



ARO16: Digging Linlithgow's past: early urban archaeology on the High Street, 1966-1977

by the late Doreen Hunter, Catherine Brooks, David Caldwell, Geoffrey Stell and Mike Middleton, compiled by Catherine Smith

with contributions by David P Bowler, Adrian Cox, Derek W Hall, Nicholas Holmes, David Perry and Catherine Smith and illustrations by Mike Middleton, David Munro and the late Frank W Moran



HISTORIC SCOTLAND
ALBA AOSMHOR

ARO16: Digging Linlithgow's past: early urban archaeology on the High Street, 1966-1977

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Editor's note:

The manuscript for this publication was brought together by Catherine Smith after the stratigraphy had been organized and phased by Mike Middleton. Between the excavations and the compilation, some detailed records and finds, including the buckle, have either been misplaced or lost. Although there has been some recent updating of the manuscript and figures, it has not been possible to add further detail or improve the quality of the figures or plates. This is the publication of the surviving archive of an important series of excavations, which still have validity today in the understanding of the burgh of Linlithgow.

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Plate 1: General view of 332-336 High Street with excavations in progress 1973.



Plate 2: General view of 332-336 High Street, looking east and progress in the excavations between the two images.

Abstract

Excavations in Linlithgow High Street between 1966 and 1977 found evidence of an intensive fifteenth and sixteenth century tanning industry, and a large volume of worked antler waste. Documentary sources confirm a concentration of tanning and related trades from the sixteenth to the nineteenth century. Foundations of seventeenth to nineteenth century stone buildings were also discovered. The post-excavation analysis and publication of these excavations was funded by Historic Scotland.

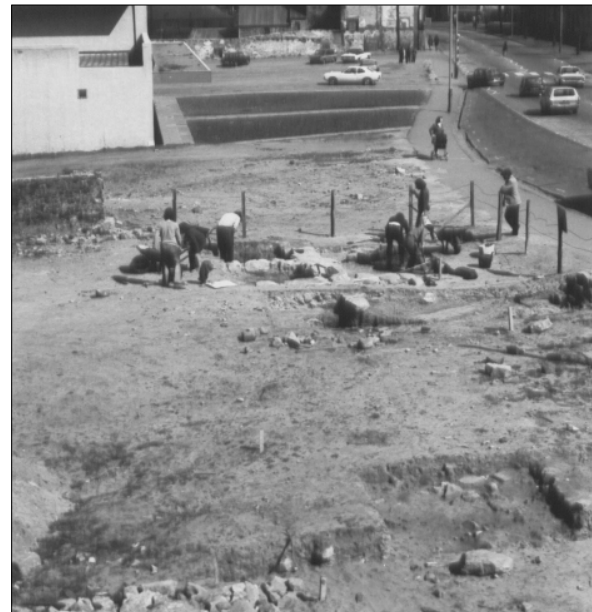
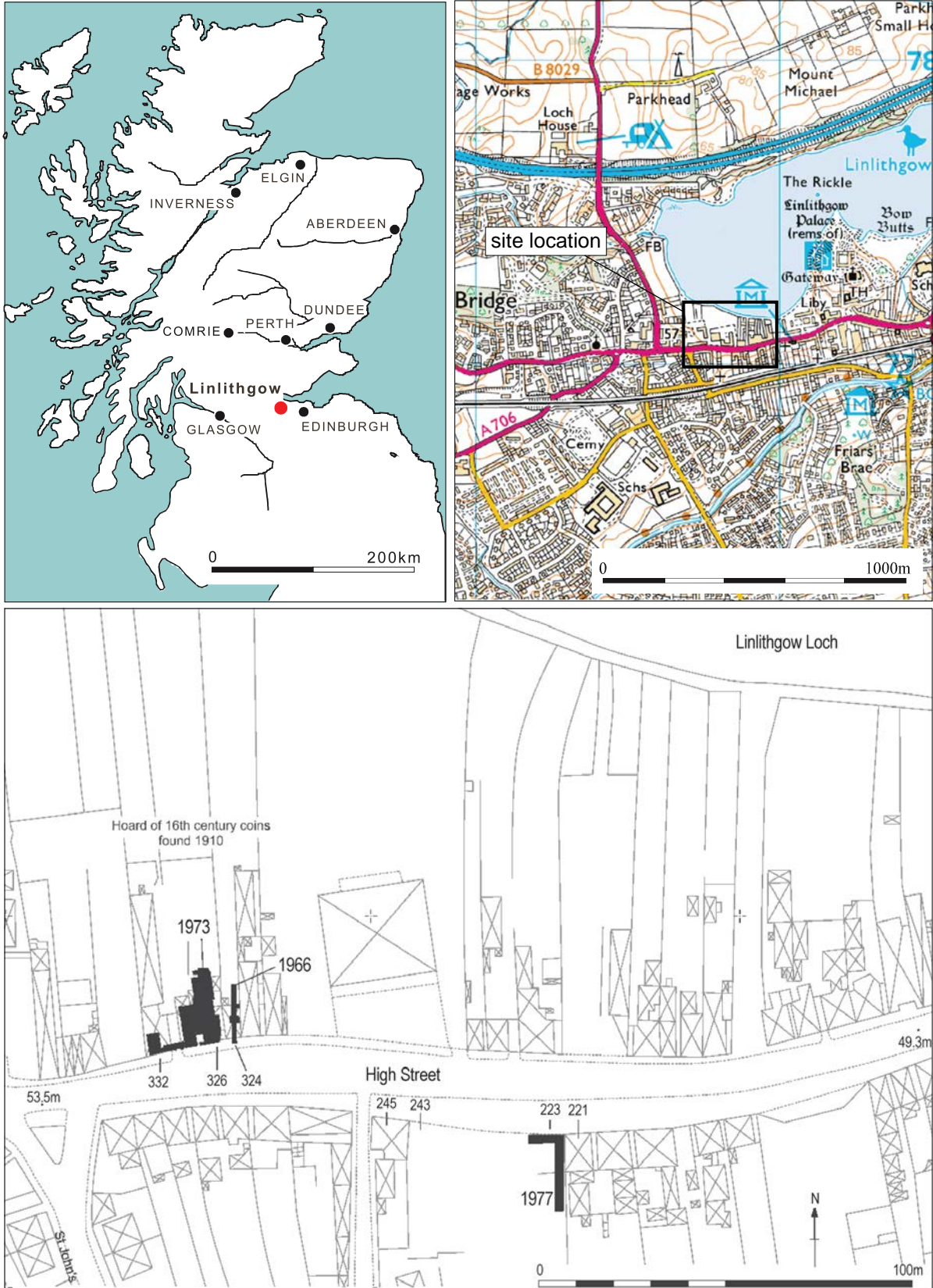


Plate 3: General view of 332-336 High Street and further progress in the excavations.

Introduction (Figure 1)

The historic burgh of Linlithgow underwent an extensive programme of town centre redevelopment in the 1960s and 1970s (Eydmann 1999), affecting large and relatively undisturbed sites in highly significant locations. There was very little provision for urban archaeology in Scotland at that time, but the obvious importance of the sites prompted a series of responses from those working in the field, in some cases improvised with little or no resources. The three excavations in this publication recovered an important record of a large part of Linlithgow's archaeology, which needed to be gathered together in an accessible form. There have been subsequent excavations in Linlithgow, in and around the Palace and Parish Kirk (see Dennison and Coleman 2000, 60-8), at the Carmelite Friary south of the burgh (Lindsay 1989, Spearman 1989) and on a small scale within the burgh, for example at West Port House



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Figure 1: Location with site locations on Ordnance Survey Map 1:2500 (1977).



(Cachart 1989), St Michael's Wynd (Cachart 1991) and 70-72 High Street (Dennison and Coleman 2000, 80), but the excavations reported here were the first to examine significant areas in the heart of the medieval burgh.

Historic Scotland commissioned the then the Scottish Urban Archaeological Trust (later SUAT Ltd) to carry out specialist studies of the assemblages recovered and to produce a report on the three sites suitable for publication. The original excavators' reports and notes have been edited and updated by Mike Middleton, and are presented along with newer illustrations, an historical background and specialist reports.

Locating the sites geographically after thirty or more years was a difficult task, as the north-west quarter of Linlithgow has been transformed in the intervening years, and the old landmarks, buildings, closes and street numbers have mostly vanished in the re-developed area. The three excavations employed different recording systems, with various combinations of letters and numbers, which have been retained in this publication, except for features not designated before, where letters have been applied. Imperial measurements, used in the 1966 excavation by the late Doreen Hunter, have been converted to metric. In this publication the historical, stratigraphic and artefactual evidence is organised by individual site, with more general discussions where appropriate. It was not possible to merge the three sites for an historical or stratigraphic narrative due to the different site recording systems and general lack of stratigraphic links.

Historical Background

By David R Perry

The burgh of Linlithgow is first recorded in the reign of David I (1124-53), when the king granted the '*church of Linlidcu with chapels and lands inside the burgh and outside, and all rights pertaining to the foresaid church*' to St Andrews Cathedral in 1140 or 1141 (Barrow 1999, 93, 94). David's grant of a dwelling in Linlithgow to Dunfermline Abbey around 1150 makes no reference to the burgh (ibid, 172), nor does his grant of a toft in Linlithgow to Cambuskenneth Abbey about the same date (ibid, 214). However, that Linlithgow was a royal burgh at this time is confirmed by Malcolm IV's grant of a toft in the burgh of Linlithgow to Scone Abbey between

1162 and 1164 (*RRS*, i, 253). Malcolm's charter is directed to '*his sheriff and his burgesses of Linlithgow and to all his good men of Linlidcuskir*'. The reference by the king to 'his burgesses of Linlithgow' proves that Linlithgow was a royal burgh at this date.

'Linlithgowshire' is possibly a reference to the estate, administered by a thane or sheriff, attached to a royal manor, probably situated on the site now occupied by the palace, rather than to the later sheriffdom of Linlithgow or West Lothian. It offers an explanation of Linlithgow's origins as an early royal burgh: the settlement had developed at the estate centre (hall or manor) of the royal estate or shire, in the same way that similar settlements with burghal status had developed under David I at the royal estate centres of Haddington, Edinburgh, Stirling and Dunfermline (*RRS*, i, ibid, 37, 41). It was from this demesne or estate of Linlithgow that David I granted the skins of dead rams, ewes and lambs to Holyrood Abbey (Barrow 1999, 147). Linlithgow does not seem to have been an important royal residence from the number of royal charters issued there: none (out of 117) by David I (ibid, 22), two (out of 121) by Malcolm IV (1153-65) (*RRS*, i, 80), and eight (out of 437) by William the Lion (1165-1214) (*RRS*, ii, 28).

No trace now survives of this early royal manor, or of the peel constructed in 1302-3 to enclose the manor, or castle, and parish church by Edward I of England, who used the site as a military base. In 1314 the castle was retaken by the Scots and probably slighted, as Robert I (1306-29) is not known to have resided there, nor issued any charters there (*RRS*, v). In 1337 David II (1329-71) ordered the peel to be repaired for his coming, after which Linlithgow became a royal residence again. In 1424 the burgh, parish church and royal residence were destroyed in a disastrous fire, as a result of which James I (1406-37) began to build the palace, which with later additions, survives today (Pringle 1995, 5-6).

The burgh of Linlithgow developed in a hollow area between Linlithgow Loch and a gravel mound occupied by the palace and parish church to the north, and steeply rising ground to the south. The place-name means '*the lake in the moist hollow*', referring to the loch, and is of P-Celtic, British origin (Nicolaisen 1976, 172). This early origin (pre-Scottish and pre-Anglian)



may imply that Linlithgow was an estate centre before the seventh century, when the Angles of Northumbria conquered Lothian, establishing a bishopric at nearby Abercorn in 681. The Angles retained control of West Lothian until the Scots captured Edinburgh in the middle of the tenth century.

Whatever may have been its origins, the burgh seems to have begun close to the palace and parish church, at the junction of the market square with Kirkgate and High Street (Figure 1). Expansion westwards and eastwards to the sites of the West Port at one end and the East and Low Ports at the other had taken place by the mid sixteenth century and these formed the limits of the burgh until expansion resumed in the nineteenth century. The burgh was basically a long single street, High Street, forming part of the route westwards from Edinburgh to Stirling and Glasgow, with a shorter arm, Kirkgate, leading northwards to the royal palace and the parish church. From the High Street frontage, burgess properties (rigs or tenements) extended back on both sides, with a back lane (Back Road on Wood's plan of 1820 developing beyond the properties on the southern side of the street. The construction of the railway in the mid-nineteenth century led to the disappearance of this road. On the northern side of the street, the properties extended to the loch (Figure 2) at the western end and the palace grounds at the eastern end. The market square broke up the regularity of this pattern, with shorter properties facing onto the square. Only the western side of Kirkgate, at its southern end, was built up as the need for the security of the palace prevented any building development closer to it.

The purpose of a burgh was to act as a trading centre through which internal and external trade could be controlled, thus maximising the king's revenues. From a burgh, these revenues comprised rents from burgage properties, market tolls, customs on exported goods, and fines imposed in the burgh court. To achieve this, the king granted the inhabitants of the burgh a monopoly over internal and external trade within a defined area, for Linlithgow probably its sheriffdom or constabulary. Although Linlithgow was an inland burgh like Edinburgh and Haddington, it also conducted external trade through the port of Blackness, four miles to the east on the Firth of Forth. However, it is unlikely

that Linlithgow was ever a major trading centre. Before the Wars of Independence and its capture by the English, Berwick was the most important burgh in southern Scotland; thereafter Edinburgh replaced it and became by the sixteenth century the economic focus for the whole kingdom (McNeill and MacQueen 1996, 250).

Linlithgow benefited from Berwick's loss in the later fourteenth and early fifteenth centuries, raising some £600-700 Scots¹ from exports. Over three quarters of its exports were wool, with the rest comprising hides and woolfells in the earlier period, and with the addition of cloth in the later period. Linlithgow's importance at this time is evident from its inclusion in 1369 as a member of the Court of the Four Burghs, which met to define the law and custom of Scottish burghs and was the predecessor of the Convention of Royal Burghs (Nicholson 1974, 154, 264-5). In 1389 the burgh secured *feu-ferme* status from Robert II, whereby the crown's revenues from the burgh were granted to the burgh in return for a fixed annual ferme of £5 sterling (Hendrie 1989, 19).

The period of economic prosperity for the burgh had ended by the late fifteenth century when its export trade had collapsed to produce only about £50 in customs receipts. Almost one third of these exports consisted of wool, with over half of the rest composed almost equally of hides and woolfells; the remainder comprised cloth and some skins. By the mid sixteenth century just under half of Linlithgow's customs receipts were accounted for by woolfells, with the remainder divided almost equally between cloth and hides. At the end of the sixteenth century the burgh's exports largely consisted of salt and raised only £1 in customs; wool, hides, skins and cloth were negligible (McNeill and MacQueen 1996, 246, 250-5, 259). Linlithgow's economic decline in the fifteenth and sixteenth centuries reflected the position of the Scottish economy as a whole. Only Edinburgh managed to maintain and increase its economic position, coming to dominate Scotland's export markets by the sixteenth century (ibid, 243). The decline of the burgh of Linlithgow as an economic centre was offset by the continuing presence of the royal court, until the Union of the Crowns in 1603.

1 The pound Scots and the pound Sterling were of equal value till the late fourteenth century when the pound Scots began to depreciate more than Sterling. By 1603 the pound Scots was worth one-twelfth of Sterling. The merk was two thirds of a pound.

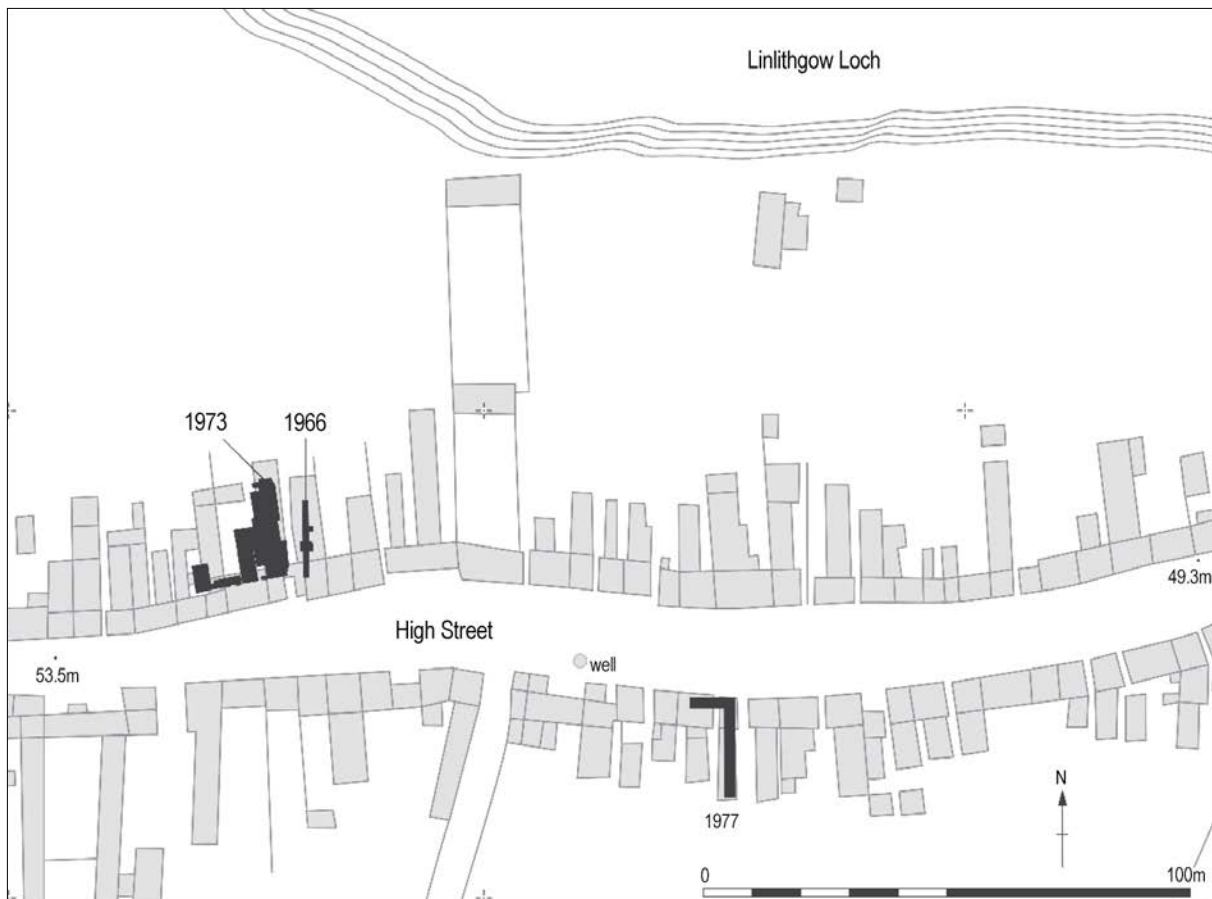


Figure 2: Site locations on John Wood's 1820 Plan of the Town of Linlithgow.

The wealth of the burgh was derived from the processing of the raw materials from its hinterland into manufactured goods for sale in the burgh market to townsmen and outsiders. The industrial processes were controlled by eight (formerly nine) incorporated trades (smiths or hammermen, wrights, weavers, bakers, tailors, cordiners or shoemakers, fleshers, and coopers), although there were also unincorporated trades (carriers or carters, dyers, horse dealers, meal makers, gardeners and masons). The waulkers' or fullers' incorporation died out in 1639 (Simpson and Stevenson 1981, 3). Before the Reformation, each of the incorporated trades maintained its own altar in the parish church: that of the cordiners was the altar of Saints Crispin, Crispianus and Stephen (NAS, B48/17/20). Of the incorporated trades the cordiners were the largest in 1650 with 36 members, with the other crafts, in order of size, being weavers 33, tailors 30, bakers 28, hammermen 20, wrights 12 and coopers 10; no figure was given for fleshers. In addition to the trades, there were the Dean of Guild and the merchants, but again no numbers of members was given (NAS, B48/17/44).

Leatherworking became Linlithgow's principal industry and by the end of the eighteenth century there were 17 tanners in the burgh processing some 20,000 skins and hides a year, 13 tawers (who made hides and skins into leather by steeping in a solution of alum and salt) processing up to 60,000 skins and hides a year, 18 curriers (who dressed and coloured tanned leather) as well as 100 shoemakers producing 24,000 pairs of shoes a year (Dobie 1975, 759-60). The tanneries were situated on the north side of High Street, where the loch provided a ready water supply for the works. It was said that the practice of tanning in the burgh was improved as a result of instruction from the Cromwellian garrison, which occupied the palace in the mid-seventeenth century (ibid, 760). But any improvement may have been due to an initiative by the Scottish Privy Council, which introduced English tanners and barkers to Scotland to instruct Scottish tanners in better techniques in 1620 (RPC, xii, 159-71).

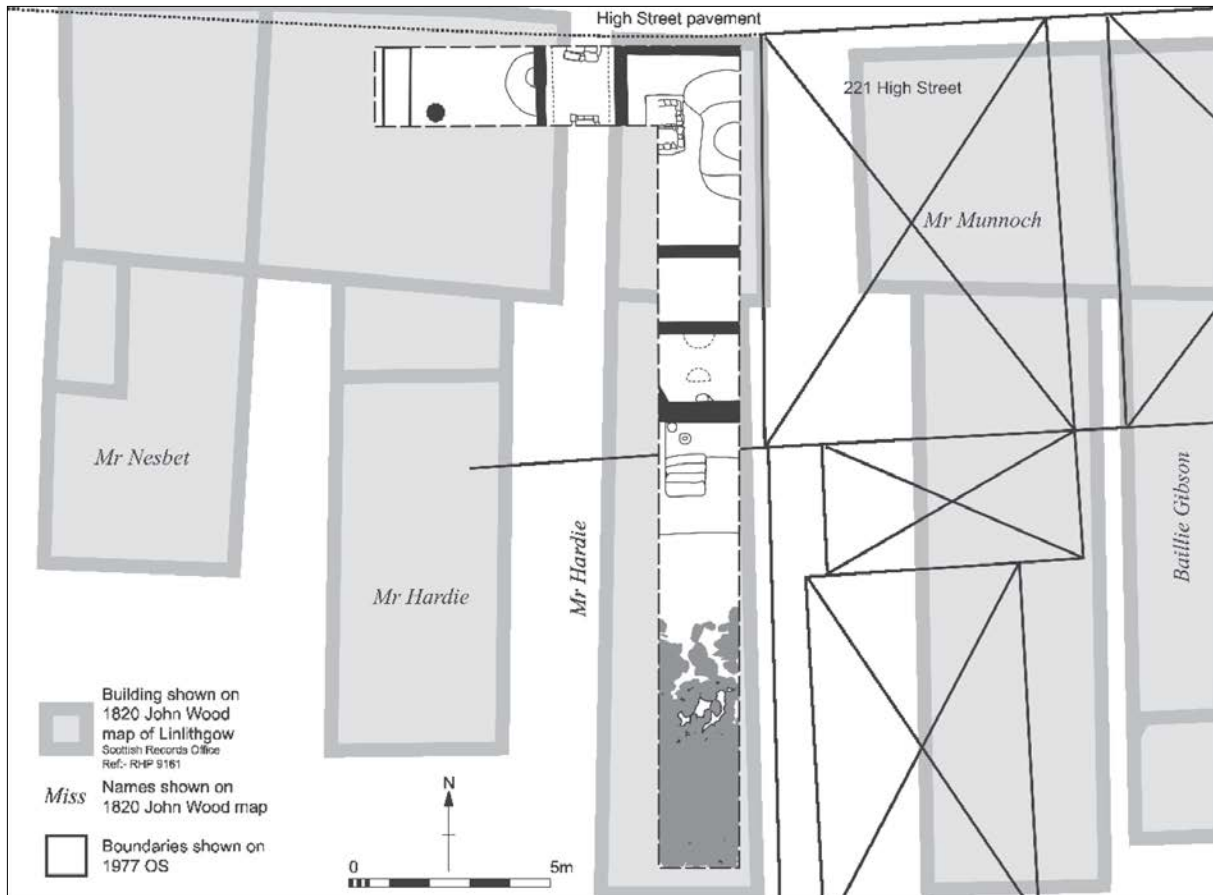


Figure 3: 223-243 High Street, 1977 superimposed on Wood 1820 and OS map 1977.

