the plot boundaries, which were at a 96° angle to the wall. Based on evidence from the crane pit some 16m to the east, the base of Wall [066/210] was over 0.6m below the original floor levels of the building, which indicates that there had been a considerable build-up of deposits against the north side of the wall by the time the building was erected.

Due to the build-up of material next to the wall, its height above ground had been reduced and it is

also likely that it had started to decay in places. So by the time the building was erected, the wall had to be strengthened. This was done by adding an outer skin on the south side of the wall, extending its width from 0.9m to 1.5m. The reinforcement comprised an outer wall face ([103]) with rubble infill against the existing wall face. A wedge of clay had been packed up against the outer wall face, possibly to act as a revetment (Illus 17).





**Illus 18** Drain at north-east corner of building. Facing north



**Illus 19** Line of vertical slabs along south wall of building. Facing west

As the outer skin reached the top of the older wall, it was extended across to cover the combined wall width (see Illus 17). The old wall was least well preserved at the south-east corner, where it barely reached the inner floor level of the building. Further west, however, the wall had survived to a height of 0.9m above floor level.

A segment of the outer reinforcement wall face was exposed in a pit excavated during the watching brief. The segment was recorded at a depth of over 0.4m below the inner floor level, indicating that there was a significant difference in ground level between the two sides of the wall at the time when the building was constructed. This could be taken as further evidence for the presence of a ditch running along the south side of the wall and to show why support was needed along the outside to stop it sliding into the ditch.

#### *Building layout*

The building had been divided down the middle into two rooms by an internal wall built from woven wattle with a doorway leading into each room from the north. Two modern pits some 2m across were cut into each room and had destroyed over 25% of the internal floor area.

The two rooms had very different stratigraphy. In the east room a sequence of paved and clay floors and floor repairs were exposed, while no paved surfaces were exposed in the west room. The difference in the stratigraphy indicates that the two rooms had different functions and that the internal division was part of the original design of the building, as indicated by the twin doors.

In the east room a stone-lined drain was running along the east wall with a culvert draining through the north wall in the corner (Illus 18). The floor levels comprised a series of roughly paved surfaces

interleaved with occupation deposits. Some of the paved surfaces were fragmentary and may represent ad hoc repairs. The only surviving internal feature was a line of six upright sandstone slabs that ran parallel with and 0.8m in from the south wall (Illus 19). The line was 2.4m long and ran across from the wattle division up to the drain along the east wall. There was a 0.6m-wide gap in the line in the east half. This feature may reflect the outline of an animal pen or possibly a storage compartment within the building.

The main feature in the west room was a Y-shaped drain leading out under the threshold of the door to the north, superimposed by a couple of rough stone steps ([166]) leading down to the door. The deposits in the west room included black organic occupation/midden deposits. A rectangular area 0.7m by 1.4m of sandstone fragments in the north-west corner ([153]) may represent an attempt to provide a cleaner surface for storage. This room also had a feature comprising a line of upright sandstone slabs. It was 1.4m long and comprised four vertical slabs.



**Illus 20** Remains of wooden door frame. Facing north-east

The feature was located towards the north-west corner and was aligned parallel with and 0.3m in from the west wall. The function of this feature is not clear, although its location and dimensions may suggest that it could have been an animal feeding trough.

The two doorways were 0.8m wide and were preserved to a height of 0.85m above the threshold. The two doors were separated by a slender stone pillar that was only one stone (0.37m) wide. The wooden thresholds and lower parts of the door frame were still preserved. The door frames were sitting in rough slots in the masonry on either side of the openings (Illus 20).

#### 4.7.3 Phase W5: Blocking of the east doorway

After a period of use the slender clay-bonded pillar between the two doorways became unstable and started slanting to the north-east. It is easy to imagine how this would deform the frame, making the door stick and eventually become impossible to open or close. The only solution to the problem would have been to strengthen the weak point by blocking up the east doorway, leaving the west door as the only entrance into the building (Illus 21). The access into the east room became a 0.45m-wide gap at the south end of the internal wall.

#### 4.7.4 Phase W6: Later use of building

The building continued to be in use for a long time after the east doorway had been blocked, as indicated by a gradual build-up of deposits within the two rooms.

The internal wattle subdivision of the building was eventually replaced by a clay-bonded stone wall ([047]) constructed on top of built-up occupation material within the building. It was built up against the pillar between the two original doorways and extended 2.8m into the room, leaving a 1.45m gap up to the south wall (Illus 22). The wall was up to 0.5m high and tapered in width from 0.6m at the north end, where it comprised two faces with rubble in the middle, down to a single stone 0.3m wide at the south end. This suggests that the wall did not extend to the full height of the room, perhaps tapering down from the north wall.





Illus 21 Blocked doorway. Facing north



Illus 22 Wall [047] dividing the building into two rooms. Facing east



A short stone-lined drain truncated to the north by a modern pit and a fragmented area of rough cobbles in the west room appears to be associated with this later use of the building.

4.7.5 Phase W7: Final use of building

During the final period of use the entire east room appears to have been blocked off by adding a narrow mortared red sandstone wall ([016]) to the end of Wall [047], bridging the gap between it and the south wall. The wall was 0.25m wide and survived up to 0.3m high. It was 3m long and truncated by modern disturbance to the north.

An area of rough paving ([030]) and a stone-lined drain ([020]) on the west side of the wall were associated with this final use of the building.

**4.8 East end**

4.8.1 Phase E3: Post-wall deposits

All deposits belonging to this phase were located below the formation levels and therefore only seen in section within test-pits and during the watching

brief. However, similar layer sequences seen in test-pits at different locations within the site seem to suggest that these deposits were quite widespread. The layers comprised mostly black to dark grey clayey midden deposits with high organic content, that in some cases contained amounts of oyster shells. Although most of the deposits were exposed within smaller pits, Contexts [242 = 260] in the large crane pit could be seen over a distance of over 9m, confirming the wide extent of most of these layers (Illus 23).

4.8.2 Phase E4: Cobbled surface

This phase represents the only anomaly in the fairly uniform sequence of deposits seen in the south-facing section of the large crane pit. It comprised a layer of cobbles ([240]) that extended some 7m westwards from the north-east corner of the pit (see Illus 23). Although only seen in section, it is most likely to be part of a cobbled area. Immediately beneath the cobbles was a thin layer of orange-brown organic silt that contained partly preserved roots and grass. This deposit appeared to represent an old



**Illus 23** South-facing section in crane pit. Facing north

ground surface that became preserved beneath the cobbled surface. However, thin-section analysis of the deposit suggests that it represents a deposit of laid turfs rather than a turf line formed in situ.

At the north-east corner the cobbles extended up to the remains of a possible wall ([260]) some 0.85m wide, up to three courses high and aligned roughly east to west. The cobbles and the wall may be remnants of a building with an associated cobbled yard, but as the features were only seen in section, it was not possible to investigate this further.

#### 4.8.3 Phase E5: Late medieval middens

The remaining midden deposits have been grouped into Phases E5 and E6 on the basis of stratigraphy as well as pottery and coin dating evidence. All contexts in Phase E5 were recorded in the test-pits or during the watching brief. As in the case of the lower layers, most of the deposits were brown and dark grey organic, silty and clayey midden deposits. By correlating levels of interfaces between layers in different pits, it appears that some of these deposits were quite widespread, although there were variations that indicated some more localised deposits. There were a few layers that comprised crushed sandstone rubble, evidence of construction or demolition of stone structures nearby. However, any such structures must have been located outwith the areas examined through test-pits or watching brief.

#### 4.8.4 Phase E6: Late medieval to early post-medieval middens

All of the layers in this phase were excavated during the main excavation period. They represent the upper midden layers surviving beneath the disturbance caused by later buildings. The deposits were located in the middle part of the site some 25m eastwards from the stone building. The area beyond and up to the limits of the site some 20m to the east was not excavated further after cleaning, due to rising formation levels. For the same reason the depth to which the layers were excavated decreased from 0.7m to 0.2m from west to east.

On plan the layers were confined to separate areas divided north/south with little or no overlap.

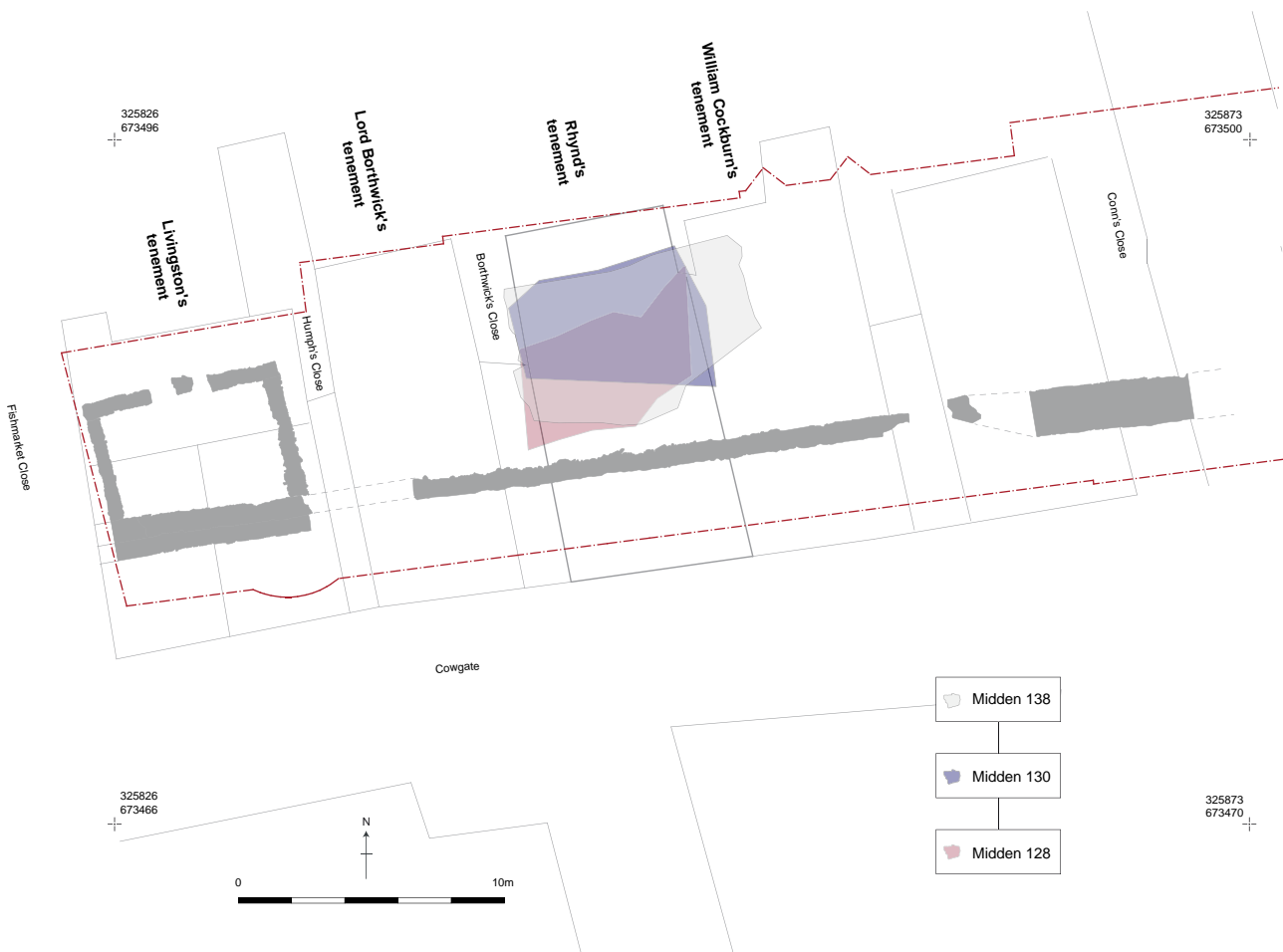
The area next to the building to the west was only 1.2m wide. The layers were confined between the clay-bonded medieval building to the west, and the foundations of a mortared post-medieval building to the east, and coincides with the line of Humph's Close. The lower deposit contains several smaller stones and may represent rough cobbles; on top of these were midden-like deposits, indicating the amount of deposits accumulating at the bottom of this lane.

To the east a group of layers were confined between the foundation trenches of two mortared walls from a later post-Reformation building, spanning Lord Borthwick's tenement in the gap between Humph's and Borthwick's Close. The deposits were mainly midden material and two possible consolidated ground surfaces: one a rough cobbled surface, the second comprised of yellow clay with stone inclusions. These surfaces may represent an attempt to address the difficult wet ground conditions.

The remaining layers lay to the east of the building on Borthwick's tenement. They appear to be divided into two groups on plan by an invisible north/south boundary, with only a couple of layers spreading into the neighbouring area. Through rectification and georeferencing of the 1st edition OS map, it was possible to overlay the old burgage plot boundaries fossilised on the map onto the site plan. The overlaid plan indicates that the subdivision coincides with the boundary between Rhynd's and William Cockburn's tenements, although there were no visible remains of any fence along the burgage plot border (Illus 24). As in the area to the west, most of the layers appear to be midden deposits.

#### 4.8.5 Phase E7: Early post-medieval middens

This phase comprises a few deposits and features located just west of the stone building. It includes a robber trench into a section of wall ([066/210]) just east of the corner of the stone building. The fill of the trench lies under an area of cobbles, remains of Humph's Close. A short sinuous stone-lined drain is situated further east within the former Borthwick's tenement. The drain appears to pre-date the later mortared wall building in this area.



**Illus 24** Extent of early 16th-century midden deposits containing smithy waste seen in relation to medieval burgh boundaries

**4.9 Entire site Phases 8 and 9**

**4.9.1 Phase 8: Post-medieval buildings – 17th–18th-century**

There were few surviving remains of the later mortared buildings within the main excavation area. Best preserved was the west wall ([023]) of the building occupying the former Borthwick’s tenement (see Illus 22). The mortared wall was 0.9m wide and ran across the entire width of the trench. The wall was built on a piled foundation comprising wooden posts driven into the soft medieval midden deposits. A 3.6m-long fragmentary section ([043]) of an inner wall 0.7m wide was abutting the west wall.

Remains of two stone walls were exposed some 9m to the east of Borthwick’s tenement. They were located close to and aligned with the boundary between Rhynd’s and William Cockburn’s

tenements. The wall segment to the south ([132]) was 2.1m long and 0.85m wide. At the north end it turned east, forming the north-west corner of a building situated within William Cockburn’s tenement. The wall to the north ([134]) was 1.5m long and 0.8m wide and continued into the site edge to the north. Although there was a 2m-wide gap between the wall segments it is possible that they were both part of the same building complex, as their west wall faces were on the same alignment.

Two barrels were located in the vicinity of Wall [132]. Both appear to have been inserted into the ground. Only the very base and short remnants of the staves survived of the barrel to the west ([152]). The barrel to the east appeared to be located within the building defined by Wall [132]. The barrel survived to a height of 0.4m and was made from 15 staves (Illus 25). Unlike the other barrel, it was open at the base. The two barrels were of similar





**Illus 25** Barrel set into the ground. Facing north

diameter (0.45m) and may represent two halves of the same barrel. The better preserved barrel to the east contained large amounts of animal bones as well as a clay pipe stem and the base of a glass bottle, dating it to the late 17th to early 18th century.

Remains of a later mortared wall ([139]) were uncovered on top of the medieval wall ([140]) at the west edge of the site. The later wall is part of a post-medieval building located at the corner of Fishmarket Close and Cowgate, using the medieval building as part of its foundations. The wall forming the building's frontage along Cowgate was not itself preserved, but the wooden posts of its piled foundations were exposed in the south-west excavation face (Illus 26).

#### 4.9.2 Phase 9: Modern deposits

The upper mixed deposits were removed by machine at the start of the excavation. Despite the presence of deep soft midden deposits on the site, the middle and eastern part of the site had not been affected by deep foundations for later post-medieval buildings.

However, a deep sewer pipe had been inserted roughly along the line of the Old Assembly Close. The cut was not encountered during the main excavation phase as it was situated just east of where the excavation stopped, having reached formation levels. However, during the watching brief it became clear that it had cut through the interface between Wall [210] and Wall [281].

The only deep foundations were encountered in the western half of the site, where the foundations of the building on Borthwick's tenement cut into the late medieval middens. Further west two large pits had been cut into the two rooms of the medieval building, destroying over a quarter of the internal floor area.

## 5. DISCUSSION

### 5.1 Original topography of the site

The bedrock underlying the site was exposed in the large crane pit. Within the pit the bedrock sloped gently down towards the north away from





**Illus 26** Wooden piles underpinning post-medieval walls. Facing south

the Cowgate, in stark contrast to the profile of Fishmarket Close at the west end of the site which rose sharply towards the north from its junction with Cowgate. The slight slope towards the north was also reflected in the surface of the midden deposits up to 2m above bedrock. This indicates that the level modern ground surface reflects the original topography rather than being the result of modern levelling of the site.

The slope implies that the eastward course of the Tumble burn would have been located least 9m to the north of the current Cowgate frontage. However, the gentle gradient to the south of the burn would mean that this area would easily be flooded during periods of heavy rain.

### **5.2 Midden deposits east of the building**

The conclusions from the soil science analysis of the medieval midden deposits did to some degree contradict the environmental evidence based on the analysis of the macroplant assemblage from the same deposits. The humification and mixing of the

organic elements would indicate a well-drained and aerated environment, while the macroplant evidence pointed towards an environment that resembles the disturbed manured ground near streams where cattle water. The presence of vivianite seen in the thin sections is an indication of wet conditions, but the formation of the mineral may not necessarily be contemporary with the formation of the deposits and may have been the result of increased waterlogging at a later stage.

The picture of fairly unpleasant conditions in this area as suggested by the macroplant assemblage is also indicated in historical documents from the end of the 15th century, in which the area is described as waste ground, probably because it was considered to be too waterlogged to build on.

The layer of cobbles exposed in the south-facing section of the crane pit is likely to represent an attempt to create a useful yard surface in an otherwise wet, muddy area. The cobbles were put on top of a layer of turves, possibly to prevent them from immediately sinking into the underlying soft sediments.

The site spanned four closes and seven burgage plots (see Illus 3). The close to the west (Humph's Close) ran along the east side of the building, where remains of the cobbled street surface were uncovered. The close is first depicted on Edgar's map of 1742, named Back of Borthwick's Close. During the second quarter of the 19th century, the street was blocked by buildings at the north end, and by the end of the century it was reduced to a courtyard within the Free Sabbath Breakfast Mission Hall with a vennel leading out to Cowgate.

No remains of the other three closes to the east were uncovered during the excavation, probably due to modern disturbance. The line of Borthwick's Close coincided with disturbance caused by concrete foundations cut down below the initial excavation level. The projected line of the close would have run along the western edge of the crane pit, but there was no clear evidence of street surfaces in the south-facing section of the pit.

The line of Old Assembly Close ran just east of the excavated area, and any street surfaces would have been heavily disturbed by a large, deep sewer pipe that appears to run along the line of the close. Conn's Close lay in the eastern part of the site beyond the areas that were excavated, but one of the test-pits was cut into the area of the close. The test-pit was almost 1.5m deep but the sequence comprised mainly midden deposits and showed no evidence of any street surfaces.

Most of the burgage plot boundaries coincided with the line of the closes, the only exception being the area between Borthwick's and Old Assembly Close and, at the east end, between Conn's and Burnet's Closes. The latter lay in an area not excavated, but the area to the west had been partly excavated on plan and spanned Rhynd's and William Cockburn's tenements. There were no remains of any physical division between the two tenements in the form of a fence; however, most of the deposits within the area appeared to be divided into two groups on plan by an invisible north/south limit that lay close to the boundary between the two tenements (see Illus 24).

This division became even more significant, as the finds analysis indicated that there had been a smithy in the area, based on the disproportionate amount of nails and other metalwork retrieved from three midden spreads. The spreads that were dated to the

early 16th century were largely confined within Rhynd's tenement.

Subsequently, documentary research found that the southern end of Rhynd's tenement was owned by a smith called William Fortune from before 1518 until his death in the mid 1520s. It is therefore very likely that he would have had a smithy on his land at the beginning of the 16th century. Although no physical remains of a smithy structure were uncovered, the building could have been located to the north of the site, with only its waste deposits spilling into the excavated area. There are historical records of another William Fortune, also a burges, though of unknown profession and possibly the father of the aforementioned (see 3.2.3 and Appendix 1). It is possible that the younger Fortune inherited both his profession and the land from his father, and therefore that the smithy was established earlier, by the end of the 15th century.

## 5.3 Town walls

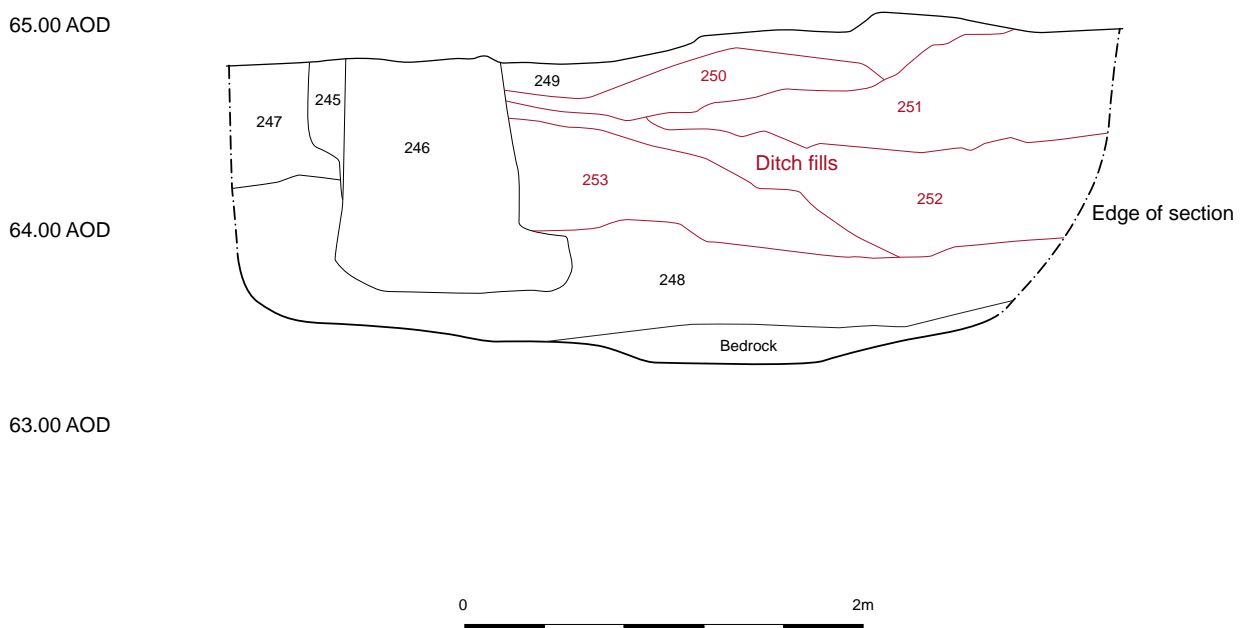
### 5.3.1 Site evidence

One of the major discoveries during the excavation was the two walls that ran parallel with the Cowgate. The walls were not fully exposed, but their size and location can be reconstructed from evidence recorded during the main excavation and the following watching briefs (see Illus 7).

