Keeping a close watch: pottery, artefacts and faunal remains from watching briefs in Perth (PEX series)

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Introduction

From the mid-1970s until the early 1990s, many detailed watching briefs were carried out in Perth by the Scottish Urban Archaeological Trust under the auspices of Historic Scotland's Urban Monitoring programme in response to development and maintenance of sewers and services. Many of these sites were located in the archaeologically rich High Street at the heart of the medieval burgh. Although some necessarily short summaries appeared in Discovery and Excavation in Scotland (DES) and a digital gazetteer in Bowler (2004), fuller accounts of these interventions have not appeared in print and the many medieval finds (pottery, artefacts, animal bone, etc) were not analysed. In order to make this material available for future study, funding was granted by Historic Scotland, with the following aims:

i to collate full finds lists as per HS guidelines;
ii to provide spot dates for the pottery;
iii to prepare the material for finds disposal through the Scottish Finds Allocation Panel's Treasure Trove process; and
iv to prepare an archive for deposition in NMRS.

Archiving of this material was made necessary and urgent, since the stores where the material had been kept until its transfer to Historic Scotland’s (now Historic Environment Scotland’s) stores at St Ann’s Maltings were under imminent threat due to demolition in advance of proposed city centre developments in Perth. Perth Museum and Art Gallery had already acquired the artefactual material from sites PEX 1 to PEX 50 and have expressed an interest in acquiring the remainder of the unallocated material in due course, subject to SAFAP decisions and availability of local storage space. Proper cataloguing of the assemblages allows them to be deposited in a secure museum environment where access will be available to future researchers.

Further research priorities were identified during the course of preparing the records for archive leading to the analysis of the pottery, animal bones and worked bone artefacts presented here.

The main sites from which the artefacts and pottery came are listed below (Table 1) and their locations illustrated in Illus 1. For all other watching briefs in Perth prior to 2004, reference should be made to the site gazetteer included in David Bowler’s (2004) publication, Perth, the archaeology and development of a Scottish burgh, available online as http://tafac.org.uk/perth.pdf.

Full supporting data, including pottery analysis, leather, animal bone and mollusc tables are available in the site archive.

The pottery

Derek Hall, George Haggarty and Michael Hughes

Perth’s importance in Scottish medieval pottery studies has been long appreciated since the excavation of the site at 75 High Street between 1975 and 1977 (Perry et al 2010) produced an assemblage of more than 40,000 sherds (Hall, Haggarty and Vince 2012). In the nearly 40 years since that excavation ended, further excavations have helped to both confirm and qualify this impression (Bowler et al 1996; Bowler 2004).

What is less well appreciated is the information that has also been provided by the numerous monitoring exercises (watching briefs) that were carried out during redevelopment, particularly in those parts of the burgh that had not otherwise been previously accessible to archaeological investigation.

Until local government reorganisation in the 1990s, such urban monitoring was funded by the Scottish Development Department (Ancient Monuments), and was undertaken first by the Urban Archaeology Unit and subsequently by the Scottish Urban Archaeological Trust. These investigations resulted in a sizeable group of unpublished archaeological material and this report, funded by Historic Environment Scotland, serves finally to put that information into the public domain. The assemblages considered here are mostly from the core of the medieval burgh, most importantly from beneath the former Council Chambers on the corner of Tay Street and High Street (PEX 15, PEX 63) and the modern streets of South Methven Street (PEX 62), Scott Street (PEX 76) and High Street/King Edward Street (PEX79).

Tables of numbers of sherds by site and context are available in the site archive.
Discussion

The validity of archaeological information provided by watching briefs has long been debated but this author (D Hall) would argue that such monitoring exercises, in those Scottish burghs that have a good survival of archaeological deposits, have provided important information from those areas of the town that may never be available for large scale area excavation (Bowler 2004). This is particularly true in the medieval burgh of Perth where areas of the early town along the waterfront remain largely inaccessible to archaeological excavations due them having been built on. Amongst the assemblages of ceramics discussed in this paper, the two phases of watching briefs (PEX 15 and PEX 63) below the former City Chambers on Tay Street (on the medieval waterfront) have produced an important assemblage of ceramics. Generally the group would appear to be tightly dated to the 13th/14th centuries with a residual 12th-century element being represented by the presence of sherds of Developed Stamford Ware. The absence of early fabrics such as London Shelly Sandy Wares and Pingsdorf Type Ware is quite marked. Of most interest is the group of unique white slipped Scottish Redware cooking pots (Illus 2 and 3, Cat 4, 13–18). The location of the pottery producing the white slipped cooking vessels is not known and a future recommendation is to chemically source a statistically viable group of samples from this assemblage.

Recent chemical sourcing of Scottish Redwares from either side of the River Tay appears to suggest that there are distinct chemical signatures which can be used to isolate possible production sites (Haggarty and Hughes 2015). It is of interest that at least one of the rims of these slipped cooking vessels (Illus 3, Cat 15) is a copy of the distinctive Fife frilled rim first identified by Lloyd Laing in the 1970s (Laing 1973; Jones et al 2006, 55 Type 7). Whiteware cooking vessels always seem to be preferred to Redware examples due to their better ability to withstand heat shock. Could this group of small Redware ‘copies’ be an attempt by a local potter to get in on that market? A fragment of a Scottish Redware candlestick base (PEX 63, Illus 9, Cat 17) is also present, complementing those examples recovered from the 75 High Street excavations (Hall, Haggarty and Vince 2012).
Amongst the other groups catalogued, ceramics from the monitoring of works along the entire length of South Methven Street (PEX 62, on the western edge of the burgh) produced an assemblage that is dominated by Scottish Redwares and White Gritty Wares but also includes unidentified material which may be from London, Stamford and the Low Countries. A sizeable group of unprovenanced greywares of medieval date is also represented. Aside from the sherds of Post Medieval ceramics the medieval element of this group would seem to be of 13th/14th century date. The other smaller groups from across the burgh provide a background noise of local ceramics of medieval date.
Illus 2 Pottery, PEX 15 Scottish Redware, Cats 1–14.
Illustration catalogue

**PEX 15** (Illus 2–8)

**Scottish Redware** (Illus 2, 3)
1. Rim and handle junction from white slipped jug 700
2. Four joining pieces forming the rim and neck of a jug with patches of splashed green glaze. Traces of pulled spout and strap handle junction 500
3. Rimsherd from splash glazed vessel 600
4. Rimsherd from white slipped splash glazed vessel 900
5. Fragment of bottom of facemask from splash glazed jug 300
6. Bodysherds from glazed vessel decorated with incised wavy lines 200
7. Bodysherd from glazed vessel decorated with incised wavy lines 300
8. Bodysherd from glazed vessel decorated with incised wavy lines 1100
9. Three joining bodysherds from large vessel splash glazed green and decorated with rows of applied pellets 300

10. Six joining sherds from green glazed vessel decorated with panel filled with pellets 400
11. Bodysherd from green glazed vessel decorated with impressed shell design 1000
12. Bodysherd from vessel glazed brown with applied horseshoe decoration and junction of applied hand 1200
13. Three joining sherds from small white slipped jar (cooking) 200
14. Rimsherd from white slipped jug with strap handle junction 100
15. Frilled rimsherd from white slipped jar 700
16. Strap handle fragment from white slipped jug 900
17. Skillet handle from splash glazed vessel 1200
18. Thumbed basal angle from white slipped jug 1100
19. Seven sherds, six joining, forming the rim to base profile of a dripping pan glazed yellow green. Traces of handle junction on rim and applied pad decoration 700

Illus 3 *Pottery, pex 15, Scottish Redware, Cats 15–19.*
Illus 4 Pottery, PEX 15 Scottish White Gritty Ware, Cats 20–23.

Illus 5 Pottery, PEX 15 Yorkshire Type Ware, Cats 24–27.
Scottish White Gritty Ware (Illus 4)
20 Rimsherd from unglazed jar Context 100
21 Small rimsherd from small unglazed jar 100
22 Rimsherd from smoke blackened jar 400
23 Rimsherd from jar 401

Yorkshire Type Ware (Illus 5)
24 Rim and twisted rod handle from green glazed jug 300
25 Rim and ribbed rod handle from green glazed vessel 700
26 Ribbed rod handle from green glazed vessel 700
27 Rim and bridge spout with facemasks from green glazed vessel 200, 300
28 Rim and bridge spout with remains of applied hands 100
29 Facemask fragment from green glazed vessel 200
30 Bottom of beard from facemask 200
31 Bodysherd with applied decorative hands 100
32 Bodysherd from green glazed jug decorated with panel filled with pellets 600

Rouen Type Ware (Illus 6)
33 Rimsherd from jug glazed yellow and brown and decorated with applied notched vertical strips 500
34 Rod handle fragment from yellow and brown glazed vessel with pierced holes 900
35 Bodysherd from vessel glazed yellow with applied strip glazed brown 600

Unidentified (Illus 7)
36 Rim and rod handle from unglazed gritty Redware vessel 1100
37 Fragment from narrow strap handle with 'burnished' black surfaces 1100
38 Two joining bodysherds from green glazed vessel decorated with panels containing pellets 500
39 Mould fragments 200
Scottish Redware (Illus 8)
40 Rim with strap handle junction and neck from glazed jug decorated with vertical applied strips 700
41 Bodysherds from glazed jug with applied shell shaped prunts 1100

PEX 62 (Illus 9)
Scottish Redware
1 Lug handle and rimsherd from vessel splash glazed green with slight external smoke blackening PEX 62, 0200

Scottish White Gritty Ware
2 Rimsherd from jar with slight external smoke blackening
3 Rimsherd from jar with slight external smoke blackening

Unidentified
4 Rod handle fragment from vessel glazed amber (London Type?) PEX 62, 0200

PEX 63 (Illus 9)
Scottish Redware
1 Rim and decorative handle junction from green glazed jug PEX 63, Context 3000
2 Rimsherd and small bridge spout from splash glazed jug PEX 63, 3000
3 Rimsherd from small white slipped green glazed vessel PEX 63, 3000
4 Tubular spout from splash glazed jug PEX 63, Context 2201
5 Strap handle fragment glazed green brown and decorated with thumbed central strip PEX 63, 3000
6 Rod handle junction from white slipped jug splash glazed green PEX 63, Context 2600
7 Bodysherd from green glazed jug decorated with applied raised lines PEX 63, Context 2801
8 Bodysherd from green glazed jug with decorated with applied vertical strips PEX 63, Context 2401
9 Basal angle from jug splash glazed green PEX 63, Context 2401
10 Basal angle from splash glazed jug with external white slip and three thumb marks PEX 63, Context 3100
11 Rimsherd from vessel internally and externally slipped white with patches of green glaze PEX 63, 2001
12 Rimsherd from white slipped jar with traces of external and internal smoke blackening PEX 63, 2300
13 Basal angle from vessel slipped internally and externally white PEX 63, Context 2300
14 Virtually complete basesherd from small vessel white slipped internally and externally PEX 63, Context 2300
15 Rim and sidewall from open vessel internally splash glazed green, single applied decorative clay pad on top of rim PEX 63, Context 3101
16 Abraded skillet handle from splash glazed vessel PEX 63, Context 2201
17 Basal fragment from candlestick base (?) PEX 63, Context 2901

Illus 8 Pottery, PEX 15 Scottish Redware, Cats 40–41.