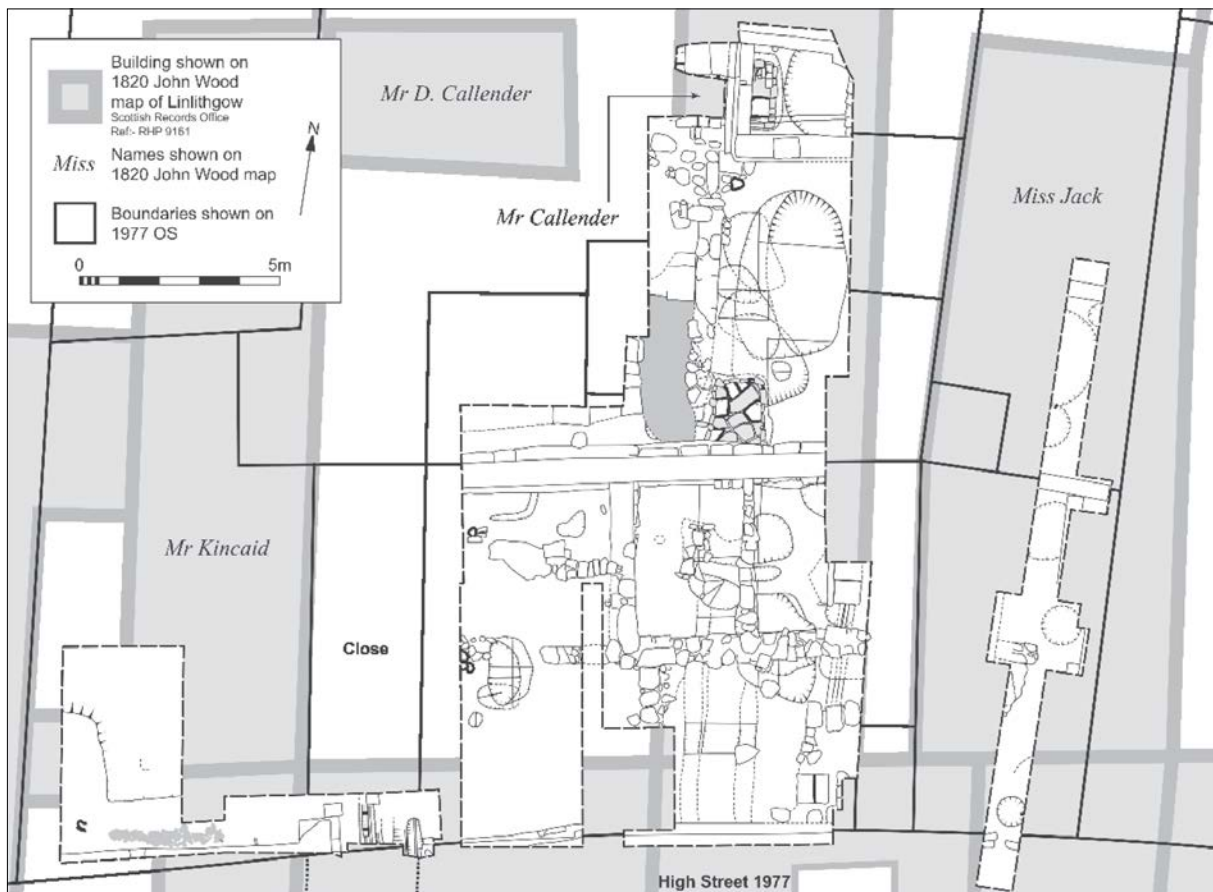


Figure 4: 324 and 332-336 High Street, 1966 and 1973, superimposed on Wood 1820 and OS map 1977.



223-227 High Street (Figure 3)

The site of this property was excavated by David Caldwell and Geoffrey Stell in 1977. In 1516-17 it belonged to John Turffis, from whom it was appraised by David Erkill, chaplain of St Anne's altar in the parish church of Linlithgow, for non-payment of an annual rent of 13s 4d (Beveridge and Russel 1920, 212). By 1550 it had been acquired by Allan Hamilton, whose son James inherited it in 1551. James was known as 'of Sandhill' on account of a sandhill adjoining his property (Beveridge and Russel 1927, [Foulis], 70, 105, 106; [Thounis], 38). He was dead by 1563 when his widow, Janet Hamilton, was contracted to marry Robert Bruce of Kinnaird: the contract was drawn up in the 'fore-chamber of the lodging' of Janet on this site (Beveridge and Russel 1920, 683). By 1736 the property had been acquired by Thomas Smith and by 1810 by George Hardie (NAS, B48/2/4, f 83; B48/2/7, f 359). Hardie was still proprietor in 1820 (Wood 1820).

324 High Street (Figure 4)

This site was excavated by the late Doreen Hunter in 1966. From before 1594 this property, along with 326-332 High Street, formed part of 'those five tenements of land, back and fore, under and above, with the yards and tailrigs thereof' on the north side of High Street between the tenement once of the late Thomas Abernethie to the east, and the tenement once of the late Robert Robertson, walker, to the west, the loch to the north and the street to the south (NAS, GD215/1648/2, 53, 54). Abernethie's tenement was at 312-314 High Street, and Robertson's at 334-336 High Street in 1538 (Beveridge and Russel 1927, [Foulis], 20; Beveridge and Russel 1920, 161, 162). The five tenements had belonged to the late George Young, Burgess of Linlithgow, and following his death, sasine of half of them was granted on 6 July 1594 to each of his two daughters, Agnes and Elizabeth, and the latter's future husband John Bell, maltman; their mother Janet Sym's liferent was reserved in two houses on the site, occupied by John Gardiner and John Grinton, half of the garden attached to the tenements and the eastern rig. John Bell and his wife presumably acquired her sister's half, as the five tenements were subsequently divided between his five heirs (NAS, GD215/1757, Instrument of sasine in favour of Barbara Bell, 6 June 1645; GD215/1651/2, 27). Subsequent

subdivisions and re-unions of the individual 'five tenements', make the property ownership confusing.

In 1734 this tenement, later 324 High Street, belonged to the heirs of the deceased Robert Peebles, shoemaker (NAS, B48/2/4, ff 11, 13, 15). He may have been the same as, or the son of, Robert Peibles, shoemaker, who, with his wife Margaret Andro acquired 'one fifth part of five tenements' from James Pender, merchant, and Janet Andro his wife on 3 April 1671 (NAS, GD215/1651/1, 211). Peibles was Deacon of the Shoemakers in 1682, when he and his wife acquired another tenement (at 332 High Street, see below). On 12 Oct 1758 Margaret Peibles, spouse to Thomas Litster, shoemaker, received sasine of this property as heir to her late father, Robert Peibles, shoemaker (NAS, B48/2/5, f 50) and the property continued with their heirs into the nineteenth century (NAS, B48/2/7, f 347). In 1820 it was owned by Miss Jack (Wood 1820).

324 High Street (Figure 4)



Plate 4: Cathy Brooks directing work on 332-336 High Street.

This property was part of the site excavated by Catherine Brooks in 1973. From before 1594 it was part of the 'five tenements' including 324 High Street, which was excavated by Doreen Hunter in 1966. On 6 June 1645 Barbara Bell was served as one of the five heirs to her late father John Bell, maltman, in one of the 'five tenements' on the north side of High Street (see above). Her son, James Balderston, had sasine as her heir on 1 September 1649 and immediately made over the property, therein described as 'the eastmost



tenement except the one of John Faupe', to David Hardie, shoemaker and Isabella Gibbison his wife (NAS, GD215/1651/2, nos 27, 28). The tenement must have been acquired later by John Nicoll, carrier, as on 15 May 1686 Mariota Nicoll, his daughter and heir, and John Beugo, her husband had sasine of the property, therein described as variously the 'southmost' or 'eastmost' of the 'five tenements', except that pertaining to John Haup; the liferent of Isabella Gibbison was reserved (NAS, B48/2/1, f 110 [bis]). On 9 April 1734 William Beugo, skinner burghess of Linlithgow, had sasine as heir to his late father John Beugo, skinner burghess of Linlithgow, and promptly made over the property to John Gibbison, skinner burghess of Linlithgow on a bond (loan) of 30 merks Scots, annual rent (interest) on a principal sum of £600 Scots, with a 'bond of eik' (additional loan) on 25 April 1734 for the principal sum of 50 merks Scots (NAS, B48/2/4, ff 11, 13, 15). Gibbison, with Beugo's consent, disposed this '*tenement of land back and fore, under and above, with the yard and tailrigs lying contiguous now turned into a yard*' to John Callender, tanner burghess of Linlithgow and Helen Thompson his wife on 17 November 1747, sasine being granted on 8 August 1777 (NAS, B48/2/5, f 415). Callender was succeeded by his son, John Callender, shoemaker burghess of Linlithgow on 27 Oct 1809. A Mr Callender was still proprietor in 1820 (Wood 1820).

330 High Street (Figure 4)

This property was part of the site excavated by Catherine Brooks in 1973. From before 1594 it was part of the 'five tenements' including 324 High Street, which was excavated by Doreen Hunter in 1966. Although by the nineteenth century this had become one property, in the late seventeenth century it comprised three tenements, with the two western ones being owned as a single property. By 1736 the owner of the third or eastern tenement had acquired an annual rent on a bond (interest on a loan) over the other two tenements, joint ownership of the tenement and annual rent being held until mention of the annual rent ceased.

After the division of 'the five tenements' (see above), the two western tenements (possibly a subdivision of one of the five tenements) belonged to Thomas Smith, on whose death they were divided between his three daughters. On 1 June 1689, John Beugo, skinner burghess

of Linlithgow (possibly the same as the owner of 326 High Street, see above), had sasine of '*two third parts of all and whole that tenement of land of all and whole those five tenements of land, fore and back, under and above, with the yards and tailrigs*' from John Bryce, maltman, and John Peebles, shoemaker (NAS, B48/2/2, f 3). This transaction may have represented a bond or mortgage. On 22 February 1701, William Hunter, eldest lawful son of Jeremiah Hunter, late bailie of Linlithgow, by Janet Smith his spouse, had sasine as heir to his mother in '*all and whole the just and equal third part of all and whole two tenements of land, fore and back, under and above, with yards and tailrigs*'. Soon after, on 10 March 1701, Margaret Smith, widow of John Gibbison, merchant burghess of Linlithgow, had sasine of '*two third parts of those two tenements, etc.*' on dispositions by Jean Smith, widow of Richard Falconer in Rotterdam, and by the above William Hunter (Margaret, Jean and Janet were daughters of Thomas Smith) (NAS, B48/2/2, ff 218, 224). On 11 December 1705 Margaret Smith disposed her two tenements to Alexander Henderson, merchant burghess of Linlithgow, while the adjoining property to the east belonging to William Inglis, cordiner (NAS, B48/2/2, f 332). In 1722 Henderson secured a bond of 600 merks Scots, dated 7 November, on his tenements to Edmund Anderson, gardener burghess of Linlithgow, and, the loan being discharged and renounced in his favour, he had sasine of them on 30 March 1725 (NAS, B48/2/3, f 260).

Henderson secured a further bond on his tenements, of an annual rent of £40 Scots on the principal sum of 800 merks Scots, to his neighbour Katherine Inglis. Katherine and her sister, Helen, had sasine of the eastern of the three tenements comprising 330 High Street, on [7?] October 1710. They were heirs of their deceased father William Inglis who was an elder, a shoemaker and a burghess of Linlithgow (NAS, B48/2/2, f 414). Helen succeeded her sister in both the eastern tenement and the annual rent of the other two tenements on 11 December 1736, by which date Henderson was dead (NAS, B48/2/4, f 99). On 16 July 1776 Hugh Bowie was served nearest lawful heir to his '*fourth cousin*' Helen Inglis (married to Alexander Flood, flesher in Linlithgow), as great-great-grandson of Margaret Inglis, sister of William Inglis, elder, shoemaker, and had sasine of the tenement and annual rent (NAS, GD215/1643,



p 2). Bowie, tide surveyor at Grangemouth, was succeeded by his son and namesake, also tide surveyor at Grangemouth, on 29 October 1806 (NAS, B48/2/7, f 279). Bowie must have become bankrupt, as on 14 May 1818 David Callender, shoemaker and leather merchant in Linlithgow, had sasine of the tenement and annual rent following an adjudication against Hugh Bowie, tide surveyor (NAS, B48/3/3). A Mr D. Callender was proprietor in 1820 (Wood 1820).

332 High Street (Figure 4)



Plate 5: John Schofield, assistant director, 332-336 High Street.

This property was part of the site excavated by Catherine Brooks in 1973, and was the westernmost of the 'five tenements' (see above), which also included 324 High Street excavated by Doreen Hunter in 1966. On 6 November 1629 it was acquired by Thomas Andro, shoemaker and Janet Bishop his wife from William Andrew and Janet Wauch his wife, when it was described as lying between James Keir's tenement to the west and the late John Bell's tenement to the east (NAS, GD215/1650, no 403). On 7 August 1682 Robert Peibles, Deacon of the Shoemakers of Linlithgow and Margaret Andrew his spouse had sasine of this tenement on a disposition by Thomas Andrew, eldest son of the late Thomas Andrew, shoemaker burghess of Linlithgow (NAS, B48/2/1, ff 1, 2). Peibles made over the property, described as between the tenements once of the late John Bell, now of Thomas Smith to the east, and once of the late James Keir, now the of the heirs of the late John Andrew to the west, on 11 December 1686 to his son, James

and the latter's future spouse, Marjory Peibles, daughter of William Peibles, carrier burghess of Linlithgow (NAS, B48/2/1, f 129). William Peibles, tanner, had sasine as heir to his late father, James Peibles, shoemaker burghess of Linlithgow on 8 July 1735 (NAS, B48/2/4, f 67). Later the tenement was owned by Peter Peebles, who had been succeeded before 29 October 1806 by David Kincaid (NAS, B48/2/7, f 279). Kincaid was still proprietor in 1820 (Wood 1820).

The Excavations

223-243 High Street (Figures 1, 2 and 3)

By David Caldwell and Geoffrey Stell

In early 1977, planning permission was given by West Lothian District Council for redevelopment at 223-243 High Street (NGR: NS 9984 7704). The site lying on the southern side of the High Street had been cleared in the early 1930s and offered the opportunity to archaeologically test for evidence of earlier land use. The site lay 50 m above sea level on a gentle slope rising up from Linlithgow Loch to the north, and its geology comprised natural bands of yellow sand and shale overlain by patches of gravel.

Trench A, 2 m by 20.15 m north/south, was sited perpendicular to the pavement as photographic evidence suggested it would cut across the site of a late eighteenth or early nineteenth century building and backyard at 223 High Street. Trench B, 2 m by 7 m east/west, formed a western arm to Trench A which was positioned along the pavement edge (Figure 3). It was aligned to cut across a vaulted pend or close between 223 and 225 High Street, a seventeenth century building to the west.

Excavations

223 High Street (Figure 5)

The frontage of 223 High Street was represented by the bottom courses of brick foundations (wall 8), running east/west along the pavement edge. To the rear of the building, wall 1 ran parallel to wall 8 and exhibited elements of a window recess. The western side the property was bounded by a north/south gable wall (wall 10), which doubled as the eastern wall of the close between 223 and 225 High Street. Running east/west and positioned centrally between walls 8 and 1, wall 6 revealed the bottom two courses of an unfrogged



brick wall, resting on a footing of stones. Between wall 6 and 1, another brick alignment (wall 7), one course high, was interpreted as a retaining kerb for pit K. Between walls 7 and 1, a D-shaped pit (pit 9), produced large quantities of material from the eighteenth century or earlier. Two large paving slabs (D), at the angle of trenches A and B, rested on an unfrogged brick support (E), which in turn was placed directly onto natural sand. At the north-east corner of Trench A, between walls 8 and 6, a deep flat-bottomed pit (pit 12), was dug into natural sand and backfilled fairly soon afterwards with the material originally excavated from it. Two further pits (14 and 15), were subsequently cut into the northern and southern sides of pit 12. Like pit 12, pits 14 and 15 seem to be backfilled with the material originally excavated from them. Pit 11, which cut pit 12, was again filled with sand but discoloured with brown earth. To the south of wall 1, a paved east/west passage (H) covering the width of the trench, led to a north/south flight of four steps (2), which in turn led up to a concreted surface (B). Surface B was higher than any point between walls 8 and 1, and it was separated from a cobbled layer (A) to the south, by exposed natural gravel, exposed across the trench width. The cobble surface was bedded into a thin layer of brown earth resting on natural gravel.

The Close (Figure 5)

Within the northern part of Trench B, and within the limits of the close, a small area of paving (F) was exposed. To the south a brick support (G) was excavated that was similar to feature E in Trench A. Both features F and G were placed directly over a ditch (16). Ditch 16 contained lead and earthenware pipes laid north/south.

225 High Street (Figure 5)

West of the close in Trench B, the site had been cleared so thoroughly that only a thin layer of demolition and later material remained on top of natural sand. A small portion of a ?brick wall (3), identified as the west wall of the close and probably the eastern gable wall of 225 High Street, was recorded. There were also suggestions of a further wall (4), at the west end of Trench B. A small posthole (13) was found in the south-western part of trench B, and a pit (5) lay on the west side of wall 3.

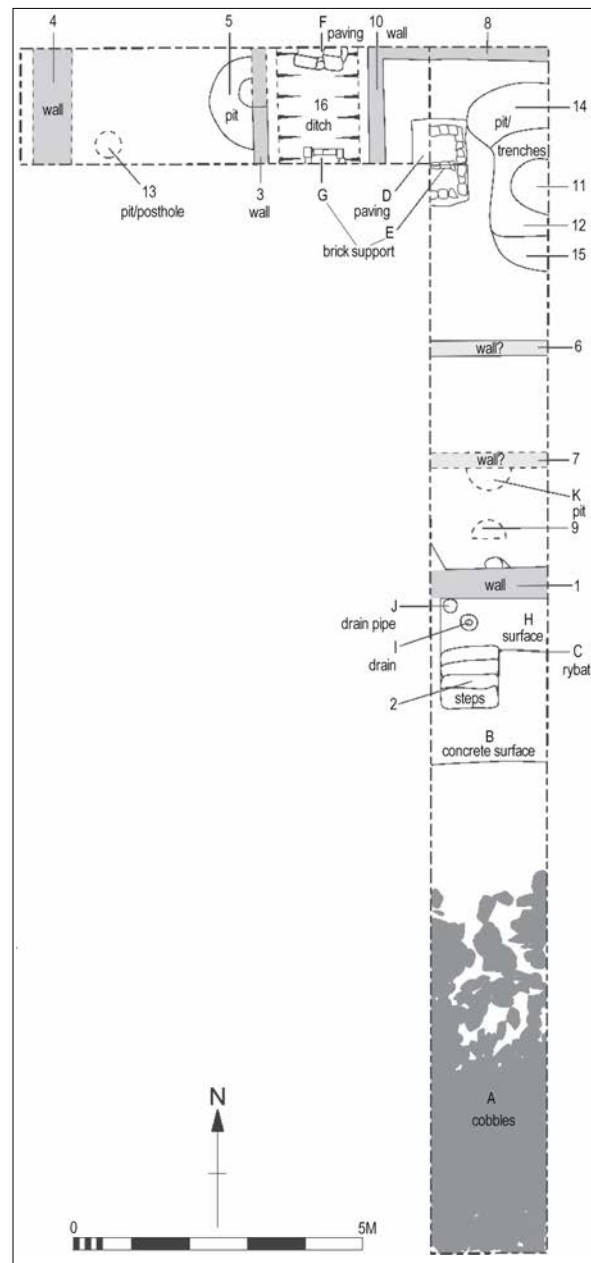


Figure 5: 223-243 High Street, 1977.

324 High Street (Figures 1, 2, 6 and 7)

By the late Doreen Hunter

The origin of this 1966 investigation lay in a report by Mr W McLennon that in 1939, while digging foundations for an air-raid shelter behind No 324 High Street, he had seen an exposed doorway, steps and cobbling. Disturbance was considerable and later diggings and deposits on the site had been extensive, but the door and steps reported in 1939 were lost. None of the walling uncovered could be dated on architectural grounds, nor was the purpose of the building clear.



Located on the north side of the High Street, the site was 130 m south of Linlithgow Loch and 51 m above sea level. Two trenches were opened initially, but Trench A, c. 7.6 m long by 1 m wide, was abandoned because of the presence of a modern sewer. The excavation was therefore laid out against the western side of the boundary wall between 322 and 324 High Street (NGR: NS 9976 7707). Trench B, to the east and south of Trench A, was initially 3 m long (later extended southwards as Trench B2 to c. 7.6 m) and 1 m wide. Trench C, c. 8.5 m long, was opened in line with Trench B, parallel to Trench A as its replacement. Subsequently Trench C was extended south, (as Trench C2?), to join Trench B as a single trench, c. 16 m long. Extensions were made to the west (un-numbered) and east (Trench B1) at the northern end of Trench B and to the east of Trench C (Trench C1) to reveal more of features uncovered in the main trench.