Both walls have characteristics that indicate that they were not built as a boundary wall or part of a building. The full extent of Wall [210] within the excavation area was over 30m, cutting across two closes and four burgage plots, but there were no indications of any gates or original breaks in the wall. Although seen only in section, there was evidence that a ditch ran along the south side of the wall.

Wall [281] to the east was over 9m long and 1.8m wide. Its west end had been disturbed by a sewer ditch, and its total extent within the site is unknown, as the pile cap pits on the same line to the east had been excavated and backfilled before the watching brief was set in motion. Wall [281] is much wider than might be expected for a normal building; its width resembles that seen in fortifications. The exposed stretch cut across the line of Conn's Close without any indication of a gate at this point.

Crane pit  
West facing section



**Illus 27** West-facing section of crane pit (HP01), showing full cross-section of Wall [210] (here numbered [246]) with ditch fills to the south (right)

This evidence suggests that the two walls form part of an early town wall that ran along Cowgate. The two walls are on a slightly different alignment and the wall faces do not line up but they are clearly part of the same defensive structure. The change of alignment reflects the slight change in alignment in the street frontage along the north side of the Cowgate, as shown on the 1st edition OS map from 1854.

The junction between the walls and the change in alignment occurs at the property boundary along Old Assembly Close. It appears that the early wall was made up of segments built to different specifications and on the initiative of different groups or individuals, rather than a centrally run project built to the same overall standard. Perhaps the ambitious design of Wall [281] turned out to be too expensive and time-consuming, and the scheme was reduced to the less impressive Wall [210].

The dating evidence of the walls is ambiguous, as only the tops of the walls were exposed on plan

during the excavation. Both walls were submerged in accumulated sediments, but their wall faces were never exposed, and it was therefore difficult to establish from which level the walls were constructed. The only full exposure was of Wall [210] in the west-facing section of the crane pit (see Illus 10; Illus 27). This section indicates that the wall was built on 0.4m-deep foundations cut into a ground surface that at the time was only 0.6m above the underlying bedrock, indicating that it was built at an early stage of the development of the area. After its construction there was a gradual build-up of deposits on its north side. On the south side of the wall there was a shallow ditch that was kept clear of sediments until the wall was abandoned. At this stage the ditch was rapidly infilled by dumped deposits tipped in from both sides. Pottery dating evidence indicates that it was constructed in the second half of the 14th century, which confirms it as part of one of Edinburgh's medieval town walls.



5.3.2 The line of the King’s wall

According to the current theory, the 15th-century King’s wall runs west/east halfway up the slope between the Cowgate and the High Street. This line is anchored to the west by wall remains found in the 1830s and 1840s near Parliament House, and to the east by wall remains uncovered by excavations between Niddry Street and Blackfriars Street in the 1970s (Schofield 1976).

However, the results of this excavation strongly suggest that a medieval town wall was located along the north side of Cowgate (Illus 28). The dating evidence suggests that the wall pre-dates the King James II charter of 1450, but it seems unlikely that this existing wall would not have been incorporated into the mid 15th-century defences. Recent excavations carried out at St Patrick’s Church some 250m along Cowgate to the east uncovered a 5.5m-wide and 1.3m-deep ditch aligned with Cowgate and some 13m north of its north side. The ditch has been dated to the mid to late 14th century

(Jones 2011: 9–16) – the same period as the walls to the west. Again, the dimensions of the feature suggest that it is more than just a local boundary ditch and it is possible that the ditch is part of the same contemporary defensive complex as the walls to the west. If this is the case, large portions of the medieval town defences would at one stage have been situated along the north side of the Cowgate and not halfway up the slope to the north.

The wall remains uncovered near Parliament House were substantial and must represent remains of the King’s wall. The wall near Blackfriars Street described by Schofield now seems less convincing as a defensive structure. This wall extended some 12m east/west and included four right-angle corners, in stark contrast to the straight walls along Cowgate. The dog-legged wall looks more like the end of abutting rectangular buildings or revetment walls.

The location of the wall below Parliament House implies that it somehow dog-legs down the slope to join up with the wall along Cowgate. A possible clue to this could lie in the layout of



Illus 28 Proposed revised line of the King’s wall



Kirkheugh on the east side of St Giles' kirkyard. The street had buildings along its west side only, and documents indicate that it had an east/west dog-leg about halfway up from Cowgate (M Cross in Roy forthcoming). With most of the closes running straight down the hill between the High Street and Cowgate, this irregular layout may be caused by and reflecting the line of the town wall making a dog-leg down towards Cowgate. The single-sided nature of the close may also be an indication that the street followed the line of the wall by taking advantage of the existing wall when constructing new buildings, as seen during this excavation.

#### 5.4 The building

The building had been constructed up against the north side of the town wall. By the time the building was constructed the wall had started to decay, and major strengthening work had to be carried out that involved partly demolishing the wall and reinforcing it by adding an outer skin of masonry.

The structure was built on midden deposits. This made it difficult to date the building precisely, as objects from disturbed underlying deposits could have been redeposited at a higher stratigraphical level. The pottery indicates that the building was constructed in the later parts of the 15th century, although this seems to be in breach of King James III's charter barring buildings from being constructed up against the wall. However, the construction of the building also involved the repair and strengthening of the wall at this point and, in view of this, perhaps a 'building permit' was granted. The east and west walls of the building would also act as buttresses strengthening a relatively narrow wall at this point.

The soft ground appeared not to have too much adverse effect on the stability of the building, as it remained well preserved, its west wall even being re-used as foundations for post-medieval multi-storey buildings. The only exception was the twin doorway in the north wall. The narrow pillar of stone between the doors turned out to be too slender for the clay-bonded building technique, and it started to tilt. The only solution to the problem was to prop it up by blocking up the east doorway.

The design of the building suggests that it was not intended to be a dwelling house. Despite walls surviving up to 1m high, there were no traces of

windows, nor was there any sign of a fireplace. Rows of vertical slabs set into the floor, possibly forming feeding troughs, may suggest that the building was used as an animal shed, possibly a stable.

Later modifications to the building include the replacement of the internal wattle subdivision with a coarse stone wall. The finds indicate that the building went out of use in the early 17th century, when it was replaced by a multi-storey mortared building partly resting on its west wall.

Although the building appears to be one of the first structures erected along this part of the Cowgate frontage, it was built on thick midden deposits, indicating that there had been activity in the area for centuries. Finds from these early deposits indicate that this activity dates back to at least the 13th century. These deposits do not all come from material moving down from the slopes to the north, as the deposits have a fairly horizontal east/west profile. It is possible that the activities producing the middens were linked to buildings located on the lower slopes to the north. This model concurs with documentary evidence that refers to a band of waste ground along Cowgate. Given the state of the area as indicated by the palaeoenvironmental evidence, and reflected in contemporary historical documents, it is perhaps not surprising that people found this ground unattractive for settlement even by late medieval standards. There was evidence of sporadic attempts to create a better surface by putting down turves and then building a cobbled surface on top, but mostly the stratigraphy comprised superimposed midden deposits.

#### 5.5 Post-medieval buildings

There were some remains of later buildings on the site, but these were ill preserved and were mostly removed during the initial clear-up. Several of the post-medieval walls rested on piled foundations in the form of wooden posts some 0.1m in diameter driven into the soft midden deposits (Illus 29).

Although little remained of the later buildings, two examples of a curious feature associated with the post-medieval buildings were recorded in the upper deposits. These were remains of two barrels set vertically into the ground. One only comprised the very base of the barrel; the other was better preserved and had possibly been cut into the floor of a building.

## 6. CONCLUSIONS



**Illus 29** Wooden piled foundation exposed after removal of Wall [023]. Facing south

During the excavation at Giles Street, Leith, a barrel was found sunk into the floor of a 17th-century building (Masser forthcoming). The barrel was thought to have acted as a soakaway. A barrel also dated to the 17th century was found cut into the ground during the excavations at St Patrick's Church, Cowgate (Jones 2011: 16–18). It was located to the north of a culvert and it was thought that the culvert drained into the barrel, which was believed to be lining a well.

The two barrels recovered during this excavation cannot easily be explained as soakaways. The less well-preserved barrel had its base intact, which would render it useless as a soakaway. The other barrel had a collection of animal bones representing the heads and feet of at least five horned sheep, a fragment of a calf skull and the feet of two cattle. This distinctive assemblage may indicate that the barrel had been used in some form of animal-based industry, possibly hide and skin preparation. However, the barrel also contained bones of pig, fowl and goose, and may simply at the end have been used for dumping domestic rubbish.

The two walls uncovered during the excavation appear to be part of early town defences that pre-date James II's charter of 1450. They were built before the bulk of the sediment accumulation took place on a ground surface that lay 1.3m below the levels of early 16th-century deposits, and cut across the line of several closes without any indication of their presence. Although never seen on plan, there were some indications that a ditch ran along the south side of the walls.

The King's wall is associated with James II's charter from 1450. However, there are several references to a town wall before this date. It seems therefore likely that the charter, rather than initiating a new construction project from scratch, was issued to bring together and consolidate already existing, possibly disjointed and partly neglected defensive structures, and it is likely that the walls uncovered at Cowgate are remnants of such early town defences. The second charter, dating to the reign of James III, clearly refers to the improvement and strengthening of the *existing* wall.

In view of the recent discoveries, it seems that the perceived line of the King's wall has to be revised. It appears now that the wall ran eastwards along Cowgate from around Fishmarket Close, possibly linking up with the major boundary ditch that was uncovered during excavations at St Patrick's Church some 250m to the east. From there it continued up to St Mary's Wynd and then north along the line of the later Flodden Wall to Nether Bow Port.

East of Fishmarket Close the line of the wall appears to have made a dog-leg up along the east side of the later expansion of St Giles' kirkyard, then turning west to join up with the wall remains south of the Advocates' Library discovered in 1832.

The clay-bonded stone building was constructed up against the north side of the wall, probably in the late 15th century. It may have been an animal shed, possibly, given the prestigious use of stone for the walls, a stable that spanned almost the entire width of Livingston's tenement along the east side of Fishmarket Close. It appears to have been in use for just over 100 years before it was replaced by more substantial mortared buildings at the beginning of the 17th century.

The structure appears to be the only medieval building within the site boundary, leaving most

of the site as open wasteland as described in late medieval documents. The area appears not to have been fully developed until possibly the late 16th to early 17th century, when multi-storey buildings were erected along the Cowgate frontage.

## APPENDIX 1: LAND USE AND OWNERSHIP HISTORY OF 144–166 COWGATE AND 33 OLD FISHMARKET CLOSE

*Morag Cross*

### A.1.1 Livingston's tenement

The multiple incarnations of Old Fishmarket Close, as Swift's Wynd, Carmichael's, Gourlay's, Barrie's and Jolly's Closes, are outlined in *The Place Names of Edinburgh*.<sup>1</sup> 'The name ... refers sometimes to the vennel and sometimes to the ground ... It is a little confusing at times.'<sup>2</sup> The property traced here is that located on the eastern corner of the close, and identified by the Registers of Scotland as having belonged to the Dick family in the 19th century.<sup>3</sup>

A list of previous proprietors of the site, engrossed in a later document, lacks dates but provides a guide to the various uses of the property.<sup>4</sup> The site sits on the corner of 'the late Thomas Livingston's land',<sup>5</sup> bounded on the east by William, Lord Borthwick's tenement or burgage plot, and on the west by Thomas Swift's land.<sup>6</sup> The Swifts, an Edinburgh burghess family for whom the close was originally named, owned property in the immediate vicinity from 1427 and 1439,<sup>7</sup> until heiress Janet Swift sold everything, including the family lair and gravestone inside St Giles' in 1504.<sup>8</sup> Their house nearest the Cowgate, on the west side of Swift's Wynd, seems to have been 'Stoiffis Land', a name which has now disappeared.<sup>9</sup>

The Livingston family's plot on the east side of the close ran from the High Street to the Cowgate. As with Stoiffis and Lord Borthwick's lands, it was separated from the line of the Cowgate by waste, unbuilt ground which may have been considered too waterlogged to build upon.<sup>10</sup> The same linear strip of waste appears to run parallel to the north side of the Cowgate, and occurs further west.<sup>11</sup> George Livingston was dead by 1498,<sup>12</sup> and by 1502 John and Thomas Carkettill, the latter a burghess, owned property in Livingston's tenement, with a neighbour nicknamed 'Dic the Lard'.<sup>13</sup>

The long strip of land was known interchangeably as both Swift's and Carkettill's,<sup>14</sup> but the first owner of 144–146 Cowgate named in the later inventory is David Gillespie, a baker and burghess, who began buying land fronting the Cowgate and adjacent to it around 1517.<sup>15</sup> Gillespie bought the property running east from Swift's Wynd to what is probably Humph's Close (ie 144–146 Cowgate),<sup>16</sup> and then farther east in the adjacent Borthwick's<sup>17</sup> and Rhynd's<sup>18</sup> lands in the 1520s. His own house was probably in Rhynd's land, where he had his 'nethir hous quilk is now his stabill'.<sup>19</sup>

As a bakers' guild member, Gillespie was expected to follow a code of conduct in his relations with customers. However, in 1531 the Town Council tried him, 'for braking of the statutis of the toun oft and sindrie tymes, baikand his breid insufficient stuf bayth of wecht and fynes'.<sup>20</sup>

The property was later owned by Alexander Arbuthnot, a printer and bookbinder, who had been granted a licence to print Bibles, including that for the burgh church (St Giles') in 1579. It was to have been 'bund in blak lether', but was delivered unbound, with the Council demanding a partial refund.<sup>21</sup>

The corner house passed through several owners who cannot be securely identified (eg Hew Brown), before being inherited by Sir Thomas Kennedy of Kirkhill, the lord provost of Edinburgh from 1685 to 1687. A supporter of James VII and II, with another former provost he later tried to bribe government arms procurers to accept artificially inflated prices for firearms, for which he was merely fined.<sup>22</sup> William Glover, a lawyer who became Rothesay Herald in 1676, was the next proprietor.<sup>23</sup> His tenure at the Court of the Lord Lyon was cut short when he was permanently suspended, for reasons unspecified, in 1694.<sup>24</sup>

Kirkhill's son, Sir Thomas Kennedy of Dunure (their Ayrshire estate), 1673–1754, a distinguished judge, next owned 144–146 Cowgate. He joined the Faculty of Advocates in 1696, becoming Solicitor General, and was elected MP for the Ayr Burghs in 1720–21.<sup>25</sup> He sold to Robert Cumming, flesher in Edinburgh, who rebuilt the tenement in the early to mid 18th century.<sup>26</sup> Cumming, who was from Spynie in Aberdeenshire, was economically active from 1706, when he was apprenticed to an Edinburgh flesher.<sup>27</sup>

The Town Council had moved the fishmarket to some open ground in Swift's Wynd by 1539.<sup>28</sup> Cumming's interest in the property becomes clearer when he is revealed as a large-scale fishmonger, selling salted herring. He protested at the customs levied on fish at the town ports by the Council in 1732. He supposedly owed the collector 3 shillings Scots for each of 200 loads of herring sold in the previous two months, but he was exempt, as a burghess.<sup>29</sup> 'Alasone Ritchie, my wife, having used the said employment of selling fishes and never ... such customes was ever demanded ... All hucksters or retailers of herrings or o[the]r fishes in the street of the Cowgate or in any o[the]r pairt of the suburbs' were liable to pay. But Cumming himself 'sold only in the mercat itselwe and none of the places [abovementioned],' and felt that he should not pay.<sup>30</sup>

Cumming, being sufficiently successful to rebuild the southern land, let it along with the older northern property (known both as 'Kennedy's Land' and 'Cumming's Land'), to a hair merchant and a female cordiner, among others.<sup>31</sup> Cumming's son sold the whole lot to Thomas Ruthven, an unmarried Edinburgh lawyer. Ruthven practised from the 1760s until his death *c* 1793, when he left an unusually heartfelt last testament. He bequeathed his law books and office to 'James Knox my clerk who has been with me about seventeen years and ... was alwise in family with me ... with as much merit as any clerk ever had, besides his being a companion to me, as a friend in my house which I made him much to my satisfaction when I came to know him'.<sup>32</sup> After Ruthven's death, the Dick family inherited 144–146 Cowgate, which the lawyer had let through a factor.

The appearance of the buildings fronting Old Fishmarket Close can be seen in the planning applications from 1763 onwards, dealt with by the Dean of Guild Court. The outline façade of 144–146 Cowgate is shown at the edge of several drawings. It is a utilitarian, five-storey tenement, with five by seven pane windows, and an elaborately moulded doorway facing into the Close.<sup>33</sup> A block plan shows it had a turnpike stair tower on its northern side, and a truncated close (Humph's) forming its back court.<sup>34</sup>

One close to the west, a building with wooden jetties, still remained in 1823.<sup>35</sup> Improvements in Old Fishmarket Close included gentrified, pedimented entrances, and larger windows. Among

the proprietors were a miniature painter, a printer, and the corn sample market.

The well-documented fire between Old Assembly Close and Parliament Square on 15 November 1824 brought down tenements reputedly 15 storeys high, and caused amateur artist James Hall to record the immediate aftermath. The buildings at the foot of Old Fishmarket Close are seen in two views reproduced by W H Lizars, although 33 Old Fishmarket Close is not itself depicted.<sup>36</sup>

### A.1.2 Rhynd's tenement

The excavation crossed several burgage plots, Carkettill's at the west, Borthwick's, and Rhynd's tenement on the east. Rhynd's tenement was situated on the east side of Borthwick's Close. It occupied the western half of the land between Borthwick's and Old Assembly Close. At the beginning of the 16th century the southern end of Rhynd's burgage plot, fronting the Cowgate, was owned by William Fortune.

There are two men called William Fortune, probably father and son. The first became a burghess in 1488<sup>37</sup> and was active from at least 1500,<sup>38</sup> although his occupation is unspecified. His namesake, William Fortune the smith, made a burghess in 1517 (see note 37), owned a property at the southern end of Rhynd's burgage plot, fronting the Cowgate, from before 1518<sup>39</sup> until his death (which occurred between 1522 and 1526).<sup>40</sup> After that, his land passed to David Gillespie, a baker, who was also buying wasteland in the southern tail ends of the neighbouring tenements (see note 17).

### A.1.3 Notes to Appendix 1

- 1 Harris 2002: 252. Historian C Boog Watson's unpublished notes on the Close's names are included in Boog Watson et al (1975: 77–8).
- 2 Boog Watson 1911: 255.
- 3 The titles of two adjacent and legally connected properties are here treated together because they are so intertwined. The northern building, 'Cumming's Land', is described as 'old' in 1886, which accords with the 18th-century rebuilding of the southern land (*The Scotsman*, 3 Mar 1886,

- p 2). Registers Direct Sasine Register Search no. 2007-0142915, carried out 19/01/07.
- 4 NAS B22/4/87 f33v. This list is extracted from an earlier court document, for which the wrong date is given, leaving any original, more detailed inventory of writs untraced to date.
- 5 *Prot Bk Foular* I, no. 107, 28 Jan 1501–2. This protocol shows that Thomas Livingston was dead by early 1502.
- 6 *Prot Bk Foular* IV, no. 117, 17 April 1529. Here George Livingston is given as the eponymous former owner.
- 7 *Registrum Magni Sigillii Regum Scotorum* II, nos 92, 207.
- 8 *Prot Bk Foular* I (contd), no. 80, 18 May 1504.
- 9 *Prot Bk Foular* III, no. 926; IV, no. 126. Janet sells this house in 1527–8. She had already sold further patrimony in 1517 (*Prot Bk Foular* II, no. 55). The name ‘Stoiffis’ is obscure and no derivation has been suggested.
- 10 Lord Borthwick’s wasteland, *Prot Bk Foular* IV, no. 55; Livingston’s wasteland, *Prot Bk Foular* IV, nos 280, 338; Swift’s wasteland, *Prot Bk Foular* IV, no. 126.
- 11 Further west, the unbuilt strip of waste appears again, at the foot of the steep hill running down Sir James Bigholme’s tenement, on the eastern side of St Giles’ graveyard (at the Kirkheugh vennel). *Prot Bk Foular* I, no. 279; *Prot Bk Foular* I (contd), nos 237, 895; *Prot Bk Foular* II, no. 67.
- 12 NAS GD3/1/10/78, charter of Archibald Edmonstone, 30 Jan 1498.
- 13 *Prot Bk Foular* I, no. 157, 1 July 1502.
- 14 *Prot Bk Foular* I (contd), no. 714, ‘of the late William Carkettill’; no. 745, ‘of the late Thomas Livingston’. *Prot Bk Foular* IV, no. 117, ‘a tenement of the late George Livingston, now pertaining to the heirs of the late John Carkettill’, 1529.
- 15 *Prot Bk Foular* II, nos 69, 70, Jan 1517–18: Gillespie already owns land in Rhynd’s tenement, two holdings east of Livingston/Carkettill’s land. Some of this is again waste, only a few feet back from the Cowgate frontage.
- 16 *Prot Bk Foular* IV, no. 163; Agnes Carkettill, daughter of Thomas, sells to David Gillespie the ‘wasteland lying in the lower end of the tenement ... with the street of Cowgate on the south ...’ (20 Oct 1529). Ibid, no. 338, Gillespie again owns the wasteland running the width of the tenement between the transes, or passageways.
- 17 *Prot Bk Foular* IV, no. 55. Lord Borthwick sells Gillespie the wasteland ‘in the lower end of [Borthwick’s] tenement ... between the Cowgate on the south’: 24 Sept 1528.
- 18 *Prot Bk Foular* III, no. 536. Alexander Rhynd resigns his annualrent from David Gillespie’s land, ‘within [Rhynd’s] tenement of land between ... the Cowgate on the south’: 20 Dec 1524. However, Rhynd had been falsely spending some of the income from Gillespie ‘for an anniversary [mass] for his father’s soul’, and the land belonged entirely to Gillespie (ibid, no. 537).
- 19 *Prot Bk Foular* II, no. 70 (29 Jan 1517/18).
- 20 *Extracts from the Records of the Burgh of Edinburgh (Edinburgh Recs)* II, 50.
- 21 *Edinburgh Recs* IV, 158; National Library of Scotland Scottish Book Trade Index (SBTI), accessed online at <http://www.nls.uk/catalogues/resources/sbti.html> on 8 February 2007.
- 22 Whitson 1932: 48–53.
- 23 NAS B22/4/87 f33v.
- 24 Grant 1944, Additional section, ‘Court of the Lord Lyon,’ p 18.
- 25 Grant 1944, 116.
- 26 NAS B22/4/87 f31v.
- 27 Boog Watson 1929a: 21.
- 28 *Edinburgh Recs* II, 93.
- 29 NAS CS271/50759.
- 30 NAS CS271/50759.
- 31 NAS CC8/8/106, pp 563–5; Gilhooley 1988: 75. Cumming’s testament calls the

old tenement 'Kennedy's Land', and leaves the 'new land at the ffoot of the ffish mercat closs' unnamed. It is still anonymous in Gilhooley's directory of 1752.