Yorkshire Type Ware
18 Ribbed rod handle from green glazed jug PEX 63, Context 2901
19 Fragment of bearded facemask glazed lustrous green PEX 63, Context 2400
20 Bodysherd from small light green glazed vessel PEX 63, Context 3000

Pingsdorf Type Ware
21 Complete pedestal base and sidewalls from small vessel PEX 63, Context 2600

Unidentified
22 Rim and ribbed rod handle junction with crude attempt at face mask splash glazed green (English whiteware?) PEX 63, Context 2801
23 Rimsherd from jar with traces of external smoke blackening PEX 63, Context 2400
24 Rimsherd from small unglazed jar in whiteware fabric PEX 63, Context 1500
25 Rod handle fragment from jug splash glazed green (London Type?) PEX 63, 2401
26 Bodysherd from jug glazed yellow brown with applied scale decoration defined by raised strips glazed brown (Yorkshire Redware?) PEX 63, Context 1901
27 Bodysherd from green glazed jug decorated with applied strips PEX 63, 2901
28 Bodysherd from vessel glazed speckled green internally and externally with applied decorative scale pattern PEX 63, 2401
Illus 9 Pottery, PEX 62, PEX 63.
Illus 10 Pottery, PEX 64, PEX 76, PEX 77, PEX 79.
Keeping a close watch: pottery, artefacts and faunal remains from watching briefs in Perth (PEX series)

Scottish Redware
1 Rim and strap handle junction from splash glazed jug PEX 64, 0400
2 Rim and rod handle junction from splash glazed jug PEX 64, Context 0700
3 Basal angle from splash glazed jug PEX 64, 1200

Scottish White Gritty Ware
4 Bodysherd from jug glazed light green with applied vertical strips glazed dark green brown PEX 64, Context 1200
5 Frilled rimsherd from jar with traces of external smoke blackening PEX 64, Context 1000

Yorkshire Type Ware
6 Rod handle junction and sidewall from jug glazed lustrous green PEX 64, Context 0700

Unidentifed
7 Bodysherd from green glazed jug with applied brown glazed strips decorated with incised pattern PEX 64, Context 1000

PEX 76 (Illus 10)
Scottish Redware
1 Rim and strap handle from green glazed jug PEX 76, Context 0003
2 Rimsherd from jar white slipped internally and externally with traces of external smoke blackening PEX 76, Context 13

PEX 77 (Illus 10)
Unidentifed
1 Rim and rod handle junction from vessel in redware fabric (Merida Type?) PEX 77, Context 002

PEX 79 (Illus 10)
Scottish Redware
1 Rim, strap handle junction and neck from splash glazed jug PEX 79, 004
2 Twisted rod handle fragment from vessel splash glazed green PEX 79, U/S
3 Bodysherd from green glazed jug decorated with crude embossed decoration PEX 79, U/S
4 Bodysherd from green glazed vessel decorated with applied raised pads PEX 79, Context 0010
5 Slightly thumbed splash glazed pedestal base PEX 79, U/S
6 Rimsherd from smoke blackened base with white slipped interior PEX 79, 0010

Yorkshire Type Ware
7 Rim and rod handle junction from jug glazed lustrous green PEX 79, U/S
8 Ribbed rod handle fragment from green glazed jug PEX 79, 0005
9 Abraded fragment of knight from knight jug PEX 79, 0006

Unidentified
10 Rimsherd from green glazed whiteare jug (English) PEX 79, 0009
11 Strap handle junction from jug splash glazed green, hard fired fabric with many quartz grits (Grimston type?) PEX 79, 0100
12 Ribbed rod handle from whiteware vessel glazed yellow green PEX 79, 010
13 Basal angle from jug with thumbed pedestal base (London Type?) PEX 79, U/S

Plasma spectrometry analysis (ICP) of Scottish Redware and other pottery from the City Chambers (PEX 63) and Atholl Place (PE 55) in Perth

Michael J Hughes

Introduction

A selection of 31 sherds from two sites in Perth, one a watching brief at the City Chambers, (PEX 63) and the other an evaluation excavation at Atholl Place (PE 55) were submitted for ICP-MS analysis. The sample from Perth City Chambers (PEX 63) comprised Scottish Redware (17), Yorkshire Type Ware (3), a Pingsdorf Type Ware, and unidentified sherds (7). Possible Yorkshire whitewares (2) and a sherd in ‘Fabric X’ from a development site in Atholl Place, Perth (PE 55) were also submitted. Databases of analyses of Scottish redware and Yorkshire whitewares were available for comparison against the results. A previous larger chemical analysis study of pottery from Perth High Street was carried out by Vince (Hall et al 2012).

Chemical analysis by ICP (Inductively-Coupled Plasma Atomic Emission Spectrometry (ICP-AES) and Mass Spectrometry (ICP-MS))

The analysis technique was the same as that applied for the database of Scottish redwares, namely inductively coupled plasma spectrometry (ICP), using a combination of two instruments, Atomic Emission Spectrometry (ICP-AES) and Mass Spectrometry (ICP-MS) (Haggarty et al 2011, 5). Powdered samples for analysis were obtained from the sherds by drilling with a 2 or 3mm diameter tungsten carbide drill. In addition, the samples sent for ICP analysis included a Certified Reference Material (NBS679 Brick Clay, produced by the US National Institute for Standards and Technology, Washington DC) spaced out in the analysis batch but without identification to the laboratory as such. These acted as analysis quality control samples. The analysis results on these control samples gave entirely satisfactory results. The powdered samples were analysed at Royal Holloway, Department of Earth Sciences, University of London, using their standard techniques for ICP-AES and ICP-MS, for
a total of 47 elements, providing a comprehensive chemical ‘fingerprint’ of the body fabric.

Results and discussion

The full results of the analyses are available in the site archive. Visual examination of the data for the Scottish Redware sherds showed a fairly similar chemical analysis for all except one, suggesting a single source. Most of the ‘unidentified’ wares were low in iron and high in aluminium, suggesting they were whitewares.

Principal Components Analysis of the ICP results: general aspects

Detailed interpretation of the ICP analyses was carried out with multivariate statistics, which simultaneously considers the concentrations of many elements in each sample, using the technique of Principal Components Analysis (PCA) (Manly 2005; Tabachnick and Fidell 2007). Descriptions of its application to archaeology have been given elsewhere (eg Baxter 1994 and 2003; Shennan 1997). The program MINITAB version 16 was used with the PCA procedure (Ryan et al 2005). Natural logarithms were taken of all elements before subjecting the data to multivariate statistics, a technique regularly used in such applications. This pattern was followed in all the tests in this report. This differs from the approach used by Haggarty et al (2011) and Jones et al (2006) where the elements were scaled to aluminium. However the two approaches appear to produce very similar results (see Haggarty and Hughes 2013). Plots of pairs of the resulting principal components are effectively chemical ‘maps’ for the items analysed, with the expectation that pottery made of the same clay will plot in the same part of the figure.

Principal Components Analysis of the ICP results on the Scottish Redware samples, three unidentified sherds and one from Atholl Place

Visual examination of the data suggested that four of the non-Redware samples had iron contents only slightly below that of the redwares and should be compared against the redwares. These 21 samples were subjected to Principal Components Analysis using a reduced-elements set, since the number of elements used must be one less than the number of samples. Highly-correlated elements were present and many were removed. The elements used were aluminium, iron, magnesium, calcium, sodium, potassium, titanium, manganese, vanadium, yttrium, chromium, rubidium, strontium, lanthanum, cerium, samarium, ytterbium, caesium and thorium.

The results showed that all but one of the redwares had a very coherent chemical analysis pattern suggesting a single source. The exception was sample 10 (RP10) which had low concentrations of practically all elements. It may represent a sampling anomaly where a large percentage of (probably) quartz was included in the drilled sample, or it might represent an entirely different source. Of the three other wares, none showed any chemical similarity to the redwares and all were effectively outliers having nothing in common with them. Sample 27 was a particularly extreme outlier, while 23 and 28 showed similarities to each other despite their difference to any others.

Principal Components Analysis of the ICP results on the redwares and comparative analyses from the Scottish Redware ICP Database

Statistical tests were carried out by combining the results on the 17 redwares with a selection of comparative pottery analyses of production and consumer sites in the surrounding region, drawn from the Scottish Redware ICP Database. The sites and samples chosen for comparison were: the kiln site at Cupar, Fife (sample number code CU1-12; NGR NO 377 143); and consumer sites at Melgund Castle, Angus (MC1-2; NO 546 563), Perth Canal Street (PC1-10; NO 118 233), Perth Kinnoull A and B (PK12-5 and PK6-10 respectively; NO 123 232) and Brechin (Haggarty and Hughes 2015). This is the same selection used in the Brechin project but excluding the Dundee samples from which the analyses of the major elements were missing.