Excavation

Section 1 (Figure 7), on the west side of Trench C, shows numerous layers which tended to peter-out across the trench. They probably derive from a heap or tip of builders' rubbish to the west, and are significant only in groups. Topsoil included true garden soil and the recent till below it. It was very rich in pottery, bone, and debris of all types, including derived material of an early date and more recent objects near the surface. Beneath the topsoil mixture was a barren stony layer of demolition deposits. Wall B, which projected into the topsoil, at first sight was considered to belong to this final phase. However, its construction of coursed, clay-bonded masonry, with pottery found in the interstices of the wall and also in the rubble bank on its northern side, suggested otherwise. It would seem that the wall, previously buried within the rubble and stony demolition deposits, was exposed but not destroyed during the excavation of the flat-bottomed pit X, which lay to the immediate north of it. Beneath wall B was a layer of reddish mud interlaced with carbonised material and mortar, while the fill of pits below this was a darker red mud.

Section 2 (Figure 7), on the east side of Trench C, is dissimilar but compatible with Section 1. The topsoil is split by a line of blocks interpreted as a garden path. The stony layer beneath was more earthy and less compact. It overlay a compacted, possibly trodden deposit beneath which was the

reddish soil, intersected by layers of carbonised material. These hardened layers thin out toward wall F at the northern end of the trench. It would seem that wall F retains and pre-dates the burnt layers and thus can be said to be at least as early as wall B. Pit Y, which cuts through the lowest burnt layer, was dug prior to the deposition of the upper burnt layer. A copper alloy buckle (Cat 34, below) was found in an irregular hollow near the top of pit Y (see y1 in Section 1), and beneath the lowest burnt layer.

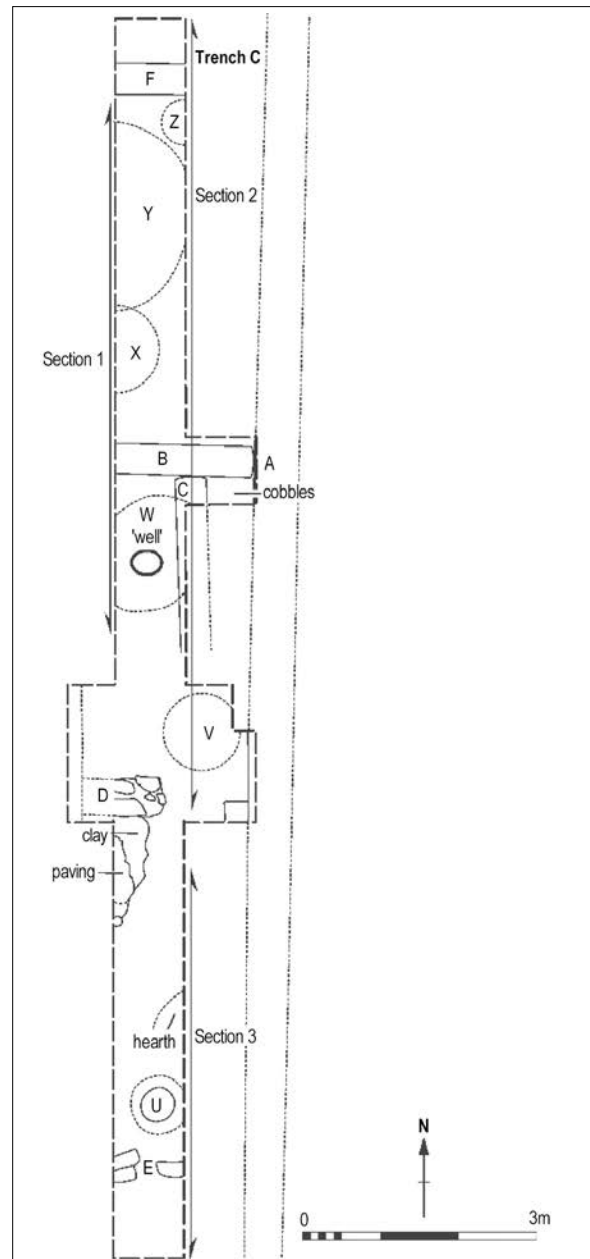


Figure 6: 324 High Street, 1966.

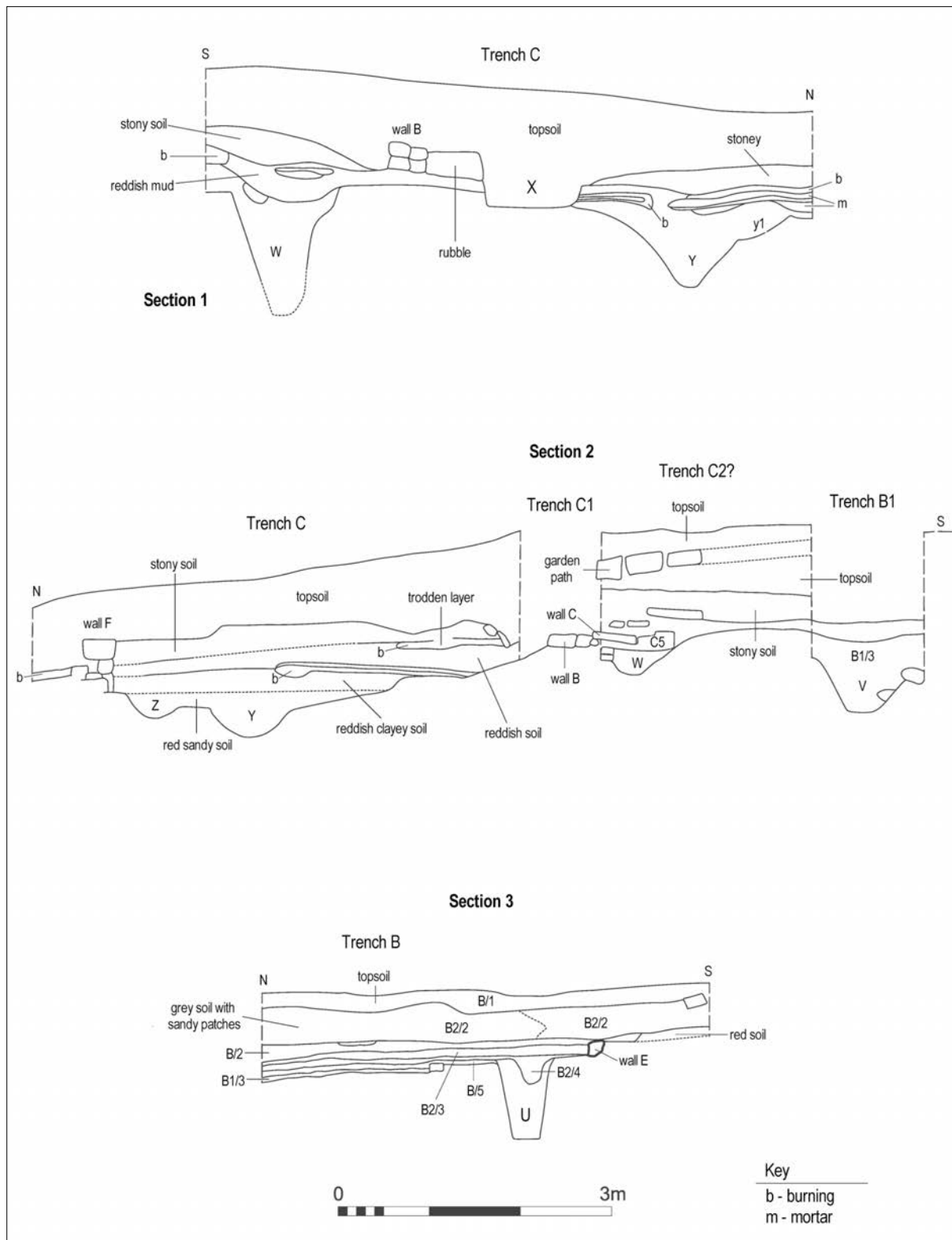


Figure 7: 324 High Street, 1966, sections.

South of wall B, the section is interrupted: the upper part by recent disturbance, and the lower by an unexcavated baulk supporting walls B and C. Beyond the greatest extent of disturbance, Section 3 is markedly different (the east section in the southern part of the trench, Figure 6). The

thick layer of 'topsoil' is almost missing, although modern material (layer B/1) was frequent near the surface. Under this layer there was a light-grey soil with extensive sandy patches (layer B2/2). Below this were two clay floors (layers B2/3 and B/5). The upper floor of black clay (B2/3) was covered



by a burnt deposit (layer B/2) and corresponds in height with the clay and cobble floor seen in plan on the western side of the trench. The upper and lower clay floors were separated by a black earth layer containing burnt material (layer B2/4). At its northern end, the lower floor of red clay (B/5) sealed a red soil (layer B1/3), which filled pit V (Section 2); further south it was burnt by a hearth before merging into the rising natural surface that was also burnt. Layers B2/3, B2/4 and B/5 were bounded by a wall (E), with layers B2/3 and B2/4 post-dating it. Wall E comprised a single line of large boulders laid on the natural surface as a foundation. A hard trampled floor of reddish material ran southward from this wall and lay immediately under recent deposits. Wall E is contemporary with the upper clay floor and possibly with the lower clay floor and pit U. It may well have been the southern boundary of a structure incorporating walls A, B and C.

Interpretation

The building sequence of the walls appears to be as follows: wall A, a massive wall, battered at the base, ran north/south along the modern eastern boundary of the tenement. It carried, but was probably originally earlier than, the modern high brick boundary wall between 322 and 324 High Street. It was mortared and of good quality. Overriding the broad splay of this wall, but not built against it and therefore not necessarily later, was wall B. This was a substantial wall 0.46 m wide, running east/west. Very little of the clay mortar remained, but the wall seemed to have been bonded rather than dry-stone. Wall C abutted wall B, and its foundation was slightly higher; it may have been a partition wall. Underlying wall B, in the angle between walls A and B, were the remains of a cobble floor, with burnt material but no finds on its surface. Wall D, which ran parallel to wall B to the south, was slight and, so far as can be judged from the remains, much more roughly made than walls B or C, and was probably a partition. Wall D could not be directly related to any floor, but it is possibly contemporary with a stone and clay floor on the west side of the trench. Wall E may well have been the southern wall of the building and it appears to have been in use at the same time as the lower floor (layer B/5) seen in Section 3. It is unfortunate that walls B and D cannot be related to either of the floor layers B2/3 and B/5, especially as the upper floor is likely to be internal.

The floor levels in the north of Trench C are rough, and may well have been only the trampled areas within a yard. Wall F, clay-bonded like wall B, appears in section as one build. However, in removing this wall, the lowest course was found to be out of alignment with those above on the eastern side, while to the west, a layer of mortar spilled over the lowest course as though there had been an interruption during its construction. These two phases suggest that wall F may have been destroyed and rebuilt. To the south of wall F was a rough cobbled surface. It appears probable that the upper courses of wall F are contemporary with walls B and D, but are not necessarily part of the same building.

Six pits were discovered within the trench. Pit U had near vertical sides and had evidently been lined. The sides showed no signs of having been burnt or affected by heat. However, some dark, partly burnt matter had fallen on the pit floor before it was partially backfilled with clean sand. The remainder of the pit was filled by a mixture of carbonised material and red soil deposits derived from layers 6 and 8. Pit W produced many sherds of pottery, most of them from below the water-table where the fill became a running mud of reddish earth. Although steep, the pit was not straight-sided and may have been a source of water, if not strictly a well. By the time wall B was built, pit W was entirely backfilled and invisible. Pit Y was wider and of a shallower incline than those previously mentioned, with its southern edge scalloped into a hollow. Its fill was a reddish earth containing much organic material that seemed to consist of roots and root bark. Pit V lay under the disturbed area between Trenches B and C. It contained red sandy soil but was incompletely excavated. Unfortunately the records of pits X and Z have not survived.

332-336 High Street (Figures 1, 2 and 4)

By Catherine Brooks

At the invitation of the Linlithgow Town Clerk, an excavation was carried out on the site of a later phase of the High Street redevelopment, at 332-336 High Street (NGR: NS 9974 7705), between April and May 1973, under the auspices of the Society of Antiquaries of Scotland and financed by the Department of the Environment (Brooks 1973; Brooks 1974).



The site is located within the boundary of the medieval burgh near the West Port, on the north side of the High Street. Behind the area of demolished mid-nineteenth century houses along the street frontage, long narrow rigs sloped down almost to the edge of Linlithgow Loch, preserving a typical medieval arrangement. Much of the north side of the High Street had already been redeveloped, but limited excavations at 324 High Street by the late Doreen Hunter in 1966 (see above) indicated archaeological potential. With these excavations it was hoped to reveal traces of earlier structures facing onto the street, and archaeological features, such as rubbish pits, in the area immediately behind (Plates 1-6).



Plate 6: Site staff at work, 332-336 High Street.

Excavation

Four trenches, Trenches 1-4, (c. 108 m²) were cleared within the area of the nineteenth century tenement walls. The westernmost trenches (Trenches 1 and 2) (Figure 8) revealed little other than the foundations and lower courses of the nineteenth century wall fronting onto the street, and the remains of an area of contemporary cobbling immediately inside the wall. Destruction of features and levels during demolition was more extensive here than elsewhere.

The eastern trenches (Trenches 3 and 4) were more productive, revealing firstly the substantially built rear wall (49) of the tenement, together with traces of the spine wall and several cross-walls (35-38) (Figures 8 and 11). These latter included a number of rounded boulders or cobbles in

their fabric, which were possibly survivals from an earlier building phase. Other eighteenth or nineteenth century features in this area included part of a stone and brick floor laid directly onto the natural sand (this contained two re-used fragments of chamfered window lintel), and an early trodden-earth pathway or entrance leading in from the street, cut by the nineteenth century walls, which yielded fragments of crumpled window lead.

Natural sand and gravel occurred at a depth of c 0.4 m below the present ground surface within this area. Cut into the natural deposits and running beneath the nineteenth century walls were four pits (25, 39, 41 and 50) and several possible postholes (31, 40 and 44). The maximum diameter of these pits was just over 2 m, the maximum depth being 0.90 m, and at least one showed signs of recutting (25/30) (Figures 9 and 10). The fill of the pits varied considerably, from brown coarse gravel with a little sand, containing occasional fragments of bone and oyster shell, to a thick black soil relatively rich in pottery, animal bones, oyster shells and pieces of clay pipe stem. Lumps of coal were commonly found, and one pit produced pieces of slag.

An area of c 46 m² (Trench 5) was cleared mechanically to the north of the rear tenement wall (49), where there was a greater depth of deposit overlying the natural sand and gravel (Figures 8, 9 and 11). Features found here included several small pits or postholes, though unfortunately the area was too small to allow a coherent pattern to emerge. A complicated series of pits was also found, in which a large pit (69) 4 m by 2.70 m by 1.50 m deep, overlying a posthole (83) at the southern end, was itself cut at that end by three intersecting pits (Figures 9 and 10). The latest (51) of these pits was in turn cut by a straight-sided roughly rectangular pit (81), whose walls and floor were lined with large slabs of stone (52), the walls being bonded with mortar (Figure 10). This tank (52), c 1.9 m by 1.2 m by 0.9 m deep, was overlain at its southern end by the rear tenement wall. It produced a quantity of late medieval pottery, as well as some eighteenth century glass, and may have been connected with tanning. It is known there was a nineteenth century tannery on the site, lying to the north of the excavation trenches. A second stone-lined pit



(96) (Figure 9) was also found some 6 m to the north of the first, on a different alignment and of different construction. Its sides consisting of walls of squared sandstone blocks set in grey clay with no trace of mortar (Plate 7). This pit (2.40 m by 1.20 m by 0.70 m deep) was larger than the first, was more regular in shape and retained water more effectively. It produced very little dating evidence, except for one late medieval sherd from the upper part of the fill that probably belongs to the seventeenth century.



Plate 7: Stone-lined feature FN96, 332-336 High Street.

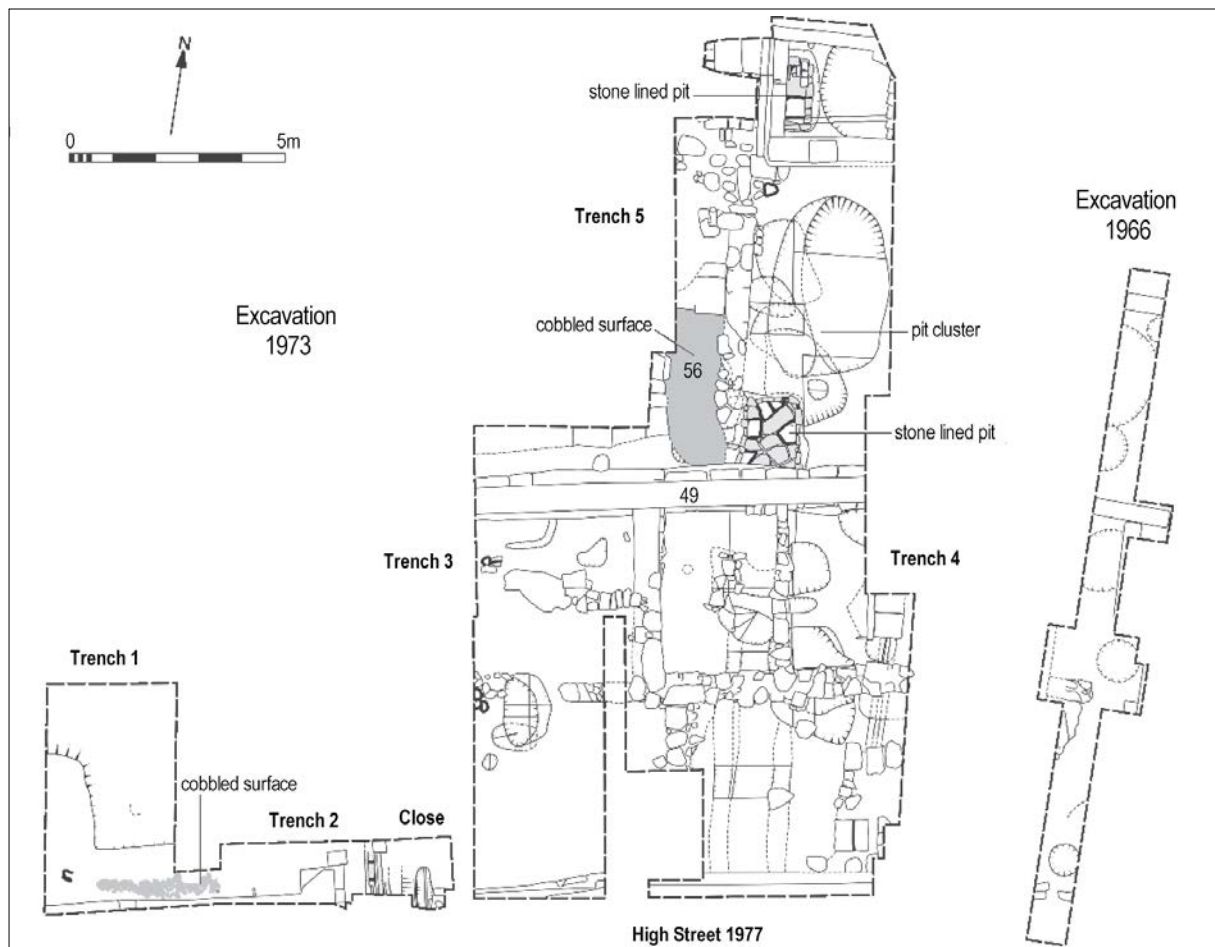


Figure 8: 324 and 332-336 High Street, 1966 and 1973.

A trial trench (Trench 6) was cleared across the rigs to the north of the site, but no earlier boundary was found. It revealed a stone-built field drain, on a north/south alignment, and of presumably eighteenth or nineteenth century date. Several nineteenth century pottery sherds were found nearby, as well as a late medieval rim sherd. The drain was also seen in Trench 7 to the north of Trench 6. Both these trenches were not located spatially on this site during the post-excavation process.

The pottery from the site dates the earliest features to the fifteenth or sixteenth centuries. The presence of pits so close to the street would seem to indicate that the dwelling houses were elsewhere. The lack of any depth of stratified deposits above the natural sand on the street frontage (there were no cellars in this area) makes it seem likely that, had there been any early foundations, beam slots or postholes, traces would have survived. It is to be hoped that any future excavations in the same area would reveal more evidence of buildings.

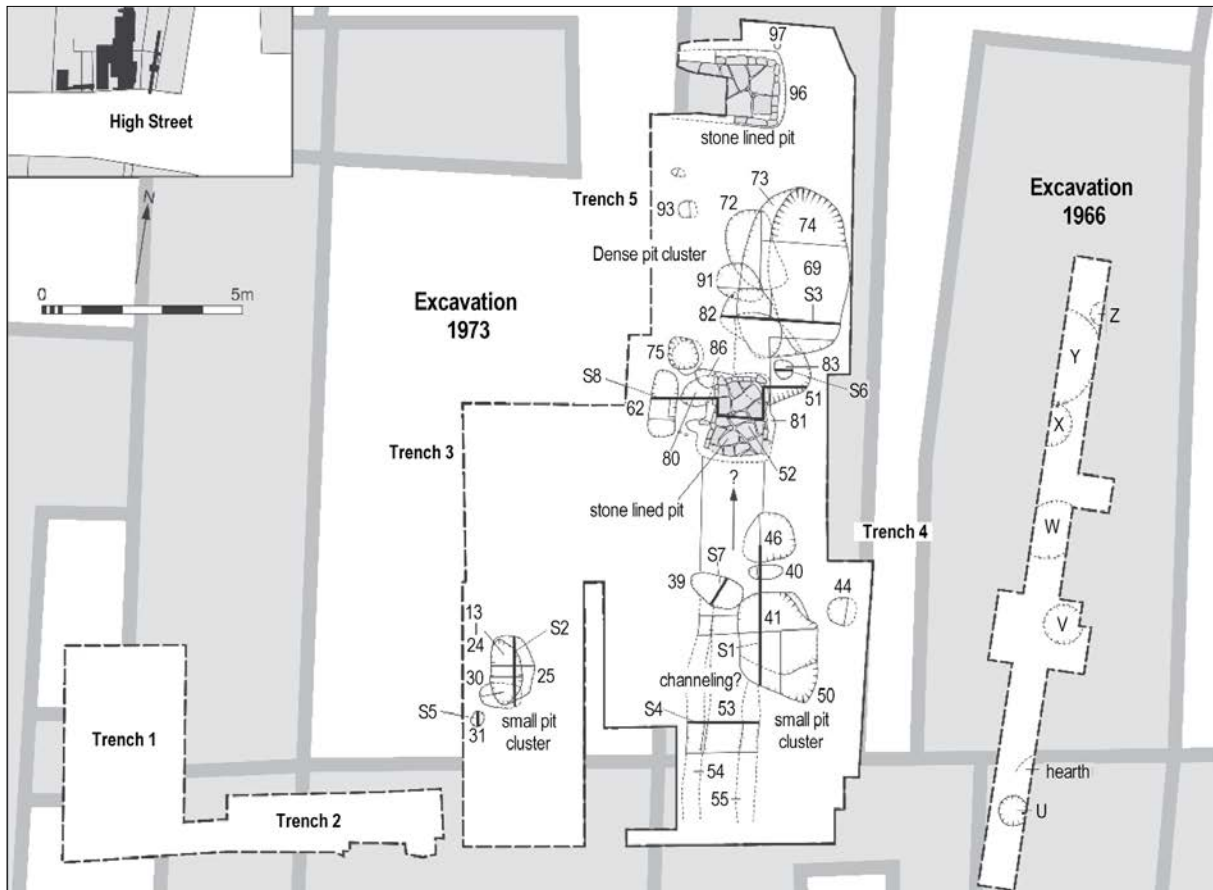


Figure 9: 324 and 332-336 High Street, 1966 and 1973, pre-seventeenth century features superimposed on Wood 1820.