- 32 NAS CC8/8/129, p 468. His eik, or addition to his will, records his demise by November 1793, but his date of death is left blank. NAS CC8/8/130, p 369.
- 33 ECA, DoG Warrants, Edinburgh Sabbath Free Breakfast Mission petitioner, Old Fishmarket Close, 17 Nov 1887. Plan no. 5, the elevation to the close, is by Robert Wilson, architect at 2 Queen Street, Edinburgh.
- 34 ECA, DoG Warrants, James Law petitioner, Old Fishmarket Close, 18 Nov 1886; Edinburgh Sabbath Free Breakfast Mission petitioner, Old Fishmarket Close, 17 Nov 1887.
- 35 ECA, DoG Warrants, Alexander Wright petitioner, Old Fishmarket Close, 5 July 1823.
- 36 Lizars 1824: pls 4, 5. Drawn by James Hall and engraved by W H Lizars, discussed over-effusively by Battles 2005.
- 37 Boog Watson 1929b: 190.
- 38 *Prot Bk Foular* I, nos 21, 36.
- 39 *Prot Bk Foular* II–III, nos 69, 70.
- 40 *Prot Bk Foular* II–III, nos 256, 748.

## APPENDIX 2: FINDS

*Julie Franklin with contribution by N M McQ Holmes*

### A.2.1 Summary

The majority of the assemblage came from thick layers of 15th- and 16th-century hill wash – combined with midden material. There is a small amount of earlier stratified material found in the long sequence uncovered in HP01. Very few finds post-date the 16th century, and those that do are generally residual, due to extensive later building. Useful comparisons can be drawn with other 15th-century midden deposits found locally, most notably at Edinburgh High Street, 700m to the east (Schofield 1976), but also at Holyrood Parliament Site, at the bottom of the Canongate (Holyrood Archaeology Project Team

2010), Edinburgh Castle (Driscoll & Yeoman 1997) and Bernard Street, Leith (Holmes 1985).

Floor tiles and window glazing demonstrate high-status buildings nearby. Coins, trade tokens and a seal matrix reflect the business of the marketplaces on the High Street, while Edinburgh's place in the North Sea trading network is shown by pottery imported from northern Europe, particularly from the 15th century onwards. All these are evidence of life on the High Street washing downhill to the Cowgate. A little more mundane is a dump of late 15th- or early 16th-century scrap metal on the east half of the site, probably deriving from a smithy thought to have stood on the site.

### A.2.2 Introduction

This report brings together finds from both the evaluation and excavation stages of the project. It has not been possible to include the evaluation contexts in the general site phasing, but any associated dating evidence is given in the text, where relevant. Waterlogging in the lower layers has led to some excellent preservation of metalwork and organic finds. There were several small fragments of leather and spun and woven wool from Phases 3 to 6, which have not been reported but will remain part of the site archive. Details of each reported find are given at the end of catalogue entries as follows: small find number (SF); context; area/test-pit/evaluation trench etc; phase (Ph).

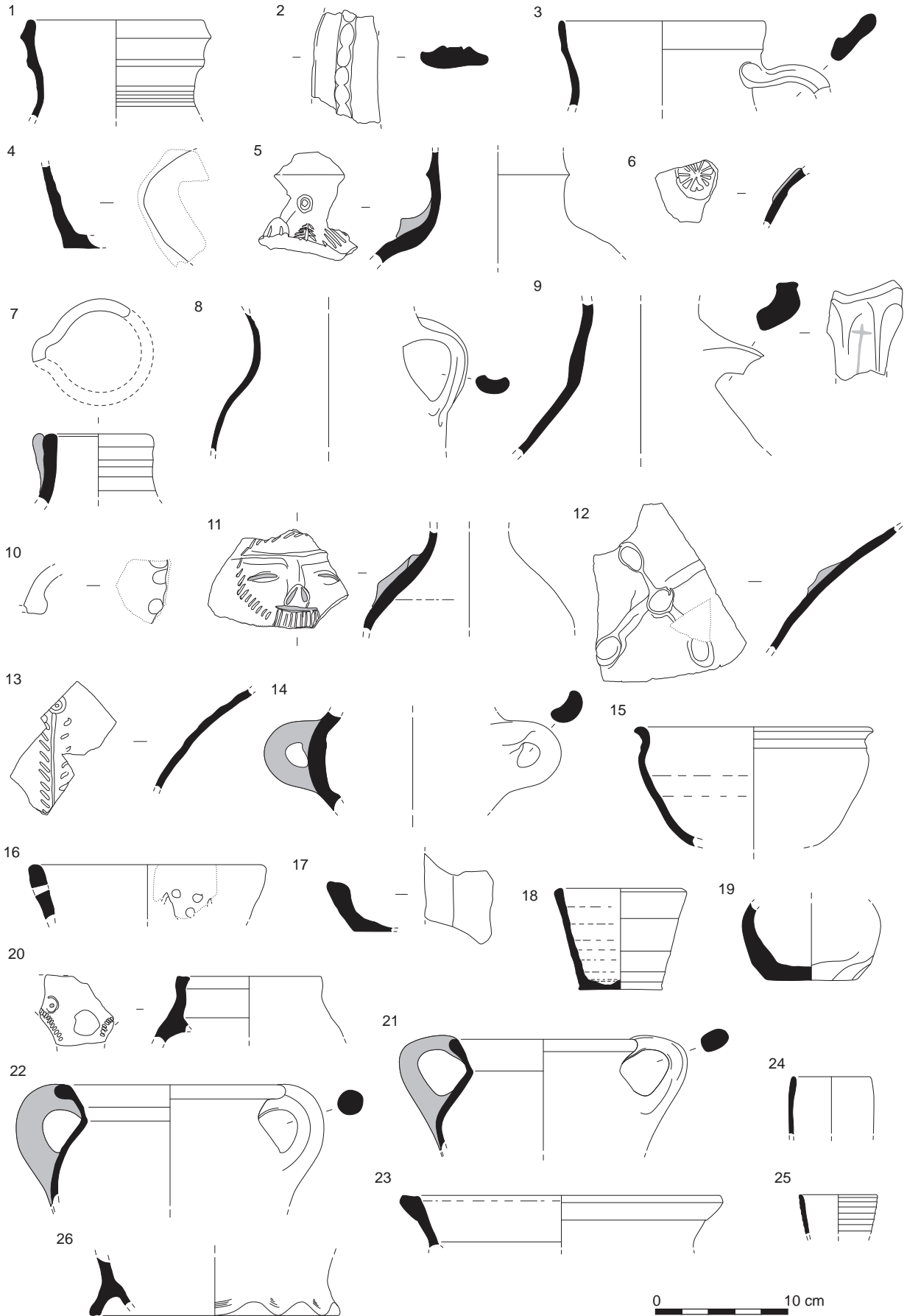
### A.2.3 Pottery

This section refers to Illus 30. See also Table 1.

#### A.2.3.1 White gritty ware

This was the typical medieval fabric of south-east Scotland. It was produced at a number of centres, such as the 13th- and 14th-century kiln site of Colstoun, East Lothian (Brooks 1980) and is found on contemporary sites across the region. It accounts for 90% of the Phase 1 sherd count but tails off thereafter, replaced by other local wares. The fabric is generally white, occasionally pink or grey, and heavily quartz gritted. Forms represented are mostly jugs, with a handful of cooking pots. Jugs are patchily glazed in yellow or green, occasionally bright copper-speckled green.





Illus 30 Medieval and early post-medieval pottery (see Catalogue, A.2.3.9, for descriptions)

**Table 1** Pottery sherd count by fabric and phase (no. = number of sherds; percentages are of the total sherd count for each phase; U/S = unstratified and unphased contexts; phases ordered chronologically, see A.2.13)

Fabric\Phase	1	2	W3	E3	W4	E4	E5	W5	E6	W6	W7	E7	8	9	U/S	Total	
White gritty ware	no.	46	6	40	31	30	-	25	6	48	7	2	7	5	8	18	279
	%	90		40	42	33		34	11	10	7	6	7				20
Late whiteware	no.	1	2	27	21	15	1	21	13	97	28	5	26	1	12	18	288
	%			27	29	16		29	24	21	27	15	26				21
Medieval redware	no.	-	-	7	3	1	-	1	-	8	-	-	-	1	3	2	26
	%			7	4	1		1		2							2
Late medieval-post-medieval greywares	no.	-	-	17	13	37	-	20	35	279	70	26	64	4	86	59	710
	%			17	18	40		27	65	61	67	79	63				51
Scarborough type	no.	1	-	-	-	1	-	1	-	2	-	-	-	-	-	1	6
Saintonge mottled green	no.	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Low Countries greyware	no.	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	2
Low Countries redware	no.	2	-	6	1	2	-	1	-	7	-	-	1	1	5	1	27
Siegburg stoneware	no.	-	-	-	1	1	-	1	-	3	-	-	-	-	-	1	7
Langerwehe stoneware	no.	-	-	-	-	2	-	2	-	2	-	-	-	-	1	-	7
Langerwehe/Raeren	no.	-	-	2	-	1	-	-	-	8	-	-	2	-	1	1	15
Raeren stoneware	no.	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	1
Tin-glazed earthenware	no.	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1
Unidentified	no.	1	-	-	2	1	-	-	-	1	-	-	-	-	2	-	7
Modern	no.	-	-	-	-	1	-	1	-	2	-	-	1	1	12	8	26
<i>Total</i>		51	9	100	73	92	1	73	54	458	105	33	101	13	131	109	1403



A.2.3.2 Late whiteware

Late Scottish whitewares are part of the same potting tradition as white gritty wares, but are characterised by poorer-quality clays and poorer workmanship. It is found in 15th-century deposits in the Edinburgh area, and continues into the 16th century, though there is little accurate dating evidence for its range. It was found in 15th-century and later deposits at Water Street, Leith (Franklin 2002: 403) and it matches the description of whitewares from the 15th-century midden at Bernard Street, Leith (MacAskill 1985: 416, fabric groups 1 and 2). At the Cowgate site its appearance is contemporary with the appearance of Rhenish stonewares and Low Countries earthenwares, which appears to be in the late 14th or early 15th century.

The fabric is variable, though generally buff, pale grey or pink, and characterised by sparse though often coarse tempering, thick walls (*c* 10mm) and poor craftsmanship. Some sherds are micaceous; a few include large lumps of red stone. One includes small straw voids, suggesting dung or threshing debris has become mixed with the clay, whether accidentally or in order to make a coarse clay easier to work, while another includes a, presumably accidental, 10mm lump of grog protruding from the internal surface. Sherds are often high fired, in

one case possibly overfired as the iron ore inclusions within the clay have melted, forming blisters, and the surfaces are often damaged by flaking. Glaze is typically olive green covering most of the exterior, but it can be very thin at times, or burnt or absent, or occasionally yellow, amber or dark metallic.

It seems to mark the last throes of the whiteware industry, with increasingly unskilled potters working in increasingly cramped and untidy conditions, already facing competition from northern European redwares and stonewares and the local red and greywares which would go on to dominate the 16th and 17th centuries. At the same time demand for pottery in general was falling due to the increased availability of metal vessels. Whether the crudity of the vessels stems from a lack of potting expertise, or an increasingly exhausted and low-quality clay source, is unclear, though probably both apply in varying measures. Also unclear is to what extent the use of this clay source might be contemporary or sequential with the earlier type. As late forms are almost exclusively large jugs, it may simply be that the poorer clays were only used on these vessels.

The poor workmanship of these late jugs is most notable on a jug base (Illus 30.4), distinctly warped as it was lifted from the wheel. The only other forms recognisable are one example of a dripping dish (Phase E7) and a bung hole sherd from a



**Illus 31** Jug sherd with applied stamp decoration (Illus 30.6)



**Illus 32** Jug sherd with applied and incised face mask decoration (Illus 30.5)

probable cistern (Phase W3). Cisterns are not well documented in Scotland but are a well-known form in late medieval Newcastle (eg Ellison 1981: figs 13–15). They are jug-shaped vessels with two or more handles and a tap hole towards the base. A few examples of bung holes were found at the 15th- and 16th-century redware kiln site of Stenhousemuir, near Falkirk (Hall & Hunter 2001: fig 40.476–9). Cisterns may be under-represented in the Scottish literature, as for the most part sherds would be indistinguishable from jug sherds.

Decoration appears on some jugs. The most common types are long-lived methods such as incised zig-zags, and applied ridges coloured with iron or notched with a fingernail. The stamped wheel pad (Illus 30.6, Illus 31) has 15th-century parallels at Edinburgh Castle (Will 1997: illus 125.38) and Bernard Street, Leith (MacAskill 1985: illus 14.40). More unusual is a large face mask with an upturned nose and an incised beard incorporating wheatear motifs (Illus 30.5, Illus 32). In contrast to earlier face masks (eg Brooks 1980: fig 4), copied from 13th- and 14th-century Scarborough ware, this has more in common with faces from 15th- and 16th-century Rhenish stoneware and contemporary redwares from Stenhousemuir (Hall & Hunter 2001). The face is generally thought to represent some kind of 'green man' figure. A face mask jug from Linlithgow Palace (illustrated in Hall & Hunter 2001: fig 47) also includes wheatears as part of the design.

#### A.2.3.3 Medieval redware

The redware sherds vary from pink to orange and red, sometimes with a white slip to give them the appearance of whitewares. Jugs and cooking pots are represented. Similar pottery is found in medieval Perth (MacAskill 1987a) and Stirling (Franklin 2015: 218, 226). These wares may have been brought in from the west.

#### A.2.3.4 Late medieval to early post-medieval greywares

The greyware is generally an even grey, sandy fabric with an olive glaze, typical of the 15th and 16th centuries. Some sherds are smoother with a soapy feel, more typical of the 17th and early 18th centuries. There is a much greater variety

of form, though strap-handled jugs are still the most common (Illus 30.7–9). The 16th and 17th century saw an increase in the diversity of uses for ceramic vessels. There are several examples of Low Countries style cooking pots. There are also dripping dishes (Illus 30.17), skillets (Illus 30.15), bowls, cups (Illus 30.18), a colander (Illus 30.16) and several sherds from pirlie pigs or money boxes (Illus 30.19; cf MacAskill 1985: 415, illus 15.53 for late 15th-century parallel). The influence of German stoneware is seen in a frilled jug base. A thumbled bridge spout (Illus 30.10) is paralleled at Stenhousemuir (cf Hall & Hunter 2001: fig 25.196 & 199). One sherd is overfired to the point of near vitrification. This may be accidental, due to poor control of kiln temperature, or may be an attempt to copy Rhenish stoneware. Similar hard-fired pottery is a feature of the pottery of late medieval Newcastle (Ellison 1981: 105).

Again, it is only the jugs which are decorated and again there are parallels to be drawn with the Stenhousemuir assemblage. A large face mask from a jug shoulder (Illus 30.11, Illus 33) is similar to some from Stenhousemuir (cf Hall & Hunter 2001: fig 24.191), though it has some unusual features. The strong raised eyebrow ridge and long narrow nose are unusual (cf Franklin 2002: 401, illus 13.26). The depiction of the eyes as raised slitted ovals, rather than the more usual ring and dot motif is very



**Illus 33** Jug sherd with applied and incised face mask decoration (Illus 30.11)



**Illus 34** Jug handle with scratched cruciform cross (Illus 30.9)



**Illus 36** Jug sherd with incised wheatear decoration (Illus 30.13)



**Illus 35** Jug sherd with applied and thumb-painted decoration (Illus 30.12)

unusual. They may be intended to represent closed eyes. Similar eyes are found on late 15th- and early 16th-century Raeren and Aachen type stoneware (cf Hurst et al 1986: fig 93.297). Saltires made from raised ridges with thumb-painted terminals are also seen at Stenhousemuir (Illus 30.12, Illus 35; cf Hall & Hunter 2001: fig 25.195), as are floral motifs made of ring and dot with incised foliage (Illus 30.13, Illus 36; cf Hall & Hunter 2001: fig 29.256–63). An unusual sherd (Illus 30.9, Illus 34) has had a crucifix incised into the top of the handle at some point in its life, after it was fired, possibly for use in church, or for more secular superstitious reasons.

#### A.2.3.5 Scarborough type wares

There was a small group of Scarborough type wares, mostly fragmentary and abraded, in common with other early sherds. These jugs, produced in North Yorkshire, were commonly traded around



the North Sea from the 13th to mid 14th century (Ellison 1981: 122; Farmer & Farmer 1982) and are the most common imported pots found on sites of that date in east coast Scotland. All but one of these sherds are residual in later contexts. The exception is a sherd with applied scales found in the earliest context on site ([244], Phase 1). Another common decoration, the bearded face mask, is also represented at Cowgate (Illus 30.20).

#### A.2.3.6 French(?) mottled green glaze

There was one small abraded sherd of a fine, slightly micaceous whiteware with a mottled green glaze. It has elements in common with 13th- and 14th-century wares from the Saintonge region of south-west France, though not dissimilar green glazed whitewares were also produced in northern France, and this cannot be identified with certainty, particularly as the latter industry is not well understood at present (Haggarty pers comm). Both types have been found on sites in Edinburgh and Leith, most numerous at Ronaldson's Wharf, Leith, though also at Water Street and Burgess Street, Leith and the Tron Kirk in Edinburgh (Haggarty 2006). It was found in the core of the Phase 2 wall associated with two abraded sherds of white gritty ware, though it is likely to have been of some age when incorporated.

#### A.2.3.7 Low Countries grey and redwares

Low Countries greywares were produced from the mid 12th century, though are more commonly found in later contexts (Ellison 1981: 146; Hurst et al 1986: 136; Watkins 1987: 146). Redwares are the oxidised version of the same fabric, produced by the same potters (Janssen 1983: 134). The redwares proved more popular and became increasingly common during the second half of the 14th century, almost entirely supplanting greywares during the 15th century (Janssen 1983: 136). The evidence of this change from the Netherlands is echoed in British North Sea ports such as Newcastle (Ellison 1981: 146) and Hull (Watkins 1987: 141). Redwares continue to be commonly imported up to the 17th century.

The two greyware sherds were both found in Phase 3 deposits. One is a handle junction, possibly

from a cooking pot, the other a small body sherd, both with smoke-blackened surfaces. They may belong to an early blackware variant produced in the 13th and early 14th centuries (Janssen 1983: 172). A handful of blackware sherds were found at the Scottish Parliament site, unfortunately residual (Hall 2010: 8).

There are two small fragments of redwares present in the two earliest deposits on site ([244] & [248], Phase 1), though they are more numerous in 15th-century deposits. Where forms are identifiable, all appear to be cooking pots or pipkins (Illus 30.21–2) and skillets (Illus 30.23). Contemporary deposits from two sites in Leith produced a number of sherds, mainly of cooking pots and skillets, making up 2% of the midden deposit at Bernard Street, which dates to the second half of the 15th century (MacAskill 1985: 416, fabric group 6, illus 16.75–83), and making up 3% of the assemblages from 15th- and 16th-century deposits at Water Street (Franklin 2002: 404, phases 5–7). In Edinburgh, the situation is more confused. At Edinburgh Castle, 'several' sherds were found in the 15th-century midden (Will 1997: 141, illus 122.7–10). However, at the Scottish Parliament Site (Hall 2010) there were none, despite an extensive 15th-century assemblage. The Edinburgh High Street site (Schofield 1976) also contained layers of 15th-century midden, but again, no Low Countries earthenwares were reported (though in this latter case, some other odd omissions from the report suggest the assemblage may be worth revisiting).

#### A.2.3.8 Rhenish stoneware

(Thanks are due to George Haggarty for help with stoneware identifications.)

The stoneware assemblage is made up of Siegburg, Langerwehe and Raeren types. Siegburg and Langerwehe wares are both known in 15th-century deposits, most notably at the Edinburgh High Street site, which still remains, at 313 sherds, one of the largest assemblages of Langerwehe stoneware found in Britain (Clarke & Hurst 1976). Raeren stoneware dominated the British market between the 1480s and mid 16th century, when it was superseded by Frechen wares, which go on to dominate the 17th century (Gaimster 1997). Stoneware first appears at Cowgate in Phase 3 deposits.

The Siegburg sherds were pale grey and unglazed, but for one sherd with a patch of matt orange ash glaze. There was little evidence of vessel form. Unfortunately the most distinctive piece, a rim sherd from a drinking bowl (unstratified; cf Clarke & Hurst 1976: fig 20.4–6; MacAskill 1985: illus 16.84; Will 1997: illus 22.1) was lost before it could be illustrated.

Langerwehe and Raeren both produced similar-looking jugs with frilled bases at different times, and often the only way of identifying small sherds is by the date of the context. Raeren seems to make its first appearance in Phase E6, which is independently dated by numismatic evidence to around the 1480s.

#### A.2.3.9 Anglo-Dutch tin-glazed earthenware

There was a small dish sherd from a surface context. It is decorated in blue and brownish orange and probably dates to the first half of the 17th century.

#### Catalogue

All items refer to Illus 30 (see p 35).

##### *White gritty ware*

#### ► 1. Jug rim.

Pale grey interior, buff white exterior, spots of olive glaze. Unstratified.

#### ► 2. Jug handle decorated with applied thumbled strip.

Pale buff fabric with grey core. Olive green glaze on top side. Unstratified, Area C, east.

##### *Late whiteware*

#### ► 3. Jug rim and handle.

Buff white fabric with pale orange buff surfaces. Patches of thin glaze. Late type. Context [047], Area A, Ph W6.

#### ► 4. Jug base.

Wheel-made but misshapen pot base. Very pale grey fabric. Thin yellow green glaze inside and out. Late type. Context [141], Area B, Ph E6.

► 5. Jug neck and shoulder sherd with applied and incised face mask decoration, with wheatear detail. Fabric pale grey to pale buff. Patchy olive and yellow

glaze on exterior. Late type. Context [015], Area A, Ph 9. See also Illus 32.