Principal Components Analysis was applied using 24 elements: titanium, lithium, chromium, cobalt, copper, zinc, nickel, vanadium, scandium, yttrium, rubidium, strontium, caesium, lanthanum, cerium, samarium, europium, niobium, gadolinium, dysprosium, ytterbium, lutetium, uranium and thorium. The results showed a very similar pattern to the Brechin project (Haggarty and Hughes 2015) with the first principal component (accounting for 37% of the variation in composition) positively correlated with most elements except calcium. This is a very common finding in studies of archaeological and historic ceramics, and is an approximate measure of ‘total element concentrations’. It reflects the percentage of diluting temper in the body fabric (natural or added, often quartz silt or sand). Pottery with higher concentrations of elements (ie with more positive values on that component or axis in a plot) represents fabrics with less quartz temper. The second and third components contained a further 22% and 10% respectively of the chemical variation; a cumulative total of 69% of the chemical variation in the pottery samples were therefore summarised in just these three components.

A plot of the first and second components shows a pronounced grouping of samples by site (Illus 11), indicating an internal consistency in chemical composition for the sherds in each of the site groups, some of which overlapped. The Cupar kiln and Perth Canal Street form non-overlapping clusters of sample points in the upper right. All the sites except Cupar lie on the Arbuthnott–Glenclee Formation, wacke sandstone type rock and so it would be expected that the local clays at most sites would be similar in clay type, but contrast with clays at Cupar which is on...
Keeping a close watch: pottery, artefacts and faunal remains from watching briefs in Perth (PEX series) 47

Stratton Group Old Red Sandstone (Haggarty et al 2011, table 1, 36). The fairly close plotting of the Cupar and Perth Canal Street’s products suggests the use of a similar clay type (geological type) for both groups of pottery, perhaps indicating a source closer to Cupar for the Perth Canal Street sherds (and in any case different to the Perth Kinnoull sherds). Although earlier statistical tests found no difference between the two Perth Kinnoull groups (Haggarty et al 2011, 49) it seems the two site groups each contain members of two slightly different chemical groups. The Perth redwares of the present project form a fairly compact analytical group in the lower centre of Illus 11, overlapping principally with the Perth Kinnoull B sherds, although the source of the A and B sherds has not so far been identified.

**Principal Components Analysis of the ICP results on the non-Redware sherds**

Of the non-Redware sherds, the Pingsdorf-Type Ware (21) was significantly different to any other Perth samples analysed in this project. Its very high caesium content (23.7 ppm – an alkali metal) is exceptionally rare; its rubidium is quite high, although the other alkali metals are not particularly so. Its chromium content is almost twice that of any other Perth sherd. It has a high molybdenum content, nearly an order of magnitude higher than the other Perth samples, but as this element tends not to be considered using multivariate statistics (in case it is a contaminant) it is not clear how unusual this is. Four previous analyses of Pingsdorf Type Wares were made by Alan Vince, three from Perth (PHSE 1975–77, samples (PERTH 236, 242 and 276) and one from another site (bse01, analysis V3160) [analyses available at Vince 2010]. Very noticeably, sample 21 has an almost identical analysis to Perth 276. The sample from site bse10 also has a similar though not identical analysis. Because of its very different analysis pattern, the Pingsdorf sherd was not included in further statistical tests, though all the other non-Redware Perth sherds were.

Since some of the ‘unidentified’ sherds had been classed as possible Yorkshire whitewares, and visual examination of the data showed that many of the rest had a whiteware chemistry, their data and the two Atholl Place whitewares were compared against a set of 28 analyses of whitewares from Yorkshire previously analysed by Vince (2004). Among these wares were: Brandsby-type, Beverley, Early York Glazed, Hambleton, Splash-glazed sandy oxidised, white ware and white fineware and York Glazed. Another reduced-elements principal component analysis was carried out, since the York ICP data

**Illus 11** Graph showing the plot of the first and second Principal Components arising from ICP analysis of the redware pottery from Perth analysed in the project, combined with pottery from six other sites in the local area, including one kiln site (Cupar), and based on 24 chemical elements. The symbol type and colour indicates the site, while the annotation alongside the symbol is the analysis number. The Perth Canal Street and Cupar kiln sherds are clearly different in clay chemistry, while the Perth, Council Chambers sherds overlap with mainly Perth Kinnoull B sherds.
was by emission spectrometry alone, for fewer elements (27). The plot of the second and third principal components is shown in Illus 12; sherds which are located more towards the top of this figure contain more sodium, potassium, iron, magnesium and calcium, while those further towards the right contain more of the major elements aluminium and titanium and trace elements chromium, nickel, vanadium and the rare earth elements. The chemistry of Yorkshire whitewares shows a range of chemical compositions indicated by the spread of samples across the Figure. Two clear outliers are 25 (a ?London Type) and 31 (Fabric X) which on this plot are separated from the rest of the Perth and Yorkshire sherds, but plotted close to each other, suggesting a similar origin. Given that one is a possible London-Type sherd, on this evidence the Fabric X sherd seems to suggest an origin in the London region. The two Atholl Place, Perth whitewares (29–30) lie close together on Illus 12 and near two BEDBRAN/MINBRAN sherds, indicating they are consistent with a Yorkshire whiteware chemistry, as are 18 and 19 which had been identified as possible Yorkshire whitewares (all falling fairly close to each other, indicating similar origin).

However the interpretation is problematic for the remaining sherds (22–24, 26 and 28). It seemed prudent to carry out another principal components analysis to compare the unidentified sherds against local groups of pottery in the Scottish White Gritty Ware ICP database. The comparator groups were those used for the Niddrie project (Haggarty and Hughes 2013), which had also been tested by Jones et al (2002–3) and included Colstoun (the only known kiln site in the region), Dunbar, North Berwick, Haddington and Archerfield. Two of the sherds (23 and 24) did show an overlap on all three principal components with sherds from the Colstoun production site, suggesting their source in Scotland. However the others (22, 26 and 28) were not as consistent, and for these perhaps the balance of probability from ICP analysis alone lies more towards a Yorkshire clay chemistry rather than Scottish. This question of distinguishing chemically between the whitewares of these two regions merits further investigation.

Sherd 27 is unlike any analysis in the Scottish White Gritty Ware ICP database (Jones et al 2006); it has significantly high aluminium, a very low level of iron (0.69%), magnesium (0.20%), sodium (0.09%) and potassium (0.31%) but relatively high titanium (2.28%). A possible identity is a northern French whiteware, a type which has been studied in detail by ICP by Vince (2011). It is quite similar in its major elements with the analysis of a strap handle with glazed rim from Wood Quay, Dublin (Vince 2006, analysis CMC9 – ‘Misc French B’), though it has higher levels of most trace elements compared to the latter. Small
numbers of the Perth, High Street pottery were identified as lower Seine and north French whitewares by Hall et al (2012), including copper-mottled green glazed wares (Perth NFM) and plain lead glazed and unglazed samples (ROUE and NFERE respectively). All matched the chemistry of the La Londe kilns, on the left bank of the Seine opposite Rouen. It is noticeable that the analyses of the Perth High St northern French wares show a range of percentages of alumina (a main structural element in clay), a smaller group with relatively high alumina (21–24%), and another with lower levels (15–20%). Samples 5 and 8, identified as north French whitewares (NFERE) are visually closest in analysis to sherd 27, and belong to the higher alumina group although they are higher in iron and potassium and lower in titanium but comparable in the other major elements. The samples from La Londe show a similar range of variation, presumably reflecting the slightly different qualities of clay used by the potters (Vince 2005) and one (V2224) is also similar in analysis to Perth sherd 27.

**Conclusions**

Plasma Spectrometry (ICP) analyses on redware and other pottery from the PEX 63 watching brief at the City Chambers and a site evaluation at Atholl Place (PE 55) were interpreted by principal components analysis. The redware pottery all appears to derive from one clay source (with one exception), shared in common with sherds from Perth Kinnoull B previously analysed (a site lying on the eastern side of the River Tay). The signature from previously sampled redwares from Canal Street in Perth is different (Haggarty, Hall and Chenery 2011). Examples of Yorkshire whitewares identified visually have been confirmed as such by ICP analysis, two of the unidentified appear to be Colstoun products from their analysis, while for three others the balance of probability is more towards their being Yorkshire whitewares. A possible northern French whiteware was identified, while two sherds identified as deriving from elsewhere in the UK proved to have analyses significantly different to Scottish or Yorkshire wares.

**The artefacts**

Catherine Smith

Artefacts of 12th- to 14th-century date were well represented and are mainly well-paralleled by finds from 75–77 High Street, Perth, for example metal finds (Franklin and Goodall, 2012), the exception being an M-shaped handle of a type which has not previously been seen in Scotland. A variety of organic material types was represented, particularly wood, leather, bone and wool textile. Waterlogged conditions aided preservation, particularly at sites on the High Street (PEX 15, 1–5 High Street, PEX 63, 1 High Street), again paralleling 75–77 High Street. The most interesting post-medieval find was a piece of crown or ‘bullseye’ glass, thought to have been used in a window.

**Silver**

*Coin*

1 **Ag coin** Victorian ‘bun’ issue sixpence. Very worn. Diameter 16.4mm  
PEX 02, Context 1000, Accession No E001  
Not illustrated

**Cu alloy**

*Coin*

2 **coin** Very worn copper halfpenny.  
Diameter 27.8mm  
PEX 02, Context 1005, Accession No E017  
Not illustrated

**Key**

3 **key** Circular ring bow, hollow stem with channelled asymmetric bit. Circular collar or baluster at junction of bow with shaft. Goodall (2011) Type B; cf six iron keys of Type 3 (=Type B) at Perth High Street, Fasc 2, 167, Cats 318–24, Illus 143, all from 13th/14th-century phases.  
Length 97.4mm, width of bow 28.2mm, thickness of bit 9.0mm  
PEX 51, unstratified, Accession no 1, Cons 911296  
Illus 13a

**Handle**

Cat no 4 is an M-shaped handle. Goodall (2011, 168, 224) illustrates three examples in iron, and suggests that although their precise function is unknown, one may have been used in conjunction with a lock. The small size of the Perth example indicates it may be from a casket or small chest.