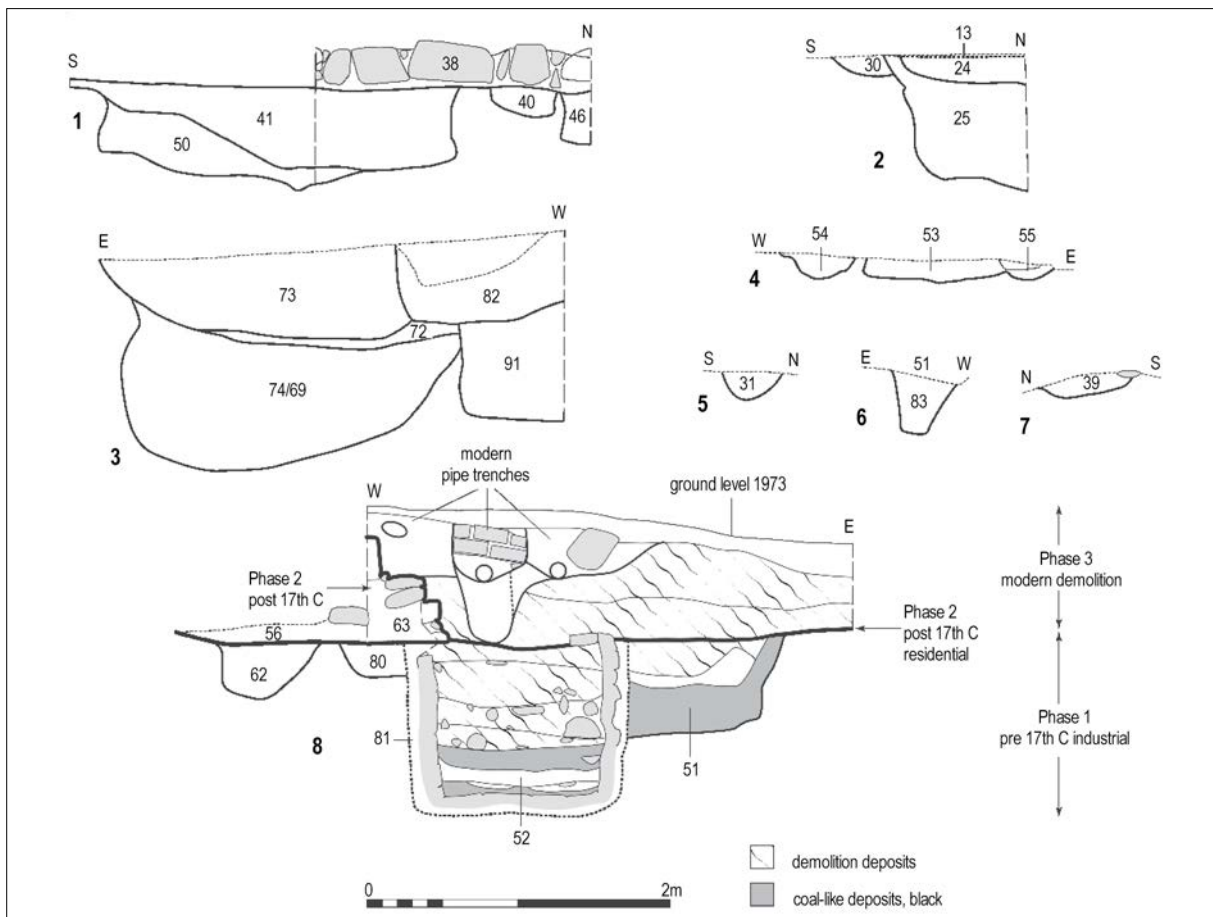


Figure 10: 332-336 High Street, 1973 sections (see Figure 9 for locations).



Summary of phasing

By Mike Middleton

Examining the three sites together, two major phases of activity can be identified, with minor subdivisions: The Phase 3 deposits of modern demolition, dumping and drainage. are of little archaeological interest, and are not discussed further.

Phase 1 pre-seventeenth century, industrial (Figure 9)

All the Phase 1 structures are located within the 1966 and 1973 excavations where large, deep pits predominate concentrated within undefined but restricted areas.

Phase 1a deep steep-sided pits

The oldest features excavated are 69 and 74 (Figures 9 and 10), and possibly W and Y, (Figure 9). These pits survive to around 1.5 m below the Phase 2 clearance level (Figures 10 and 11), and are notable for their steep sides (Figure 10). Cut by the phase 1b pits 72 and 73, pits 69 and 74 contained green glazed Siegburg stoneware dateable to the fifteenth century. Pottery dating from the twelfth to the fifteenth centuries from pits 73, W and Y would seem to be residual, but this does suggest earlier occupation within the immediate vicinity of the site.

Phase 1b shallow pits

Pits 72 and 73 are shallow and have gently sloping sides that contrast with the earlier phase 1a and later phase 1c and 1d pits. Pit Y1, at the north end of the 1966 trench, is similar in form and may also belong to this phase (Figure 7).

Phase 1c vertical-sided, possibly lined pits

The cutting of a series of vertical-sided pits, 25, 41, 50, 51, 82 and 91 (Figures 9 and 10), and possibly pit U (Figures 7 and 10) took place during this phase. Pits 11, 12, 14 and 15 within the 1977 trench (Figure 5) are certainly similar in form to the phase 1c pits, but there is no dating evidence to support this. Steep sides within sandy subsoil would suggest these pits were lined, as previously suggested by Doreen Hunter for pit U.

Phase 1d vertical-sided stone-lined pits

These vertical-sided, sub-rectangular, stone-lined

pits 52 and 96 were built in the sixteenth century (Figures 9 and 10).

Associated with the Phase 1 pits are a number of smaller pits, 30, 31, 39, 40, 46, 62, 80, 83 and 95 (Figures 9 and 10), of which some, such as 83, are likely to be postholes. It is interesting that the earliest deposits within 41, 46, 51, 52, 82, 91 and pit U all contained coal. It is not clear if this was deposited once the structures were abandoned or whether it could be an indicator of their function. Shallow channels 53, 54 and 55 run north/south, 53 and 55 being cut by the phase 1c pit 50. They may have been used to channel water toward the pit cluster around 52 (Figure 10).

What is notable is the concentration of pits that were cut, used, then backfilled and re-cut over relatively short periods of time. The main concentration within trench 5 shows at least 8 consecutive pits cut and backfilled almost on the same spot during the fifteenth and sixteenth centuries. Similar pit re-cutting is visible within the 1966 trench in pits Y and Y1, and in trench 4 with pits 50 and 41, although far less intense. This succession of deep pits cut and backfilled indicates a single, very specific land use with the entire area of trenches 3, 4, 5 and the 1966 excavation being managed over a number of generations.

Phase 2 post-seventeenth century, residential (Figure 11)

Phase 2a seventeenth century stone buildings

Phase 2b demolition and clearance of seventeenth century buildings?

Phase 2c eighteenth and nineteenth century stone and brick buildings

Phase 2 shows evidence of a series of residential/commercial buildings lining the High Street. To the rear, land boundaries were walled, creating enclosed gardens or yards. Two of the plots to the rear were cobbled (context 56 Figure 10, and A Figure 5) although it remains unclear whether these areas were roofed; certainly both cobbled areas fall within structures shown on John Wood's map of 1820. It is evident from examination of the excavated structures compared with Wood's map and the 1977 OS map 1:2500 (Figures 1, 2, 4 and 11), that there had been substantial



redevelopment of the High Street since 1820. The area of 324 to 332 High Street was widened almost to the rear walls of the buildings lining the road in 1820. This would suggest that the majority of the foundations between structures 11 and 49 are of nineteenth century date (Figure 11). As would be expected, nineteenth and twentieth century development had incorporated the close and many of the land boundaries.

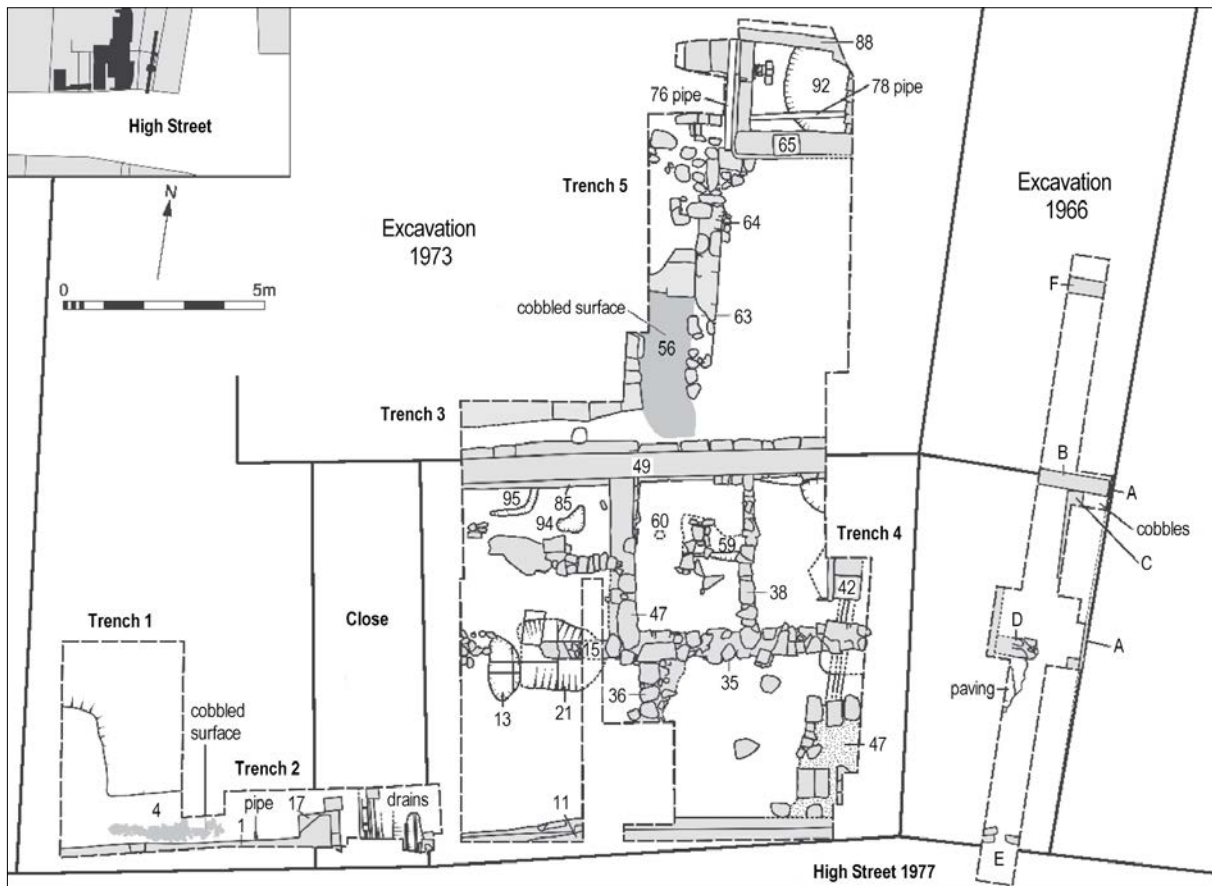


Figure 11: 324 and 332-336 High Street, 1966 and 1973, post-seventeenth century features superimposed on OS map 1977.





Plates 8-14: Montage of excavation images including David Caldwell and site volunteers, 223-243 High Street, 1977 (photo courtesy of Linlithgowshire Journal and Gazette).

Pottery and small finds

By Adrian Cox and Derek W Hall with contributions from Colleen Batey and Nicholas Q Holmes

The artefacts are organised by material and accompanied by catalogues for each of the three sites.

223-243 High Street

This site produced good quality artefact evidence of activity dating from the eighteenth and nineteenth centuries, accompanied by only a small quantity of residual medieval material.

Pottery (Figure 12 and Appendix 1)

by Derek W Hall

The excavation produced an assemblage of 607 sherds of pottery, 96% of which date to the post-medieval/early modern period, while the remainder, the medieval component is almost certainly residual. There is a single piece of kiln furniture from Context 31 in Trench A, which dates to the nineteenth century. It may originate from the nearby pottery production centre at Bo'ness rather than indicating the proximity of a late pottery kiln near to the site.

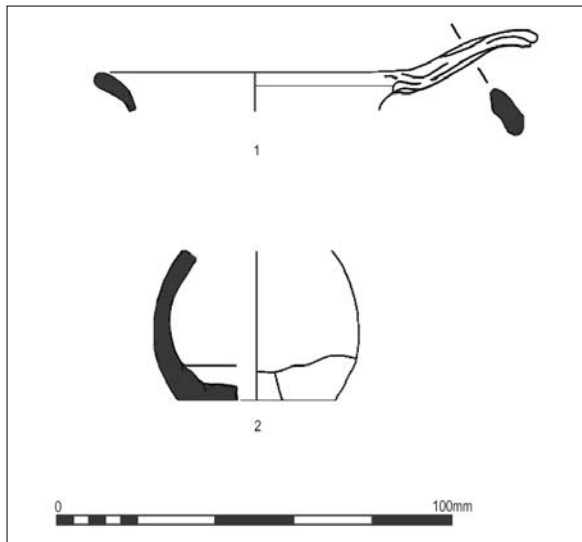


Figure 12: Pottery, 223-243 High Street, Cat 1-2 East Coast Redwares.

There are only 10 sherds of *East Coast Redware* in the whole assemblage and they were manufactured at the later end of this industry. Three of them, from pit 9, come from a skillet with a folded handle (Cat 1), a form dated to the sixteenth and seventeenth centuries. Similar types of skillet have been found in excavations at Eyemouth (Franklin 1997, 100), Stirling Castle (Haggarty 1980), Linlithgow (Laing 1969), Dunbar (Hall 2000) and Stenhouse (Hall and Hunter 2001). The base and sidewall from a small squat vessel (Cat 2) also from pit 9, has external glazed green on a purple wash and traces of knife trimming above the base.

Reduced Greyware is represented by eight sherds from glazed jugs and an open vessel form. Pit 9 in Trench A produced four sherds from a jug in *Oxidised Redware*. In addition, the excavation produced six sherds from *Stoneware* vessels in the early modern version of this fabric and 71 sherds from *Earthenware* vessels in brown glazed domestic ware, which is also of early modern date. The most dominant pottery on the site (506 sherds) is late eighteenth/nineteenth century factory-made *China*.

Small Finds

by Adrian Cox (unless otherwise stated)

Copper alloy objects

Five pins (Cat 1-5) were recovered from Trench A. Although all are approximately similar in length and head size, one example (Cat 3) is of an earlier date than the others. This heavily

corroded pin appears to have a head made from wound wire which is attached to the top of the shaft by pinching or stamping. The type has a long currency, being known from fourteenth century contexts in London and elsewhere (e.g. Egan and Pritchard 1991, 299-301) and only being superseded by one-piece pins like Cat 4 in the nineteenth century, by which time the manufacture of pins had become fully automated (Tylecote 1972).

A complete but slightly distorted thimble with machine-knurled indentations (Cat 5) was found in trench A. It is of similar form to an incomplete example found at 332-336 High Street (No 5, below). The mechanical knurling of indentations under pressure was first practised in the Netherlands in c. 1620 (Holmes nd, 3), but both examples here are probably of late eighteenth or nineteenth century date.

Cat 6 is one of two similar, domed studs forming part of a mixed assemblage of material of late eighteenth and nineteenth century date. They may have been attached to wooden or leather furnishings or to clothing, and served a decorative function.

Cat 3 Pin with a possibly wound-wire head and a circular cross-sectioned shaft. Heavily corroded. Context A/4.1/1, Find No 13a. Length 29 mm, width of head 2 mm, diameter of shaft 0.9 mm. (Not illustrated)

Cat 4 Pin with a conical head and a circular cross-sectioned shaft. Traces of white metal (possibly tin) plating survive on the head and shaft. Context A/4.1/1, Find No 13b. Length 31 mm, width of head 2 mm, diameter of shaft 0.9 mm. (Not illustrated)

Cat 5 Thimble with tapering shape and slightly convex at the apex. Machine-knurled indentations cover the entire surface area, with the exception of the narrow band encircling the mouth. Complete but slightly distorted. Context A/1.5, Find No 11. Height 25 mm, external diameter at mouth 20 mm. (Not illustrated)

Cat 6 Undecorated, domed, circular stud with a broken, square cross-sectioned shank. Context 9, Find No 18. Diameter 11 mm, thickness 5 mm. (Not illustrated)



Iron objects (Figure 13)

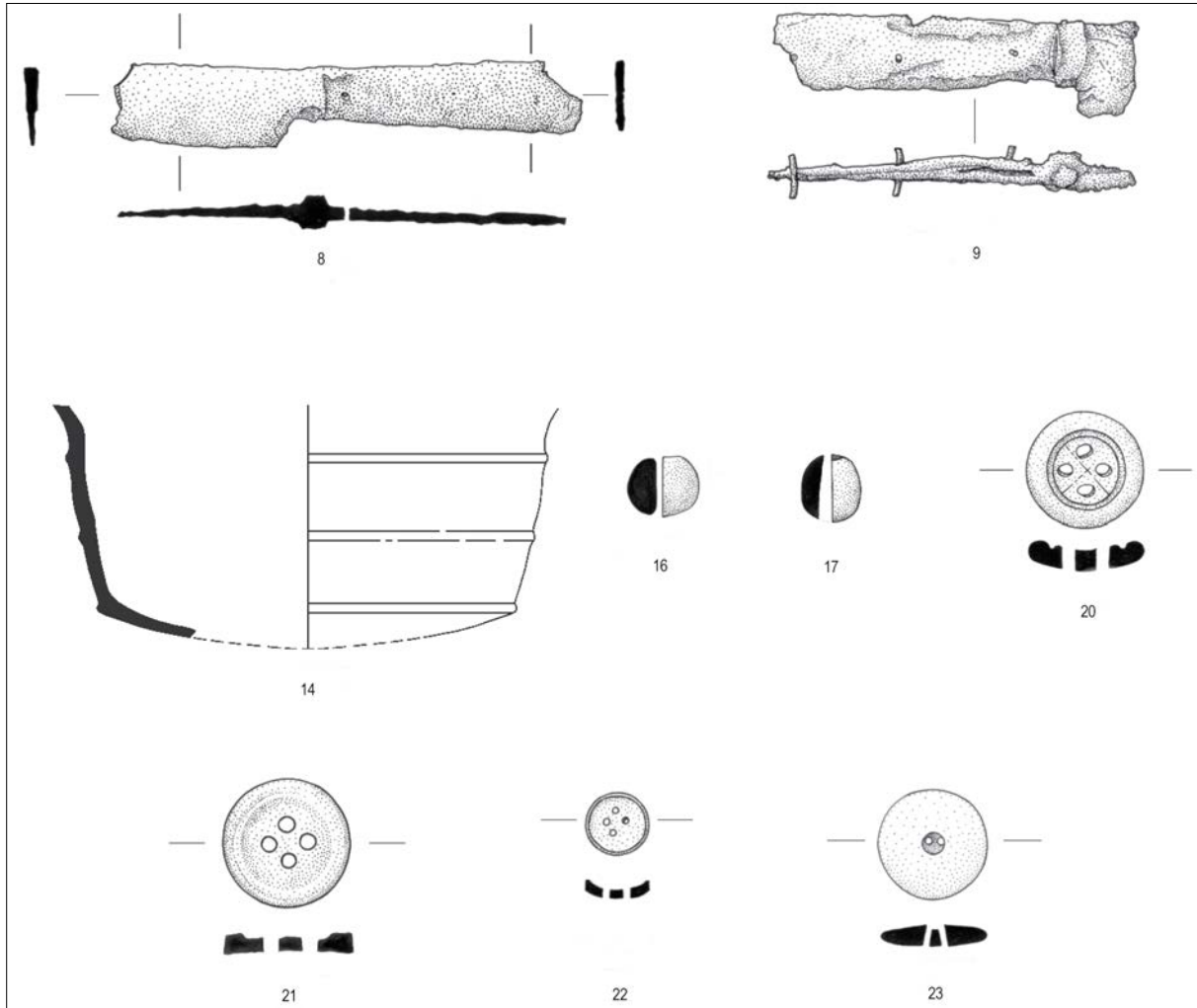


Figure 13: Small finds from 223-243 High Street, Cat 8-9 iron knives (scale 1:2); 14 iron vessel (scale 1:4); 16-17 glass beads, 20 bone button, 21-23 shell buttons (scale 1:1).

Seven of the eight artefacts described here (Cat 7 and 8-14) were recovered from the fill of a single pit. All are of eighteenth or early nineteenth century date.

Cat 7 is probably part of a heel stiffener from a leather shoe or boot. Although heavily corroded, two nail holes are visible in its surviving arm.

Examples of both whittle tang and scale tang knives were found. The term whittle tang denotes a tang inserted into a solid handle, whereas scale tang denotes one onto which plates or scales (often of bone or antler) are riveted, forming a composite handle. Cat 8 is of whittle tang type and is the most complete of the knives recovered. It is probably also of slightly later date. Cat 9 and Cat 10 are both of scale tang type and are of similar form, although Cat 10 had a slightly broader blade and a longer handle. A large collection of twelfth

to fourteenth century whittle tang knives came from the excavations at Perth High Street but only one scale tang knife was identified. (Franklin and Goodall 2012, 132-137). The occurrence of these knives in the centre of both burghs indicates their long currency and the use of predominantly wooden handles (Perth) and antler (Linlithgow).

Cat 11 and 12 are components of a fixed lock or locks. Cat 11 is a lock bolt. One of the staples that held the bolt in position within the lock survives attached to the bolt by corrosion products. Cat 12 is a ward-plate, with a centrally-positioned key slot. The excavations of Perth High Street produced a large collection of medieval barrel padlocks and keys, but among them were a few mounted locks and ward plates similar to those here described from Linlithgow but probably much earlier in date (Franklin and Goodall 2002, 160).