#### ► 6. Jug sherd, decorated with applied pad stamped with a wheel pattern.

Very pale grey fabric, external olive glaze. Late type. Context [203], Area C, Ph E6. See also Illus 31.

##### *Late medieval to early post-medieval greywares*

#### ► 7. Jug rim.

Pale grey core, orange red surfaces, sandy fabric, olive glazed exterior. Context [128], Area B, Ph E6.

#### ► 8. Jug handle and body.

Orange to buff slightly sandy fabric with grey core. Patchy olive glaze on exterior. Context [135], Area B, Ph E6.

#### ► 9. Jug handle and body sherd.

Mid grey sandy fabric. External olive glaze. Cruciform cross scratched onto top of handle, post-firing. Context [196], TP7, Ph E3. See also Illus 34.

#### ► 10. Jug rim and bridge spout.

Mid grey sandy fabric with orange red internal surface. External olive glaze. Spout thumbled onto exterior of vessel. Abraded. Context [093], Area A, Ph E6.

#### ► 11. Jug shoulder sherd.

Mid grey sandy fabric with internal orange surface. External olive glaze. Applied and incised face mask design, with raised almond-shaped eyes. Some post-depositional sooting. Context [041], Area A, Ph W6. See also Illus 33.

#### ► 12. Jug body sherd.

Mid grey sandy fabric with internal orange red surface. External olive glaze. Decoration of applied raised ridges with thumbled intersections. Context [070], Area A, Ph W5. See also Illus 35.

#### ► 13. Jug body sherd.

Mid grey fine, sandy micaceous fabric with internal pinkish buff layer. External olive glaze. Incised wheatear with ring and dot terminal. Context [002] & [053], Area A, Ph E6. See also Illus 36.



► **14. ?Jar loop handle.**

Pale grey sandy fabric with pale orange internal surface. Exterior olive glaze. Context [203], Area C, Ph E6.

► **15. Skillet rim and body, with fragment of handle junction.**

Smooth dark grey fabric with red surfaces where exposed. Olive to orange glaze over exterior and most of interior. Context [017], Area A, Ph W7.

► **16. Colander rim.**

Mid grey sandy fabric with red surfaces where exposed. Olive glaze over most of exterior and interior. Pierced holes and slits. Context [073], Area A, Ph W4.

► **17. Dripping dish profile.**

Dark grey relatively fine fabric, with orange red surfaces or orange buff surfaces. Olive glaze only inside base. Some sooting on base. Context [005], Evaluation Tr 1.

► **18. Cup.**

Slightly sandy mid grey fabric with red surfaces where exposed. Hints of a spout or handle in missing section of rim. Context [041] & [052], Area A, Ph W6.

► **19. Pirlie pig.**

Slightly sandy dark grey fabric with buff grey interior and red exterior surface where exposed. Olive glaze over most of exterior. Knife-trimmed base. No trace of money slot. Context [203], Area C, Ph E6.

*Scarborough type ware*

► **20. Scarborough type jug rim with bearded face mask.**

Pale pink fabric, copper green glaze. Abraded. Context [098], Area A, Ph E6.

*Low Countries redware*

► **21. Cooking pot/pipkin rim and handle.**

Spots of orange glaze on exterior. Context [143], Area B, Ph E6.

► **22. Cooking pot/pipkin rim and handle.**

Orange glaze on inside of rim, with spots further down and on exterior. Unstratified, Area A.

► **23. Skillet or bowl rim.**

Orange glaze on top of rim and interior. Context [164], Area A, Ph W3.

*Rhenish stoneware*

► **24. Jug rim.**

Dark grey fabric, brown salt glaze. Langerwehe. Context [209], Area B, Ph 9.

► **25. Jug rim.**

Mid grey fabric. Pale grey salt glaze with brown mottling. Langerwehe? Context [022], Area A, Ph W4.

► **26. Jug base.**

Mid grey fabric. Pale grey salt glaze with brown patches. Raeren. Context [054], Area A, Ph E6.

**A.2.4 Coins**

*NMMcQ Holmes*

(The coins are not illustrated.)

The earliest items were three copper coins of the 'Crux Pellit' issue, formerly known as 'Bishop Kennedy pennies', and another possible specimen. Although the exact dates of the production of these coins remain uncertain, it is clear that they belong to the period *c* 1450–82. It appears that they may have been devalued from threepence to a farthing by the Lords of Council at Lauder in 1482, after which their role in the circulating currency may be assumed to have declined rapidly. The other two coins comprised a plack of James V, worth four pence and dating from 1513–26, and an unidentifiable copper piece, probably of 17th-century origin. The Nuremberg jeton is of a type which has been dated to the end of the 15th or first half of the 16th century.

The concentration of numismatic evidence in the late 15th and early 16th centuries reflects the quantity of deposited material during this period, though in three cases (nos 29–31) these appear to be residual. Meanwhile a farthing trade token is clearly intrusive (possibly fallen out of a neighbouring section). It may be regarded as an unusual find for Edinburgh in belonging to one of the scarce issues of a Haddington retailer rather than to one of the numerous Edinburgh types.

**Catalogue****► 27.**

James II/III copper 'Crux Pellit' issue, type II (?) (*c* 1450–82); 19.0 × 20.0mm, 1.70g, die axis 15°; much corroded, but probably only slight wear. SF206, Context [054], Area A, Ph E6.

**► 28.**

James II/III copper 'Crux Pellit' issue, uncertain type (*c* 1450–82); 19.0 × 20.0mm, 0.78g, die axis uncertain; highly corroded and badly chipped; probably slight to moderate wear. SF207, Context [054], Area A, Ph E6.

**► 29.**

James II/III copper 'Crux Pellit' issue, uncertain type (*c* 1450–82); 18.5 × 19.0mm, 0.73g, die axis uncertain; highly corroded; degree of wear uncertain. SF122, Context [021], Area A, Ph W7.

**► 30.**

Uncertain, but possibly a 'Crux Pellit' issue; 20.0 × 19.0mm, 0.73g, die axis uncertain; highly corroded; degree of wear uncertain. SF124, Context [021], Area A, Ph W7.

**► 31.**

James V billon plack, Stewart type IIc (1513–26); 26.0 × 25.5mm, 1.44g, die axis 150°; chipped and corroded, but only slight wear. SF76b, Context [015], Area A, Ph 9.

**► 32.**

Brass jeton of Nuremberg, Germany: anonymous 'ship penny' type, cf Mitchiner 1988: 1128–34 (*c* 1490–1550); 25.0mm, 1.49g, die axis 105°; moderate wear. SF409, Context [135], Area B, Ph E6.

**► 33.**

Uncertain copper, probably a turner or bodle of 17th-century date; 19.5mm, 1.36g, die axis uncertain; highly corroded; degree of wear uncertain. SF76a, Context [015], Area A, Ph 9.

**► 34.**

Copper farthing trade token of George Amos, Haddington, East Lothian (Dalton & Hamer 1990), Haddingtonshire 1 (*c* 1790–1820); 21.0mm, 1.74g, die axis 165°; corroded, especially obverse;

slight wear. SF610, Context [203], Area C, Ph E6 (intrusive).

**A.2.5 Copper alloy****A.2.5.1 Dress accessories**

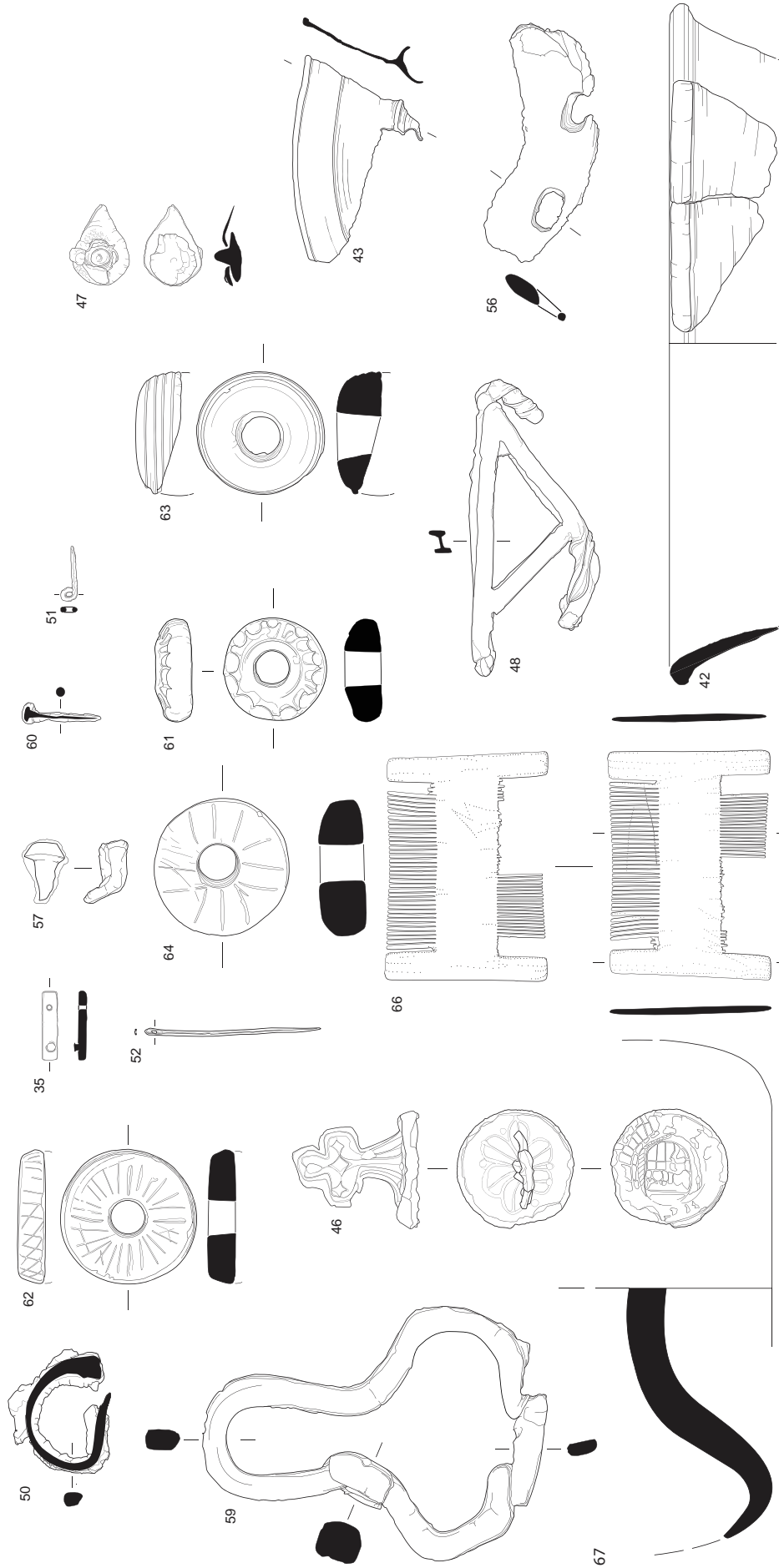
Mounts (nos 35, 36, 47; Illus 37.35, 37.47) were commonly used in the late medieval period to decorate waist belts, sword belts, horse harness straps (Egan & Pritchard 1991: 209), or book bindings (Stones 1989: 157). Bar mounts were the most common type of mount found in 14th- and 15th-century contexts at Burgess Street, Leith (Franklin forthcoming a).

Lace tags (no. 37), wire pins (nos 38–9) and wire eyelets (nos 40–41) are all common finds in 15th- and 16th-century deposits, and comparison with large numbers found in the 15th-century midden at Bernard Street, Leith (Holmes 1985: 420) suggests they may be under-represented here. Pins were used to hold various pieces of dresses, headgear and other costume in place, and also used in sewing. Eyelets were used either in conjunction with hooks or to reinforce lace holes. Laces were used to secure many types of garment, with the ends bound by metal tags to prevent fraying and ease threading. All are commonly found in graveyard deposits used as shroud fastenings, as well as domestic contexts (Oakley & Webster 1979; Caple 1983; Goodall 1983; Egan & Pritchard 1991; Nicholson 1997). It is possible that some of these objects ultimately derive from the neighbouring graveyard of St Giles', where all three types have been found (Franklin & Collard 2006), though as most are associated with midden material, a domestic origin seems more likely. The finding of three identical eyelets (no. 40) in one context (all were from the same sample), suggests these were still attached to the same piece of leather or textile when they were deposited. The gilding on the lace tag (no. 37) is unusual and indicates it was from an expensive item of clothing.

**Catalogue****► 35. Bar mount.**

Plain bar, bevelled edges, two rivet holes, one rivet remaining. L: 17mm, W: 4mm. SF595, Context [197], TP7, Ph E3 (Illus 37.35).

Illus 37 Copper alloy, lead, iron, stone, bone and glass finds



**► 36. Domed mount or furniture stud.**

Small domed object. Diam: 12mm. Context [128], Area B, Phase E6 (not illustrated).

**► 37. Lace tag.**

Rolled sheet with edge-to-edge seam. Remains of gilding on surface. L: 22mm, W: 1.8mm. SF664, Context [238], HP01, Ph E5 (not illustrated).

**► 38. Pin.**

Coiled wire head, wound once around shank. L: 36mm, head width 1.8mm. SF410, Context [135], Area B, Ph E6 (not illustrated).

**► 39. Pin.**

Coiled wire head, wound twice round shank. L: 38mm, head width 2.0mm. SF569, Context [186], Area C, Ph E6 (not illustrated).

**► 40. Eyelets.**

Three identical circular wire loops, ends twisted together. Diam: 6mm. Context [127], Ph E5 (not illustrated).

**► 41. Eyelet.**

Wire loop, as above. Diam: 7mm. Context [054], Ph E6 (not illustrated).

## A.2.5.2 Household objects

Though metal vessels were undoubtedly common during the late medieval period, and are regularly depicted in contemporary illustrations, they are less commonly found on archaeological sites, due to their value as scrap metal. The finding of pieces of two different copper alloy vessels (Illus 37.42, 37.43) in close association is therefore of interest and implies a wealthy household. Cast vessel forms are well documented (no. 42; cf Egan 1998: figs 130–1 reconstruction drawings). Sheet vessels are harder to identify as the metal easily becomes broken and warped. A repair patch (no. 44) from another sheet vessel was found incorporated into the flag floor of the Phase W4 building.

**Catalogue****► 42. Vessel.**

Two joining sherds from a cast skillet or cauldron rim. Everted clubbed rim. L: 65mm, height 30mm. SF265 & 266, Context [094], Area A, Ph E6 (Illus 37.42).

**► 43. Vessel.**

Sheet vessel rim. Bent, but probably originally splayed or everted. Details visible of simple border rim decoration and a pronounced carination below. L: 54mm, H: 23mm. SF267, Context [094], Area A, Ph E6 (Illus 37.43).

**► 44. Sheet repair patch.**

Sub-rectangular sheet with irregular edges. Two intact opposing corners, one with an in situ strip rivet, other with a slit for the same. 49 × 38mm. SF551, Context [179], Area A, Ph W4 (not illustrated).

**► 45. Ring.**

Small ring of tin-coated copper alloy. Round sectioned. Horse harness or suspension ring. Diam: 30mm, Th: 3mm. Context [138], Area B, Ph E6 (not illustrated).

**A.2.6 Lead alloy**

## A.2.6.1 Seal matrix

The seal was found lying on top of a cobbled surface, possibly a chance loss. A group of similar lead-tin seals of 16th- and early 17th-century date were published by Caldwell 1993. These appear to have been cast as blanks, then the details of the design inscribed afterwards. The use of base metal implies an owner of middling means, though clearly in the habit of writing letters. By the 16th century seals were popular among people such as burgesses, minor clergy and lairds (Caldwell 1993). The condition of this seal precludes the identification of its owner.

**Catalogue****► 46. Seal matrix.**

Lead/tin alloy. Circular face, featuring a round-bottomed or possibly broad pointed shield, possibly with a bar and three devices. Inscription around edge illegible but possibly in black letter script. Join between handle and base featuring moulded sexfoil, with ridges stretching up handle. Handle slightly bent with trefoil-shaped terminal decorated with relief edging and lozenges. Handle aligned with vertical axis of seal design. Diam: 30mm, H: 31mm. SF611, Context [203], Area C, Ph E6 (Illus 37.46, Illus 38).



**Illus 38** Lead seal matrix (Illus 37.46, SF611)

#### A.2.6.2 Other lead finds

The earliest evidence for glazed windows comes from a Phase E6 lead came (Illus 37.48) and a fragment of Phase W6 window glass. The came has clearly been part of a window, rather than an off-cut left by glaziers. Glass windows were rare in 16th-century Scotland and the pieces are probably from an ecclesiastical site (Turnbull 2001: 52).

The shot (no. 49) may have been used in a hand gun, or as grapeshot in field artillery. Hand guns, such as hackbuts, and later muskets, came into general use in Scotland during the 16th century (Caldwell 1998). Nine pieces of identical-sized shot were found at Fast Castle, Berwickshire, from contexts dated to between the early 16th and early 17th century (Allan 2001: 112).

#### Catalogue

##### ► 47. Mount.

Lead tear-shaped mount, cut from a thin sheet with cross-hatched decoration (or mineralised textile) on front. Central iron rivet with possible remains of leather preserved between. L: 20mm, W: 15mm. SF318, Context [118], Area A, Ph E6 (see A.2.5.1 above) (Illus 37.47).

##### ► 48. Window came.

Three lengths of came formed into triangular shape. Small fragment of corroded glass retained in one corner. Free ends twisted and bent. Thick H-shaped profile. SF208, Context [054], Area A, Ph E6 (Illus 37.48).

##### ► 49. Shot.

Small ball, flattened on one side by impact. Diam:

11mm, weight 7g (64 to the lb). SF399, Context [130], Area B, Ph E6 (not illustrated).

#### A.2.7 Iron

The waterlogging on site was especially good for iron preservation and there are some remarkably small iron artefacts among the assemblage, such as pins, a fine needle and a small buckle pin. It is a useful reminder of the kind of commonplace small iron objects which have usually rusted to nothing in most archaeological deposits.

##### A.2.7.1 Dress accessories and personal items

Iron buckles were used in personal dress as well as horse gear. No. 50 (Illus 37.50) is relatively small but could have been used in a number of ways. It was found in the smithy's waste midden (see Dating discussion, A.2.13). The buckle pin is tiny and probably fitted a small buckle with central bar, of frame length no more than *c* 24mm. In London, in contemporary deposits (first half of the 15th century), small circular shoe buckles of just this size, made of lead-tin with iron pins, are a common find (Egan & Pritchard 1991: 66). The needle is of a common size. Half of the 84 needles found at Whithorn were between 42 and 52mm long. Though possibly a little large for fine embroidery, it would have been perfectly suitable for dressmaking or everyday repairs.

#### Catalogue

##### ► 50. Buckle.

D-shaped buckle frame, back end of frame torn and pin missing. L: 22mm, W: 29mm, max strap width 21mm. SF412, Context [138], Area B, Ph E6 (Illus 37.50).

##### ► 51. Buckle pin.

Made from short length of pointed wire curled at one end. L: 14mm, W: 1.5mm, to fit frame *c* 2 × 1mm thick. SF594, Context [197], TP7, Ph E3 (Illus 37.51).

##### ► 52. Needle.

Solid wire needle with pointed head flattened from one side only and a punched eye. L: 45mm, W: 1.5mm. SF749, Context [313], Area A, Ph E5 (Illus 37.52).



► **53. Pin.**

Simple flat head, broken fine wire shaft. L: 13+mm. Context [1306], SF778, Evaluation Tr 3 (not illustrated) (see A.2.5.1).

A.2.7.2 Household tools and horse gear

Knives with scale tangs are known from the mid 14th century onwards (Cowgill et al 1987: 26). Scissors, on the other hand, do not come into everyday use until the 16th century (Ward-Perkins 1940: 151). Other objects are probably horse-related. The horseshoe nail no. 57 is of a type found in Perth in 14th- and 15th-century contexts (Ford & Walsh 1987: Type J.2). The shank was probably broken at the point it was clenched when the shoe was removed. No. 74 may also be an item of horse gear. Two similar-shaped objects are published from excavations in London with leather strips still attached to the wide end (Egan 1995: fig 45.49–50). Though their function is not entirely clear, they were assumed to be some kind of hasp, with the narrow end attached to a hook or loop. Alternatively, similar-shaped objects from Norwich include fittings which imply use as handles for drawers, caskets or coffins (Margeson 1993: fig 46.521). Other household uses can be imagined – a chain fitting, for example. The break in the middle of the wide end suggests this area was under strain when the object was in use.

► **54. Knife, part of scale tang and blade.**

Mineralised remains of wooden handle, held by three evenly spaced iron rivets. L: 114mm (tang 89+, blade 25+), W: 15mm. SF74a, Context [041], Area A, Ph W6 (not illustrated).

► **55. Scissors.**

Both blades, with remains of one curving arm with part of eccentrically set loop handle. SF81, Context [015], Area A, Ph 9 (not illustrated).

► **56. Horseshoe fragment.**

Curving strip with two rectangular holes near outer edge. L: 61mm, W: 19mm. SF701, Context [264], HP02, Ph E3 (Illus 37.56).

► **57. Horseshoe nail.**

Trapezoidal head, broken shaft. Max head width

11mm, L: 22+mm. SF708, Context [273], HP03, Ph E3 (Illus 37.57).

► **58. Ring.**

Small ring, possibly for suspension or horse harness. Diam: 30mm, Th: 4mm. SF127, Context [021], Area A, Ph W7 (not illustrated).

► **59. Asymmetric figure-of-eight shaped frame.**

Added section along flat end may be a roughly soldered repair. L: 87mm, W: 64mm. SF126, Context [021], Area A, Ph W7 (Illus 37.59).

A.2.7.3 Nails

Nails are always the most common type of iron artefact found on medieval and post-medieval sites. In this case, 104 out of a total of 183 iron finds were nails. About half of these came from the same Phase E6 midden spread. The disproportionate concentration suggests a smithy's pile of scrap metal (see Dating discussion, A.2.13).

An attempt was made to analyse the nails by size, shape and stratigraphy. Only 53 of the nails were in good enough condition and all fell into the period 15th to 16th century. Size and shape varied, heads could be round, square or elongated, 10mm to 30mm wide, with shafts ranging from 20mm to 100mm long. Larger nails would have been for large structural timbers, and smaller



**Illus 39** Stone spindle whorl (Illus 37.64, SF648)

### A.2.8 Stone and lead spindle whorls

(stone identifications by Stephen Carter and Dianne Dixon)



**Illus 40** Lead spindle whorl (Illus 37.61, SF338)



**Illus 41** Stone spindle whorl (Illus 37.62, SF350)

nails for smaller fixtures and fittings. There were two very small nails or pins (no. 60, illus 37.60), both of similar size and form, both from Phase E3 waterlogged deposits. These may have been used for sewing and dress accessories, or for fixing small fittings such as furniture hinges and handles. They were probably very common, but only survive in exceptional circumstances.