4 **M-shaped handle** Two cast curved strips, forming M-shape, attached to central flat rectangular plate. Upper surface of strips is convex, lower is flat. One leg terminates in circular loop. Opposite leg is broken at loop.  
cf Goodall 2011, 224, Cats H660–H662, M-shaped handles dating to 12–13th and 13th–early 14th centuries.  
Length 68mm, width 44.5mm, 'leg' thickness 5mm, length central plate length 23.6 width 19.8, thickness plate 3.9mm  
PEX 64, Context 1301, Accession no 3  
Illus 13a

**Plumbob or weight**

5 **plumbob or weight** Lead-filled lozenge-shaped object with ‘fins’.  
Length 45.6mm, width 12.4mm, thickness 13.4mm  
PEX 03, Context 1000, Accession No E008  
Not illustrated
**Button**

6 button Flat, plain, circular button with shank soldered to reverse. Post-medieval.
Diameter 13.2mm
PEX 10, surface find, Accession No E001
Not illustrated

**Needles**

7 needle Complete needle with intact eye. Shaft slightly bent.
Length 46.4mm, width 1.2mm
PEX 79, Context 003, Accession no 041, Conservation no 890915
Not illustrated

8 needle Complete needle with intact eye. Shaft slightly bent.
Length 47.8mm, width 1.2mm
PEX 79, Context 003, Accession no 042, Conservation no 890917
Not illustrated

**Tube**

9 tube/fragments Originally described as ‘copper alloy tube’ has now disintegrated into six small corroded fragments.
No longer obvious that it was a tube. Perhaps lace tag? Not measurable.
PEX 15, Context 400, Accession E191, PMAG Accession 1989.132.50
Not illustrated

**Strip**

10 strip fragments Three fragments corroded Cu alloy strip (one bent). Conservation record sheet lists only one fragment, so must assume fragment has deteriorated since being conserved in 1989.
Length (main fragment) 22mm, width 9.6mm, thickness 1.2mm
PEX 79, unstratified, Accession no 009, Conservation no 890571
Not illustrated

**Lead**

The lead items consisted of strips, possibly used in building or roofing. More interesting was a stylus (Cat 13) similar in form to those illustrated by Egan (2012, 270–1) although undecorated. Styli were used to write on wax tablets and, it has been suggested, by builders on masonry (ibid).

**Strip**

11 strip As seen in 2013, consists of two conjoining fragments flat lead strip. Tapering and folded over at the tapered end. Trace of hole pierced at break between fragments.
Length 136.5mm, width 48.1mm, thickness 5.8mm
PEX 15, Context 400, Accession no E313, dated 6.5.81
PMAG Accession 1989.133.1
Not illustrated

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![Illustration of Copper alloy Cats 3, 4.](image-url)
12 **punched strip** As seen in 2013, consists of two conserved (lacquered) fragments, not conjoining. Originally a rectangular strip, it has been bent over. One unbroken long edge, 25mm deep tapers slightly to a broken long edge 1–2mm deep. Five roughly circular holes, set within irregular indentations, punched through the strip at regular intervals. Holes may be intended for nails (cf strips of iron roves from Kent and London, Goodall 2011, 188 and Fig 9.11). Indentations made by hammer? Roof flashing. Length (larger fragment) 64.2mm, width 25mm, thickness 25mm

PEX 63, Context 3000, Accession no 33, Cons 911462
Not illustrated

**Stylus**

13 **stylus** Tapered point, expanding to flat sheet, rolled at inner edges. cf Egan 2010, Cat No 893, 270–1, lead stylus. Length 78.6mm, width 12.3mm, thickness 5.2mm

PEX 15, Context 100, Accession no E043, PMAG Accession 1989.133.2
Illus 13b

**Iron**

**Nails**

14 **nails** Two corroded nails, with heads (one head is circular, ?flat, ?Type A). One corroded nail shaft. Not measurable.

PEX 01, Context 1006, Accession no E006
Not illustrated

15 **nails** Seven Fe nails, all Type A or ?Type A (flat, oval/rectangular head and rectangular cross-sectioned shaft). In poor, corroded condition. Only best preserved are measurable.

a Length 105.4mm, width of head 11.0mm
b Length 130mm, width of head 8.4mm
c Length 80mm

PEX 02, Context 1000, Accession no E025
Not illustrated

16 **nails** Three Fe nails and three shafts. Two are of Type A (flat rectangular head and rectangular cross-sectioned shaft), one of Type A/B.

a Length 79.4+mm (Type A)
b Length 85.6mm (Type A)
c Length 91+mm (Type A/B).

PEX 11, Accession no E003, PMAG Accession 1989.143
Not illustrated

17 **horse shoe nail** Trapezoidal head, shouldered asymmetrically, narrowing to flat top. Type J2, after Ford and Walsh’s (1987) classification, equivalent to Goodall and Franklin’s (2011) Type H. May be used with Clark’s (1995) Type 2 or 3 horse shoe (ibid). Length 35mm

PEX 15, Context 1100, Accession no E142b
Illus 13c

18 **nail** Shaft only. Rectangular cross-section.

Length 51.8mm, width 5.8mm, thickness 3.2mm

PEX 54, Context 21
Not illustrated

19 **nail** Complete. Round head, square-sectioned shaft, tapering to rounded point. Shaft bent at 180°. Perth Type A (Ford and Walsh 1987).

Length 55mm, head width 17.3mm

PEX 62, Context 0801, Accession no 2
Not illustrated

20 **nail** Slightly domed round/oval head, square-sectioned shaft. Bent. Perth Type D/B. Domed appearance may be due to corrosion.

Length 94.5+mm, head width 20.8mm

PEX 62, Context 2000, Accession no 11
Not illustrated

21 **nail** Flat, oval head, rectangular cross-section. Tip intact.

Perth Type A.

Length 55mm, head width 15.4mm

PEX 63, Context 3000, Accession no 23, Cons 911279
Not illustrated

22 **nail** Type G nail with flat, figure-of-eight shaped head and rectangular cross-sectioned shaft. Complete.

Length 54mm, head width 12.7 by 5mm

PEX 64, Context 800, Accession no 5
Not illustrated
Illus 13c Iron Cats 17, 27, 28, 29, 38 and 42.
23 nail Probable Type G. Head corroded and tip bent. Rectangular cross-sectioned shaft.
Length 47+mm
PEX 64, Context 800, Accession no 5
Not illustrated

24 nail, slate Type C nail in pegged roofing slate. Nail has flat, round head and circular cross-sectioned shaft.
Length 37.4mm, head width 12.4 by 11.2mm
PEX 64, Context 1200, Accession no 21
Not illustrated

Length 92.4+mm
PEX 77, unstratified, Accession no 003
Not illustrated

26 nail Oval/circular head, possibly domed,. Shaft rectangular cross-sectioned. Chisel-shaped point.
Length 86.8mm, head width 26.8 by 24.6mm
PEX 79, Context 0004, Accession no 011, Conservation no 890573
Not illustrated

Other nails, not previously catalogued, from PEX 15 are tabulated in the site archive and consisted of the following: 18 type A, 16 Type B, 3 probable Type C, 1 Type J2 (horse shoe nail).

Knife

27 knife Whittle tang iron blade set in wooden handle of oval cross-section. Handle compressed slightly at end farthest from blade insertion. Tang visible inside split handle. Blade tip missing. cf Perth High Street Cat 74, Fasc 2, p135 and Illus 74; also cf leatherworkers’ knives, ibid Cat 164 although blade tip is missing from PEX example. Handle length 96.7mm, width 25.2mm, thickness 17.7mm; blade length 83.8+mm, width 3.6mm, thickness 3.6mm; tang length 96.7mm
PEX 62, Context 0700, Accession no 1
Illus 13c

Keys

28 rotary key In two fragments. Irregular oval/rectangular bow with centrally placed, square pierced hole. Bit has two teeth, one of which has a repair or reinforcement riveted on. Stem (shaft) is solid with a projecting tip; shaft broken just above riveted tooth. Goodall Type 8. cf Perth High Street, Fasc 2, Cat 329,167 and illus 143. Reconstructed length 93.2mm, maximum width of bow 22.4mm
PEX 79, Context 0008, Accession no 001, Cons 890568
Illus 13c

29 padlock key Flattened triangular head with off-centre indentation. Shaft flattened on one surface, bevelled on other and slightly curving towards bit. Bit has broken off. cf Perth High Street Fasc 2, padlock slide keys, 156–66. Length 112mm, width of head 21.6mm, width of shaft 6.5mm
PEX 63, Context 2801, Accession no 22, Con 911275
Illus 13c

Buckle

30 ?buckle. Possible harness buckle. Heavy trapezoidal frame with fixed pin. Frame sides looped around bar, to which another bar with eyelet is attached at right angles.
Length 77mm, width (between loops) 32mm, thickness 5mm
PEX 63, Context 3002, Accession no 35, Cons 911277
Not illustrated

Needle

31 ?needle or spike Shaft only; corroded and bent. Circular cross-section.
Length 129.4mm, width (head) 8.6mm
PEX 15, Context 200, Accession no E047, PMAG Accession no 1989.136
Not illustrated

32 needle Shaft only, bent. Oval cross-section, tapering to sharp point. cf Perth High Street Fasc 2, 139–43 and Illus 140. Longest PHSE example is over 150mm.
Length 139mm, width 4.8mm
PEX 63, Context 2901, Accession no 31, Cons 911284
Not illustrated

Bars and strips

33 Z-shaped bar Tapering flattened bar, bent at right angles at wider end. Upper, tapered end pinched. Structural?
Length 215mm, width 20mm, thickness 35mm
PEX 63, Context 2201, Accession no 36, Cons 911280
Not illustrated