Cat 13 may represent a tooth from a horticultural implement such as a gardening fork or a rake. Numerous vertically set teeth of this form, with a slight curvature, were also present on horse-drawn hoes, used for cleaning between drills. A hoe of this type is illustrated in *Transactions and Prize Essays of the Highland and Agricultural Society of Scotland* (1832, Vol XX, 80-81).

A fragment from the base of a cast iron cooking vessel (Cat 14) was also found in the pit. This fragment has an irregular, jagged edge, consistent with the normal fracture pattern of cast iron vessels. It is from a large cooking pot with a rounded base and is probably of the three-legged type, although no legs survive on this fragment. Abraham Darby, who established his company at Coalbrookdale in Shropshire in 1707, developed and patented a casting method for three-legged iron pots, providing cheaper and tougher vessels which became a popular replacement for the brass ones which had hitherto been imported from the Continent. Three-legged cast iron cooking pots were popular throughout the eighteenth and nineteenth centuries, and Darby's company included a range of these vessels in their 1875 catalogue (Ames 1980, 10). The vessels had strong lugs and handles that hooked onto an iron bar or crane above an open hearth. Cat 14 is likely to have been manufactured by one of the Scottish lowland iron foundries in the late eighteenth or nineteenth century.

Cat 7 Heel stiffener? Curved, rectangular cross-sectioned strip of approximately even width and thickness, possibly representing a heel stiffener or support from a shoe or boot. Two nail holes are evident. One is square (width 3 mm) and located near to the end of the surviving arm. The other is obscured by corrosion products. Unstratified from pit, Find No 115. Length 56 mm, width 10 mm, thickness 3 mm. (Not illustrated)

Cat 8 Knife of whittle tang type, with an integral bolster. The blade is straight-backed and of almost uniform width until the rounded tip. No part of the handle survives. Context A/1.3, Find No 2a. Length 187 mm, width 19 mm, thickness of bolster 10 mm, thickness of blade 3 mm. (Not illustrated)

Cat 9 Fragment of a scale tang knife. The

straight-backed blade and tang are made in a single piece. A bolster lies between the blade and tang, and a single rivet hole is visible on the tang's central axis. Other rivet holes may be obscured by corrosion products. The blade is broken but the tang is almost complete. The scales are missing. Unstratified from pit, Find No 101. Length 138 mm, max width 23 mm, thickness of bolster 10 mm, thickness of blade 2 mm.

Cat 10 Fragment of a scale tang knife with a straight-backed blade and tang made in a single piece. A bolster lies between the blade and tang, and the tang has three circular-cross-sectioned rivets positioned along its central axis, formerly securing the scales. Only a small part of the blade survives, and the tang is broken across one of the rivet holes. The scales are missing. Unstratified from pit, Find No 100. Length 106 mm, max width 27 mm, thickness of bolster 9 mm, thickness of blade 3 mm.

Cat 11 Lock bolt with two projections from the lower edge. Behind these lies a semi-circular recess. A rectangular bar (length 29 mm) attached at 90° to the bolt probably represents one of the retaining staples that held it in position within the lock. Unstratified from pit, Find No 112. Length 80 mm, max width of bolt 12 mm, thickness 4 mm. (Not illustrated)

Cat 12 Ward plate from lock. Plate of elongated D-shaped outline, with a key slot positioned centrally along the straight edge. One projecting ward (length 6 mm) is also present, adjacent to the key slot. Unstratified from pit, Find No 111. Length 87 mm, max width 26 mm, thickness 2 mm. (Not illustrated)

Cat 13 Tooth or spike of irregular, tapering cross-section, terminating in a point. It has a slight curvature. Unstratified from pit, Find No 114. Length 145 mm, max width 10 mm, max thickness 10 mm. (Not illustrated)

Cat 14 Fragment representing part of the wall and base of a cast iron vessel with a curving base. The vessel is decorated by narrow, equidistant horizontal ridges,



three of which survive, on the external surface. There is also a vertical ridge marking the position of the mould seam. Unstratified from pit, Find No 110. Surviving depth c. 140 mm, thickness of wall 4 mm, projected vessel diameter at point of fracture c. 290 mm.

Glass beads

Glass finds include four complete beads (Cat 15-18) and fragments of others. Cat 15 is of ovoid form and is encircled around its centre by a flattened band c. 1 mm in width. The edges of the central hole indicate that the bead was formed on a circular cross-sectioned rod. It probably dates from the eighteenth or nineteenth centuries.

Cat 16-18 were found together, along with four other bead fragments, and may be from the same costume accessory, possibly a beaded necklace or bangle. They all exhibit a slight irregularity of form. Cat 16 and 17 are of similar size but differ slightly in form, the latter being more spherical and with a smaller central perforation. Cat 18 is a larger bead, in the form of a flattened sphere. A blue glass bead of similar size to Cat 18, but with a shallower, more biconical profile, was found at Rattray, Aberdeenshire (Murray and Murray 1993, 199, Fig 47, No 318).

Cat 15 Small bead of translucent pale blue glass, ovoid (almost spherical) in form, with a perforation along its central axis. Context A/4.1, Find No 12a. Length 5 mm, diameter 5 mm, diameter of perforation 1 mm. (Not illustrated)

Cat 16 Small bead of opaque pale blue glass of slightly irregular, ovoid form, with a perforation along its central axis. Context A/4.1/1, Find No 13a. Length 8 mm, diameter 8 mm, diameter of perforation 3 mm.

Cat 17 Small bead of opaque, pale blue glass, of slightly irregular, almost spherical form, with a perforation along its central axis. Context A/4.1/1, Find No 13b. Length 8 mm, diameter 8 mm, diameter of perforation 2 mm.

Cat 18 Bead of opaque pale blue glass in the form of a flattened sphere, with a slightly off-centre perforation. Slight surface deterioration is evident. Context A/4.1/1,

Find No 13c. Length 8 mm, diameter 11 mm, diameter of perforation 2 mm. (Not illustrated)

Vessel and window glass

The small assemblage of bottle glass is predominantly of nineteenth century date. Wine and ale bottles are represented among the fragments, along with smaller, moulded, blue-glass bottles which possibly contained medicines or chemicals. Small fragments of window glass, probably of similar date, are present.

Bone objects

Two bone buttons were found. Cat 19 and 20 are of very similar form, although the latter is a slightly thicker, stronger button. Both buttons bear very fine scored lines radiating from the centre, marking them out into quarters, and both exhibit evidence of having been turned on a lathe, in the form of mandrel points and fine, concentric turning marks.

Cat 19 Lathe-turned, circular button of concave-convex form, with a slightly raised border on the concave face, and a groove encircling the four slightly off-centre, circular thread holes. Context A/4.1/1, Find No 13b. Diameter 17 mm, thickness 1 mm. (Not illustrated)

Cat 20 Lathe-turned, circular button of concave-convex form, with a slightly raised border on the concave face, and a groove encircling the four slightly off-centre, circular thread holes. Context A/4.1/1, Find No 13c. Diameter 17 mm, thickness 2 mm.

Shell buttons

Mother-of-pearl buttons like Cat 21-23, made from white, deep-sea shells imported from Australia, the Philippines and Indonesia, were manufactured in both England and France during the eighteenth and nineteenth centuries (Houart 1977, 79-80).

Cat 23 is a waistcoat button, possibly originally one of a pair. Waistcoat buttons were made in a wide variety of designs, some of them very elaborate. In many cases, the main area of the head of the button was made from mother-of-pearl, as in this case. This example may once have incorporated an enamel, brass or other metal edging.



- Cat 21 Circular button made from mother-of-pearl, with a raised, convex border on the upper face, encircling a flat central zone with four circular thread holes. The rear of the button is flat. Context A/4.1, Find No 12b. Diameter 18 mm, thickness 2 mm.
- Cat 22 Circular button of concave-convex form, made from mother-of-pearl. It has four unevenly-spaced, circular thread holes. Context A/4.1/1, Find No 13a. Diameter 9 mm, thickness 2 mm.
- Cat 23 Circular waistcoat button of biconvex form, made from mother-of-pearl. It has two circular thread holes, which converge and are set within a central, circular recess (diameter 3 mm) at the rear. Context A/1.3/1, Find No 3. Diameter 15 mm, thickness 3 mm.

Jeton

by Nicholas Holmes

A late sixteenth century French jeton (Cat 24) was recovered from a demolition deposit. The type is one of a series dating from 1589. Many of the designs in this series have been adapted from those on official French jetons struck by Charles IX (1560-74) and Henry III (1574-89). Such designs are commonly combined with an allegorical concept on the reverse (Mitchiner 1988, 456, No 1621, and 459). Large numbers of this type of jeton were produced, and this example has been perforated for suspension.

- Cat 24 Brass jeton. The obverse depicts a crowned French shield bearing three lilies in wreath: *HIS FLORENTIBVS FLOREBIT ET REGN*. The reverse depicts two helmeted classical soldiers with spears; holding between them a lily plant topped by the three fleurs de lis of France. In ex.: H.K. GALLIA – FORTIT. Context A/1.4, Find No 4. Diameter 27 mm. (Not illustrated)

324 High Street

Pottery (Figure 14 and Appendix 1)

by Derek W Hall

The excavation trenches B and C produced a small but varied assemblage totalling 133 sherds of pottery. *White Gritty ware*, present on the site,

has also been found in Perth in association with twelfth-century fabrics and appears to pre-date the Redware industry (Cat 24-28), but it may have ceased production by the fifteenth century. It is commonly highly fired to a white or grey colour and contains quartz inclusions. Three potential production centres for this fabric have been identified in Lothian, Borders and Fife regions (Haggarty 1984; Hall 1997). Sherds from the excavation include three rim sherds and one base sherd from cooking pots, and a fragment of a strap handle from a jug. *East Coast Redware* was identified and has been found in archaeological excavations in the Scottish east coast burghs. It forms a tradition of native pottery production, apparently dating from the thirteenth to the fifteenth centuries (Hall 1996, 126). Cat 29 is a base sherd from a jug.

Sherds of *Reduced Gritty ware* are present and appear to represent a deliberately reduced version of the White Gritty wares. The fabric has previously been recognised in pottery assemblages from Kelso, Peebles and Eyemouth (Crowdy 1986; Hall and Crowdy 2002). Recent analysis of the pottery assemblages from excavations in Ayr has also identified a similar fabric type (Franklin and Hall 2012). Also present were sherds of *Reduced Greyware* which was first identified in excavations at Stirling Castle in the late 1970s (Haggarty 1980). It represents a late medieval transition from the east coast Redwares described above, and dates from the mid-fifteenth to mid-eighteenth centuries. Cat 30 and 31 are rim, neck and body sherds from jugs, while Cat 32 is a rim sherd from a chamber pot.

London Sandy ware sherds were identified in the excavations and this fabric has also been recovered from Inverness, Aberdeen, Elgin and Perth (Pearce et al 1985, 7). This rough sandy fabric is usually reddish or light brown but when reduced can be pale grey, often with a white slip beneath the glaze. This pottery industry has been dated from c. 1140 to c. 1350, however all the evidence would suggest that it only travelled in the twelfth and early thirteenth centuries (ibid, 7). Sherds from highly decorated jugs, often Rouen copies, are found most commonly in Scotland. The single glazed sherd from layer 5 in Trench B may be from such a vessel. *Yorkshire ware* sherds were also found. Vessels in these distinctively glazed fabrics are the most common



imports in the east coast burghs in the thirteenth and fourteenth centuries (McCarthy and Brooks 1988, 227-52). Also imported was *Rhenish Stoneware*. Stoneware jugs from Langerwehe or Siegburg became common in Scotland during the fourteenth and fifteenth centuries (Hurst et al 1986). A single sherd (Cat 33) from layer 3 in Trench B may be from a Siegburg jug.

In addition to the above there is a single unidentified medieval sherd from layer 5 in Trench B and another from pit Y in Trench C. These sherds are likely to be imports from an unidentified source. There is a small component of nineteenth century earthenware and stoneware from the topsoil horizon on the site, and a single unstratified sherd of earthenware from Trench B1.

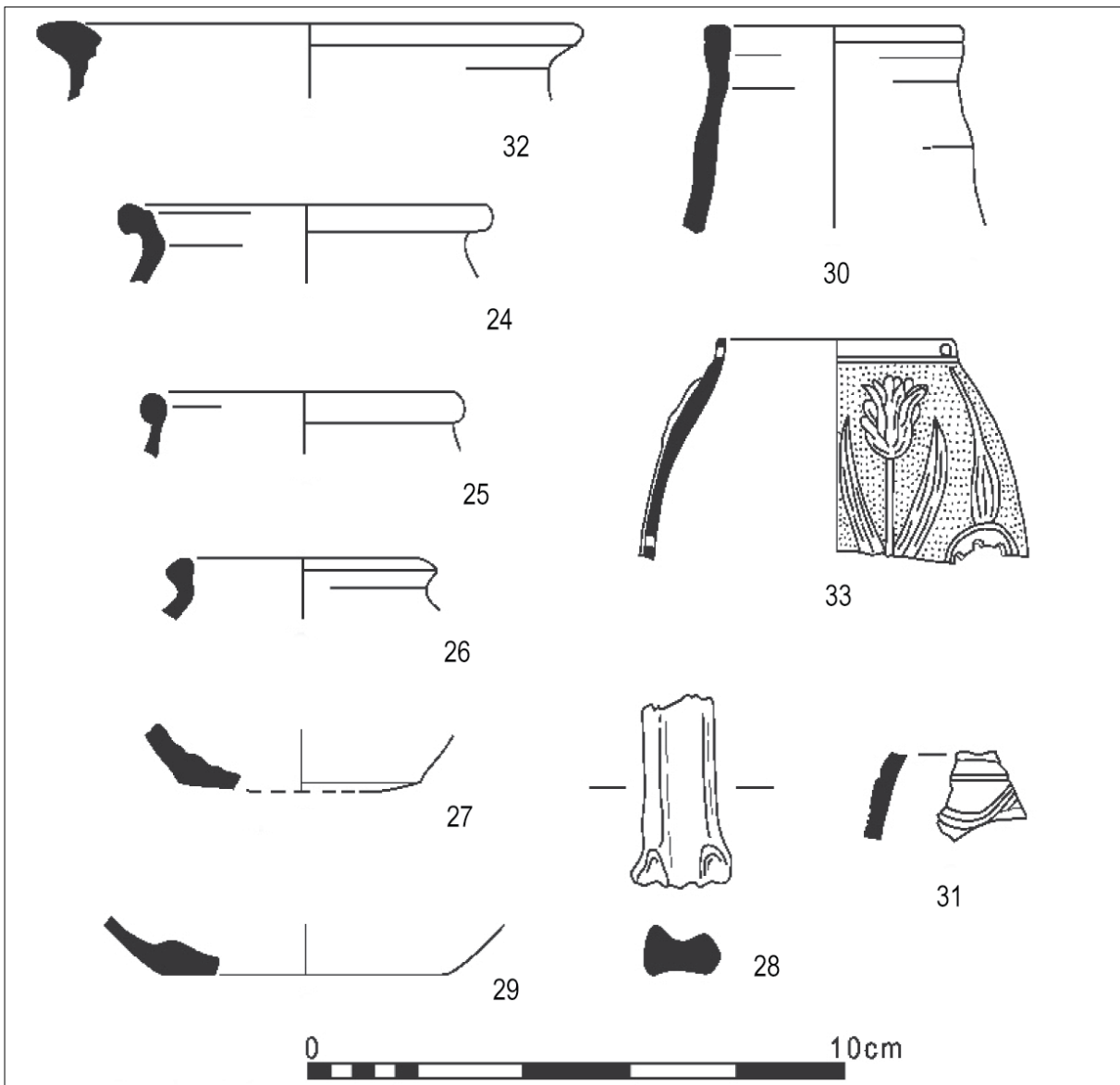


Figure 14: Pottery, 324 High Street, Cat 24-28 White Gritty ware, 29 East Coast Redware, 30-32 Reduced Greyware, 33 Stoneware (all scale 1:2).



Small finds (Figure 15)

by **Adrian Cox** (unless otherwise stated)

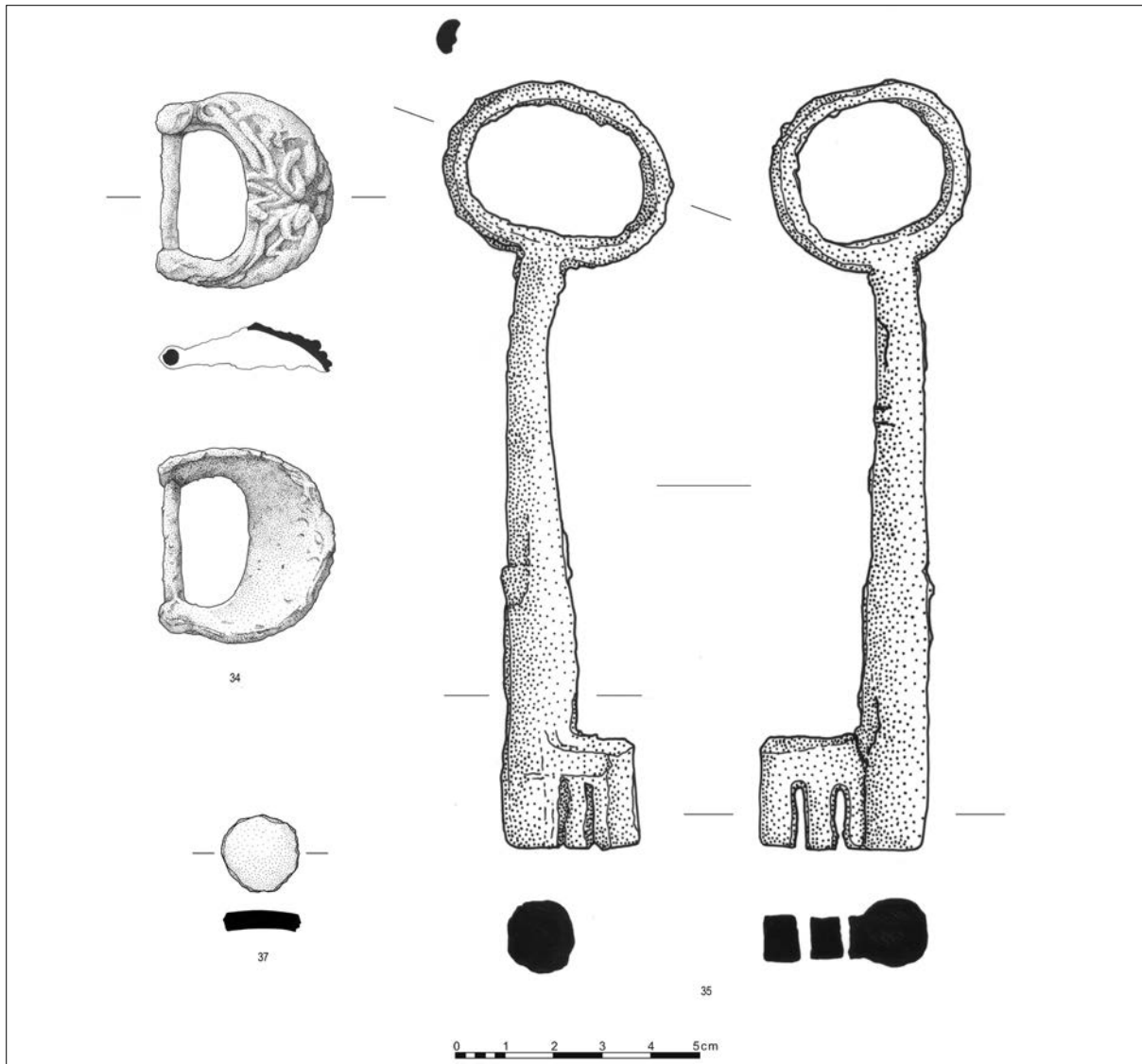


Figure 15: Small finds from 324 High Street, Cat 34 copper-alloy buckle, 35 iron key, 37 ceramic counter.

This site produced only a small artefact assemblage. Of particular interest is a copper alloy buckle of Romanesque design, a distorted iron key and a ceramic counter or disc.

Copper alloy buckle

by **Colleen Batey**

A complete buckle, lacking its tongue (Cat 35) was found in a hollow near the top of pit Y. No precise parallels have been located, but it is in the Romanesque tradition, suggesting a date range of twelfth to thirteenth century. The treatment of the suggested bird is not unlike that illustrated from a crozier fragment from St David's Cathedral, Wales (Stratford 1984, 260, No 273), although in this case with an outstretched wing.

Cat 34 Complete buckle of concave form, lacking the tongue. The upper surface is subdivided into two lateral fields by a distinct V-shaped rebate for the missing tongue. The decorated face is somewhat worn, with traces of the original polished surface surviving in localised patches. Although the motif depicted is obscure and rather debased, both fields appear to have a creature, perhaps a bird, in profile. The bird on the left-hand side is somewhat clearer, indicating an extended neck surmounting an interlacing strand and with traces of feather-like treatment on the visible wing. It is possible that the opposing creature is of similar, though smaller, form. The present location of this



object is unknown. Trench C, pit Y. Length 34 mm, width 39 mm, max thickness c. 3-4 mm. The belt would have had a max width of 23 mm.

Iron key

A large door key (Cat 35) was found in Trench B. The shaft and bow have been distorted, apparently by a turning action. This may have taken place while the bit end was engaged in the corresponding lock, since it appears undistorted. The distortion is consistent with attempting to turn the key in an anticlockwise direction, using considerable force.

Cat 35 Complete key with a solid, tapering, circular cross-sectioned shaft and a roughly square bit with two parallel ward cuts. The roughly oval bow is set centrally on the shaft. The bow end of the key is distorted. Trench B, topsoil. Length 151 mm, width of bow 44 mm, depth of bit 22 mm.

Glass

Cat 36 is a neck fragment from a wine bottle of late eighteenth or early nineteenth century date. It has a bevelled rim and a broad string rim below this. There is also evidence, in the form of a slight constriction below the rim, that callipers or finishing irons were employed in shaping and levelling it.

Ccat 36 Neck fragment from a cylindrical wine bottle in green glass, with a band-like string rim and a constriction below this. There is slight surface deterioration. Topsoil. Surviving depth 85 mm, external diameter at rim 38 mm, internal diameter at rim 26 mm. (Not illustrated)

Ceramic object

Cat 37, found on a trampled floor or yard surface, is a discoid object, roughly fashioned from a sherd of glazed redware pottery of late medieval date (Derek Hall pers. comm.). Artefacts of this type are of unknown function but are frequently interpreted as gaming counters. Other examples from Fife include three in White Gritty fabric from excavations in St Andrews: at St Nicholas Farm, Auction Hall and Cinema House (Cox 1995, 66, Illus 11, No 24; Maxwell 1997, 92, Nos 272-3).