#### Catalogue

##### ► 60. Pin.

Round domed head, square-sectioned shaft. Head width 4mm, shaft length 18mm. SF574, Context [193], TP6, Ph E3 (Illus 37.60).

All the whorls are from 15th- and 16th-century deposits, though no. 64 (Illus 37.64, Illus 39) may be a little earlier. Stone and ceramic spindle whorls are common finds, particularly in late medieval deposits, and the forms and decoration seen here are typical (cf Holmes 1985: 423, illus 17.6; Ford 1987: illus 80.145; Caldwell 1996: illus 33.77–8; Cox 1996: illus 26.569; Franklin 2002: 406, illus 15.15). The stone used is all locally available, but for the white limestone (Illus 37.64, Illus 39), the nearest source for which is Yorkshire (Stephen Carter pers comm). Whorls of non-local stone can represent movements of women about the country, but there are many other explanations. Stones could travel as ship ballast and building materials. The softness of the stone makes it ideal for shaping into small objects such as whorls.

Lead whorls (Illus 37.61, Illus 40), thanks to recent metal detector finds, are becoming increasingly common (Cox & King 1997: 201–2; Bailey 1999: 10). Since many would have been melted down for scrap they were presumably far more common than the archaeological record would suggest. Many decorated lead whorls have, again, been found in late medieval contexts (Holmes & Schofield 1976: 217, fig 22.2; Clay 1981: 139–40; Franklin forthcoming b), though none with this scalloped decoration.

The lead whorl is the heaviest. Whorls of about 30g are common, but they can vary from as little as 10g to over 40g. Heavier whorls are generally assumed to be for heavier fibres and for plying two or more yarns together (Oakley & Hall 1979).

#### Catalogue

##### ► 61. Lead spindle whorl.

Plano-convex with convex face with scalloped edge. Diam: 26mm, height 9mm, hole diam 8mm, weight 36g. SF338, Context [120], Area A, Ph E6 (Illus 37.61, Illus 40).

##### ► 62. Stone spindle whorl.

Grey mudstone. Flat, split along bedding planes of stone, approximately half remaining. Decorated with incised lines. Radial lines on surviving face, divided into quadrants by four deep lines, with



**Illus 42** Stone spindle whorl (Illus 37.63, SF359)

spaces between filled by six finer lines each. Fine herringbone pattern around edge. Diam: 35mm, height 7+mm, hole diam 8mm, weight 14g (estimated complete *c* 28g). SF350, Context [120], Area A, Ph E6 (Illus 37.62, Illus 41).

► **63. Stone spindle whorl.**

Fine-grained red sandstone. Rounded profile, split unevenly across middle. Decorated with incised circumferal lines around edge, well executed, lathe turned. Four lines surviving; if symmetrical, originally seven lines. Diam: 33mm, height 12+mm, hole diam 10mm, weight 12g (estimated complete *c* 30g). SF359, Context [124], Area A, Ph W4 (Illus 37.63, Illus 42).

► **64. Stone spindle whorl.**

White limestone. Flat, slightly bi-convex profile, chipped at one edge. Decorated with roughly incised radial lines, four sets of three lines, on both sides and possibly with vertical lines around edge. Diam: 35mm, height 12mm, hole diam 9mm, weight 19g. SF648, Context [211], Area B, Ph E6 (Illus 37.64, Illus 39).

## A.2.9 Stone objects

► **65. Gaming piece?**

Micaceous grey sandstone. Flat disc with crudely rounded and smoothed edges. Chipped. Diam 52–54mm, thickness 11mm. SF471, Context [143], Area B, Ph E6 (not illustrated).

## A.2.10 Bone objects

The comb is of a type found in late medieval and later contexts (MacGregor 1985: 81–2; Margeson 1993: 66). A similar comb came from the topsoil at the Edinburgh High Street site (Holmes & Schofield 1976: 217, fig 22.1). The fineness of the teeth makes it useful for de-lousing hair. It is late in date, associated with sherds of bottle glass and a coin dated 1797.

### Catalogue

► **66. Bone comb.**

One piece double-sided comb. L: 57mm, W: 41mm, fine teeth 12 per cm, coarse teeth 9 per cm. SF775, Context [1302], Eval Tr 3 (Illus 37.66).

## A.2.11 Glass and clay pipes

The glass and clay pipe assemblages were small, in keeping with the general lack of post-medieval material from the site, only 95 sherds of glass and 47 of clay pipe. The earliest glass on site is a small sherd of window glass from Phase W6 (discussed above with the lead window came, A.2.6.2). Bottle glass and clay pipes are only found stratified from Phase 8 onwards. The earliest bottle (Illus 37.67) was from the fill of the barrel. This and the clay pipe stems found within suggest a date for the infill of the barrel of around the beginning of the 18th century.

The earliest clay pipe is part of a very small bowl (cf Tron Kirk, Lawson 1975: fig 7, pre-1637 pipes) and was found in the cut for a Phase 8 wall. Later pipes include a very large and poorly finished bowl dating to the late 17th or early 18th century (Phase 9). It is marked with the moulded initials 'IT' (?), and though the form suggests local manufacture, the initials do not fit any known Scottish maker. Other bowls are unmarked, one is stamped indicating Edinburgh manufacture, and two others are of probable English origin.

### Catalogue

► **67. Onion wine bottle base.**

1690–1720 (cf Hume 1961; Dumbrell 1983). Context [163], Area B, Ph 8 (Illus 37.67).



## A.2.12 Ceramic building material

### A.2.12.1 Floor tiles

There were four sherds of glazed floor tile. These were of a sandy bright orange fabric, oxidised throughout, 29mm thick, and glazed yellow over a white slip, or dark green directly onto the body of the tile. These types of tiles were imported from the Low Countries in their hundreds of thousands between the late 14th and early 16th century (Norton 1994: 150–3). Green and yellow were the typical colours, laid either in a simple chequerboard, or in more complex patterns. They were possibly used as ballast by ships trading between the Netherlands and Britain (Eames 1976: 213). They usually have characteristic pin holes in the corners where they were held on a board for shaping. These holes are visible on two, possibly three of the tile sherds.

At the Edinburgh High Street site, a little to the east, between Niddry Street and Blackfriars Street, 62 similar tiles were found (Eames 1976). Eames divides these High Street tiles into three types. The Cowgate sherds most closely match her Type II, which she dates on the basis of stratigraphic and technological factors to around 1450, and she suggests they may have derived from a house on the site, demolished in *c* 1470. Trinity Collegiate Church in Edinburgh, which stood a little further east, on the north side of the High Street, had a floor of this type of tiles which presumably dated to its foundation, or shortly after, in *c* 1460. They are generally associated with ecclesiastical sites, though have been found in high-status secular buildings, such as Niddry Castle (Aliaga-Kelly 1997), Stirling Castle (Franklin 2015: 236), and on quayside sites such as Perth (MacAskill 1987b) and Leith (Eames 1985: 423; Franklin 2002: 406).

The sherds are scattered across the site, the earliest stratified in Phase E6, indicating deposition between *c* 1480 and the early 16th century. They are too fragmentary to suggest they belonged to a building which stood on site, though a high-status building nearby is implied. None of the tiles bear any traces of mortar to indicate they have been laid in a floor, and the glaze is no more worn than the other surfaces have suffered through abrasion. These may have been broken tiles, discarded during construction,

possibly from the same source as Eames' High Street tiles, possibly even from the Trinity Collegiate Church itself.

### A.2.12.2 Roof tiles

There were 13 sherds of medieval roof tiles. These were typically about 15mm thick, coarsely quartz gritted with occasional large inclusions of red or white stone. The core is generally reduced to dark grey with a sharp divide between this and the bright orange surfaces.

They are found in contexts from Phases 1 to W5 & E6, including three sherds from the earliest deposit on site (Context [244]). One of these early sherds bears the remains of a round peg hole. In Scotland, tiles are generally found in 13th-century and later contexts (eg MacAskill 1987b: 156; Maxwell 1997: 91), though a few sherds were found in an apparently 12th-century context at the Scottish Parliament site (Franklin 2010: 45) and there is evidence for the use of ceramic roof tiles in London in the 12th century (Smith 1999).

One sherd (Phase E6) is part covered in an olive green glaze, possibly used in conjunction with plain tiles for decorative effect. This is in keeping with evidence from the Scottish Parliament site where glazed tiles were found in 15th- and 16th-century contexts (Franklin 2010: 45–6).

The sherds are all small and abraded and probably derive from structures upslope, on the High Street. The abrasion is often considerably worse on one side than the other, suggesting some occurred during use, by either weathering or abrasion with overlapping tiles. Tiles were probably only ever used for partial coverage during the medieval period, as they are never found in anything approaching the huge volumes needed to cover a whole roof and they are not so easily re-used as slates. Possibly they were used for edging along ridges and eaves, on otherwise thatched roofs.

## A.2.13 Dating discussion

### A.2.13.1 Phase 1: pre-wall deposits – mid to late 14th century

The assemblage is small as early deposits were only found in the crane pit HP01. The pottery sherds are small and abraded, indicating redeposition.

Statistical assumptions should therefore be treated with caution. However, the Phase 1 finds are distinct enough from the Phase 3 finds to suggest a hiatus in the sequence.

The presence of Scarborough type ware and Low Countries redware in the earliest deposit on site (Context [244]) is significant. The former ceases to be imported around the mid 14th century (Farmer & Farmer 1982) while the latter only becomes common in the second half of the 14th century (Janssen 1983: 136). The small proportion of cooking pots in the local assemblage also argues for a later rather than earlier date, as does the relative dearth of Scarborough ware in the assemblage as a whole, and the lack of Scarborough-inspired forms in the local wares. The second half of the 14th century seems the best fit for all the evidence.

#### A.2.13.2 Phase 2: town walls – late 14th century

The only finds stratified in this phase are from the wall core: a handful of pottery sherds and a roof tile. They are abraded and seem to relate more closely to the Phase 1 finds and are probably of equivalent date. However, the dating of the assemblages from contexts above and below suggest a date of construction for the wall in the later 14th century.

#### A.2.13.3 Phase W3: post-wall/pre-building – late 14th to early/mid 15th century (contemporary with Phase E3)

The assemblage is dated by sherds of Low Countries grey and redwares. The redwares supplant the greywares during the second half of the 14th century (Janssen 1983: 136). There are also sherds of probable Langerwehe stoneware, which is known to have been common in Edinburgh from the early 15th century (Clarke & Hurst 1976). The local pottery assemblage is marked by the first appearance of greywares and late whitewares, both of which become increasingly common in Edinburgh in the late medieval period.

#### A.2.13.4 Phase W4: building – early/mid to late 15th century

The construction of the building is dated by imported Siegburg and Langerwehe stonewares

and increasing quantities of local greywares. They suggest a 15th-century date. Allowing some time for the thick Phase W3 deposits to build up suggests it is more likely to be in the second half of the 15th century.

#### A.2.13.5 Phase W5: blocking of east doorway – late 15th or early 16th century (contemporary with Phase E6)

The assemblage from this phase amounts to a relatively small collection of local pottery sherds and a handful of finds, none of which is closely datable. A date around the 16th century is indicated. Given the assumption that a relatively short period of time elapsed between Phases W4 and W5, an early 16th-century or even late 15th-century date is more likely.

#### A.2.13.6 Phase W6: later use of building – 16th to early 17th century (contemporary with Phase E7)

Though a larger assemblage, again there are only local pottery sherds by which to date this phase. The types appear in similar proportions to the previous phase and it is likely there was much mixing and redeposition. The fabrics and forms suggest a date in the 16th or possibly early 17th century. The lack of clay pipes, however, suggests this phase does not continue past the 1620s when these become commonplace.

#### A.2.13.7 Phase W7: final use of building – early 17th century (contemporary with Phase E7)

The finds provide mixed dating evidence for the abandonment of the building. Two coins are of late 15th-century date but are residual, as is a 15th-century piece of floor tile. The pottery assemblage is a small and mixed collection of local wares, but the latest forms and fabrics suggest a 17th-century date. The lack of clay pipes is not necessarily significant in such a small assemblage, but does suggest the early 17th century is more likely.

#### A.2.13.8 Phase E3: post-wall deposits – late 14th to early/mid 15th century (contemporary with Phase W3)

The imported pottery includes Siegburg stoneware and Low Countries grey and redwares. This

suggests it is contemporary with Phase W3. The proportions of local pottery types are also comparable. Other finds include a bar mount and a horseshoe nail, both of which have 14th- and 15th-century parallels.

A.2.13.9 Phase E4: cobbled surface – early/mid 15th century

There is only one find from this phase, a sherd of local late whiteware pottery, of approximate 15th-century date.

A.2.13.10 Phase E5: late medieval middens – 2nd to 3rd quarter of 15th century

The pottery assemblage includes 15th-century Siegburg and Langerwehe stonewares and the local assemblage is consistent with a 15th-century date. There are also copper alloy wire eyelets and lace tags which are typically found in 15th- and 16th-century deposits. The dating of the phases above and below E5 imply the middle decades of the 15th century are the most likely date.

A.2.13.11 Phase E6: late medieval to early post-medieval middens – late 15th to early 16th century (contemporary with Phase W5)

This is one of the more tightly datable phases on site. It is the largest phase assemblage by some way, including some rich midden deposits, with imported pottery, coins and other dating evidence. Imported pottery includes Siegburg, Langerwehe and Raeren stonewares. Raeren replaces Siegburg and Langerwehe as the principal source of imported stoneware in Britain in the 1480s, and goes on to dominate the British market until the mid 16th century. There are, however, no finds of the later Frechen stoneware, which supplants Raeren in its turn. Hence deposition is unlikely to continue past the mid 16th century (Gaimster 1997). The large collection of local greywares includes jugs copying the frilled bases of Rhenish stoneware, as well as pirlie pigs and other forms typical of the 16th century.

Three coins also provide useful dating: two dated 1450–82; one 1490–1550. The earlier coins were devalued in 1482 from threepence to a farthing, so are far more likely to have been deposited in

the 1480s than any other decade, suggesting deposition was underway by at least that date. A lead seal matrix, meanwhile, is of 16th- or early 17th-century form.

There is also a large amount of metalwork concentrated in a small area (deposits [128], [138] and [130]) which suggests scrap metal from a smithy. There was little associated iron slag, but half the iron nails from the site were found in this midden, along with two broken knives, a buckle, fragments of lead sheeting, a piece of lead shot, a copper alloy ring and a stud. There is a historical record of the blacksmith's forge standing on apparently the very same property between 1517 and 1522, and a suggestion that it may date back some decades earlier to the late 15th century. The piece of lead shot has early 16th-century analogies.

Taking an overview of all this evidence, the deposits in this phase must have been building up over the course of the late 15th and early 16th centuries.

A.2.13.12 Phase E7: early post-medieval middens – 16th to early 17th century (contemporary with Phases W6 and W7)

There is little accurate dating evidence from this phase. There is a sherd of Low Countries redware and some probable Raeren stoneware. The local pottery is consistent with a 16th-century date. The lack of clay pipes suggest deposition did not continue past the 1620s, when these become commonplace.

A.2.13.13 Phase 8: post-medieval buildings – 17th to 18th century

There are few finds from this phase, but they include the first stratified bottle glass and clay pipes. The infill of the barrel ([163]) can be dated by the bottle base (no. 67) within to the early 18th century. The cut for Wall [023] contained an early 17th-century clay pipe bowl, but the wall core itself contained a coin dated 1799.

A.2.13.14 Phase 9: modern deposits – 19th century to present

Modern coins, pottery and other finds indicate a 19th-century and later date for this phase, though clearly with much residual earlier material.



## APPENDIX 3: ANIMAL BONE

Catherine Smith

**A.3.1 Methods and measurement**

The mammal and bird bones were identified by direct comparison with modern comparative material and were allocated to particular bone and species where possible. Where it was not possible to identify bones as far as species, the terms *large ungulate*, *small ungulate* and *indeterminate mammal* were used. All large vertebrae other than the atlas and axis were thus described as large ungulate, while small vertebrae were described as small ungulate. Ribs were similarly allocated depending on their size. Large ungulate bones were most likely to have come from cattle, but could also have come from horse or red deer. Similarly, small ungulate bones were most likely to have come from sheep, but could possibly have originated from goat, pig or roe deer. All other mammalian fragments for which neither species nor bone could be ascertained were described as indeterminate mammal. Boessneck's (1971) criteria for differentiating between the bones of sheep and goat, which are morphologically very similar, were applied where feasible.

Measurements were made in accordance with the scheme of von den Driesch (1976) and are expressed in millimetres. Additional measurements on the humerus follow Legge & Rowley-Conwy (1988). Mandibular tooth wear and eruption patterns were assessed using Grant's (1982) scheme for cattle, sheep/goats and pigs, as well as Payne's (1973) scheme for sheep/goats. Withers heights for sheep/goats were estimated using Teichert's (1975) factors.

**A.3.2 The Cowgate bone assemblage**

Animal bones selected for study were those deemed by the excavator to be from high-priority, undisturbed deposits. The contexts chosen were primarily those from the building itself. All contexts within the building were studied (Contexts [164], [182], Phase W3; [022], [024], [048], [073], [095], Phase W4; [046], [068], [070], [092], [129], Phase W5; [041], [052], Phase W6; [018], [021], Phase W7). In addition, hand-excavated bones and sampled retents from a truncated barrel feature within an extensive midden deposit (Context [163], Phase 8) and two discrete contexts from deposits to the east of the building ([135] and [141], Phase E6) were also chosen because of the large quantity of bones

**Table 2** Total number of bones from contexts within building, Phases W3–W7 (n = number of fragments; MNI = minimum number of individuals; \* = including 1 antler)

Species	n	MNI	% food-former
Cattle	75	2	51.4
Sheep/goat	62	3	42.5
Pig	8	2	5.5
Red deer	2*	1	0.7
Cat	1	1	–
Rabbit	3	1	–
Large ungulate	58	–	–
Small ungulate	40	–	–
Indeterminate mammal	62	–	–
Domestic fowl	11	–	–
Goose	2	–	–
Indeterminate bird	1	–	–
Fish	88	–	–
<i>Total</i>	413	–	–

they contained. All selected contexts contained well-preserved animal bone showing minimum abrasion, retaining in some cases a distinct odour of midden.

### A.3.3 Species present

Present in the building deposits were the remains of cattle, sheep/goat, pig, red deer, rabbit, domestic fowl, domestic/greylag goose and fish (see Tables 2, 3 and 4). Deposits from the east of the building

contained a similar range of species, although goose bones were absent (at least from the selected contexts) while additional species, horse and a single crustacean cheliped (claw), were recovered (see Table 5). In the deposit associated with Barrel [163], cattle, sheep/goat, pig, domestic fowl, goose and fish were all present (see Tables 6, 7 and 8). In addition to the firmly identified species, bones attributed to large ungulate, small ungulate and indeterminate mammal and bird species were ubiquitous over the site.

**Table 3** Cattle bone elements found in contexts within building, Phases W3–W7

Bone		Left	Right	L/R	Total
Horncore		–	–	1	1
Skull		–	–	8	8
Maxilla		–	1	1	2
Mandible		6	6	–	12
Atlas		–	–	3	3
Axis		–	–	1	1
Scapula		3	2	1	6
Humerus	distal	1	–	–	1
	shaft	–	–	1	1
Radius	proximal	–	2	–	2
	shaft	1	–	1	2
Ulna		2	1	–	3
Metacarpal	distal	–	–	1	1
Innominate		4	1	–	5
Femur	distal	–	2	1	3
	shaft	–	–	2	2
Tibia	proximal	–	1	–	1
	shaft	2	1	–	3
Astragalus		–	1	–	1
Naviculo-cuboid		1	–	–	1
Metatarsal	proximal	1	1	–	2
	distal	1	–	–	1
	shaft	–	–	1	1
1st phalange		–	–	3	3
2nd phalange		–	–	3	3
3rd phalange		–	–	1	1
Teeth		–	–	5	5
<i>Total</i>		22	19	34	75

**Table 4** Sheep/goat elements found in contexts within building, Phases W3–W7

Bone		Left	Right	L/R	Total
Mandible		2	1	–	3
Atlas		–	–	1	1
Scapula		1	2	1	4
Humerus	proximal	–	–	1	1
	distal	2	1	–	3
	shaft	1	–	–	1
	entire	1	–	–	1
Radius	proximal	2	1	–	3
	distal	1	2	–	3
	entire	1	–	–	1
Ulna		3	–	–	3
Metacarpal	proximal	1	–	–	1
	distal	–	–	1	1
	shaft	–	–	1	1
	entire	–	1	–	1
Innominate		5	1	–	6
Femur	proximal	–	1	–	1
	distal	2	2	–	4
	entire	1	–	–	1
Tibia	proximal	–	1	–	1
	distal	1	2	1	4
	shaft	3	–	–	3
Calcaneum		–	1	–	1
Metatarsal	distal	–	–	1	1
	entire	1	2	–	3
1st phalange		–	–	2	2
Teeth		–	–	7	7
<i>Total</i>		28	18	16	62

Cattle and sheep/goat remains were the most numerous across the site, while pigs and horses were far less common. In terms of fragment count, cattle were more numerous than sheep/goats in the building contexts, although in the contexts to the east of the building and in Barrel [163], sheep/goat bones were more frequent. However, as only a sample of the contexts to the east of the building was studied, this may not be true for all deposits in this area.

#### A.3.4 Age of animals at death

Bones of cattle and sheep/goats were assessed as to the state of fusion of their epiphyses (articular ends) as an indicator of their chronological age. Intact or semi-intact mandibles were assessed with regard to tooth eruption and tooth wear pattern.