34 bar Tapering, incomplete bar.
Length 90.8mm, max width 12.0mm, max thickness 4.2mm, min thickness 1.2mm
PEX 63, Context 2401, Accession no 123, Cons 911270
Not illustrated

35 bar, angled Angled bar with corroded flange set at right angles. Encrusted with mortar, indicating structural use perhaps for strengthening masonry.
Length 142.3mm, width 43.4mm, thickness 8.5mm
PEX 61, Context 0300, Accession no 2
Not illustrated

36 strip Damaged plain rectangular strip. Bent.
Length 84mm, width 31mm, thickness 2.4mm
PEX 64, Context 700, Accession no 6
Not illustrated
37 strip Part of rectangular strip. 
  Length 71mm, width 21mm, thickness 1.5mm
  PEX 64, Context 700, Accession no 6
  Not illustrated

Fittings

Hooks and/or hinge pivots

38 fixed hook Identical in form to hook illustrated in Egan (2010, 56; Cat 64, Fig 37), although shorter. London example is 108mm long, hook height 12mm. Length of spike 61.0mm, width 20mm, thickness of bar 6.2mm, height of hook 9.4mm
  PEX 28, Accession no E, PMAG Accession 1989.143
  Illus 13c

39 hook/hinge pivot Rectangular cross-section in both arm and spike. Arm flattened; spike pointed. cf Egan, 2010, 55–6, Cats 71–73, Fig 37. Length 58.5mm, depth of hook 17.5mm
  PEX 64, Context 900, Accession no 7
  Not illustrated

Hooked bars or timber dogs

40 hooked bar/timber dog Tapering rectangular cross-sectioned wrought bar with one down-turned chisel shaped end. ‘Head’ of bar probably snapped off. cf timber dog, Goodall 2011, 170, Cat H14, fig 9.2. Length 134.4mm, width 18.2–29.1mm, depth of hook 120mm
  PEX 15, Context 200, Accession no E060, PMAG Accession 1989.136
  Not illustrated

41 timber dog Rectangular cross-sectioned wrought bar with two down-turned ends. One end forms curved rectangular plate, other end tapers to spike. Length 183mm, width 9.6mm, thickness 11mm, depth flat terminal 12.4mm, depth spiked terminal 32mm
  PEX 15, Context 500, Accession no E310, PMAG Accession 1989.136
  Not illustrated

Staple

42 rectangular staple Staple, greater length than width. Well-preserved, well-made staple. One arm slightly damaged at terminal, other complete. Cross bar pinched at junction with arms. cf Goodall 2011, 162, Cats H39–H43, Fig 9.3, dating from 12th to 16th centuries. Length 94mm, width 54.5mm, thickness 6.5mm
  PEX 79, Acc 033, Context 0010, Cons 890570
  Illus 13c

Tools

Punch or chisel

43 punch/chisel Rectangular cross-sectioned shaft with expanded asymmetrical rectangular bilobed head. Shaft tapers slightly to blunt point. cf Ford 1989, 134, Cat 92 and Illus 67, a woodworking chisel of similar form but less weight. Goodall 2011, 52, Cat 26 and Fig 4.3 is a stoneworking chisel of similar heaviness although the head is narrower than in this example. Length 124.9mm, width of head 51.5mm, thickness of shaft 25.0mm
  PEX 32, Accession no E001, PMAG Accession 1989.143
  Not illustrated

Miscellaneous

44 ?hook Triangular cross-sectioned bar extending to curved flat plate. Length of bar 46mm, width 18.5mm, thickness 4–12.2mm
  PEX 11, Accession no E003, PMAG accession 1989.143
  Not illustrated

45 ?plate Very corroded. Length 81.6mm, width 14.4mm
  PEX 15, Context 200, E052, PMAG Accession 1989.136
  Not illustrated

46 ?plate Slightly curved plate fragment, broken. Length 98.3mm, width 29.6mm, thickness 127.9mm
  PEX 15, Context 200, Accession no E060, PMAG Accession 1989.136
  Not illustrated

47 bar with rounded end Very corroded ?bar with one rounded end. Other end may also be rounded, but very corroded. A nail may be present near one of the terminals. Length 64mm, width at end 19.8mm, thickness 9.5mm
  PEX 15, Context 400, Accession no E133, PMAG Accession 1989.136
  Not illustrated

48 bar with rounded end Bar with rectangular cross-section. Bent. One rounded end, one squared-off end. Length 163mm, width 10.5mm, thickness 9mm
  PEX 15, Context 1200, Accession no E024, PMAG Accession 1989.136
  Not illustrated

49 curved bar Curved bar with rectangular cross-section. One end cut, with lug. Length 157mm, width 9mm, thickness 7.9mm
  PEX 15, Context 1100, Accession no E238, PMAG Accession 1989.136
  Not illustrated

50 flat triangular object consisting of three plates sandwiched together. Possible rivet present. Part of padlock mechanism? or possibly armour-plate? Length 66.4mm, width 28.0mm, thickness 7.4mm
  PEX 63, Context 3101, Accession no 24, Cons 911286
  Not illustrated

51 plate with rivet hole Three non-conjoining fragments, poorly preserved, encrusted with vivianite. Remains of rivet/nail hole at edge of one fragment. Length of fragment with hole 34.0mm, width 21.5mm, thickness 1.9mm
  PEX 61, Context 0500, Accession no 1
  Not illustrated
52 folded sheet Sheet, folded and cracked (or two pieces Fe
sandwiched together). Two roughly circular lumps on one
surface may be remains of nails or rivets.
Length 35.4mm, width 27.4mm, thickness 9.3mm
PEX 36, Accession no E007, PMAG Accession 1989.143
Not illustrated

Ceramic

The ceramic artefact assemblage consisted of clay pipe
fragments of post-medieval/modern date, all from PEX
62. None were stamped with a maker’s name.

Clay pipe

53 clay pipe bowl Two fragments collar. Fabric buff-coloured.
Internally sooted.
Diameter 28.8mm, length 18.9mm, thickness 5.0mm
PEX 62, Context 0700, Accession no 4
Not illustrated

54 clay pipe stem Plain stem fragment.
Length 54.4mm, diameter of hole 1.9mm, maximum
diameter stem 8.7mm
PEX 62, Context 0700, Accession 5
Not illustrated

56 clay pipe stem Plain stem fragment. Flattened mouthpiece.
Length 79.6mm, diameter of hole 1.9mm, maximum
diameter stem 11.0mm
PEX 62, Context 0700, Accession 5
Not illustrated

57 clay pipe stem Plain stem fragment.
Length 71.0mm, diameter of hole 1.7mm, maximum
diameter stem 8.6mm
PEX 62, Context 0700, Accession 5
Not illustrated

58 clay pipe stem Plain stem fragment. Trimming marks
at mouthpiece end.
Length 69.0mm, diameter of hole 1.8mm, maximum
diameter stem 10.9mm
PEX 62, Context 0700, Accession 5
Not illustrated

59 clay pipe stem Plain stem fragment.
Length 43.8mm, diameter of hole 1.4mm, maximum
diameter stem 13.1mm
PEX 62, Context 0700, Accession 6
Not illustrated

60 clay pipe stem Plain stem fragment. Flattened at
mouthpiece end.
Length 50.2mm, diameter of hole 2.0mm, maximum
diameter stem 9.2mm
PEX 62, Context 0700, Accession 6
Not illustrated

Clay alleys

A number of clay alleys of modern date were found
at PEX 62 and PEX 95, eight from PEX 62 and one from
PEX 95. Several were patchily glazed and one may bear
traces of a maker’s mark. They ranged in diameter
from 20.6mm to 24.00mm reflecting a degree of
standardisation relating to the size of the bottle
necks they were intended to stopper. Individual
measurements are listed in the site archive. Their
function was to prevent gas evaporating from
carbonated drinks although they may have had
a secondary use in the game of marbles.

Wood

Handle

61 handle Two fragments of broken handle. Probably hewn
rather than turned. Larger fragment has dome-shaped/
rounded upper end, with distinct tool marks; lower end is
broken. Smaller fragment (not conjoining) has one surface
cut horizontally across. neither of the exposed internal
surfaces has been cut flat so are probably not scales.
Handle is more likely to have been for a tanged knife or awl.
a Length 49.8mm, width 21.0mm, thickness 9.3mm
b Length 32.5mm, width 18.8mm, thickness 8.9mm
PEX 79, unstratified, Cons 890201
Not illustrated

Pins

62 pin Carved/whittled radially split wooden pin. Head is cut
flat; point is slightly blunt. Flattened oval cross-section.
cf PEX 79, Accession no 003, Cons 890915 and pins from
Perth High Street, Fascicule 2, 264–272.
Length 88.5mm, width 4.5mm, thickness 4.0mm
PEX 79, Context 0010, Accession no 028, Cons 890547
Not illustrated

63 pin Carved/ whittled wooden pin. Radially split (grain of
wood runs parallel to long axis of pin). Flat, rough head,
blunt point, shaft slightly curved. cf Perth High Street,
Fasc 2, 264–72, and PEX 79 Accession no 028
Length 68.6mm, width 9.0mm, thickness 5.7mm
PEX 79, unstratified, Accession no 003, Cons 890195
Not illustrated

64 pin Carved/whittled wooden pin. Head flattened, tip slightly
blunt. Rectangular or oval cross-section.
Length 67.2mm, width 5.5mm, thickness 4.1mm
PEX 79, unstratified, Cons 890205
Not illustrated

65 pin Carved/whittled wooden pin. Head flattened oval,
tip broken. Oval cross-section.
Length 76.8+, width 5.2mm, thickness 4.8mm
PEX 79, unstratified Cons 890205
Not illustrated
66 pin Carved/whittled wooden pin. Head flattened oval, tip broken, perhaps re-cut on slant. Shaft knotty and irregular, slightly bent. Oval cross-section.
Length 75.5+mm, width 6.2mm, thickness 5.0mm
PEX 79, unstratified, Cons 890205
Not illustrated

67 pin Carved/whittled wooden pin. Flat head, carved/whittled tip (intact). Head splintered. Round cross-section.
Length 114.5mm, head width 5.4mm, thickness 5.4mm
PEX 64, Context 300, Accession no 2
Not illustrated