Cat 37 Disc or counter derived from a sherd of redware pottery, with a slight curvature

and a green to brown glaze on both faces. The fabric is moderately coarse and has an orange to red colouration, becoming grey towards the convex face (Trench B2, layer 2). Diameter 32 mm, thickness 6 mm.

332-336 High Street

Pottery (Figure 16 and Appendix 1)

by Derek W Hall

Trenches 1, 3, 4, 5 and 6 produced an assemblage of 227 sherds of pottery dating from the twelfth to nineteenth centuries. The largest group of material comes from Trench 5 (158 sherds).

All the *East Coast Redware* from this site is from green glazed jugs (Cat 38 and 39). These vessels exhibit the very distinctive purple random glaze effect which is due to the high iron content of the clay. There are 14 sherds of *White Gritty ware* from both jugs and cooking pots. In addition, there are 10 sherds of *Reduced Gritty ware* all from Trench 5, and all from glazed jugs (Cat 48).

The most common fabric from this site is *Reduced Greyware* represented by 100 sherds, largely from glazed jugs (Cat 44-47). Only five sherds of *Oxidised Redware* are present originating from a jug, a storage jar and two sherds from a single unusual vessel form (Finds Code CL, pit 52, in Trench 5) (Cat 40-43). The small jug has a vertical slot running down from its rim and its function is not known (Cat 42).

This later redware tradition dates from the fifteenth to eighteenth centuries and is often called 'Throsk-type ware' as it resembles the material being produced by the Throsk kiln site in the seventeenth and eighteenth centuries (Caldwell and Dean 1992, 1-46). A single sherd of *Yorkshire ware* (Finds Code EF, Pit 73 in Trench 5) was found on the site. A single base sherd (Finds Code DK, from Pit 73 in Trench 5) is from a jug in this rare *Green glazed (Seigburg) stoneware* fabric type (Cat 49). This stoneware was re-fired with a lead glaze to produce a glossy green colour that was more like the other highly decorated pottery of the North Sea area (Hurst et al 1986, 129). This material is dated to the fifteenth century and has also been found in excavations at Kildrummy Castle, Aberdeenshire, but it is not a common find from other Scottish sites (Apted 1963, 232.39).

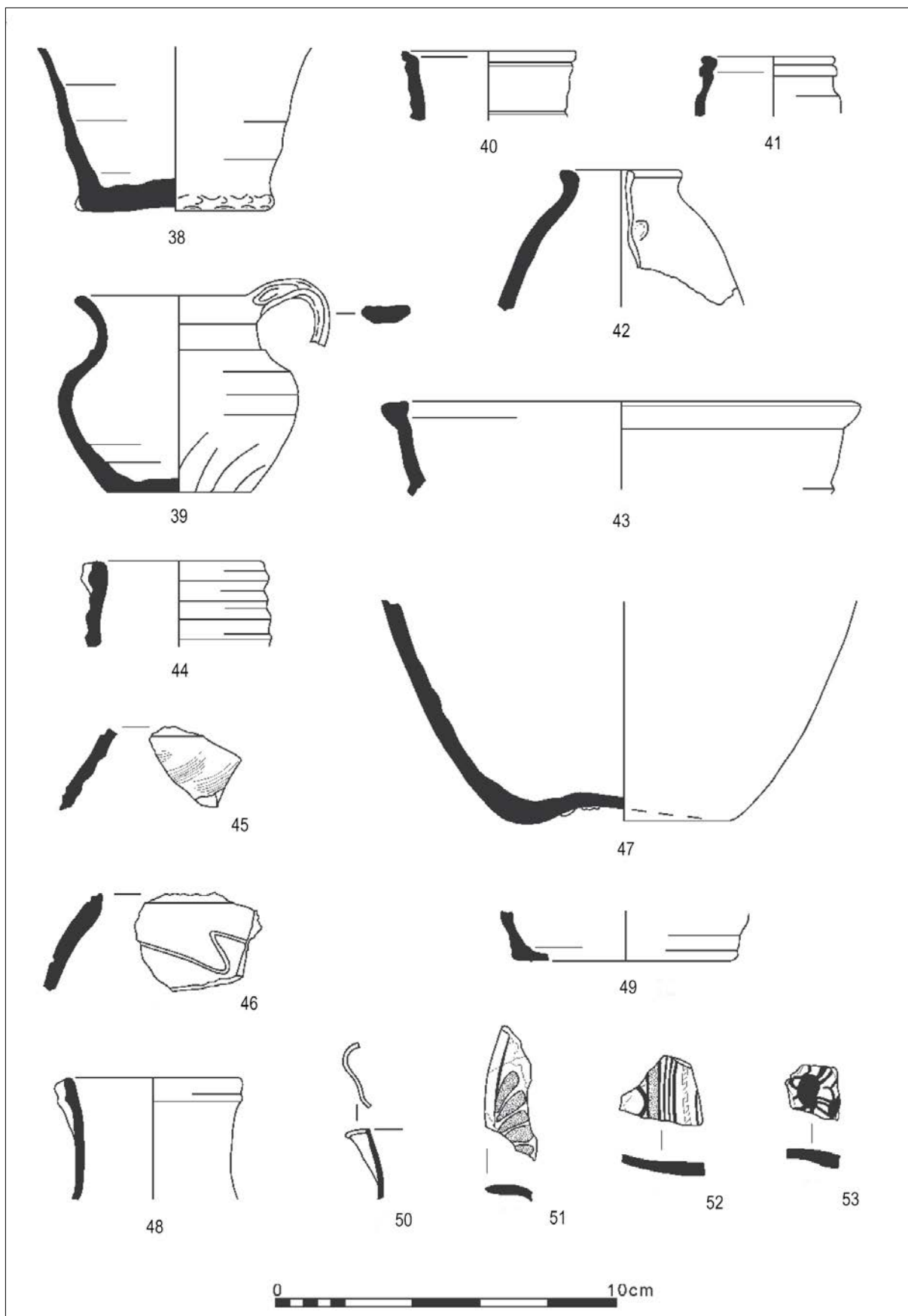


Figure 16: Pottery, 332-336 High Street, Cat 38-39 East Coast Redware, 40-43 Oxidised Redware, 44-47 Reduced Greyware, 48 Reduced Gritty ware, 49 Green glazed Siegburg stoneware, 50-53 unidentified fabrics (all scale 1:2).



Unidentified and modern pottery includes a single sherd (Finds Code BI from under wall 35 in Trench 4) of a brown glazed open vessel decorated with a yellow stripe on a white slip (Cat 50). It could originate from the Low Countries and date to the seventeenth century. It is similar to slip decorated redwares from Scalloway in Shetland (Lindsay 1983, 567). The other unidentified sherds include four bodysherds in a buff white fabric that is glazed blue, which may be North Netherlands Majolica (Hurst et al 1986, 119) (Cat 51-53), and a couple of sherds which may be of Northern English origin. There are in addition 19 sherds of early modern china.

Small finds (Figure 17)

by Adrian Cox

A range of finds was recovered from this excavation but of particular note are the metallic artefacts and post-medieval glass.

Copper alloy objects

Among the small group of copper-alloy artefacts are two pins (Cat 54 and 55) with heads formed from two turns of wound wire, attached to the top of the shaft by pinching or stamping, possibly in conjunction with an adhesive substance. Pins of this type have a long currency, being known from fourteenth century contexts in London and elsewhere (for example Egan and Pritchard 1991, 299-301) and only being superseded by one-piece pins in the nineteenth century, when the manufacture of pins had become fully automated (Tylecote 1972). In Cat 55, the head rests slightly below the top of the shaft. This may have occurred during the pin's manufacture or possibly during use. Cat 56, from the same context as Cat 54, is a pin shaft, possibly also belonging to this type.

A small loop of uncertain function Cat 57 was found beneath a recent tenement wall. It has a rounded protrusion on its outer edge and was originally circular, although now broken and distorted. An incomplete thimble Cat 58, found in the fill of a stone-lined pit, is a slightly smaller example than one found at 223-43 High Street (Cat 5 above), although of a very similar, tapering form with a slightly domed apex and closely-spaced machine knurling.

Cat 54 Complete pin with a pinched, wound-wire head and a circular cross-sectioned

shaft. Trench 3, Finds Code AP(a) from pit 25. Length 54 mm, width of head 3 mm, diameter of shaft 1 mm. (Not illustrated)

Cat 55 Complete pin with a wound-wire head and a circular cross-sectioned shaft. The top of the head is over 1 mm below the top of the shaft. Trench 4, Finds Code BC from pit 41. Length 40 mm, width 3 mm, diameter of shaft 1 mm.

Cat 56 Two conjoining fragments representing a pin shaft of circular cross-section, including the point. Trench 3, Finds Code AP(b) from Pit 25. Length (conjoined) 33 mm; diameter 1 mm. (Not illustrated)

Cat 57 Broken loop of sub-rectangular cross-section, with a small, rounded protrusion (length 2 mm) on the outer edge. Distorted. Trench 4, Finds Code BG, layer B, under wall 35, Find No 113. Length 31 mm, width 2 mm, thickness 2 mm. (Not illustrated)

Cat 58 Fragment representing the upper portion of a small, domed thimble, increasing in diameter towards the missing base. Machine-knurled indentations cover the entire surviving surface area. Roughly broken above the base. Trench 5, Finds Code BY, from pit 52. Surviving height 14 mm, max surviving diameter 14 mm. (Not illustrated)

Lead alloy objects

An assemblage of fourteen window came fragments was recovered from a possible trackway in Trench 4. All exhibit the characteristic H-shaped profile, enabling individual pieces of glass to be joined within a lattice-type framework of cames.

Two of the fragments include soldered joins, where individual cames joined to create angles of approximately 90°, although they are now distorted. All of the fragments have been crushed and distorted to some extent. They may have been collected together and intended for recycling, or be derived from demolition material. The largest fragment (Cat 59) would have surrounded two pieces of glass within a window, and a small fragment of one pane survives *in situ*.

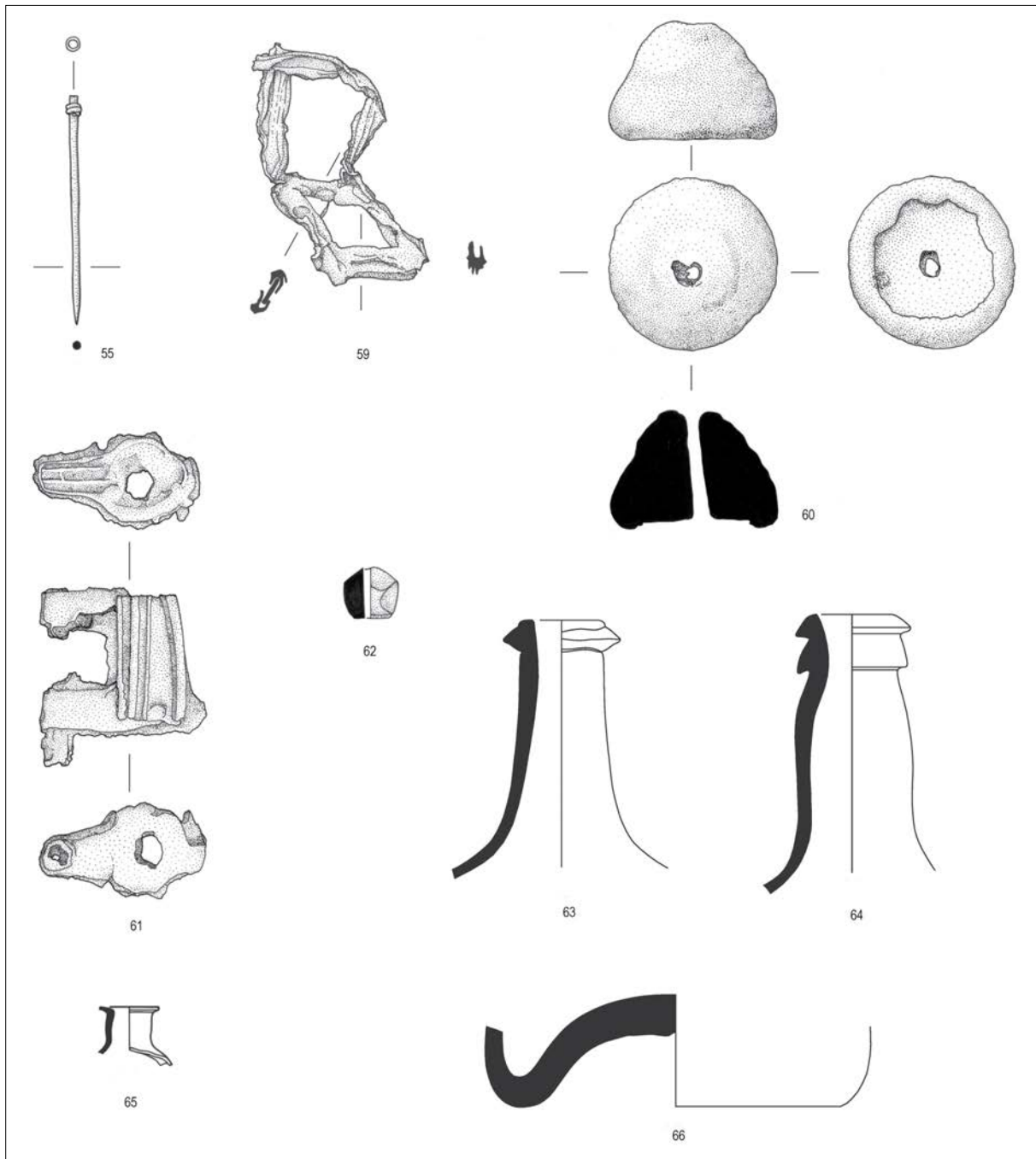


Figure 17: Small finds from 332-336 High Street, Cat 55 copper-alloy pin, 59 lead came (scale 1:1); 60 lead weight, 61 iron padlock casing, 62 glass bead, 63-65 glass bottle necks, 66 glass bottle base (scale 1:2).

Cat 60 from the fill of a stone-lined pit in Trench 5, appears to represent a weight. It is of a simple, conical form and its precise mode of use is unknown. The perforation through its vertical axis may have been used to suspend it, possibly on the end of a metallic rod. Alternatively, the object may have formed a weighted base.

Cat 59 Window came forming part of a lattice to hold lozenge-shaped panes of glass. A fragment of glass (length c. 12 mm) survives within the smaller of the two

lights. The came itself exhibits an H-shaped profile although it is crushed and distorted. Trench 4, Finds Code CG from pit 55, Find No 106. Length 95 mm, max overall width 50 mm, thickness 3 mm.

Cat 60 Weight of conical form, perforated through the centre (width of perforation 6 mm). Trench 5, Finds Code BW from pit 52, Find No 109. Max diameter 55 mm, thickness 41 mm.



Iron padlock casing

Barrel padlocks were in almost universal use during the medieval period (Goodall 1981, 60) for locking doors and gates, chests and boxes. The form of Cat 61 resembles that of a plainer and slightly smaller example found at Alvechurch, Hereford and Worcester (Oswald 1954, 8). Padlock casings with attached strips or ribs like those on Cat 61 have been found at several Scottish sites, including Meal Vennel and Scott Street, Perth (Cox 1996, 779, 805), Aberdeen (Goodall 1982, 188) and Rattray, Aberdeenshire (Goodall 1993, 179). The raised ribs may have performed a dual function, being both decorative and protecting the padlock casing from hammer blows.

Cat 61 Casing of a barrel padlock, consisting of a cylindrical housing for the spring part of the lock mechanism and a separate tubular housing for the bolt. The mechanism housing is decorated by raised, vertical ridges. The internal mechanism is entirely missing. Unstratified, Find No 107. Length 60 mm, width 51 mm, max thickness 28 mm.

Glass bead

Found in Trench 6, Cat 69 is part of a bead of faceted form in almost colourless, translucent glass. Although similar in size, it is of quite different form to the ovoid and spherical blue glass beads found at 223-43 High Street (Cat 16-18 above). It much more closely resembles a bead of probable seventeenth or eighteenth century date found in a longhouse at Allt na Moine Buidhe in highland Perthshire (Cox 1999, 121, Illus 8, No 21).

Cat 62 Fragment representing approximately half of a faceted bead in translucent, almost colourless glass with a slight blue tint, broken across a circular perforation. Trench 6, Finds Code DH, Find No 108. Length 8 mm, diameter 11 mm, diameter of perforation 3 mm.

Bottle glass

The bottle glass assemblage from this excavation consists mainly of small fragments of cylindrical wine bottles of nineteenth century date, although there are fragments of a slightly earlier date among the group, as exemplified by Cat 63, 64 and 66, described below.

Cat 63, found in Trench 5, was probably made between 1700 and 1730. Although only a small part of the shoulder survives, this appears to be quite a typical 'onion' form, with a short, tapering neck and a neatly bevelled string rim. This form of string rim replaced the disc-like forms of the late seventeenth century and was achieved using callipers, applied above and below the rim. The constriction on a bottle's neck that sometimes resulted from the use of callipers can more easily be seen on Cat 64, found in trench 4. This neck fragment is from a bottle of more upright, more cylindrical form. It has a deflexed, band-like string rim, and is from a wine bottle of probable late eighteenth century date.

Squat 'onion' bottles like that represented by Cat 63 had broad bases with rounded kick-ups, as exemplified by Cat 66. One of the kick-up's functions was to ensure the stability of the bottle. Another was to ensure that the pontil mark, which in some cases included a mass of glass fragments adhering to the base of the bottle, was lifted clear of the surface upon which the vessel rested.

Find Cat 65 is a neck and shoulder fragment from a small, short-necked, probably straight-sided bottle. Similar types were used to contain medicines, chemicals and poisons. It is probably of nineteenth century date.

Cat 63 Neck fragment from a wine bottle of squat form, in green glass, with a narrow, bevelled string rim immediately below the rim. The fragment is broken above the bottle's shoulder and exhibits slight surface deterioration. Trench 5, Finds Code DY from pit 52, Find No 102. Surviving depth 82 mm, external diameter at rim 35 mm, internal diameter at rim 22 mm.

Cat 64 Neck fragment from a cylindrical wine bottle in dark green glass, with a bevelled rim, a broad, band-like string rim and a constriction below this. There is slight surface deterioration. Trench 4, Finds Code BN, Find No 103. Surviving depth 93 mm, external diameter at rim 35 mm, internal diameter at rim 24 mm.

Cat 65 Neck and part of the shoulder of a small bottle in translucent, colourless glass, with a flat, flaring rim and a short neck. Trench 5, Finds Code CJ, layer A in pit 52, Find No 104. Surviving depth 20 mm, ex-



ternal diameter at rim 21 mm, internal diameter at rim 11 mm.

Cat 66 Two conjoining fragments of a wine bottle base, in green glass, with a broad, rounded kick-up and a light, roughly circular pontil scar. There is some surface deterioration. Trench 5, Finds Code CK, layer B in pit 52, Find No 105. Surviving depth 28 mm, surviving diameter 134 mm, footprint diameter c. 110 mm.

Ceramic roof tile

Only two fragments of ceramic roof tile were recovered (Trench 5, Finds Codes CC and CL from pit 52). Both are from curved tiles in a red to orange, moderately coarse fabric (thicknesses 12-15 mm), and each has one sanded face.

Discussion of the artefact evidence

The excavations on Linlithgow High Street provided an opportunity to examine a variety of artefactual evidence, ranging in date from the twelfth or thirteenth centuries until recent times. The medieval artefacts discussed here occurred mainly as isolated finds rather than as components of discrete assemblages. Nevertheless, some examples, like the Romanesque buckle from 324 High Street and the padlock casing from 332-6 High Street, extend the range of known types from this part of Scotland although they are difficult to precisely parallel elsewhere.

Among the post-medieval material, a small group of iron objects from a pit fill at 223-43 High Street includes an interesting concentration of knives and of lock components. Two of the scale tang knife fragments come from similar knives, and these may have been used within the property at 223 High Street, being discarded when they became worn or were broken. A group of glass beads from 332-6 and 223-43 High Street includes examples, which, although similar in size, exhibit a variety of forms and irregularities, serving to demonstrate the lack of any rigid standardisation in manufactured items even in the eighteenth and nineteenth centuries.

Environmental remains: animal bone, antler and mollusc shell

By Catherine Smith

223-243 High Street

A small number of animal bones was recovered from the site. Species represented are sheep/goat (one complete right humerus and one proximal left radius), small ungulate (probably sheep; eight fragments), cat (one vertebra) indeterminate mammal (two fragments) and fish (one bone). One small ungulate vertebra has been gnawed by a rodent such as a rat. Two fragments of mollusc shell are probably from mussel (*Mytilus edulis*) and one from oyster (*Ostrea edulis*).

The sheep humerus had a greatest length (GL) of 148 mm and was estimated to have come from an animal of approximately 63.3 cm measured at the shoulder. This is within the height range of from 46.8 cm - 65.8 cm recorded for medieval sheep from urban sites, although in the upper part of the range. By comparison, a typical primitive Soay sheep may stand at about 59 cm.

On the basis of their size, the bones may represent redeposited medieval or post-medieval material, or, possibly, may have come from small early modern animals.

324 High Street

The animal bone and shell from this site was unfortunately poorly preserved, and consisted of a small number of fragments from the following species: cattle (one mandible fragment), sheep/goat (one left astragalus), horse (one incisor tooth), small ungulate (two rib fragments), indeterminate mammal (one butchered fragment) and oyster (*Ostrea edulis*; three fragments).

Evidence of butchery was apparent only on the indeterminate mammal fragment, which bore two deep hack marks caused by an axe or cleaver (Trench C; interstices of the east/west wall ?B).

332-336 High Street

Antler (Figure 18, Cat 67 and 68)

During the excavation of this site, a quantity of animal bones was retrieved. These bones were recorded in the site finds book and, according to the archive, included jaw bones, teeth and horn



cores, possibly of sheep and cattle. Unfortunately, although two boxes of faunal material were deposited in the National Museum of Scotland in the 1970s, the bones recorded in the site finds books were not. The surviving assemblage, on loan from the NMS, consists almost entirely of offcuts of red deer antler, one sheep horn core, one cattle calcaneum, one cattle metatarsal and one indeterminate mammalian fragment initially (erroneously) identified as antler. Despite efforts to locate the missing material in other museums in the Linlithgow area and Historic Scotland's stores, the bones have not been located, and it seems likely that they have been discarded or otherwise lost. The present report is therefore of necessity concerned only with the surviving antlers.