Results are shown in Tables 9, 10 and 11. It should be noted that not all bones provide epiphyseal fusion evidence, due to butchery, breakage and so



**Table 5** Total number of bones from contexts to the east of building, Phase E6 (n = number of fragments; MNI = minimum number of individuals)

Species	Context [93]		Context [135]		Context [141]		Total
	n	MNI	n	MNI	n	MNI	n
Cattle	18	1	3	1	7	1	28
Sheep/goat	35	2	22	5	9	1	66
Pig	–	–	1	1	9	1	10
Horse	1	1	–	–	–	–	1
Red deer	2	1	–	–	–	–	2
Cat	–	–	–	–	52	1	52
Rabbit	–	–	1	1	–	–	1
Large ungulate	24	–	3	–	8	–	35
Small ungulate	10	–	11	–	26	–	47
Indeterminate mammal	19	–	6	–	3	–	28
Domestic fowl	1	–	2	1	5	1	8
Indeterminate bird	–	–	–	–	1	–	1
Fish	–	–	1	–	9	–	10
Crustacean	–	–	+	–	–	–	+
<i>Total</i>	110		50		129		289

**Table 6** Total number of bones contained within Barrel [163], Phase 8 (n = number of fragments; MNI = minimum number of individuals)

Species	Hand-excavated (n)	Sampled (n)	Total fragments (n)	MNI
Cattle	16	1	17	3
Sheep/goat	54	7	61	5
Pig	1	–	1	1
Large ungulate	5	–	5	–
Small ungulate	–	2	2	–
Indeterminate mammal	4	49	53	–
Domestic fowl	3	–	3	1
Goose	3	–	3	1
Indeterminate bird	1	–	1	–
Fish	–	6	6	–
<i>Total</i>	87	65	152	

**Table 7** Cattle bone elements found in Barrel [163], Phase 8

Bone		Left	Right	L/R	Total
Skull		–	–	1	1
Metacarpal	proximal	–	–	2	2
	distal	2	1	–	3
Metatarsal	proximal	–	1	–	1
	distal	1	–	–	1
1st phalange		–	–	4	4
2nd phalange		–	–	3	3
3rd phalange		–	–	2	2
Sesamoid		–	–	1	1
<i>Total</i>		3	2	13	18

**Table 8** Sheep/goat bone elements found in Barrel [163], Phase 8

Bone		Left	Right	L/R	Total
Horncore		1	2	1	4
Skull		–	–	1	1
Premaxilla		1	1	–	2
Mandible		6	2	–	8
Humerus	distal	1	–	–	1
Radius	proximal	–	1	–	1
Ulna		–	1	–	1
Metacarpal	proximal	1	–	–	1
	distal	–	–	3	3
	shaft	–	–	2	2
	entire	1	2	–	3
Metatarsal	proximal	2	–	1	3
	distal	1	2	3	6
	entire	–	1	–	1
1st phalange		–	–	8	8
2nd phalange		–	–	4	4
3rd phalange		–	–	2	2
Sesamoid		–	–	1	1
Teeth		–	–	9	9
<i>Total</i>		14	12	35	61

on. It can be seen that although several bones of juvenile cattle were present, they formed only a small proportion of the available assemblage. Most of the animals died or were killed when they had reached maturity (age category A) or were in the immature or adult category (I/A). In the case of cattle, at least 34.2% of the available long bones came from fully mature animals and 7.9% from juvenile or immature animals (categories J, J/I and I). The remainder of the bones fell within the I/A category and unfortunately could not be separated further. By contrast, 31.7% of the sheep/goats were mature adults (A) and 36.5% were juvenile or immature. More sheep/goats than cattle appear to have been killed at a young age.

Comparing long bone evidence with mandibular evidence was only possible for sheep/goats (Table 11) but since the sample number was small (eight examples) it is difficult to form a conclusion other than that very young mandibles were missing from the archaeological record. This is not surprising since conditions of preservation often do not favour the survival of delicate bones of young lambs and calves, which are less robust than those of adults. Suffice it to say that based on mandibular evidence, at the lower end of the age range, two individuals died between the ages of one and three years while in the upper range, three individuals survived until at least their fourth year.

**A.3.5 Distribution of bones over the site: evidence of past activities**

Analysis of the distribution of anatomical elements of cattle and sheep/goat (see Tables 3, 4, 7 and 8)

indicates that certain deposits may preserve the evidence of past activities. Barrel [163], Phase 8 is particularly striking in this regard, preserving as it does the remains of the heads and feet of at least five horned sheep, as well as one fragmentary calf skull and the feet of two adult cattle. In the case of cattle, body parts were exclusively from the head and feet. Sheep carcasses were represented mainly by heads and feet, although other parts of the carcass were also present. Some of the cattle phalanges articulated with one another, and it is probable that some of the sheep bones also did so.

Although several of the sheep metapodia had been disposed of intact, those from cattle were chopped across the shaft. Thus the cattle metapodia could not have been attached to hides on disposal, whereas those from sheep might well have been. This poses some problems of interpretation, as otherwise it might have been assumed that the barrel had been used for steeping hides with heads and feet attached, these subsequently dropping off and remaining in the barrel during hide preparation. Certainly the bones are the by-product of some animal-based industry, but if not hide and skin preparation, the reason for their disposal in the barrel is not clear. Since the barrel also contained other sheep body parts besides those of the heads and feet, as well as bones of pig, fowl and goose, it is possible that several activities were involved, including disposal of domestic rubbish. Other finds from the barrel were clay pipe fragments thought to date from the 17th century, but leather fragments which might provide evidence of skinning were absent.

**Table 9** Cattle long bones arranged by age category (J = Juvenile; J/I = Juvenile or Immature; I = Immature; I/A = Immature or Adult; A = Adult; n = number of bones)

Age category	Building, Phases	East of building,	Barrel, Phase 8	Total	
	W3–W7	Phase E6		n	%
	n	n	n		
J	–	–	1	1	2.6
J/I	2	–	–	2	5.3
I	–	–	1	1	2.6
I/A	11	3	7	21	55.3
A	5	5	3	13	34.2
<i>Total</i>	18	8	12	38	100.0



**Table 10** Sheep/goat long bones arranged by age category (J = Juvenile; J/I = Juvenile or Immature; I = Immature; I/A = Immature or Adult; A = Adult; n = number of bones)

	Building, Phases W3–W7	East of building, Phase E6	Barrel, Phase 8	Total	
	n	n	n	n	%
J	1	1	–	2	2.4
J/I	10	6	5	21	25.6
I	4	3	–	7	8.6
I/A	8	4	14	26	31.7
A	12	4	10	26	31.7
<i>Total</i>	35	18	29	82	100.0

**Table 11** Age stages of sheep/goat mandibles, after Grant (1982) and Payne (1973) (twS = tooth wear stage; MWS = mandible wear stage)

Area	Context	Phase	Grant wear stage		Payne wear stage	Age inference (years)
			twS	MWS		
Building	164	W3	–c	–	E	2–3
East of building	093	E6	ggg	36	G	4–6
East of building	141	E6	–g	–	G–H	4–8
Barrel	163	8	mgg	41	G	4–6
Barrel	163	8	gge	34	F	3–4
Barrel	163	8	gf½	27	D	1–2
Barrel	163	8	–g–	–	D–E	1–3
Barrel	163	8	–b	–	E	2–3

Elsewhere on the site, a deposit located to the east of the building (Context [135], Phase E6) was notable in that it contained, among the general butchered bone debris, five partial sheep skulls. At least four of these sheep bore horns (one example was badly eroded in the region of the horn cores and it was not possible to say whether they had been present). Knife cuts and/or hacks were present at the bases of the horn cores in two of the skulls, indicating possible removal of the horny sheath for the purposes of horn-working. Also in deposits to the east of the building, Context [141], Phase E6 contained evidence of disposal of a partial pig skeleton, from a juvenile individual probably of about 13 months of age (based on mandibular tooth evidence). An adult cat skeleton (minus the skull) and a collection of intact ribs and vertebrae,

probably from one sheep, were also found in this deposit (Context [141], Phase E6). The pig and sheep remains indicate disposal of substantial parts of the carcass and may represent butchering activity.

### A.3.6 Worked bone and antler

Antler working may also have taken place at the site. A worked antler fragment, comprising part of the beam and one tine, both cut rather than sawn, formed a V-shaped offcut (Context [164], Phase W3). Also present in Context [164] was a bone or antler tuning peg (length 38.48mm, diameter of shaft 4.61mm, maximum diameter of head 6.02mm). Square-headed, with a shaft of circular cross-section, the peg was broken across the shaft. Similar examples, from stringed instruments such

as lyres, harps or fiddles, have been recovered from the Bedern and elsewhere in York and are thought to date from the 13th to the 15th centuries (MacGregor et al 1999: 1978–9).

### A.3.7 Abnormal bone

A tarso-metatarsus from a domestic fowl found in Barrel [163], Phase 8 was of interest since it showed pathological changes to the lateral bony spur which may relate to an attempt to caponise the bird. Caponisation is an operation performed on male fowls intended to impart female growth patterns, and although spurs were often removed for this end, only true castration would have this effect. Nevertheless, spur removal was sometimes practised, as seems to have happened to this bird. Removing the spurs would not stop the bird fighting, although the risk of damaging other birds would be lessened. On the other hand, birds could be given an advantage in the sport of cock-fighting by deliberately removing the bony spurs and attaching manufactured spurs made of sharpened metal (West 1982). A male fowl metatarsus from which the spur had been sawn and which was possibly from a fighting bird was recovered from medieval Perth High Street (Smith & Clarke 2011).

### A.3.8 Size and type of animals

Long bone size range summaries for all bones measured are presented in Table 12. Some of these measurements, particularly for those bones recovered from deposits outwith the building, may be from the later medieval period. The results seem to be comparable to those from excavations to the south of Edinburgh High Street (Chaplin & Barnetson 1976: 237–9). All of the measurements of cattle and sheep/goat bones fall within the ranges recorded for medieval animals at Perth High Street (PHSE; Hodgson et al 2011). One pig scapula from the Cowgate, however, was larger than the PHSE range and represents a more robust animal than the typically rangy medieval type.

As noted above, the sheep were of a horned variety. Horns in the male were large, with a resemblance to those found in the modern Soay and North Ronaldsay breeds. Smaller, stumper horns may have been from females. Armitage (1976) noted that

horned sheep were found in the medieval levels at the excavations south of the High Street, Edinburgh, but that hornless sheep were recovered from the later medieval horizons. No hornless (polled) individuals were found in the samples examined from the Cowgate, however.

A notable feature of the sheep scapulae from the Cowgate was the long slim scapula neck. Although the pecten (a morphological feature of the neck of the scapula) was very much smaller than in modern breeds, the bones were not thought to have come from goats, which demonstrate similar morphology to primitive sheep breeds, but from sheep. Noddle (1978) equates a long, slim scapula neck with primitive sheep breeds, such as the Soay and Mouflon.

Evidence of the stature of the Cowgate sheep was provided by the survival of several intact metapodials. Metacarpals preserved in Barrel [163], Phase 8 came from sheep estimated to stand between 51.4cm and 56.3cm high at the shoulder. Estimates derived from the metatarsal indicated a range of from 46.4cm to 53.0cm, the smaller of the two individuals being recovered from Barrel [163], Phase 8 and the taller from Context [041], Phase W6 within the building. The shoulder height range for sheep from PHSE was 46.7cm to 65.8cm, so the small sheep from the barrel deposit was indeed a diminutive individual even by medieval standards.

One horse metacarpal recovered from the deposits to the east of the building, Phase E6 was used to estimate the height of the animal from which it came. Based on Kieswalter's factors (quoted in Ambros & Müller 1980) this animal was approximately 139.1cm high at the withers, which translates to a height of 13:3 hands (54.2 inches). This animal is below 14:2 hands height and can therefore be considered a pony, comparable with other Scottish animals of medieval and post-medieval date (Smith 1998).

### A.3.9 Discussion

The bones from Cowgate demonstrate that animal-based activities took place at or near the site. The detritus recovered from Barrel [163], Phase 8, which consisted mainly of the heads and feet of several cattle and sheep, may indicate that skinning was one of these activities. However, the bones could have

**Table 12** Bone size range summaries. Abbreviations are those of von den Driesch (1976). Additional measurements made on the humerus follow Legge & Rowley-Conwy (1988). Horn core measurements are as follows: Max = maximum diameter; Min = minimum diameter ; OC = length of outer curvature; BC = basal circumference

Bone	Measurement	Range (mm)	no. of bones	Mean
<b>1. Cattle</b>				
Scapula	SLC	45.0	1	
	GLP	65.1	1	
Humerus	BT	37.7	1	
	HT	30.2	1	
Radius	Bp	52.6–53.7	2	
Metacarpal	Bd	48.1–50.5	3	49.2
Femur	Bd	82.7	1	
Tibia	Bd	48.5	1	
Astragalus	GLl	59.8	1	
	Bd	38.5	1	
Metatarsal	Bp	41.9	1	
	Dp	41.3	1	
	Bd	46.4–47.9	3	47.0
1st phalange	GLpe	44.9–55.0	6	49.8
	Bp	23.2–25.6	6	24.3
	Bd	21.4–24.6	6	23.2
	SD	18.2–22.6	6	20.8
2nd phalange	GL	33.9–42.0	7	36.3
	Bp	22.7–30.4	7	26.1
	Bd	18.5–25.1	7	21.3
	SD	18.1–24.0	7	20.2
3rd phalange	DLS	58.5–69.4	4	65.5
	Ld	43.9–51.7	4	47.7
<b>2. Sheep/goat</b>				
Sheep horn core	Max	17.9–52.8	7	33.4
	Min	16.7–46.3	7	28.5
	BC	45.0–152.0	6	98.8
	OC	22.5	1	
Atlas	BFcd	41.4	1	
Scapula	SLC	16.9–20.0	6	18.8
	GLP	30.2–33.6	6	31.6
	ASG	17.6–21.8	5	19.4
Humerus	Bd	28.4–30.0	5	29.3
	BT	27.1–29.2	5	28.4

Table 12 *cont.*

Bone	Measurement	Range (mm)	no. of bones	Mean
	HT	16.8–17.9	5	17.3
	HTC	13.0–14.2	5	14.2
Radius	Bp	30.1–32.3	4	23.1
	Bd	26.3–29.5	2	
	SD	16.7	1	
Ulna	DPA	25.2–27.7	5	26.8
	SDO	21.8–23.4	3	22.7
Metacarpal	GL	105.0–115.2	3	110.0
	Bp	20.2–21.8	4	21.2
	Dp	15.3–16.1	4	15.6
	Bd	22.3–25.4	3	23.7
	SD	12.6–13.5	3	13.1
Innominate	LAR	24.2–27.1	3	25.2
	LFo	29.3–31.0	2	
Femur	Bp	47.7	1	
Tibia	Bd	25.8–27.4	3	26.7
	Dd	19.9–21.6	3	27.6
Calcaneum	GL	56.8	1	
Metatarsal	GL	102.3–108.3	2	105.3
	Bp	17.4–20.1	5	19.3
	Dp	18.1–21.3	5	19.7
	Bd	20.3–23.4	8	22.0
	SD	10.5–10.9	2	
1st phalange	GLpe	29.8–35.3	11	32.1
	Bp	11.1–12.5	11	11.6
	Bd	10.0–12.8	11	11.0
	SD	9.0–10.5	11	9.6
2nd phalange	GL	19.8–20.1	4	19.6
	Bp	9.6–11.7	4	10.6
	Bd	7.4–9.4	4	8.8
	SD	6.7–8.4	4	7.8
3rd phalange	DLS	26.2–26.3	2	
	Ld	20.5–21.3	2	
<b>3. Pig</b>				
Scapula	SLC	19.3–28.2	2	
	GLP	30.2–39.1	2	
Ulna	DPA	34.9	1	
	SDO	25.0	1	



Table 12 *cont.*

Bone	Measurement	Range (mm)	no. of bones	Mean
<b>4. Horse</b>				
Metacarpal	GL	227.0	1	
	Ll	217.0	1	
	Bp	48.5	1	
	Dp	33.5	1	
	Bd	46.8	1	
	Dd	35.6	1	
	SD	30.1	1	
<b>5. Red deer</b>				
Tibia	Bd	51.4	1	

been the remains of butchered animals, although it would be unusual to throw away any part of the carcass without first trimming the meat from it. More often than not, skulls would be split open in order to extract the brains, which could be cooked and eaten or used to make a preparation for use in leather manufacture. Intact metapodia can be similarly uncommon, as they are a good source of marrow, most easily removed from the central cavity by splitting the bone lengthwise. There is some evidence that the cattle metapodia from the barrel were indeed butchered. Elsewhere on the site, antler may have been worked, although this is likely to have been a very small-scale activity.

As regards diet, although cattle and sheep were both consumed, more lamb appears to have been eaten than calf. Chaplin & Barnetson (1976: 232–3) noted similar findings in their study of animal bones from the medieval excavations south of Edinburgh High Street.

Morphological evidence shows that the type of sheep to be found at the site were of a small, horned, spindly-legged variety typical of the Scottish medieval period. Cattle were of a similar small stature to those found elsewhere in Scotland at that period.

The presence of rabbit bones is interesting since there are few known Scottish sites of medieval or late medieval date from which their bones have been recovered, although their presence is attested by documentary records, for example from Coupar Angus Abbey (Rogers 1880). The earliest

rabbit warren in Scotland is recorded at Crail, in 1262–6 (Gilbert 1979: 211). It is known that their introduction to Britain from Spain or southern France was not without difficulties, as rabbits took some time to adapt to the cold, damp environmental conditions. Rabbit bones have been recovered in later and post-medieval deposits elsewhere in Edinburgh, at the Holyrood Parliament site (Smith 2010: 76–7) and at the excavations south of Edinburgh High Street (Chaplin & Barnetson 1976), but there is very little undisputed evidence of their presence at earlier medieval sites in the north-east of Scotland due to the animals' habit of burrowing through archaeological deposits.

#### APPENDIX 4: ANALYSIS OF SOIL THIN SECTIONS

*Stephen Lancaster*

##### A.4.1 Summary

Thin-section analysis for eight samples was undertaken in order to understand the formation processes of thick (1m) deposits thought to be midden, spanning Phases 1 to E4. Analyses demonstrated that the deposits were sediments formed through the colluvial accumulation of topsoils and refuse, with the Cowgate's topographic position causing it to act as a sediment trap. The probable source of the sediment was the Old Town. As the sediments accumulated, an increasing anthropic component was deposited, indicating the

spread or intensification of urban settlement in the vicinity of the Cowgate. Apparent contradictions between the thin-section evidence and the plant macrofossil evidence were noted with regard to the conditions of deposition. Suggestions for resolving these differences are made in the event of future work on the Cowgate.

#### A.4.2 Introduction

This report contains the results of the analysis of soil thin sections taken from medieval and post-medieval deposits during the watching brief at the site. The deposits sampled were composed of dark, finely textured sediment. The object was to establish the composition and formation processes of these deposits, in particular whether the deposits were middens that had formed in situ or represented redeposited material. Eight samples were taken in Kubiena tins, and the section from which the samples were taken was carefully described with reference to potential sedimentary and pedological features.

In this report, the thin sections are described, with particular attention to the most archaeologically relevant aspects of the samples, and additional analysis that has arisen from these descriptions is presented. The sedimentary and pedological processes that have affected the profile are interpreted in the Discussion section (A.4.5), followed by a consideration of the archaeological implications of those processes.

#### A.4.3 Methods

Resin impregnation of the samples and thin section preparation was undertaken by the Department of Environmental Science, University of Stirling, and followed standard procedures (Murphy 1986). The thin sections were recorded under a variety of lighting techniques using the descriptive scheme and terminology recommended by Bullock et al (1985), as supplemented and modified by Courty et al (1989). See Table 13.

In order to assess variations in natural versus cultural inputs to the deposits, with a view to understanding the changing distance to sediment source over time, each slide was overlaid with a 1cm interval grid, and any coarse component (over

**Table 13** Thin-section samples and corresponding contexts

Sample code	Context numbers	Phase
1	241	E4
2	242	E3
3	242	E3
4	243	1
5	243	1
6	243	1
7	244	1
8	243	1

500µm) under the grid intersections was classified as natural or cultural. Rock fragments were assumed to be of natural origin, with the exception of coal fragments. Although coal is known to occur naturally in till deposits in the Lothians, concentrations were felt to be too high to be accounted for by this. Shell, bone and coal fragments were all classified as cultural inputs. In order to corroborate the findings of the grid counting, the ten largest clasts on each slide were measured using the microscope graticule to establish variations in the size of the largest clasts being deposited throughout the sequence.

#### A.4.4 Results

Descriptions of the thin sections are presented in Table 14. A number of summary observations can be made. The first such observation is that although the fine fraction of the samples is usually organo-mineral, the level of organic preservation in most of the samples is generally poor. The exception to this is Context [241], Phase E4, where considerable numbers of plant fragments were observed, consisting of disarticulated and jumbled fragments of stem, leaf and root tissue.

The degree of biological reworking observed was mostly high throughout the slides and principally took the form of fabric pedofeatures. The soil voids were principally channels, which are usually associated with biological activity. Small areas of less reworked material were observed in thin section in the upper part of Context [243], Phase 1 (Samples 4 and 5). In most of the samples the sediments were unsorted, with the exceptions being the small areas

**Table 14** Thin-section descriptions

Sample	Context	Phase	Mineral components	Organic components	Fabric	Microstructure	Pedofeatures
1	241	E4	Very dominant poorly sorted to unsorted sub-angular to sub-rounded quartz grains (50µm–700µm), rare fragments of coal (up to 5mm), very rare feldspars, very rare fragments of sandstone (up to 10mm), very rare ash aggregates, single shell fragment.	Common tissue/organ fragments, clustered distribution. Fine material: organo-mineral, clay and fine silt with common comminuted organic matter and frequent fragmentary phytoliths and diatoms.	Grey-brown homogeneous fabric, porphyric, C/F limit 50µm, C/F ratio 2:1 to 3:2.	Massive, void space <i>c</i> 15%, channels, chambers, packing voids.	Many crystalline vivianite inclusions in lower quarter of the sample. Rare ferruginous nodules (<300µm). Occasional weakly contrasted fabric pedofeatures. Rare areas of calcitic crystalline infilling.
2	242	E3	Very dominant poorly sorted to unsorted sub-angular to sub-rounded quartz grains (50µm–600µm), frequent sedimentary rock fragments, frequent coal fragments (up to 9mm), frequent black vesicular objects (up to 5mm), rare shell.	Area of common tissue fragments in upper 14mm. Single peat fragment. Fine material: organo-mineral, clay and fine silt with common comminuted organic matter and frequent fragmentary (?) phytoliths.	Grey-brown homogeneous fabric, porphyric, C/F limit 50µm, C/F ratio 3:2.	Massive, void space <i>c</i> 20%, channels, chambers, packing voids.	Many crystalline vivianite inclusions. Rare ferruginous nodules (<300µm). Frequent weakly contrasted fabric pedofeatures. Rare areas of calcitic impregnative pedofeatures.
3	242	E3	Very dominant poorly sorted to unsorted sub-angular to sub-rounded quartz grains (50µm–800µm), rare to frequent coal fragments (up to 7mm), frequent shell fragments, rare ash aggregates, rare bone fragments, very rare black vesicular objects.	Area of frequent to rare tissue fragments in lower quarter of the sample. Fine material: organo-mineral, clay and fine silt with common comminuted organic matter and frequent degraded phytoliths and diatoms.	Grey-brown homogeneous fabric, porphyric, C/F limit 50µm, C/F ratio 2:1 to 3:2.	Massive, void space <i>c</i> 10–15%, channels, chambers, packing voids.	Abundant crystalline vivianite inclusions in rare orange ferruginous nodules (<300µm). Many distinctly contrasted fabric pedofeatures. Local patches of fused bacillo-cylindrical excrements. Single weakly calcitic impregnated pedofeature.