68 pin Carved/whittled wooden pin. Flat head, shaft bent and distorted. Round cross-sectioned shaft.
Length 110mm, head width 5.6mm by 5.8mm
PEX 64, Context 300, Accession no 2
Not illustrated

69 pin Carved/whittled wooden pin. Flat head, point very crudely shaped, whittle marks visible. Round cross-sectioned shaft.
Use-wear marks around neck of pin, perhaps made by twine?
PEX 64, Context 700, Accession no 4
Length 88mm, head width 6.2 by 6.5mm
Not illustrated

Stakes

70 stake Hewn wooden stake. Rectangular cross-section.
One short end possibly trimmed. Structural timber.
Length 84.0, width 22.6mm, thickness 16.4mm
PEX 79, unstratified, Cons 890201
Not illustrated

71 stake Part of hewn stake with one flat surface remaining. Other surfaces broken.
Length 60.6mm, width 21.2mm, thickness 13.8mm
Not illustrated

Worked stone

Architectural fragment

72 moulding Broken stone moulding in grey micaceous sandstone. Cylindrical cross-section with flattened flange. One end of cylinder worked flat, other end snapped off.
Length 41.2mm, width 50mm, thickness 43.1mm
PEX 60, Context 0000, Accession no 1
Not illustrated

Hone

73 hone stone Broken at either end. Rectangular cross-section. No evidence of suspension perforation. Wear on one tapered broken end implies continued use after breakage. In grey quartz mica schist, possibly of Highland origin. cf hone stones from Perth High Street, Fasc 4, 134–5 and Illus 57
Length 45.5mm, width 25mm, thickness 14.4mm
PEX 79, Context 0010, Accession no 034
Not illustrated

Glass

Bottle glass

74 bottle glass Heavy green bottle base with deep kick-up. Moderately denatured. Early-mid 19th century.
PEX 54, Context 21
Not illustrated

75 bottle glass Fragment of green bottle base. Lightly denatured. 19th century.
PEX 54, Context 21
Not illustrated

PEX 77, unstratified
Not illustrated

Stopper or bung

PEX 15, Context 001.
Estimated complete diameter 130mm
Not illustrated

Window glass

Crown glass window panes such as Cat 78 were formed by using the central area of the pane which had originally been affixed to the pontil rod used to hold it while the glass was being blown. The outer, finer glass was cut off to make better quality sheets, while the central portion bearing the pontil scar was cut into circular panes and arranged in series. Turnbull (2001, 52) notes that as late as the 17th century, glass windows were uncommon and that crown glass was in use for the most important windows in most large houses at that time. The bullseye fragments were considered

Illus 13d Glass Cat 78.
of lesser quality and could have been used in more mundane dwellings. Baxter (1936, 204) illustrates a weavers’ workshop and dwelling still standing in Perth’s New Row at that date, to the north of County Place York Corner buildings, with a window in which five rows of three crown glass panes (ibid, 3) are visible. Other variants of these ‘wee windows or winnocks’ in ‘fluff-begrimed’ weavers’ shops were of sashes with six or eight panes of crown glass (ibid).

78 crown glass ‘bullseye’ window pane. Circular fragment in heavy green glass, with large central pontil (‘punty’) scar. Slightly denatured. Post-medieval
Diameter 103mm by 99mm
PEX 8, PMAG 1989.138
Illus 13d

Worked bone

Skate

79 horse bone skate Bone skate fashioned from horse left metatarsal. Some recent trowel/machine damage, otherwise in fair condition/moderate surface abrasion. Object is possibly unfinished as only the distal end has been modified to any extent; the proximal end is in almost its natural state, except for very slight trimming on the anterior edge. Distal end has been trimmed on lateral, medial and anterior surfaces to form a symmetrical point. The anterior and posterior shaft surfaces are unmodified, although there are some scratches which might indicate use along the length of the anterior aspect. There are knife cuts on the lateral and medial aspects of the shaft. This skate would have been most efficient if the anterior surface was placed against the ground/ice; the posterior surface would then be in contact with the wearer’s shoe or foot. The lack of pierced fixing holes suggests the item was either unfinished or proved unsatisfactory to the wearer.
Length (GL) 254mm, width (proximal; Bp) 47.6mm, thickness (SD) 29.9mm
PEX 79, Context 0101, Accession no 035
Illus 14

Pins

80 pin Bone pin with slightly curving shaft. Head cut flat, tip slightly damaged. Trimming marks particularly noticeable near head. Outer curvature exposes trabecular (inner) surface of marrow cavity of large ungulate long bone shaft from which pin is cut, possibly indicating ulna is source of raw material. Similar in size and shape to wooden pins from PEX79.
Length 99.0mm, width 5.6mm, thickness 3.9mm
PEX 79, Context 0003, Accession no 040, Cons 890199
Not illustrated

Illus 14 Worked bone.
81 **pin**/**point** Possible bone pin or point (eg bale pin). Surface abrasion makes it difficult to be certain, but the object appears to have been cut from a long bone shaft fragment. The trabecular surface has been exposed on the posterior (concave) surface and the fragment has probably been sharpened to a point, now abraded and rounded off. Length 69.5mm, width 7.3mm, thickness 2.4mm.

![Illus 14](#)

**Rough-out and offcuts**

82 **rough-out** Trimmed long bone shaft flake from large ungulate (cattle/horse). Thick-walled bone, trimmed to a roughly rectangular cross-section. Both short ends are roughly snapped across, while long edges show signs of trimming with sharp tool, forming flattened surfaces. Length 84.2mm, width 10.1mm, thickness 10.3mm.

83 **offcut** Split large ungulate shaft; no diagnostic features remaining. Bone is split roughly in sagittal plane. One long edge is roughly broken but opposite long edge has been trimmed with a blade, leaving a ‘scalloped’ edge at 60 degree angle to main long edge. ‘Scalloped’ edge possibly shows traces of use-wear although this may be due to post-depositional abrasion. Length 139.2mm, width 20.1mm, thickness 8.4mm

84 ?**offcut** Sagittally split cattle humerus shaft, sawn across in medio-lateral direction. Misplaced saw cut parallel to cut surface, 1.2mm wide. Incidental dog gnaw marks at broken edge. Length 60.3mm, width 37.8mm, thickness 7.0mm

85 **antler offcut** Longitudinally split antler beam offcut, sawn at both long ends

![Illus 15](#)

**The textiles**

Vanessa Habib

Several textile fragments were recovered from two sites, three of wool from PEX 63 and three from PEX 79. On assessment the fragments from PEX 79 were found to require cleaning and conservation before detailed study. The samples had been protectively re-packed at Historic Scotland. Some lifting of debris, by mechanical cleaning, was undertaken by Stefka Bargazova at AOC Archaeology, Project No 22863. It was not possible at this stage to identify the fibres/hair in the yarns.

86 **wool textile** Conserved irregularly shaped wool sample, with part of a selvedge and holed. 140mm warpways, 140mm weftways at widest points. Overall uneven dark brown in colour, 2/1 twill. Singles wool Z warp, singles wool S weft. In weaving the use of Z spun and S spun yarns in warp and weft produce a clearer surface weave than Z spun yarns used together or S spun yarns used together. The sample has a harsh handle and is worn on the face. The weft yarns are thicker than the warp, about 10 warp threads per cm and 8 weft threads per cm.

There appear to be two thick warp threads at what remains of the selvedge, but it is difficult to be sure without removing a weft.

87 **wool textile** Conserved, trapezoidal-shaped cut wool sample in one piece with one side curved. 130mm warpways and 140mm weftways at widest points. Overall mid brown colour with variations in shade. Rough felting on one side. Probably 2/1 twill. Singles wool Z warp, singles wool S weft. The sample drapes well. The weft yarns are thicker and softer than the warp, about 8 warp threads to the cm and 12 weft threads to the cm.

88 **wool textile** Conserved sample of loose plain weave fabric which may have a worked edge like a selvedge. Roughly 120mm by 80mm at widest points. Dark brown colour overall. Long threads, which appear to be two fold, Z but plied S ways, in both directions extend from sample but matted.
Keeping a close watch: pottery, artefacts and faunal remains from watching briefs in Perth (PEX series) 59

The leather

Clare Thomas

Introduction

The assemblage consists of 2099 items of leather, from 15 sites, as well as a miscellaneous group, which only have conservation laboratory numbers. Waste material, comprising offcuts and scraps, form the largest category, with 1555 fragments, followed by shoe parts, with 422 items. The assemblage also includes a few knife sheaths, some straps and various miscellaneous pieces. PEX 15 produced the most leather, with 656 fragments, followed by the Miscellaneous group (605) and PEX 63 (387). A summary of results is shown as Table 2; further details by site and numbers of each fragment type are available in the site archive.

Some leather from these watching briefs, especially PEX 15, was summarily referred to in the report on excavations in the burgh of Perth between 1979 and 1981 (Thomas 1987, 186); this includes items such as the Type Biii upper mentioned below (see paragraph 2, (e)), and fragments with herringbone pattern. The current location of some of these items is not known. Accordingly, they are only referred to, not fully described.

Shoes

The shoe parts include soles, uppers, rands, stitching channels and clump soles. Several sole and upper types were recognised, and where possible have been assigned to the types defined in the Perth High Street report (Thomas and Bogdan 2012).

Construction

The shoes were all of turnshoe construction, where the shoe is made inside out, normally with the flesh side outwards, by sewing the lasting margin of the upper

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**Illus 17 Textile Cat 88, PEX 63, Conservation Lab number 860069.**

**Illus 18 Textile Cat 90, PEX 79 Sample 2, Conservation Lab number 891376.**
to the edge of a single sole which also acts as an insole. The shoe is then turned the right way round so that the grain surface is on the outside and the sole-upper seam is now inside. All the soles had the flesh side uppermost, and edge-flesh stitching channels with stitch lengths of 5–7mm. The uppers had corresponding lasting margins with grain-flesh stitching channels.