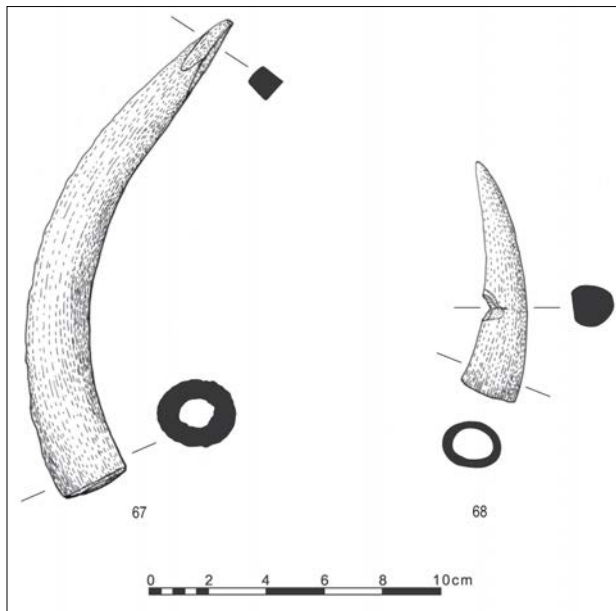


Figure 18: Antler from 332-336 High Street, Cat 67 and 68.

Natural history and morphology of antlers

The medieval antlers from Linlithgow all appear to have come from the red deer (*Cervus elaphus*). There is no indication that any were from the smaller roe deer (*Capreolus capreolus*), although this species is also native to Britain.

Antlers are borne only by the male red deer, the stag. They are produced annually: in Scotland at the present day, the previous year's antlers are shed or cast between mid-March and July (Staines 1980, 12). New antler growth starts within a few weeks of casting the old ones, and is complete by October, depending on the maturity of the individual stag. Thus there are two ways for craft workers to obtain antler: if the location of a

herd of deer is known, the naturally cast antlers may be collected at the appropriate time of the year; or they may be obtained from the carcasses of deer which have been hunted and killed. There was evidence of both in the collection of cast antlers and the use of antlers from slaughtered deer in the Linlithgow assemblage.

Antlers are formed on bony protuberances called pedicles which themselves arise from the frontal bone of the skull. When the antlers are shed, the pedicles remain attached to the skull. Thus any fragments which contain part of the pedicle must have come from deer which were killed. Fragments which include the burr, or coronet, which is identifiable by the ring of bony nodules which surround it, can be examined for evidence of shedding. In red deer, the area just below the bony nodules shows a characteristic convex porous surface when cast.

Antler morphology changes as the animals become older and larger. Arising from the burr is the main 'shaft' or beam, of the antler, on which are borne a number of tines, which increase in number with each year of the animal's life. The sequence of tine production is as follows: in the first year, a simple spike appears after the age of 10 months. In the second year, one tine, the brow tine, is added to the spike. In the third year, a further tine, the trez tine, is added. In the fourth year the antler consists of a brow, trez and two tines known as points on top or crown tines. In the fifth year, the bez tine is added (positioned between the brow and trez tines). In subsequent years, crown tines are added at the rate of one per year (Cornwall 1956, 67-9; Staines 1980, 12-14). Thus, it may be possible to estimate the age of the living animal, depending on which part of the antler has survived.

Types of antler offcuts found at linlithgow

A catalogue of the fragments recovered from the excavation is shown in Table 1 (see Appendix 2). The majority of the antler pieces (74) have the field code FI, although a smaller number (six fragments in all) are denoted EI or EII. A small number of other mammalian fragments is also included in the catalogue, since they are the only surviving evidence of the bone assemblage from species other than deer.



Type	Offcut consisting of:	No of examples
I	Burr, beam and brow tine	9
Ia	Frontal bone of skull, pedicle and burr	2
Ib	Beam and brow tine (burr absent)	3
II	Tine: tip intact; base sawn across	22
IIa	Tine: tip intact; base sawn across; central hole bored/drilled in base	2
IIb	Tine: tip pared; base sawn/chopped across	4
IIc	Crown tines: base sawn/chopped across	2
III	Tine cross-section (length variable): tip and base of tine sawn/chopped across	10
IV	Tine: split longitudinally (tip and base may be sawn)	9
V	Beam: split longitudinally (tip and base may be sawn)	3
Va	Beam: split into wedge shape (i.e. split longitudinally in 3 or 4 different directions)	2
VI	Beam cross-section: tip and base sawn across	3
VII	Internal (cancellous) core material only	6
VIII	Beam and one or more intact tines	3

Table 2: Summary of antler offcut types with numbers of examples

The antlers are grouped into offcut types, according to which part of the antler is present and the direction in which it has been sawn or chopped. There may be some degree of overlap between the fragments, but it is hoped that the main offcut types have been separated in this way.

The numbers of antler offcuts falling into these descriptive categories is shown in Table 2. It can be seen that certain offcuts are better represented than others, for example, category I, consisting of the base of the beam, burr and brow tine. Types I, Ia and particularly Ib represent an attempt on the part of the craftsman to minimise the amount of material which was of little further use, and to conserve the maximum amount of useful material from the beam and the brow tine. The beam would then be sawn across at its junction with the nearest branching tine, resulting in beam cross-section fragments such as those in category VI (three examples). Splitting the beam lengthwise resulted in either fragments in category V or Va (longitudinally split beam; five examples). The beam fragments with evidence of having been split only once (or perhaps twice) are probably the waste from the manufacture of composite combs (three examples). As illustrated in Macgregor (1985, 68, 69) they could be transformed into the side plates which, when riveted on either side of the comb tooth plates, hold the finished comb together.

Beam fragments which are split in more than two longitudinal directions (category Va; two examples) are probably not deliberate attempts to produce wedges, although they may have

been used as such. Antler wedges are known to have been used to split antler beams at Viking age Hedeby, where a discarded beam was found with a wedge still *in situ* (ibid 57, Figure 34).

It is surprising that so many tine tips were discarded; in some cases these were removed very roughly by chopping. The tips of the tines might have been worked into a variety of small objects. The fact that they were thrown away, unused, indicates that the craftsman who discarded them was perhaps mainly concerned with manufacturing items such as combs which did not utilise tine tips. Some of the discarded tines, however, show evidence of paring of their tips by knives (as opposed to the natural polishing which is acquired during the life of the deer). The paring is usually rough and does not always occur on all faces of the tine. The reason for paring the tip is not clear, particularly since the tines were then discarded. In the case of the antler tines with holes bored or drilled into their bases (offcut category IIa, from FI 153, 190, and EI 165, 81 (Figure 19, Cat 67 and 68), the intention was probably to produce a socketed handle for an implement such as a knife.

There is no direct evidence from the site of the tools used to produce these offcuts, but the marks on the antlers show that saws were of great importance in detaching the beam from the burr. One method seems to have been to saw into the beam from one oblique direction, then once again to remove the brow tine; the saw was then removed and the main beam snapped off, leaving a rough central lug, of varying size. When the beam was sawn across at its far end,



the tendency was to stop the saw before reaching the outer edge and snap off the beam, this time producing a lateral edge lug. One type Ia offcut (FI 106, 207) shows a saw cut, 1.3 mm wide on the beam, which is a good indicator of the width of the blade. MacGregor (1985, 55) notes a range of saw cut widths of from 0.1 mm, for fine work, to 2.6 mm in material of comparable date.

Saws were not the only tools to have been used at Linlithgow. Two deer skull fragments were butchered using axes (FI 106, 207; FI 149, 186), and there was evidence that tine tips were often chopped off roughly, rather than sawn neatly. Animal bone evidence from medieval sites across Scotland indicates that axes or cleavers were the commonplace tool of the fleshing trade; saws were rarely, if ever employed in disjuncting carcasses, their use being reserved for removing valuable parts such as horn cores or occasionally, the metapodial bones of cattle, if these were intended for artefactual use. The single sheep horn core (FI 97, 465) preserved amongst the antler assemblage from this site was in fact sawn across, indicating that the horn was to be removed for further work. It may be surmised that the craftsmen responsible for the antler offcuts were also concerned with hornwork, although most of the evidence is now unfortunately lost.

In addition to saws and axes or cleavers, wedges (as noted above, possibly made of antler) may have been used to split the antlers lengthwise. However, some of the Linlithgow antlers appear to have been split using a metal blade. In one example a chisel may have been used: several 'stop' marks where the tool rested are visible on the internal cut surface (FI 107, 227).

Evidence of size of live animals

It is well known from the fossil and archaeological record that the British red deer has varied in size throughout its history (Noddle 1982). The general trend has been a diminution in stature, although there are variations depending on geographical location. Faunal evidence from both English and Scottish sites indicates that medieval deer were substantially larger than their modern day counterparts. To date, the body of data for medieval Scotland is not large, however, thus the material from Linlithgow has added greatly to the evidence we already possess. It is to be regretted that most of the animal bone from this site (with

the exception of the antlers) seems to have been lost, since it is possible that post-cranial bones of deer may have been present.

Anatomical measurements of the Linlithgow antlers, consisting of measurements of the diameter and circumference of various points on and around the burr are summarised in Table 3. Alongside the Linlithgow results are shown measurements, of a similar date range, from urban sites excavated in Scotland. It should be noted that measurements of the maximum and minimum burr diameter were only available for Linlithgow, and in addition, the sample sizes from other towns were very small indeed. However, it seems that the Linlithgow antlers are comparable in size to those from Perth, Elgin, Aberdeen and Inverness, and may well represent larger animals. For example, the mean measurement of the circumference of the burr (von den Driesch #39 (1976, 36-7) for Linlithgow is 221.4 mm; none of the antlers from other sites exceeded this mean measurement. However, some measurements of the circumference of the antler pedicle (von den Driesch #40) are larger than the Linlithgow mean of 143.5 mm. Two antlers from the High Street in Elgin and one from 42 St Paul Street in Aberdeen are larger than the Linlithgow mean, and both of the Elgin examples exceed the Linlithgow maximum measurement (Hodgson and Jones unpublished; Hodgson and Jones 1982).

Age of the deer

Since antlers are cast each year, as outlined above, the age information they provide is dissimilar to that from other animal bones in that an antler may not represent an animal that has died or been killed. In the Linlithgow antler assemblage, there was direct evidence of cast surfaces, indicating that these were not from dead animals, while two skull fragments very definitely were. Shedding of antler therefore poses a problem, in that the age at death cannot be stated. Instead, only a least age at the time of shedding of the antlers can be postulated, based on the presence or absence of particular tines which as noted above appear in a set sequence each year. For a large number of the Linlithgow antlers where the burr is not present, it cannot be known whether the antler was cast and therefore represents a live animal, or whether its origin was from a dead one. These are however included in Table 4 as 'indeterminate' antlers. There were more examples retaining



the brow tine than any other (nine specimens), but as this is tine present from the second year of the animal's life onwards, it gives a very low minimum age. The oldest animals present at Linlithgow were in at least their seventh year, based on the evidence of four crown tines or 'points on top'. At least two animals had reached

this stage of their development. By contrast, the skull fragments were heavily butchered, only their brow tines surviving, and so were in at least their second year. However, they, and probably a substantial number of the other animals, were most likely to have been much older, given the robust dimensions of the antlers.

Site	Context	Max diameter burr	Min diameter burr	von den Driesch #39	von den Driesch #40	von den Driesch #41
Linlithgow: 326-332 High Street	FI 106	72.5	69.0	227	137.0	210
	FI 106	73	62.4	210		182
	FI 107	72.4	67.4	218		183
	FI 107	70.2	65	210		185
	FI 120	78.4	67	227		186
	FI 130	83.6	77	255		210
	FI 149	79	67	226	150	208
	FI 225	86.4	79	256		239
	FI 257	69.8	59.6	201		141
	EI 159	65.2	57	186		156
	EII 11 Pit 3	73.6	65.5	219		193
	Linlithgow range	65.2-86.4	57-77	186-256	137-150	141-239
	n	11	11	11	2	11
	Linlithgow mean	74.9	66.9	221.4	143.5	190.2
Elgin: High Street (HS77)				193	158	124
				201	174	
Inverness: Castle Street					141	
Aberdeen: 42 St Paul Street				142	141	
				183	146	
Aberdeen: Queen Street				132	130	
Aberdeen: Gallowgate Middle School				140		135
Perth : Meal Vennel				221	130	195

Table 3: Summary of red deer antler dimensions from Linlithgow, Elgin, Inverness, Aberdeen and Perth

Tines present	Age inference	No. of examples
Brow tine	In 2nd year or over	9
Trez tine	In 3rd year or over	1
2 points on top	In 4th year or over	2
Bez tine	In 5th year or over	2
4 points on top	In 7th year or over	2

Table 4: Minimum age of cast or indeterminate antlers

Note: 'indeterminate' is defined as an antler fragment in which neither a cast surface or part of the skull is present; i.e. it is not known whether the fragment has come from a live or dead animal.



Conclusions

The antler assemblage from Linlithgow is a most interesting one and has provided evidence of craft working on a larger scale than previously found in excavations of medieval urban Scottish sites. Occasionally a few pieces of antler are found in such excavations, but never in such quantities. Red deer formed only a small component of the mammal bone assemblage in the Perth High Street excavations (Smith 2011, 84) but there was some evidence of the working of antler predominantly for combs, dies and handles (MacGregor 2011, 106-117). A series of large pits on the west High Street site has been interpreted as evidence of tanning, a craft which was practised in medieval Linlithgow by the incorporation of cordwainers or shoemakers (Brooks 1973, Simpson and Stevenson 1981, 2-3). Although antler offcuts are not directly connected with either tanning or shoemaking, it is probable that crafts utilising animal-based products might be concentrated in particular parts of the town.

Mollusc shell

Shells of marine molluscs were also recovered from this site. Most common were the oyster shells (*Ostrea edulis*), of which 17 upper valves, 21 lower valves and 22 fragments survived. There was evidence of drill holes in some of the oyster shells, presumably made by the parasitic oyster drill or sting winkle (*Ocenebra erinacea*). The oysters were probably collected from the Forth oyster beds.

Two shells from wulk/periwinkle (*Littorina littorea*) and one from the buckie (*Buccinum undatum*), both common marine gastropods, were also found. Oysters, wulks and buckies are all edible and presumably were eaten by the inhabitants of the site, although the latter two may also have been used to bait fishing lines.

General discussion

By David P Bowler

The documentary evidence (Perry, above) shows the importance of tanning and related trades to Linlithgow in general, and the excavated sites in particular. There were shoemakers at 324 High Street (the 1966 excavation) in the eighteenth century, and at the adjacent 326 High Street from the seventeenth century to the nineteenth. At

the adjacent 330 High Street there was a skinner and a shoemaker in the seventeenth century, a cordiner, a shoemaker and a flesher in the eighteenth century, and a shoemaker and leather merchant in the nineteenth. Finally, at 332 High Street (part of the 1973 excavation) there was a shoemaker and the deacon of shoemakers in the seventeenth century, and a tanner and shoemaker in the eighteenth. Catherine Brooks's interpretation of the pre-seventeenth century structures, as evidence of tanning, fits well with this evidence, and extends the history of tanning in this area back into the fifteenth and sixteenth centuries.

The addition of the largest assemblage of antler waste ever found in a Scottish burgh (Smith, above) from 326-332 High Street (the 1973 excavation) confirms the remarkable concentration of animal product industries in this part of Linlithgow, and compares well with the excavated evidence of intensive and repeated construction of tan pits and related structures in tightly constrained sites. By way of comparison, Perth is known to have been very active in the leather trade, and has produced abundant evidence of leather working (Thomas and Bogdan 2012), but not, so far, evidence of a 'tanners quarter'; this may well have been in and around the Skinnergate, so far largely unexcavated. The possible tan pits from Scott Street, Perth (Cox 1996) were near the edge of the medieval burgh and much less intensively clustered. Conversely, the rather well-preserved wood-lined tan pits from Leadenflower Road, Crieff belong to the much later (1799 - c.1865) Croftnappock Tannery (Coleman 1993).

Evidence of medieval and later industry is one of the priorities for fieldwork identified in the Scottish Burgh Survey of Linlithgow (Dennison and Coleman 2000, 118f, priority 11). It is clear that, for the tanning trade especially, there is abundant documentary evidence and substantial archaeological material. As the pits tend to cluster in the rear of the properties, there is a greater possibility that further material may be excavated in future, in the course of rear extensions and infill developments, whereas large scale development on the frontage is less likely to be repeated. There may well be the opportunity to excavate and record under modern conditions, and to apply a range of scientific analyses not generally available in the 1960s and 1970s, for example to understand the physical details of



the tanning process, and perhaps even to trace developments in technique over time.

The widening of Linlithgow High Street after 1820 seen in the cartographic and archaeological evidence is an interesting exception to the trend seen in many of the other burghs where consistent encroachment into the street took place from medieval times onwards. Even in Linlithgow, the process of encroachment on the High Street is well-documented, for example in 1643 when Bailie Robert Bell was permitted to move his gable end ten feet forward into the street, and in 1666, when James Henderson was initially permitted to extend his forework, though this was later disputed (Dennison and Coleman 2000, 37, 33f). Linlithgow is unusual in having successfully reversed this process. Variation in street alignments and widths is another of the priorities identified in the Burgh Survey (ibid, priority 7). Wall foundations and surfaces clearly survive quite well in Linlithgow, so evidence of earlier variations might also be found, but where the nineteenth century widening has taken place, the evidence will be under the street and pavement rather than under the standing buildings. On the one hand, the evidence may be badly disturbed by services, but on the other, it may be frequently exposed by repairs and renewals, whereas High Street redevelopment is relatively rare. Watching briefs on cable and pipe trenches may be of special interest here.

Similarly, the well-preserved and complex sequence of walls, surfaces, closes and pits should in principle throw light upon the nature and layout of the burgh plots, another of the identified priorities in the Burgh Survey (ibid, priority 9). In practice, the evidence from these sites was too fragmentary to draw ambitious morphological conclusions, but it is clear that the evidence is likely to survive on other similar sites in the High Street. It is unlikely that Linlithgow will experience such large scale redevelopment again, but even quite small sites if fully recorded could provide significant results.

The redevelopment of such a large area of medieval Linlithgow in the 1960s and 1970s exposed a very important, perhaps unique example of a medieval and later industrial quarter in the burgh. It is most regrettable that resources for investigation at the time were so restricted, but fortunate that so much information was

nevertheless recovered and preserved. At the same time, these sites clearly demonstrated the quality of surviving evidence in the burgh and the potential for further investigation as other sites become available, particularly in relation to street widths, burgh plot morphology, and the development of medieval and later industry.

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Archives

All of the surviving records were archived to RCAHMS in October 2008. The records archive consisted of both original records and those generated during the more recent post-excavation process. The surviving finds assemblage was returned to NMS in late November 2007 and the pottery from the 1966 excavation in 2011.

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Appendix 1: Catalogue of illustrated pottery

Site	Type	Catalogue No.	Description
223-243 High Street, 1977	East Coast Redware	Cat 1	Rim and folded handle from skillet with traces of internal green brown glaze on a purple wash with external smoke blackening (pit 9, Find No 18)
-	-	Cat 2	Base and sidewall from small squat vessel externally glazed green on a purple wash, with traces of knife trimming above the base (pit 9, Find No 18)
324 High Street, 1966	White Gritty ware	Cat 24	Rim sherd from cooking pot with slight external smoke blackening (Trench C, layer 6)
-	-	Cat 25	Rim sherd from cooking pot (Trench C, layer 6)
-	-	Cat 26	Rim sherd from cooking pot with slight traces of external smoke blackening (Trench C, pit Y)
-	-	Cat 27	Base sherd from cooking pot with external smoke blackening and spots of green glaze (Trench B1, layer 3)
-	-	Cat 28	Narrow strap handle from jug with traces of white slip (Layer CW2, lower fill of pit W)
-	East Coast Redware	Cat 29	Base sherd from jug with spots of green glaze and traces of smoke blackening (Trench C, layer CW1, upper fill of pit W)
-	Reduced Greyware	Cat 30	Rim and neck from jug, glazed green (topsoil)
-	-	Cat 31	Body sherd from jug, glazed green with incised decoration (Trench C, layer 2)
-	-	Cat 32	Rim sherd from chamber pot, glazed green (Trench B, layer 1)
-	Stoneware	Cat 33	Rim sherd from white glazed jar decorated with floral design and perforated holes (topsoil)
332-336 High Street 1973	East Coast Redware	Cat 38	Reconstructed splayed base and side walls from jug with traces of external green glaze on a purple wash. (Trench 5, Finds Code CY, above pit 51 and EI from pit 51)
-	-	Cat 39	Reconstructed single handed jar with splashes of green glaze internally and externally on a purple wash. (Trench 3, Finds Code AF from pit 24)
-	Oxidised Redware	Cat 40	Rim sherd from jug glazed brown on a purple wash (Trench 5, Finds Code FB from Pit 82)
-	-	Cat 41	Rim sherd from a storage jar glazed green on a purple wash (Trench 6, Finds Code DH)
-	-	Cat 42	Rim sherd and sidewalls from small jar with vertical slot glazed green internally and externally (Trench 5, Finds Code CL from pit 52)
-	-	Cat 43	Rim to base profile from open vessel form with internal brown glaze (Trench 4, finds Code BL from pit 46)
-	Reduced Greyware	Cat 44	Heavily ribbed jug rim with pulled spout externally glazed brown (Trench 5, Finds Code DY from pit 52)
-	-	Cat 45	Body sherd from jug with external green glaze and combed decoration (Trench 4, Finds Code BK from pit 41)
-	-	Cat 46	Body sherd from jug with external green glaze and incised zig-zag decoration (Trench 5, Finds Code CD from pit 52)
-	-	Cat 47	Reconstructed base and sidewalls from green glazed jug with stacking mark on base (Trench 5, Finds Codes DC and DW from pit 51)
-	Reduced Gritty ware	Cat 48	Rim and neck with pulled spout from jug externally glazed green on a purple wash. (Trench 5, Finds Code EZ from pit 73)
-	Siegburg stoneware	Cat 49	Base sherd from jug with traces of green glaze (Trench 5, Finds Code DK from pit 73)
-	Unidentified fabrics	Cat 50	Rim sherd from fine stoneware vessel, glazed white internally and externally (Trench 4, Finds Code BI layer B at E end of wall 35)
-	-	Cat 51	Rim sherd from yellow earthenware plate decorated with blue and brown pattern (Trench 4, Finds Code BI layer B at E end of wall 35)
-	-	Cat 52	Body sherd from plate in white earthenware decorated internally with blue and brown lines on white background and external light green glaze. (Trench 5, Finds Code DU from pit 51)
-	-	Cat 53	Body sherd from plate in red earthenware with internal blue decoration on white glaze and external pale grey glaze (Trench 5, Finds Code DW from pit 51)



Appendix 2: Table 1: Catalogue of antler fragments from 326-332 West High Street, Linlithgow

Notes:

It has been assumed that the first code number, taken from the original finds bags, is a context number (circled) and the number within a triangle is a finds number. A further number, placed within a rectangle, is also given, here designated 'Catalogue number'.