Table 14 *cont.*

Sample	Context	Phase	Mineral components	Organic components	Fabric	Microstructure	Pedofeatures
4	243	1	Very dominant mostly poorly sorted sub-angular to sub-rounded quartz grains (50µm–650µm), rare coal fragments (up to 14mm), rare black vesicular objects, very rare sedimentary rock fragments, very rare igneous rock fragments.	Fine material: organo-mineral, clay and fine silt with common comminuted organic matter and frequent fragmentary phytoliths.	Top two-thirds grey-brown homogeneous fabric, bottom one-third areas of well-sorted silty clay in unsorted fabric, both porphyric, C/F limit 50µm, C/F ratio 2:1 to 2:3.	Massive, void space <i>c</i> 15–20%, channels, chambers.	Many crystalline vivianite in-fillings. Occasional weakly contrasted fabric pedofeatures.
5	243	1	Very dominant mostly poorly sorted sub-angular to sub-rounded quartz grains (50µm–1000µm), frequent to rare ash aggregates, rare black vesicular objects, rare sedimentary rock fragments, very rare coal fragments (up to 8mm), very rare igneous rock fragments, very rare fused quartz, single glassy slag fragment.	Rare charred plant tissue. Fine material: organo-mineral, clay and fine silt with common comminuted organic matter and frequent fragmentary phytoliths.	Top quarter grey-brown areas of well-sorted silty clay within unsorted fabric, bottom three-quarters grey-brown homogeneous, both porphyric, C/F limit 50µm, C/F ratio 2:3 to 2:1.	Massive, void space <i>c</i> 5–15%, channels, chambers, cracks.	Many crystalline vivianite in-fillings. Rare weakly contrasted fabric pedofeatures.
6	243	1	Very dominant poorly sorted to unsorted sub-angular to sub-rounded quartz grains (50µm–800µm), occasional bone fragments, rare ash aggregates, rare sedimentary rock fragments, very rare coal fragments (up to 4mm).	Rare peat fragments. Fine material: organo-mineral, clay and fine silt with common comminuted organic matter and frequent fragmentary phytoliths.	Grey brown homogeneous fabric, porphyric, C/F limit 50µm, C/F ratio 5:1.	Massive, void space <i>c</i> 5–15%, channels, chambers, packing voids.	Occasional crystalline vivianite in-fillings. Abundant distinctly contrasted fabric pedofeatures. Rare calcitic impregnative pedofeatures.



Table 14 *cont.*

Sample	Context	Phase	Mineral components	Organic components	Fabric	Microstructure	Pedofeatures
7	244	1	Very dominant poorly sorted to unsorted sub-angular to sub-rounded quartz grains (50µm–750µm), rare sedimentary rock fragments.	Fine material: organo-mineral, clay and fine silt with frequent comminuted organic matter and frequent fragmentary phytoliths.	Reddish grey-brown homogeneous fabric, porphyric, C/F limit 50µm, C/F ratio 3:2.	Mostly massive, void space c 5–15%, channels, chambers.	Single crystalline vivianite infilling. Many distinctly contrasted fabric pedofeatures. Rare mamillated excrements, locally many bacillo-cylindrical excrements.
8	243	1	Very dominant poorly sorted to unsorted sub-angular to sub-rounded quartz grains (50µm–1000µm), rare bone fragments, rare shell fragments, rare clay aggregates, rare sedimentary rock fragments, rare coal fragments (up to 4mm), rare black vesicular objects.	Fine material: organo-mineral, clay and fine silt with common comminuted organic matter and frequent fragmentary phytoliths.	Grey-brown homogeneous fabric, porphyric, C/F limit 50µm, C/F ratio 3:1.	Massive, void space c 15–20%, channels, chambers and packing chambers.	Many crystalline vivianite infillings. Occasional weakly contrasted fabric pedofeatures. Rare calcitic crystalline infills.

of less reworked material which were moderately to well sorted silts. No stone lines were observed during the description of the profile in the field.

The stratigraphic sequence has been dated by analysis of the pottery assemblage and other finds. The lower layers discussed here, Contexts [243], [244], Phase 1, have been dated to the mid to late 14th century. The overlying context [242], Phase E3, is of late 14th- to early/mid 15th-century date, and the uppermost context [241], Phase E4, is of early/mid 15th-century date (see A.2.13). The ceramics in the sampled contexts were generally small, abraded fragments, contrasting with the larger, less abraded sherds from the deposits above Context [241].

All of the sampled contexts, except [244], had many well-developed vivianite (iron phosphate) impregnative pedofeatures when observed in thin section. Vivianite nodules were visible in the field and were observed to have formed across stratigraphic boundaries. The occurrence of vivianite was most frequent in the upper part of the sampled profile, declining in frequency with depth to a single poorly developed nodule in the top of Context [244].

Illus 43 presents the variation with depth in the percentage of culturally derived coarse material recorded by grid counting through the sampled profile. At the base of the profile (Context [244])

no culturally derived clasts were counted, nor had any been noted during the description of the thin section from this context (Sample 7).

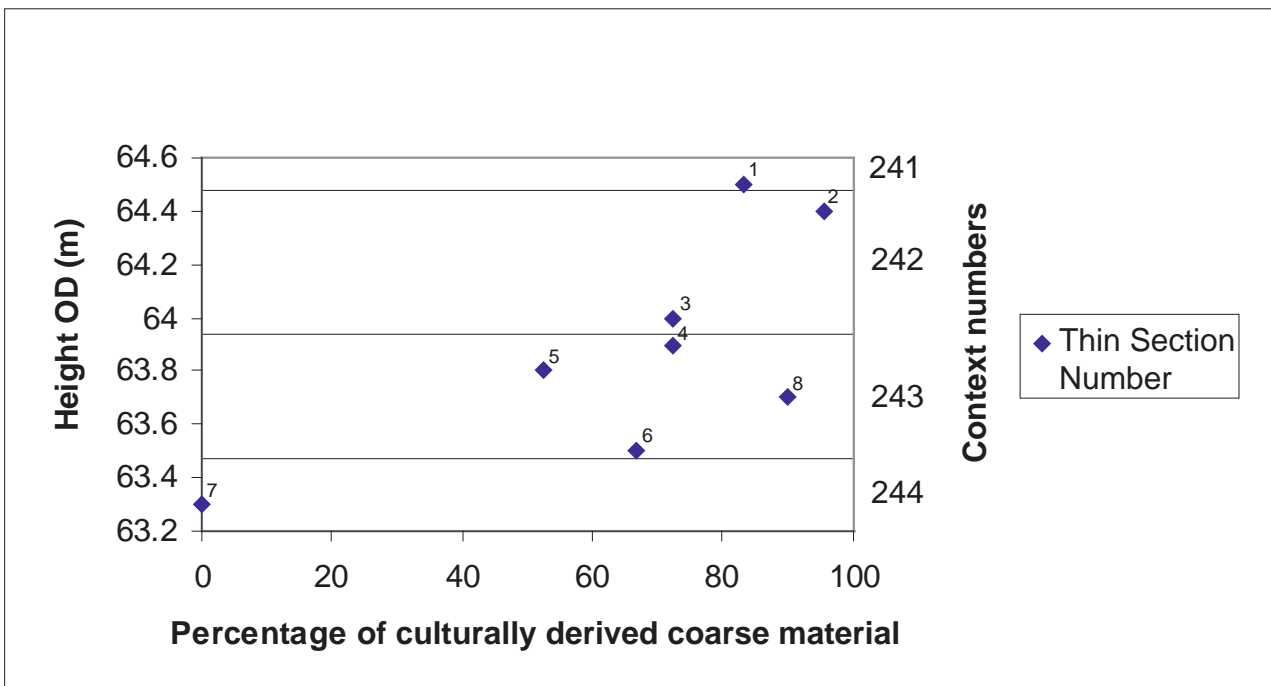
There is a clear split between Context [244] (Sample 7) and the other contexts. The percentage of culturally derived coarse material varies considerably through Contexts [243], [242] and [241] but no trend in the variation is discernible.

Illus 44 shows the change in the mean diameter of the ten largest clasts with depth. There is a similar trend to that for the percentage of cultural clasts, in that there is an increase in the average size of the largest clasts across Contexts [242] (thin sections 2 & 3) and [243] (thin sections 4, 5, 6 & 8).

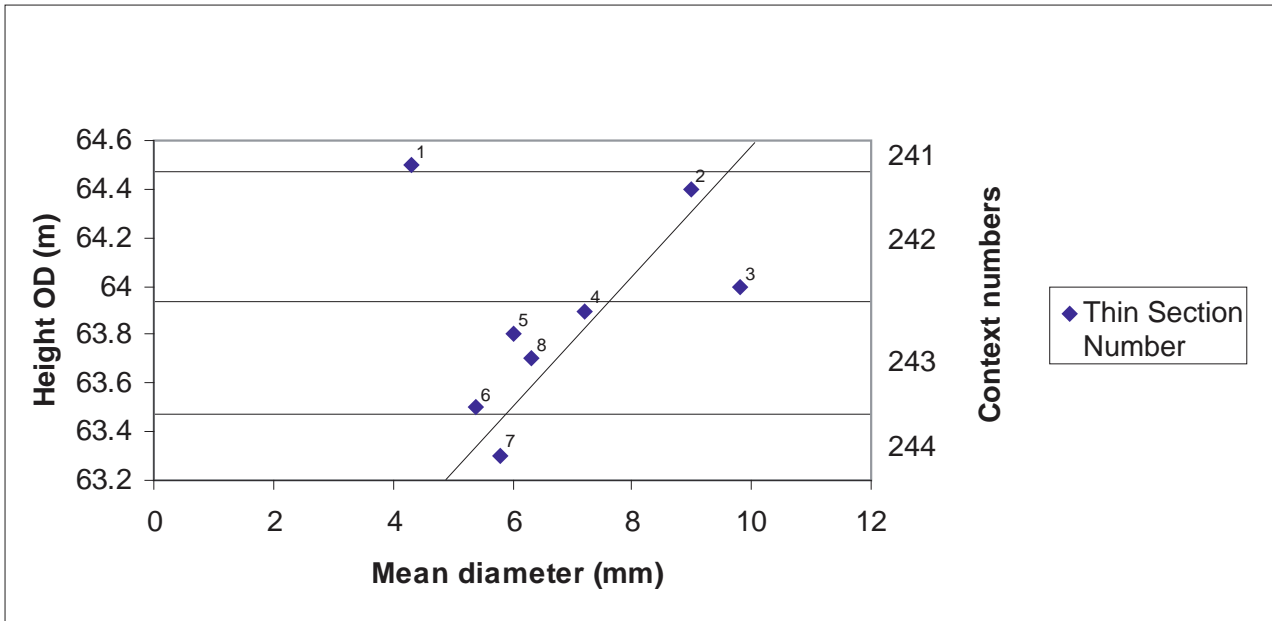
### A.4.5 Discussion

#### A.4.5.1 Sediment sources

The majority of the coarse mineral component found in all the slides is a mixture of clastic sedimentary and igneous rock fragments, typical of the lithology of the local till, indicating that local till or soils formed on it were a major input into the deposit (Mitchell 1962). Other mineral components include fragments of bone, shell and coal, which were not found in Context [244]. Bone and shell are of anthropic origin. Although coal does naturally occur in the local till, the concentrations



Illus 43 Variation with depth in the percentage of culturally derived coarse material in soil thin sections



**Illus 44** Change with depth in the mean diameter of the ten largest clasts in soil thin sections

are sufficiently high to make a purely natural origin for the coal fragments unlikely. Most of the coal fragments are probably the result of coal being used as a fuel in the area during the period in which the deposits accumulated.

The main organic material observed in most of the slides is the highly humified organic component of the fine fraction. Rare, rounded fragments of peat have been identified, which are interpreted as being fuel fragments. The other identifiable organic components are the plant tissue fragments which occur at a high density in Context [241]. These fragments include root, stem and leaf elements. These are not arranged in anatomical order, but are mixed together with sediment, suggesting that vegetation or turf was deposited here, rather than being the remains of a turf layer that had formed in situ.

A.4.5.2 Processes of deposition

The topographic position of the site at the bottom of a steep gradient makes the site a potential trap for sediment moving down from the higher ground to the north and south of the Cowgate. The highly abraded and fragmented condition of the pottery assemblages from the medieval contexts indicates that the sherds have undergone transport. The mixed and unsorted nature of the coarse component throughout the deposits points to the sediments

being deposited as a result of colluvial slope processes rather than alluvial processes. The cultural component in Contexts [243] and [242], both the pottery recovered and the peat, coal, shell and bone fragments identified in thin section, indicate that the source of the sediments was an area of human activity. The phase dating for these contexts runs from mid/late 14th century to early/mid 15th century. Given that the expansion of Edinburgh in this area progressed southwards from the High Street, and that the Cowgate was not permanently inhabited until the late 15th or early 16th century, the significant cultural component in the sampled sediments would suggest that the location of the sources would have been the Old Town, rather than the higher ground to the south, which would have been unoccupied for most of the period of accumulation (RCAHMS 1951). The increase in the size of the largest clasts suggests that the sediment source was moving closer to the point of deposition, that is, the extension of the Old Town towards the Cowgate during the 14th and 15th centuries.

A.4.5.3 Post-depositional processes

The rate of accumulation has been sufficiently gradual that the sediments have been reworked, principally by earthworms. The degree of reworking is not constant throughout the thin sections,

suggesting that the rate of accumulation may have varied. In particular the rate of accumulation of the upper part of Context [243] was sufficiently rapid to prevent the complete reworking of all the components, leaving occasional fragments of sediment. The rate of accumulation was not slow enough at any point to allow the formation of stone lines through earthworm activity. By contrast, Context [241] and the contexts above it are relatively thin layers in comparison with Contexts [242] and [243], indicating that unlike Contexts [242] and [243] these layers have not been reworked through biological activity. This suggests that a change in depositional regime or local conditions occurred that caused the more rapid deposition of sediments, or prevented the biological activity that reworked Contexts [242] and [243].

The lack of identifiable plant fragments in most of the profile, combined with the well mixed organo-mineral fine fraction, indicates that while there was a significant organic input into the sediments this has humified and been thoroughly mixed with the mineral component. Much of the organic component may have been deposited already largely decomposed, given the probable predominance of nearby soils as a sediment source. Such humification would indicate a relatively well-drained and aerated environment, which would be ideally suited to earthworm activity.

The vivianite crystalline pedofeatures observed throughout most of the profile indicate wet, phosphate-rich and highly reducing conditions. In culturally influenced settings these conditions are generally interpreted as indicating the presence of cess. The vivianite has generally formed in soil pores, occasionally in pores in soil components such as charcoal fragments, and more rarely has impregnated the groundmass. The formation of the vivianite crystals within the soil pores indicates that formation of the crystals post-dates the formation of the channels in the soil, which are presumed to be of biological origin. The conditions favouring the formation of vivianite contrast strongly with the well-drained and oxidising conditions under which the sediments were deposited and reworked. The change in conditions can be related to change in surface water run-off to the area: the distribution of the vivianite is skewed towards

the upper part of the sampled profile, rather than the lower part of the profile as would be expected if changing groundwater levels had changed the soil conditions. Instead, it appears that there was a considerable increase in the surface wetness of the site, and given the rapid and complete change in the character of the deposits from Phase E4 upwards, the change to wetter conditions was sudden.

#### A.4.5.4 Archaeological implications

The sequence of the accumulation and modification of the sediments sampled at this site demonstrates the impact of the changing pattern of settlement in the Old Town. Context [244] is the A/B horizon of a soil that has no evidence of human modification or cultural input.

Contexts [243] and [242] can be regarded as parts of one slowly aggrading unit, the character of which changes slightly as it accumulates. These changes take the form of an increasing proportion of cultural clasts and an increase in the size of the largest clasts. This indicates that the source of sediment was moving closer to the Cowgate. The source would have been the Old Town, which would have generated sediments through the erosion of local topsoils, decay of topsoil-derived building materials and deposition of refuse. The increased cultural input reflects the spreading of settlement from the core of the Old Town towards the Cowgate. It should be stressed that these sediments reflect human activity upslope, rather than human activity on the Cowgate. The only process noted as occurring in situ at the Cowgate is the reworking of the sediments through invertebrate action, suggesting that human activity at the site was of low intensity.

The deposition of Context [241] constitutes a change in the level of human impact on the site in the early/mid 15th century. Over the part of the context that was sampled (Sample 1) was a layer of stones, possibly a deliberately laid surface (Dalland pers comm). After the formation of Context [241], vivianite crystals formed in soil pores through most of the sampled profile. The change in conditions probably occurred rapidly after the deposition of Context [241], given the survival of plant tissue, which suggests a change to anoxic conditions. As



has been noted, this reflects a significant change in conditions from those under which Contexts [242] and [243] initially formed. The cess-rich, reducing conditions imply greater run-off into the area of Cowgate from the Old Town. Such an increase in run-off would be due to greater surface impermeability. This could reflect a number of mechanisms. Further extension of settlement might reach a point where run-off increased significantly. Increase in building density within a settled area, such as building on plots of previously open land attached to established building and compaction or paving of surfaces, would both also increase run-off. It is possible that the change is highly localised, and could relate to the installation of a drain or sewer emptying into the area: orders were issued for the cleansing of the Old Town in 1518 (RCAHMS 1951). Although the precise mechanism cannot be resolved from the evidence from 144–166 Cowgate, the change in conditions in the Cowgate links to the increasingly urban environment of the wider area in the medieval era.

## APPENDIX 5: ANALYSIS OF WATERLOGGED PLANT REMAINS

*Scott Timpany*

### A.5.1 Introduction

The Cowgate was originally used to lead cattle into the burgh from grazing locations outside. The road is located at the bottom of a slope that leads up to the High Street. Consequently during the medieval period midden deposits (dating from the 14th to 16th centuries), which contained remains of domestic waste (including plant and faecal material), built up along the Cowgate. The midden deposits are likely to have developed from two main sources: firstly dumping of material directly from homes and cattle waste on the Cowgate, and secondly material washed downslope from homes upslope towards the High Street.

Excavation and test-pits were dug into the site to the east of the remains of a medieval building (see Illus 3). The remains of a medieval wall are also present across the site from east to west. During the period of midden development the area appears to have been open wasteland, based on the dearth of building remains present across the site. Bulk

samples for palaeoenvironmental analysis were taken from the excavation and test-pits; the locations of these pits are shown in Illus 4.

The work presented here is a continuation from the assessment report of the site by Gillis & Hastie (2004) and follows the recommendations proposed. This study concentrates on the identification of plant remains from those samples which were found to contain high numbers of uncharred plant seeds and nutshell fragments.

### A.5.2 Methods

During the initial assessment the samples analysed showed that the contexts sampled were a mixture, and contained charred and uncharred plant remains. The contexts which contained uncharred plant remains were identified during post-excavation work as waterlogged (Gillis & Hastie 2004).

The waterlogged samples initially analysed were 250ml sub-samples from 10-litre samples collected on site. These were wet-sieved through a 250µm sieve. Samples not identified as waterlogged were subjected to flotation through a Siraf-style flotation tank and the floating debris (flot) collected in a 250µm sieve. The flot was then air-dried before being analysed. These samples are referred to in the text as flotation samples. Results from flotation samples taken from contiguous contexts from HP01 are presented separately.

Three of the waterlogged samples (15, 35 and 76, respectively, Contexts [093] & [141], Phase E6 and [223], Phase E5), which had been found to contain large quantities of uncharred plant remains during the initial assessment (Gillis & Hastie 2004), were chosen for bulk sample analysis. For these samples 500ml of material was sub-sampled from the 10-litre samples. The samples were then wet-sieved through 1mm and 500µm sieves.

All plant macrofossil samples were analysed using a stereomicroscope at magnifications of ×10 and up to ×100 where necessary to aid identification. Identifications were confirmed using modern reference material. Two sequences from HP01, the southern and western faces, where samples were taken contiguously, have been plotted as plant macrofossil diagrams using the TILIA and TGView version 2.0.2 programs (Grimm 2004). All other plant macrofossil data are presented in tables. Dating

of contexts has been correlated from pottery dates. Tables and diagrams follow the taxonomic order of Stace (1997).

### A.5.3 Results

#### A.5.3.1 Flotation and bulk samples

The results of the flotation and bulk samples are presented in Table 15. The plant remains can be broadly divided into four vegetational community groupings: waste places (A), economic food groups (B), cultivated ground (C) and damp, wet places (D). A number of the plants identified can be found in more than one of these communities and this is recognised within the table. The samples range in date from the mid-to-late 14th century to the late 15th or early 16th century (Phases 1 to W5/E6).

The majority of species identified are indicative of waste places (A), such as *Urtica dioica* (common nettle) and *Atriplex patula* (common orache) (Stace 1997). This environmental picture compares favourably with the archaeological building evidence at the site, which suggests that a large amount of land was undeveloped, open (waste) ground. The presence of damp, wet ground species (D), in particular the large number of *Ranunculus sceleratus* (celery-leaved buttercup) seeds recovered, suggests that pools of water periodically formed at the site (Stace 1997), allowing the invasion and colonisation of this species.

Sporadic amounts of economic species (B) occur within the samples, such as *Corylus avellana* (hazel) nutshell fragments and *Malus sylvestris* (crab apple) pips, which are likely to have been within household rubbish dumped at the site. The most frequent species in this group are *Ficus carica* (fig) seeds, which are resilient enough to survive the human digestive tract and thus become incorporated into human excrement. It is likely that these seeds arrived on site via human waste thrown out into the streets, collecting at the Cowgate. The presence of fig seeds and *Vitis vinifera* (grape) pips indicates the import of fruits from Europe and illustrates Edinburgh's importance as a trade route.

A number of species indicative of cultivated ground and agriculture were also present (C), the most obvious of which are the cereals *Hordeum vulgare* (barley) and *Triticum aestivo-compactum*

(bread/club wheat), of which all are charred. These charred grains (and seeds, see Table 15) may all have become incorporated within the midden deposits from debris relating to activities such as baking and brewing, which occurred within Edinburgh. Arable weed species, such as *Stellaria media* (common chickweed), *Spergula arvensis* (corn spurry) and *Chenopodium album* (fat hen) also occur. However, many of these species will also grow on wasteland and therefore may originate from plants growing at the site rather than cultivated land (Stace 1997).