In several cases, the sole-upper seam had been strengthened by the inclusion of a rand, a strip of leather, usually triangular in cross-section.

Fragments of upper were joined together with butted edge-flesh seams, invisible on the grain side, with stitch lengths of 2.5–4 mm. Stiffeners were often used to strengthen the inside of the quarters. Eleven survived, and the use of another four is indicated by stitching on the flesh side of quarters. Uppers with lace holes were often reinforced by facings attached to the flesh side, as indicated by stitching. Top edges of uppers were oversewn, probably with the addition of topbands or bindings, a few of which survived. Two uppers had had the top edge folded inwards to form a hem.

Most uppers were of one-piece design, where one piece of leather forms both the vamp and quarters. However, four uppers had the vamps separate from the quarters (Type J).

One upper fragment (PEX 70, Type Kv) has four rows of stitching, with each row composed of multiple grain-flesh perforations. This was probably for decoration, either in the form of coloured thread, or by the addition of a coloured rib of material.

Thread survives in twelve examples; it appears to be wool. Linen was the normal thread for shoe construction, but often does not survive. At least 53 examples of woollen thread were found at Perth High Street (Thomas and Bogdan 2012, 149).

Repairs and re-use

Evidence for repair of shoes survives in the form of clump soles, eleven of which were recognised, as well as stitching for their attachment, which was found on eight soles.

Re-use of shoe leather was indicated by a number of features. Seven soles had seams across the waist, demonstrating that they were from two-part soles. Such soles would not have been very strong, and probably result from re-use and making of new shoes out of old leather. Fourteen seats had been cut across the waist, suggesting that either they or their respective foreparts might have been intended for re-use, possibly as clump soles. Many small fragments of upper had one or more cut edges; it is possible that they were remnants from the re-use of larger parts.

One vamp (PEX 15, 1100, C219) has an oval hole on the vamp wing, measuring 9 x 18mm, with an edge-flesh stitching channel. This is possibly a repair measure. Repair of uppers is unusual.

Sole types

Twenty-eight soles, or sole fragments, were complete enough for them to be assigned to PHS Sole Types.

Type 1
One sole was of PHS Type 1. It has a short seat, only slight narrowing at its waist, and a straight broad forepart ending in a broad rounded toe. This was the second most common shape at the Perth High Street site, where it was mostly of 12th-century date (ibid, 164).
Type 2
Two soles were of PHS Type 2. These are also straight, but have a more pronounced shape, with definite waists, and curved foreparts, ending in oval toes. They were the third most common shape at the Perth High Street site, where they belonged mainly to the second half of the 13th century (ibid, 164).

Type 3
Nine soles were of PHS Type 3. These are of a more natural foot shape, with pronounced waists and curved foreparts, which are inclined inwards and end in oval toes. They were the foremost type at the Perth High Street site, where they belonged predominantly to the second half of the 13th century (ibid, 170).

Type 4
Sixteen soles were of PHS Type 4. They are slender and elegant, with narrow waists and gently curved foreparts, ending in pointed toes. At the Perth High Street site they dated to the 14th century (ibid, 170).

Upper types (see Table 2.4)
The assemblage included neither complete uppers nor substantial fragments of uppers. Accordingly, the assignment to any particular PHS Type is tentative, and is based on features such as lace holes, thonging, toggles or latchets.

Type A
One upper fragment has neither thongs nor holes for them. It is possible that is part of a simple wrap-around upper, which may have had a thong round the foot, without it being secured in any way to the upper. At the Perth High Street site, they ranged in date from the earlier 12th century to the late 14th century, but were predominantly of 12th century date (ibid, 196).

Type Bi
One upper has two slits forming a tunnel hole on the vamp wing, suggesting that it might be part of a simple wrap-around upper with one horizontal thong, secured through tunnel holes. At the Perth High Street site, this style of boot was predominantly of 12th century date (ibid 201).

Type D
Five uppers had tie-holes or lace holes. The example from PEX 36 has lace holes for side lacing on opposing vamp wing and quarters, as on PHS Type Di. The other items are too fragmentary to determine whether they belong to Di or Dii, where the lace holes are on a side-piece or gusset, split for the purpose.

All twelve examples of Type Di from the Perth High Street site came from contexts most probably dating to the second half of the 13th century (ibid, 216).

Type J
Four uppers had seams on both vamp wings, or, if quarters, on sides of the fragment, indicating that the shoe was made with separate vamp and quarters, which is unusual in medieval shoes. This may be the result of repair rather than deliberate construction. For this reason, Type J is regarded more as a group than a stylistic type (ibid, 224–229).

Type K
Type K consists of boots or shoes with a combination of latches, slits, thongs ending in toggles and thongs ending in loops for a central fastening. As the evidence is often very fragmentary, the subgroups, especially Ki, Kii and Kiii, have been used to distinguish between varying forms. Thus, Ki consists of pieces with latches with thongs ending in toggles, and sometimes slits as well. Kii comprises latches with slits for such toggles. Kiii is composed of latches or larger parts of the legs of boots with thongs ending in loops, most probably intended to be fastened with toggles as in Ki. Accordingly, it is possible that items of Kii might correspond with some from Kii or Kiii. Kv uppers have one or more latches but no surviving slits, toggles or loops. Kv is a rudimentary form with a single toggle and opposing slit (ibid, 225–229).

Five possible examples of Kii have been identified, with another five of Kii and one of Kiii. One fragment might belong to Kv.

At the Perth High Street site, Types Ki, Kii and Kiii dated to the late 13th to mid-14th centuries (ibid 224–229). Type K was particularly well represented at Kirk Close, Perth, where it was dated to the 13th–14th centuries (Thomas 1987, 179–81).

Shoes with straps or latchets
Two upper fragments have long strap-like latches, with oversewn edges and with stitching for a facing or lining (PEX 15, 300, C173). They are probably from two shoes, not part of one. They are similar to shoes from London. Two examples had two opposing latches meeting for a central fastening, while another had a strap for a buckle fastening. All these items were of late 14th-century date. The only parallel from Scotland is from Tarbat; however, the straps on that shoe were not an integral part of the upper (Thomas, 2001).

Unfortunately, not enough survives of the PEX 15 items to determine an exact parallel (Grew and de Neergaard 1988, 60, fig 94, 68, fig 102).

Conclusion
The examples quoted above show that the shoe parts ranged in date from the 12th to the late 14th centuries. The uppers with strap-like latches are the only items not to have existing parallels from Perth. It should also be noted that a complete boot with vertical thonging held in place by horizontal thonging (Type Bi) was found at PEX 15 in the 1980s but was not fully
described in the 1987 report. At the Perth High Street site, this type of boot ranged in date from AD 1150 to the early 13th century (Thomas, 1987, 186; Thomas and Bogdan 2012, 210).

The sites producing the most shoe leather were PEX 63 (112 fragments) and PEX 15 (110 fragments).

**Knife sheaths and other decorated items**

(see Table 2.7)

**Decorated**

Parts of two decorated knife sheaths were recovered from PEX 15. The first (PEX 15, 1000, C114) has been formed by folding a piece of leather once and stitching the two edges together, with a grain-flesh stitching channel, stitch length 5–6 mm on the decorated front, and an edge-flesh stitching channel on the reverse. The object is tapered. The front is elaborately decorated with engraved heraldic motifs, including a fleur-de-lys, part of a lozenge, several curvilinear elements and a bird, which is featured at least three times. The rear has three double engraved lines near the top. The item is very worn, with much of the decoration indistinct. The top edge has been cut or split, the lower edges are torn.

The use of heraldic devices on sheaths and other decorated items was common, and does not imply that the owners were entitled to bear them, but that they wished to imitate the nobility. Examples with lozenges, diamonds and birds include sheaths from London and York, dating from the late 12th to the 15th centuries (Tatton Brown 1975, 163–4, fig 30, 119; Cowgill, de Neergaard and Griffiths, 1987, 139, 164–166; Richardson 1959, 105).

A strip with an edge-grain stitching channel is possibly part of a knife sheath; all other edges are torn (PEX 15, 1100, C219). The area next to the stitching has been decorated with an engraved pattern consisting of pairs of pin holes separated by short bands of diagonal hatching, which form multiple chevrons.

**Decorated item** (Illus 19)

A very small rectangular fragment, 47 x 21 x 1mm, with four edge-flesh stitching channels, has been decorated all over with stamped fleur-de-lys (PEX 64, 0700, Acc <26>, Cons 871064).

Fleur-de-lys are a common heraldic motif, as noted in the discussion of the decorated knife sheath. They occurred, for example, on a sheath from the Perth High Street site (Thomas and Bogdan 2012, 276–277, no 5770, unstratified). Another example from London was of early to mid 14th-century date (Cowgill, de Neergaard and Griffiths, 1987, 145–147, fig. 95, no 443).

The presence of four stitching channels suggests that it is not part of a knife sheath, but was possibly part of a mount, or was a decorative panel of some larger item. It should also be noted that a fragment of leather, decorated with two beasts of heraldic origin, was recovered from PEX 15 and reported on in the 1987 report (Thomas, 1987, 186).

**Plain**

Three fragments are possibly part of plain knife sheaths. The first (PEX 15, 1100, C219) consists of a tapered piece, folded twice and stitched with a butted seam. The second (PEX 15, 1000, C114) is a small folded fragment with oversewn edges, while the third (PEX 63, 3000, <131>) is a strip with a stitched edge.

Knife sheaths were common, as most people would have carried a small knife which would have been used as and when required, including at meal times (Cowgill, de Neergaard and Griffiths 1987, 51).

**Straps**

The 35 fragments of straps include straps of single thickness, straps folded once, a strap folded twice, thongs and bindings. The last items were probably part of shoe uppers, but could have had other uses. They have been counted as straps if they were not associated with an upper.

**Single thickness**

Twenty strap fragment were made of a single thickness of leather; one tapered to an oval point (PEX 63, 3000, <129>). Nine of these had a single row of grain-flesh slits parallel to each long edge, while two had double rows. These slits may have been stitched with thread, for decorative purposes. Eleven strap had holes for the pin of a buckle, while four had holes for attachment to a buckle or to some other object.