Conventional anatomical measurements are shown in italics; 'vdD' refers to the measurement scheme of von den Driesch (1976, 36-7); thus vdD #39 = circumference of the antler burr; vdD #40 = circumference of the distal end of the pedicle; vdD #41 = distal circumference of the burr, measured at the base of the beam. In addition, the maximum and minimum diameter of the burr has also been measured where possible.

All other measurements refer merely to the dimensions of the offcuts and are not conventional anatomical measurements, although they serve to indicate the dimensions of the antlers. However, the measurements are orientated in a similar way to true anatomical measurements. Thus 'length' is measured from base to tip of the antler, while 'breadth' is an indicator of the diameter of the tine.

Field Code FI

Context	Find	Catalogue number	Description	Details	Measurements	Offcut type (see key)
57	176	3667	Antler tine	Tip of tine intact; unmodified. Base roughly hacked across. At least 4 separate hack marks apparent.	Length: 62.6 mm	II
57	177	3668	Antler tine	Tip of tine intact. Small hack on lateral edge, with paring mark near tip. Otherwise unmodified. Slight polish near tip is probably natural rather than man-made. Base sawn across, from two opposite directions, forming small central lug.	Length: 62.2 mm	II
57	178	3669	Split antler tine	Tine split longitudinally. Outer (pearled) surface intact except for small area where it has flaked off, due to a badly aimed axe stroke. Base of tine sawn cleanly across, with very small lug at edge.	Length: 144 mm Breadth: 30.4 mm	IV
97	465	5221	Sheep left horn core	Probably from a male. Base of horn core sawn across, then snapped off, leaving internal lug. Tip of core is broken off.	-	-
106	200	3671	Antler tine	Tip of tine intact, with some abraded marks which may be due to natural wear. Base of tine roughly hacked across, leaving lug on lateral edge.	Length: 42.6 Max diameter base: 16 mm Min diameter base: 15 mm	II
106	207	3672	Red deer skull fragment with pedicle, burr, base of beam and brow tine	Frontal bone of skull chopped twice in sagittal plane. Beam and brow tine sawn off. Deep saw cut present on beam. Further hack marks at base of brow tine.	max diameter burr: 72.5 mm min diameter burr: 69.0 mm vdD #39: 227 mm vdD #40: 137 mm vdD #41: 210 mm	Ia
106	208	3673	Cast antler burr, with base of beam and brow tine	Beam and brow tine sawn cleanly at oblique angles, meeting in centre of offcut.	max diameter burr: 73 mm min diameter burr: 62.4 mm vdD #39: 210.0 mm vdD #41: 182.0 mm	I



Context	Find	Catalogue number	Description	Details	Measurements	Offcut type (see key)
106	209	3674	Antler tine	Tip sawn across, with lug and stray saw cut marks. Base sawn across cleanly, with deep cuts on one face and areas of paring (by axe or knife blade) on 2 adjacent faces.	Length: 103 mm Max diameter base of tine: 24.6 mm Min diameter base of tine: 22.6 mm	III
106	210	3675	Antler tine	Tip of tine intact. Base chopped roughly, with numerous cut marks.	Length: 49.6 mm Max diameter base of tine: 17.4 mm Min diameter base of tine: 12.4 mm	II
107	215	3860	Cast antler burr, base of beam and brow tine	Beam sawn obliquely, with central lug. Brow tine sawn cleanly. Saw cuts on burr.	Max diameter burr: 72.4 mm Min diameter burr: 67.4 mm vdD #39: 218 mm vdD #41: 183 mm	I
107	216	3861	Cattle right metatarsal, proximal	Roughly circular hole bored in dorso-ventral direction in proximal surface (which has also been gnawed by a carnivore). The bored hole may be a marrow extraction cavity. Edges of the hole are broken or gnawed on the posterior aspect of the bone. The distal end of the bone shaft is chopped in an oblique/medio-lateral direction. Faint scrape marks extend from the proximal end to the break in the shaft, on the anterior surface; these may be knife marks, associated with trimming of the soft tissues. Conclusion: the bone is probably not artefactual.	-	-
107	217	3862	Antler tine	Tip of tine intact. Base sawn across cleanly. Base cracked and burnt.	Length: 64.6 mm	II
107	217	3862	Antler beam fragment	Base sawn across cleanly. One face cut in longitudinal direction. Entire fragment bears numerous chop marks made with a sharp implement (probably an axe) on both anterior and posterior aspects. Other end of fragment hacked across.	Length: 35.4 mm	VI
107	223	3866	Cast antler burr, base of beam and brow tine	Beam sawn across, with large central lug. Brow tine sawn obliquely. Evidence of saw cut near central lug.	Max diameter burr: 70.2 mm Min diameter burr: 65.0 mm vdD #39: 210.0 mm vdD #41: 185.0 mm	I
107	223	3866	Fragment of beam or large tine	Chopped longitudinally. Base sawn cleanly. Surface flake chopped longitudinally from outer face.	Length: 37 mm	VI
107	220	3863	Antler tine	Tip intact. Base sawn cleanly across.	Length: 31.5 mm	II
107	224	3867	Antler tine	Tip intact. Base sawn across, with lateral edge lug. (The smooth appearance and widened base of the tine indicate it is probably a crown tine).	Length (including lug): 107 mm	II
107	224	3867	Antler tine	Tip hacked across, showing at least four axe marks. Base sawn across, with small lateral lug.	Length: 96.4 mm Max diameter base (breadth): 26.6 mm	III
107	227	3869	Antler beam, brow and bez tines	Beam sawn across, with central lug, above level of burr. Brow and bez tines sawn across near their junction with beam. Beam is also chopped twice in a longitudinal (sagittal) direction.	Length: 72.5 mm Breadth: 89.0 mm Depth: 59.5 mm	Ib



Context	Find	Catalogue number	Description	Details	Measurements	Offcut type (see key)
107	227	3869	Antler tine	Tip chopped roughly. Base sawn across cleanly. Circular abraded area around tine, about two-thirds of the way up its length, indicates a cord or other ligature may have been attached here. The bone does not appear to have reacted to injury, which suggests that the wear surface was probably not produced while the antler was actively growing.	Length: 144 mm Max diameter base: 38.6 mm Max diameter 'tip': 17.6 mm	III
107	227	3869	Antler tine	Tip intact. Base sawn across cleanly; otherwise unmodified.	Length: 230 mm Max diameter base: 41.0 mm	II
107	227	3869	Antler crown tines	Two forked tines, joined at base. Base of tines sawn roughly, with large lateral edge lug. Evidence of hack marks near junction of tines indicates that a further tine may originally have been present.	Length: 190.0 mm Max diameter base: 40.0 mm	IIc
107	227	3869	Antler tine section	Thin cross-section through tine. Sawn across, twice, very cleanly.	Max diameter: 34.6 mm Length: 15.8 mm	III
107	227	3869	Antler tine: longitudinal slice	Thin longitudinal slice through antler tine. Retains original pearled outer surface but cut very smoothly on internal surface (where several knife 'stop' marks are visible.) Both long edges have been trimmed with a blade. May be a blank for comb side-plate manufacture.	Length: 155.0 mm Breadth: 18.4 mm Depth: 6.0 mm	IV
107	231	3872	Antler beam and tine	Base of beam sawn across with slight central lug. Tine (most probably the brow tine) and beam sawn off obliquely, with slight central lug at their junction. Waste is minimal.	Length: 42 mm Max diameter base: 67 mm	Ib
107	239	3873	Antler tine	Tip sawn off cleanly, with cut marks visible around edge of specimen. Base sawn cleanly. Tine is also sawn in longitudinal direction.	Length: 46.1 mm	III
107	239	3873	Antler tine	Tip hacked off roughly; cuts visible. Base sawn cleanly, with small lug.	Length: 57.4 mm	III
107	239	3873	Antler tine	Tip hacked off. Base sawn cleanly, with small lug.	Length: 56.8 mm	III
107	239	3873	Antler beam fragment	Tip sawn cleanly. Base hacked roughly. Split longitudinally four times, forming wedge shape.	Length: 48.6 mm	VI
107	239	3873	Antler beam: core material only	Beam split longitudinally four times. Base and tip have probably been sawn.	Length: 38.4 mm	VII
107	239	3873	Antler beam: core material only	Beam split longitudinally, either three or four times. Base and tip have probably been sawn.	Length: 41.6 mm	VII
107	240	3874	Cattle left calcaneum	Chopped medio-laterally/obliquely across shaft of bone. Proximal epiphysis fused (adult animal).	-	-
107	241	3875	Antler tine: longitudinal slice	Tine sawn twice in longitudinal direction. Base and tip have probably been sawn.	Length: 53 mm Breadth: 15 mm Depth: 7.6 mm	IV
107	241	3875	Antler core material: longitudinal slice	Core material only. Split twice in longitudinal direction. One side edge may be sawn. Base sawn. Note: 'length' measurement is smaller than 'breadth' measurement, but arrangement of the pores in the antler show this to be the correct orientation.	Length: 18.5 mm Breadth: 32.9 mm Depth: 10.2 mm	VII



Context	Find	Catalogue number	Description	Details	Measurements	Offcut type (see key)
107	241	3875	Antler core material: longitudinal slice	Core material only. Split twice in longitudinal direction. Base sawn across.	Length: 15.2 mm Breadth: 15.9 mm Depth: 4.8 mm	VII
107	241	3875	Antler tine	Small fragment only. Probably sawn across base.	Length: 8.2 mm Breadth: 13.0 mm Depth: 4.0 mm	II
107	243	3876	Antler tine	Tip of tine intact. Base hacked across, with evidence of numerous cuts.	Length: 61.8 mm	II
107	243	3876	Antler tine	Tip of tine slightly damaged: possibly gnawed by carnivore. Base hacked across, with evidence of numerous cuts.	Length: 68.4 mm	II
107	243	3876	Antler tine	Tip intact but abraded. Base hacked across with several cuts.	Length: 89.8 mm	II
107	243	3876	Antler tine	Cross-section from mid region of tine. 'Tip' broken off roughly; perhaps burnt. Base sawn across cleanly with small lateral lug.	Length: 38.4 mm	III
107	243	3876	Antler tine	Tip of tine slightly abraded, therefore evidence of cuts is obscured. Tine tip has flake missing from it, but this may have occurred naturally, since approximately 6 cuts lie over and cut into the damaged area. Numerous cuts along one edge of tine. Base of tine hacked, with evidence of numerous cuts.	Length: 58.0 mm	II
107	243	3876	Split antler tine	Tine split in longitudinal direction and shaped roughly along its 2 long edges. Some core material removed from interior (or reverse face) along most of its length. May be unfinished comb side plate.	Length: 181 mm	IV
107	248	3877	Split antler tine	Base and tip of tine have been sawn; lug present at one end. Tine split twice in longitudinal direction, with evidence of one misdirected blow on sawn surface.	Length: 46.6 mm Breadth: 16.4 mm Depth: 11.4 mm	IV
107	248	3877	Antler tine cross-section	Tip sawn across, with central lug. Base sawn across, with central lug. A further branch tine has been chopped off longitudinally, with evidence of several blows.	Length: 70.2 mm Breadth: 46.0 mm	III
107	248	3877	Antler beam	Longitudinal section of antler beam, probably from region just above burr. Tine (possibly the brow tine) has been sawn off obliquely. Base of beam sawn across. Beam is chopped three times in longitudinal direction.	-	V
120	180	3677	Antler tine	Base of tine sawn across, with small lateral lug. Slight oval depression ?cut into centre of sawn surface. Tip of tine intact. Slight polishing near tip: may be natural wear.	Length: 69.3 mm	II
120	199	3678	Antler tine	Tip of tine intact. Base hacked roughly. Some small axe/knife cuts on lateral edge of tine.	Length: 47.9 mm	II
120	233	3878	Antler burr, beam and brow tine	Cast burr fragment. Beam sawn across cleanly, with small central lug. Brow tine sawn cleanly. Small saw cut on medial aspect.	Max diameter burr: 78.4 mm Min diameter burr: 67.0 mm vdD #39: 227.0 mm vdD #41: 186.0 mm	I
120	233	3878	Antler tine	Base of tine sawn across. Lug is composed of the base of an adjacent tine or part of the beam.	Length: 116 mm Breadth of base: 48 mm	II



Context	Find	Catalogue number	Description	Details	Measurements	Offcut type (see key)
120	248	3879	Antler tine	Tip of tine intact, although some paring marks present. Base of tine is sawn across and possibly filed smooth. Centre of core scooped at base. Cut marks form a rough notch about two-thirds of the length of the tine. (Illus 19, Cat 68)	Length: 82.9 mm Max diameter of base: 21.2 mm Min diameter of base: 17.6 mm Diameter of hole in tine: 14.2x13.0 mm	IIb
130	174	3679	Antler burr, beam and brow tine	Cast burr. Beam sawn across, with large central lug. Brow tine sawn across, with lateral lug.	Max diameter burr: 83.6 mm Min diameter burr: 77.0 mm vdD #39: 255.0 mm vdD #41: 210.0	I
130	175	3680	Antler tines	Crown tines. Base sawn across with lateral lug. Two intact, flattened tine tips are present.	Length: 30.6 mm Breadth of base: 48.6 mm	IIc
130	218	3880	Split antler tine	Longitudinal section, probably from near base of tine. Tip of tine sawn across cleanly. Base is roughly chopped. Tine is split twice in longitudinal direction. Deep saw cut on one outer face.	Length: 52.0 mm Breadth of base: 12.9 mm Depth: 11.2 mm	IV
136	264	4081	Split antler beam	'Tip' sawn across cleanly. Base sawn across, with large central lug. Tine sawn from beam. Beam split twice in longitudinal direction.	Length: 67.4 mm Breadth: 34.0 mm Depth: 23.6 mm	V
149	186	3683	Red deer skull, pedicle, burr, beam and brow tine	Skull chopped twice in sagittal direction. Hack mark at base and on shaft of pedicle. Brow tine sawn across, with small lateral lug. Burr sawn more roughly, with large lug extending from centre of beam to inner edge.	Max diameter burr: 79.0 mm Min diameter burr: 67.0 mm vdD #39: 226.0 mm vdD #40: 150.0 mm vdD #41: 208.0 mm	Ia
149	186	3683	Antler beam, brow and bez tines	Beam sawn across. The core material has been removed, probably attached as a lug to the part of the beam which was snapped off. Brow and bez tines sawn off, with small lug at their junction.	Length: 88.8 mm Breadth: 71.5 mm Depth: 38.9 mm	Ib
153	190	3686	Antler tine	Tip pared on three sides. Base sawn cleanly across. Roughly circular hole bored into base; core material scooped out for distance of c 16 mm. (Illus 19, Cat 67)	Length: 165 mm Max diameter base: 26.2 mm Min diameter base: 23.5 mm Diameter of hole in base: 11.1 x 10.9 mm	IIa
153	202	3688	Antler tine	Tip intact. Base roughly chopped with numerous cut marks and lateral lug.	Length: 79.8 mm	II
153	261	3687	Antler tine	Tip intact. Base roughly hacked, with numerous cuts on all faces.	Length: 33.4 mm	II
158	205	3691	Antler tine	Tip intact. Base roughly hacked across, with numerous cuts.	Length: 74.0 mm	II
158	234	3882	Beam fragment	Small wedge-shaped section cut longitudinally from antler beam. Long edges chopped; 'base' and 'tip' sawn across. Pearled outer surface present.	Length: 46.4 mm Breadth: 13.0 mm Depth: 9.0 mm	VI
158	235	3883	Antler tine	Base sawn across, with central lug. Tip roughly pared on anterior, posterior and lateral faces. Paring cuts, in horizontal plane, numerous.	Length: 69.0 mm Breadth: 19.0 mm	IIb



Context	Find	Catalogue number	Description	Details	Measurements	Offcut type (see key)
158	235	3883	Antler tine	Base roughly hacked. Tip more-or-less intact, although pared smoothly on two faces, in longitudinal direction. Below area of smooth paring are horizontal paring cuts, on all faces of tine, similar to example above. Although there is a superficial similarity to rodent gnawing, the marks are altogether too long to have been made by rats or mice. Likewise, they do not have the zig-zag characteristics typical of gnawing by red deer themselves.	Length: 68.8 mm Breadth: 21.0 mm	I Ib
175	261	4085	Split antler tine	Base sawn across. Tip still retains natural rounded end. Tine is split longitudinally; there are five 'stop' marks along the length of the internal surface of the split tine, where the blade has changed direction slightly in order to follow the natural curve of the antler. There is also a smooth cut surface at the base of the specimen, extending for 36 mm, which probably indicates the point where the tine was separated from the beam. Possibly an unfinished comb side plate.	Length: 141.0 mm Breadth at base: 15.0 mm Depth: 5.6 mm	IV
225	308	4766	Antler burr, beam and brow tine	Burr is cast. Beam sawn cleanly, with central lug at junction with brow tine. Brow tine sawn cleanly. Note that in this and similar examples (above), both the brow tine and beam are sawn obliquely, towards their junction, in order to maximise the amount of antler which can be removed, and keep the waste to a minimum.	Max diameter burr: 86.4 mm Min diameter burr: 79.0 mm vdD #39: 256.0 mm vdD #41: 239.0 mm	I
225	343	4772	Antler tine	Base sawn across, but now broken. Tip intact. Lump of iron oxide, originally adhering to tine, has now become detached.	Length: 137.4 mm Breadth at base: 25.0 mm	II
225	349	4916	Split antler tine	Base sawn cleanly. 'Tip' recently broken/damaged. Tine is split longitudinally in three planes. Evidence on two external edges of chopping cuts, made by sharp blade, which follow curve of antler on one face.	Length: 130 mm Breadth: 24.6 mm Depth: 18 mm	IV
241	269	4083	Antler beam and tine	Base and opposite end of beam sawn across; tine sawn across. Fragment is chopped twice in longitudinal direction.	-	V
241	269	4083	Antler core fragment	Core material only. Both ends probably sawn. Chopped longitudinally. The fragment has a slightly curving contour.	-	VII
246	267	4084	Mammalian bone fragment	Probably a fragment of large ungulate (i.e. cattle/deer/horse) rib. Trabeculae exposed on inner surface. Some recent damage on long edges. Probably not deliberately worked.	-	
257	271	4256	Antler core fragment	Core material only. No outer surface present. Both short ends probably sawn across. Split longitudinally four times.	Length: 52.0 mm Breadth: 36.0 mm Depth: 17.4 mm	VII
257	271	4256	Split antler tine	Tine chopped roughly in longitudinal direction on internal surface. External surface shows evidence of misdirected blows using a very sharp blade, giving an appearance similar to peeling tree bark. Base sawn across	Length: 70.4 mm Breadth: 23.8 mm Depth: 9.0 mm	IV
257	273	4257	Beam fragment	Base sawn across cleanly in medio-lateral direction, with lateral edge lug. Other end of beam sawn cleanly, in medio-lateral and oblique directions, then snapped off obliquely with lateral edge lug.	-	VI



Context	Find	Catalogue number	Description	Details	Measurements	Offcut type (see key)
257	275	4258	Antler burr, beam and brow tine	Burr is cast. Bony nodules around burr are worn smooth on lateral aspect, perhaps by repeated handling? Brow tine sawn cleanly, with lateral edge lug. Beam sawn cleanly, with large central lug snapped off at junction of beam and brow tine.	Max diameter burr: 69.8 mm Min diameter burr: 59.6 mm vdD #39: 201.0 mm vdD #41: 141.0 mm	I
257	275	4258	Antler tine	Both ends sawn across: base sawn cleanly; tip with large lateral edge lug. Slight paring on one outer edge.	Length: 26.0 mm Breadth: 25.4 mm Depth: 11.8 mm	III
257	275	4258	Antler tine	Base sawn across cleanly. Tip pared roughly with axe or other bladed implement: evidence of at least ten cuts delivered in direction from base to tip on one face; smaller areas of paring on three other sides.	Length: 82.0 mm Breadth: 33.0 mm	IIb
296	280	4260	Antler tine	Base sawn across roughly, with central lug. Tip intact, showing only natural wear. Two hacked areas on edge of tine, possibly caused by striking against tine while removing either the opposite antler from the skull, or removing an adjacent tine.	Length: 106.8 mm Breadth/max diameter: 25.8 mm Min diameter: 21.8 mm	II

Field code EI/EII

Context	Find	Catalogue number?	Description	Details	Measurements	Offcut type
EI 159	89	4041	Antler burr, beam and brow tine	Burr is cast. Beam sawn across, using two separate actions; lateral edge lug. Brow tine sawn across cleanly with small edge lug. Burr diameter appears to be smaller than examples from Field Number FI; colour is paler than those from FI.	Max diameter burr: 65.2 mm Min diameter burr: 57.0 mm vdD #39: 186.0 mm vdD #41: 156.0 mm	I
EI 165	81	3837	Antler tine	Base sawn across cleanly; circular hole bored into core at base to a depth of at least 70 mm. Tip intact, showing natural polishing. Extensive area of paring with sharp blade, possibly an axe, on outer curved face of tine.	Length of tine: 180.0 mm Max diameter tine: 28.4 mm min diameter tine: 25.0 mm Max diameter bored hole: 12.4 mm Min diameter bored hole: 10.0 mm Depth of hole: c. 70 mm	IIa
EII 11 unstrat		5286	Antler beam, probable trez tine, remains of four additional tines ('points on top')	Base of beam sawn across cleanly, with some abrasion, or possibly deliberate removal of core material to depth of c 12.5 mm. Trez tine and one other crown tine intact; two tines have either been chopped or snapped off roughly and one tine has evidence of numerous chop marks at its base.	Length: c320 mm Max diameter base of beam: 43.0 mm Min diameter base of beam: 35.5 mm	VIII
EII 11 Pit 3	1	5283	Antler burr, beam and brow tine	Burr is cast. Two small cut marks on cast surface. Beam sawn across obliquely, cutting through burr, with large lateral edge lug at burr. Further central lug at junction of brow tine with beam. Unusually, the brow tine is intact, with natural polishing at tip.	Max diameter burr: 73.6 mm Min diameter burr: 65.5 mm vdD #39: 219.0 mm vdD 41: 193.0 mm	I



Context	Find	Catalogue number?	Description	Details	Measurements	Offcut type
EII 11 Pit 3	2	5284	Antler beam and tine (probably trez)	Base of beam sawn across cleanly. Some erosion of antler core. Upper part of beam snapped off roughly, possibly recently. Trez tine intact, with evidence of paring or incidental damage by a knife or axe on outer curvature.	Max diameter base of beam: 36.0 mm Length, beam end to tine tip: 235 mm	VIII
EII 11 Pit 3	3	5285	Beam with four crown tines (i.e. 4 'points on top')	Base of beam sawn across cleanly. One small crown tine is intact; one is snapped off roughly along its long edge; one is snapped off or broken near its tip; one is hacked off, with numerous chop marks near its base.	'Spread' i.e. max breadth of crown tines: 320 mm Max diameter beam: 60 mm Min diameter beam: 45 mm	VIII

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