#### A.5.3.2 Flotation samples from HP01

The plant macrofossil diagrams for HP01, south and west faces are given in Illus 45 and 46 respectively. These sequences date from the mid/late 14th century to the second or third quarter of the 15th century (Phases 1 to E5). Many of the species within the flotation and bulk samples are present within the sequences, which again allows the taxa present to be broadly divided into the same four groupings described above.

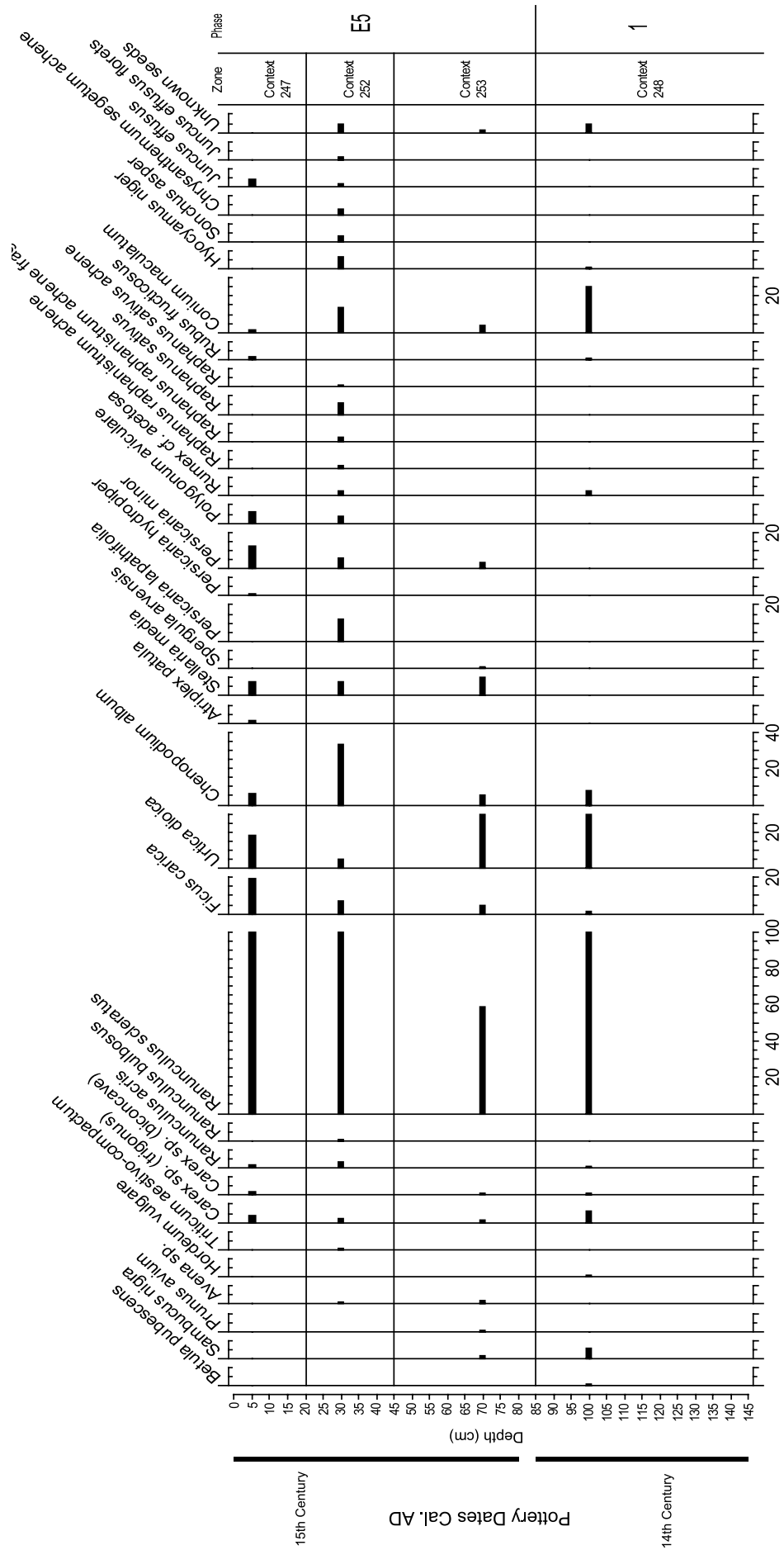
The sequences of both diagrams display similar trends of increased wetness at this area of the site from the later 14th century to the middle of the 15th century, shown by rises in the number of *Ranunculus sceleratus* seeds, and increases in *Juncus effusus* (soft rush) seeds (D) in Phases E4 & E5 (see Illus 45 & 46). A steady increase can also be seen in the quantity of *Ficus carica* (fig) seeds (B) over this period, suggesting a rise in availability and popularity of figs in Edinburgh. The number of waste ground species (A) is also higher towards the later end of the sequence.

#### A.5.3.3 Nuts and fruit stones

The results of the nut and fruit stone identifications (from all retent and flotation samples) are shown in Table 16. All of the taxa identified can be placed into group B, as all represent economic food plants. The remains of *Corylus avellana* nutshell, which appears to have been the commonest nut eaten during the later 14th to early 16th centuries, dominate the identifications. One *Corylus* nut has been identified from gnaw marks as being eaten by a bank vole (*Clethrionomys glareolus*, Bang &



Illus 46 Plant macrofossil occurrence, HP01 west face





**Table 15** Plant macrofossils: from 500ml samples (\* = charred; A = waste places; B = economic; C = agricultural; D = damp and wet places (ponds, ditches etc); Samples 15, 35 and 76 were waterlogged and the remains retrieved by flotation; phases ordered chronologically, see A.2.13)

Habitat	Taxon	Phase 1		W3		E3		E5		W4		W5		E6											
		Sample	Context	110	63	67	70	105	109	107	29	76	106	57	104	17	40	15	25	27	36	35	38	75	108
A	<i>Atriplex patula</i> fruit	3	2	7	5	2	3	1	1	1	1	1	2	2	7	1	1	1	1	1	1	3	3	52	8
	<i>Betula</i> sp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	<i>Hyoxyamus niger</i> seeds	-	1	1	-	-	3	-	1	-	1	-	-	-	1	3	-	-	-	-	-	-	-	-	1
	<i>Urtica dioica</i> seeds	9	78	18	-	2	3	8	2	-	7	5	2	62	1	5	2	-	-	-	-	-	-	38	50
A+B	<i>Rubus fruticosus</i> * fruit	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	<i>Rubus idaeus</i> fruit	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	<i>Rubus indet</i> fruit	-	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
A+C	<i>Anthemis cotula</i> fruit	1	-	-	-	-	-	1	-	-	-	-	1	-	-	2	-	-	-	-	-	-	-	-	-
	<i>Carex</i> sp (biconvex) nutlets	7	3	-	-	1	-	1	-	6	1	-	2	3	-	3	-	-	-	-	2	4	-	3	-
	<i>Carex</i> sp (trigonous) nutlets	6	6	2	1	1	2	2	-	6	-	1	2	7	-	8	2	2	4	6	11	4	(1*)	1	-
	<i>Carex</i> sp broken nutlets	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7	-	-
	<i>Centaurea cyanus</i> fruit	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-
	<i>Chenopodium album</i> fruit	9	78	17	3	22	15	6	8	-	4	2	16	17	1	-	9	29	15	-	31	13	5	-	
	<i>Chrysanthemum segetum</i> achene	3	1	-	-	1	1	-	-	-	-	1	6	-	9	-	-	-	7	1	5	-	1	-	-
	<i>Chrysanthemum segetum</i> achene fragments	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	2	-	-	2	-
	<i>Chrysanthemum segetum</i> seeds	-	12	-	-	-	-	1	-	1	-	-	-	-	1	-	-	1	-	-	1	-	3	-	-
	<i>Persicaria bistorta</i> fruit	-	-	1	1	-	-	2	-	1	-	-	1	-	7	1	-	2	-	-	1	-	1	-	-
	<i>Persicaria lapathifolia</i> fruit	12	4	2	3	9	7	5	-	3	-	1	5	9	1	44	2	11	13	9	35	-	5	-	
	<i>Polygonum aviculare</i> fruit	5	1	5	1	1	4	2	-	2	1	-	2	4	-	4	4	1	3	1	7	5	1	-	
	<i>Ranunculus acris</i> fruit	2	5	3	-	1	-	3	1	-	1	4	2	1	1	1	1	1	3	-	1	2	3	-	
	<i>Ranunculus bulbosus</i> fruit	1	-	-	-	-	-	1	-	1	-	2	-	1	-	1	-	2	-	-	4	-	-	-	
	<i>Raphanus raphanistrum</i> seeds	1	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	2	-	-	-	
	<i>Raphanus raphanistrum</i> siliqua	-	-	-	-	-	-	-	-	-	-	-	-	-	26	-	-	-	-	1	1	-	-	-	
	<i>Rumex</i> cf <i>acetosa</i> fruit	-	-	-	-	-	1	-	-	1	-	2	-	-	1	-	-	1	-	1	-	1	-	-	
	<i>Rumex</i> cf <i>acetosella</i> fruit	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	
	<i>Sonchus arvensis</i> fruit	-	-	1	-	4	-	-	3	-	-	1	-	2	1	-	1	-	1	-	-	-	-	-	
	<i>Sonchus asper</i> fruit	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	<i>Stellaria media</i> seeds	-	53	18	2	13	7	3	7	2	2	-	13	18	-	5	1	5	12	3	34	20	6	-	
A+C+D	<i>Ranunculus</i> sp fruit	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
A+D	<i>Conium maculatum</i> fruit	3	-	6	1	>100	7	1	1	1	1	1	2	>100	4	-	-	1	-	1	-	-	1	2	

Table 15 cont.

Habitat	Taxon	Phase		E3			E5			W4			W5			E6								
		1	1	W3	67	70	105	109	107	29	76	106	57	104	17	40	15	25	27	36	35	38	75	108
B	<i>Corylus avellana</i> nutshell	110	63	63	67	70	105	109	107	29	76	106	57	104	17	40	15	25	27	36	35	38	75	108
	<i>Ficus carica</i> seeds	321	164	164	193	196	273	300	307	121	223	306	158	295	100	150	093	098	120	135	141	141	182	304
	<i>Fragaria vesca</i> fruit	57	23	14	4	5	6	2	2	2	16	12	4	2	2	10	37	10	4	>100	>100	>100	6	1
	<i>Malus domestica</i> pips	-	-	-	-	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	<i>Malus sylvestris</i> pips	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	6*	-	6*	-
	<i>Prunus avium</i> fruit stones	1	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	1	-	-	3	-
	<i>Prunus domestica</i> fruit stones	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	6
	<i>Prunus spinosa</i> fruit stones	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-
	<i>Sambucus nigra</i> seeds	-	1	-	-	-	-	-	-	-	-	5	1	-	-	-	-	-	-	1	-	-	-	1
	<i>Vitis vinifera</i> pips	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2	5	1
B+C	Cereal indet* grain	-	-	1	-	1	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
	<i>Hordeum vulgare</i> * grain	1	-	-	-	-	1	-	-	1	-	-	-	-	1	-	-	-	1	-	-	-	-	-
	<i>Secale cereale</i> * grain	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	<i>Triticum aestivum-compactum</i> * grain	-	-	-	-	-	2	-	-	-	-	-	1	1	-	-	-	-	1	-	3	-	-	-
	<i>Aegrotis</i> sp* seeds	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-
	<i>Spergula arvensis</i> fruit	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	<i>Juncus effusus</i> florets	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	2
	<i>Juncus effusus</i> seeds	1	-	-	-	-	-	-	-	-	-	-	5	-	-	-	-	1	-	-	-	5	2	14
	<i>Menyanthes trifoliata</i> seeds	-	-	1	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-	1	1	-	-	-
	<i>Persicaria hydropiper</i> fruit	13	2	-	2	-	3	-	-	-	-	-	-	-	1	-	-	1	2	3	3	-	3	2
<i>Persicaria minor</i> fruit	12	3	7	-	51	25	-	2	-	2	-	2	-	35	1	-	-	1	2	-	-	3	-	
<i>Potentilla palustris</i> fruit	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	
<i>Ranunculus flammula</i> fruit	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	1	-	
<i>Ranunculus sceleratus</i> fruit	>100	36	>100	>100	>100	>100	>100	50	22	22	8	6	>100	17	1	3	-	>100	-	-	-	5	-	
Unknown seeds	19	9	7	-	-	-	4	-	-	7	2	-	1	6	-	3	-	-	2	-	22	6	1	5

Dahlstrom 2001), suggesting that whole nuts were discarded as well as fragments. Among the more exotic species of nut present are *Juglans regia* (English walnut) and *Castanea sativa* (sweet chestnut), which are rarely recovered from Scottish medieval deposits. These were present from Phases E5 & E6. Fruit stones of *Prunus domestica* (domestic plum), *Prunus avium* (wild cherry) and *Prunus spinosa* (wild plum) were also recovered.

#### A.5.4 Discussion

A.5.4.1 Phases 1 to W4/E5 – mid 14th to late 15th century

During the 14th to 15th centuries the site was open waste ground, as shown by the dominance of group A species (see Table 15 and Illus 45 & 46). Large quantities of damp and aquatic species (group D) are also present. The sequence taken from HP01 suggests that there was a rise in the number of

**Table 16** Nut and fruit stone identifications (phases ordered chronologically, see A.2.13; \* has gnaw marks from bank vole)

Phase	Context	Taxon	Common name
1	321	<i>Corylus avellana</i>	Hazel
W3	287	<i>Corylus avellana</i>	Hazel
E3	157	<i>Corylus avellana</i>	Hazel
	192	<i>Corylus avellana</i>	Hazel
	193	<i>Corylus avellana</i>	Hazel
	197	<i>Corylus avellana</i>	Hazel
	273	<i>Corylus avellana</i>	Hazel
	300	<i>Corylus avellana</i>	Hazel
	307	<i>Corylus avellana</i>	Hazel
E4	241	<i>Corylus avellana</i>	Hazel
E5	107	<i>Corylus avellana</i>	Hazel
	108	<i>Corylus avellana</i>	Hazel
		<i>Prunus domestica</i>	Wild plum
	111	<i>Corylus avellana</i>	Hazel
	117	<i>Corylus avellana</i>	Hazel
	121	<i>Corylus avellana</i>	Hazel
	122	<i>Juglans regia</i>	English walnut
	126	<i>Corylus avellana</i>	Hazel
	154	<i>Corylus avellana</i>	Hazel
	238	<i>Corylus avellana</i> *	Hazel
		<i>Prunus spinosa</i>	Blackthorn
	239	<i>Corylus avellana</i>	Hazel
	242	<i>Corylus avellana</i>	Hazel
247	<i>Corylus avellana</i>	Hazel	
252	<i>Corylus avellana</i>	Hazel	
306	<i>Corylus avellana</i>	Hazel	

Table 16 *cont.*

W5	070	<i>Corylus avellana</i>	Hazel
	100	<i>Corylus avellana</i>	Hazel
	146	<i>Corylus avellana</i>	Hazel
	153	<i>Corylus avellana</i>	Hazel
	293	<i>Corylus avellana</i>	Hazel
E6	098	<i>Corylus avellana</i>	Hazel
	120	<i>Corylus avellana</i>	Hazel
	135	<i>Castanea sativa</i>	Sweet chestnut
		<i>Corylus avellana</i>	Hazel
		<i>Prunus domestica</i>	Wild plum
		<i>Prunus avium</i>	Wild cherry
	141	<i>Corylus avellana</i>	Hazel
		<i>Prunus domestica</i>	Wild plum
		<i>Prunus avium</i>	Wild cherry
	151	<i>Corylus avellana</i>	Hazel
		<i>Juglans regia</i>	English walnut
		<i>Prunus domestica</i>	Wild plum
	186	<i>Corylus avellana</i>	Hazel
	304	<i>Corylus avellana</i>	Hazel
	9	284	<i>Corylus avellana</i>
<i>Prunus domestica</i>			Wild plum
<i>Prunus avium</i>			Wild cherry

the latter, particularly *Ranunculus sceleratus* seeds, from Phase E3 onwards, though the evidence from other areas is more variable. This may indicate the development of aquatic communities, possibly due to periodic flooding of the site.

One such community may have been similar to the modern-day OV32 *Myosotis scorpioides* – *Ranunculus sceleratus* (water forget-me-not – celery-leaved buttercup) community, of the NVC (Rodwell 2000). Together with *R. sceleratus*, other taxa present from this community within the plant macrofossil assemblage include *Juncus effusus*, *Persicaria hydropiper* (water pepper) and *Carex* (sedges). Although not recorded in this study, *Myosotis* sp was recorded in the assessment of a sample (Gillis & Hastie 2004) from a 15th-century deposit (Context [223], Phase E5), suggesting that this species was growing at the site.

This community today inhabits extremely nitrogen-rich, periodically wetted and disturbed

ground, such as the manured surrounds of streams where cattle water (Rodwell 2000). This habitat description accords well with the depiction of the Cowgate, where cattle manure and human faecal waste collected as midden deposits, which would have been very nitrogen-rich. Rodwell (2000) notes that *Ranunculus sceleratus* is one of the few plants which will readily grow on the sludge beds of sewage farms. Thus the high amounts of *R. sceleratus* seeds provide not only an ecological picture of the site but also an impression of the conditions on the Cowgate during this period. The periodic flooding of the site could have been caused by the accumulation of rainwater at the bottom of the slope, as there was no man-made drainage to divert surface water, and also from springs present at the site.

Economic species (group B) present are fairly limited in this period, with the most common species present being *Corylus avellana* (hazel) nuts,

which have a long history of human consumption in the British Isles stretching back to prehistory (Rackham 2003). Other fruit species present are *Sambucus nigra* (elder) and *Rubus fruticosus* (bramble), which are both likely to derive from local sources and used as seasonal dietary supplements. There is some evidence of the importing of foods into Edinburgh, with the findings of *Ficus carica* (fig) rising over the course of this period (see Illus 45 & 46). These are likely to have been imported from Europe, possibly as dried products (Fraser & Dickson 1982).

There is some limited evidence of charred cereal remains of *Hordeum vulgare*, *Avena* sp (oats) and *Triticum* sp (wheat) from this period (see Illus 45 & 46 and Table 15), which are likely to originate from domestic waste and possibly commercial activities (eg baking) taking place upslope on the High Street.

#### A.5.4.2 Phases W5/E6 – late 15th to early 16th century

The assemblages dating to this period (see Tables 15 & 16) indicate that the site remained as open waste ground throughout, with high quantities of group A species, such as *Urtica dioica* (stinging nettle), *Persicaria lapithifolia* (pale persicaria), *Conium maculatum* (hemlock) and *Atriplex patula* (spear saltbush). There are also high numbers of species which are often related to cultivated ground but will also grow on waste ground (group A + C), such as *Chenopodium album* (fat hen), *Stellaria media* (common chickweed), *Polygonum aviculare* (knotgrass) and *Ranunculus acris* (meadow buttercup) (Stace 1997). Many of these species could have colonised the site from seeds being transported from arable/cultivated land outside Edinburgh to the Cowgate via the movement of cattle and farm vehicles along this route, to areas such as the Grassmarket. The presence of all these species also indicates that the area was not well tended, as might be expected from gardens, and adds further to the waste ground hypothesis for this area.

The high numbers of *Urtica dioica* (stinging nettle) seeds together with the presence of *Hyocyanus niger* (henbane) seeds suggest that manure and human faecal material were still accumulating along the Cowgate, with both of these species having preferences for manured areas (Stace 1997).

This period appears to be drier than the earlier period, with a decline in the number of *Ranunculus sceleratus* remains, indicating a reduction in periodic flooding along the Cowgate. This may indicate the building of drainage systems in Edinburgh, taking away the water, which would have accumulated at the Cowgate, at the bottom of the slope from surface run-off. The presence of *Juncus effusus* seeds and *Persicaria hydropiper* suggests the continued presence of a community similar to the OV32 *Myosotis–Ranunculus* vegetational community (Rodwell 2000) and indicates that at least part of the site was still affected by pooling water, possibly from the spring at the site.

During this period there is a large increase in the variety of economic species (group B). A host of other fruit species are present within these contexts, which also include *Malus sylvestica* (crab apple), *Prunus domestica* (plum), *Prunus avium* (wild cherry) and *Fragaria vesca* (wild strawberry). The increase in the occurrence of *Vitis vinifera* (grape) seeds and pips is particularly notable in Phase E6 (see Table 15). Like figs, grapes are likely to have been imported from Europe, possibly as dried products (Fraser & Dickson 1982).

Accompanying the rise in fruit diversity is an increase in that of nuts, with the appearance of *Castanea sativa* (sweet chestnut) and *Juglans regia* (English walnut) (see Table 16), which are rarely found within Scottish medieval contexts. Both of these species are introductions to the British Isles from southern and eastern Europe, respectively. *C sativa* has been present in the British Isles since it was introduced in the Roman period, which is attested to by finds of wood and charcoal (Rackham 2003). It is commonly found in *Quercus* (oak) woods as an understorey component, largely confined to south-east England (Rodwell 1991; Rackham 2003). *J regia* may also have been introduced during the Roman period, as another favoured nut of their diet. However, the tree is short-lived and needs a high level of maintenance to survive in the British Isles. Following the end of the Roman period it is unlikely to have survived without attention and care (Rackham 2003). It is believed that this tree was re-introduced into the British Isles during the 15th century, which is supported by the findings at the Cowgate. Both



of these trees are likely to have been growing in the British Isles during the 15th century and may have been present in Scotland within parks or gardens where they could receive nurturing; this would be especially important for *J regia*. Therefore the nuts recovered could have come from local populations or have been imported into the city from Europe or southern England.

Charred cereal grains are sporadically represented in the samples, including *Avena* sp (oats), *Secale cereale* (rye) and *Triticum aestivo-compactum* (wheat). These are again likely to originate from domestic and commercial activities in the vicinity, such as brewing and baking.

### A.5.5 Conclusions

From the 14th to the 16th century the study site in the Cowgate appears to have been an area of

waste ground, where domestic, human and animal waste accumulated, forming middens.

The area probably became drier over the course of the 15th century, suggesting the introduction of a drainage system, though it still seems to have been subject to periodic flooding. Water was accumulating from springs and from surface run-off upslope, which would also have aided in the accumulation of waste to the site.

The number of cultivated ground plant species growing within the wasteland plant communities reflects the use of the Cowgate as a route for cattle and farmers into Edinburgh for trade.

The economic waste that accumulated at the site shows an increase in fruit and nut diversity in the 15th century, suggesting an increase in imported foods into Edinburgh and greater choice for its inhabitants.

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