**Folded once**

Five straps consisted of a single piece of leather which had been folded once. One example also contained a single strip of leather within the fold; the strap had three parallel rows of grain-flesh stitching. A thong had been threaded through two slits at one end. The strap had been knotted on itself (PEX 79, 0004, <007>). Another strap had been folded round a buckle, with
Keeping a close watch: pottery, artefacts and faunal remains from watching briefs in Perth (PEX series)

a central oval hole on the fold for the pin of the buckle. Grain-flesh stitching channels marked where the two thicknesses had been sewn together (PEX 63, 3000, <135>).

Folded twice
One strap had been formed by folding a piece of leather twice and stitching the two edges with a butted edge-grain seam. Five round holes at one end were probably for attachment to a buckle or to some other object (PEX, Lab no 860083).

Thongs
Three thin strips which had been knotted were probably thongs, and not thin strip offcuts.

Bindings
Six folded strips with oversewn edges were probably bindings for uppers, or possibly for clothing. As they were not directly associated with uppers, they have been included with other straps.

The greatest concentrations of straps came from PEX 63, with eight straps of single thickness, three folded once and two bindings.

Waste material
Waste material includes 1356 offcuts and 199 scraps.

Offcuts
Thin strip offcuts were the most common, with 587 examples, followed by irregular ones, (534) and triangular ones (228). The triangular ones are typical waste from cutting out of soles.

The greatest concentrations of offcuts came from PEX 15, with 463 fragments, 69 of which were triangular in shape; PEX 63 produced 206, with 52 triangular ones, while PEX 76 had 115 offcuts, including 17 triangular ones.

Scraps
Scraps have been defined as fragments with neither cut nor stitched edges.

Miscellanea
This group includes 81 items with stitching or cut edges but no obvious use. Fragments with loosely oversewn edges (49) may be offcuts; the stitching may have been designed to prevent the leather tearing or splitting. One strip with a small loop is almost certainly part of a fastening (PEX 15, 3000). A rectangular fragment with cut edges has four cross-shaped holes, possibly caused by nails with square heads (PEX 15, 900, C216). An irregularly shaped piece has been folded and hemmed, with the hem secured by grain-flesh stitching channels perforating both thicknesses of leather (PEX 63, 3101, <178>).

Conclusion
This assemblage from 15 sites, consisting of shoe parts, straps, a very few sheaths, waste material and a small quantity of miscellanea, is further evidence for leather working in medieval Perth, especially the manufacture of shoes. Furthermore, the cut-up nature of much of the shoe material, taken with the scarcity of complete soles or uppers, points to the second-hand shoe trade, to the re-use of less worn parts. The two sites which produced the most evidence for leather working, and shoe making in particular, were PEX 15 and PEX 63.

A study of the sole and upper styles shows that there is a predominance of Sole Type 4 and Upper Types D and K, which are generally of 13th- to 14th-century date, compared to Sole Type 1, mainly of 12th-century date, and Upper Types A and B, mainly of 12th- to 13th-century date.

The knife sheath with birds and other heraldic devices has been decorated to a degree not previously recorded in Scotland.

The animal bone
Catherine Smith

Substantial finds of animal bone have been recovered from excavations within the medieval burgh of Perth. Excellent preservation of organic materials is due to the anaerobic conditions prevailing within the deposits, caused by repeated flooding over the centuries. The most abundant faunal assemblage was recovered from the 1975–77 excavation at 75–95 High Street, now published after nearly thirty years in post-excavation (Hodgson et al 2011). Other excavations such as those at King Edward Street and Kirk Close also produced large assemblages (Bowler et al 1995). However, the PEX series of watching briefs filled in gaps in the patchwork of large excavations and show that similarly good preservation of the material is almost universal on the High Street. Particularly good bone assemblages were recovered from PEX 62, PEX 63 and PEX 64. Unfortunately despite an extensive search in 2014, the animal bone from PEX 15 was not found and it was assumed to have been discarded at some time in the 1980s, probably after discussion between the excavators and the recipient museum, although no record of the transactions survives. Its loss perfectly illustrates the quandary which both curators and archaeologists experience when faced with painful decisions around the volume of ecofactual material recovered from urban excavations, the lack of storage space in which to keep it, its future value to researchers and the length of time for which it should be kept.
Methods and measurement

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

Measurements were made in accordance with the scheme of von den Driesch (1976) and are expressed in millimetres. Mandibular tooth wear and eruption patterns were assessed using Grant’s (1982) scheme for cattle, sheep/goats and pigs, as well as Payne’s (1973) scheme for sheep/goats. Horn cores were aged using Armitage’s (1982) criteria. Withers heights for sheep/goats were estimated using Teichert’s (1975) factors.

A record was made of identifications to species and particular bone element, anatomical measurements, epiphyseal fusion, dental wear and condition of the bones, by site and context. Results are summarised by site and species in Table 3. All other results including a summary of anatomical measurements of long bones across all sites is available in the site archive.

Discussion

The majority of the animal bones from these watching briefs have all the appearance of dating to the medieval period, based on the evidence of their small stature, the presence of numerous horn cores and the style of butchery apparent on the bones.

Notably, there is burgh-wide evidence of horn processing, horse butchery (possibly associated with skinning/leather manufacture) and some small scale bone working. Horn cores from cattle, sheep and goat were recovered. Cattle horn cores were present in significant quantities at PEX 62, PEX 63, PEX 77, PEX 79 and PEX 102. Goat horn cores were present at PEX 62, PEX 63, PEX 64, PEX 76, PEX 79 and PEX 102 and sheep horn cores at PEX 62, PEX 63, PEX 64, PEX 76 and PEX 102. Waste cores of all species were most frequent at South Methven Street (PEX 62) and 1 High Street/Tay Street (PEX 63).

Site PEX 62 (South Methven Street) shows some notable similarities with an excavation located in the same street at the Clydesdale Bank, where a large deposit of cattle horn cores, forming 53% of the total bones from the site, was retrieved from a ditch (Site code PEX 79/80; Smith and Hodgson 1987, 197). The waste cores from cattle, sheep and goat at PEX 62 were further evidence of horn processing in this area. It was customary for industries which produced noxious smells to be situated on the fringes of the burgh and the area around what is now South Methven Street may have been considered to be on the edge of the town.

At the opposite end of the town, at 1 High Street/Tay Street (PEX 63) a further concentration of horn waste reinforced the evidence of horn working noted at the extensive 75–95 High Street excavations (Hodgson et al 2011) and at Curfew Row (Smith unpublished).

At PEX 63 (1 High Street/Tay Street) several worked bone and antler offcuts also indicated that the manufacture of small objects may have taken place in the vicinity. Other concentrations of antler offcuts have been noted elsewhere in the burgh, particularly at St John’s Square (Perry et al forthcoming) and at 77 High Street (Hodgson et al 2011).

Horse bones were also frequent finds, particularly in the watching brief on the replacement of the Scott Street sewer (PEX 76). These bones were recovered from a rich organic midden containing 13th/14th century pottery, although one of the partial horse skeletons came from an animal which was taller than the typical medieval pony of 14:2 hands height, standing at a withers height of 15:1 and 15:3 hands (155.1cm–161.5cm) and may thus represent a post-medieval animal. At least two, and more probably three, partial horse skeletons were recovered from PEX 76, two of which displayed knife cuts.

Since these horses probably suffered from some degree of lameness due to their arthritic condition, it may have been this factor which decided their fate. Certainly the knife cuts on otherwise intact bones indicate that they may have arrived on the site via the knacker’s yard. At Cutlog Vennel (PEX 77) there was further evidence of horse butchery on the radius of a fairly small pony of 12:2 hands height, including what may be skinning cuts. Various tool marks were also noted on horse bones at PEX 63 (1 High Street/Tay Street) and PEX 102 (62–64 High Street). A bone skate made from a horse metatarsal was recovered at PEX 79 (High Street/George Street–Tay Street, very similar in form to a skate of medieval date recovered from 80–86 High Street (Cox 1997, 751). The primary use of the carcasses may have been for their skins and hooves (for glue), but the meat may also have been eaten by humans or dogs (Smith 1998).

Notable also within the PEX 64 (High Street/King Edward Street) assemblage were one cat and one dog/fox bone bearing knife cuts. There appear to be several sites on the High Street where skinning of small animals, particularly cats, took place, notably 75–95 High Street and 80–86 High Street, apparently indicating a cottage industry (Smith 1997, 771; 1998; 2011, 41 and CD insert).
Table 3 Total numbers of animal bones by site and species.

* from sites other than PEX 15

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Preservation of the animal bones and recommendations for future storage

Particular regard was paid to the current condition of the bones, since in some cases, the material had been in storage for up to 20 years and it was feared that some deterioration might have taken place since excavation. Unfortunately, as there was no written record of the condition of the material at the time of its recovery, there was no baseline against which to measure any deterioration which might have occurred. However, the material had been recovered from the excavations in a well-preserved state and little damage appeared to have happened in storage, with a few exceptions. In only a few cases, new breaks had formed. These were recognisable due to the lighter colour of the break with respect to the rest of the bone and the sharpness of the broken edges. These tended to have occurred in thin bones such as the scapula.

Breaks which occur in animal bone ‘in antiquity’ show the same colour tone throughout and the broken edges are stained to the same colour as the rest of the bone. In addition, broken pieces of butchered bone are only rarely found to conjoin due to the dispersal of joints of meat to different areas of the site and perhaps to different sites entirely.

Since the bone condition has been little altered by prolonged storage, it appears that it could be kept in a museum environment without significant further deterioration. Monitoring of the material at intervals, perhaps of several years, could perhaps be undertaken in order to ascertain whether further breakage has occurred.

The mollusc shells from 1–5 High Street, Perth (pex 15)
Catherine Smith

Introduction

Following the watching brief on 1–5 High Street, Perth, a decision to discard some of the environmental remains, including the animal bones, seems to have been made. In any event, no trace of the bones listed in the site archive could be found. However, three boxes of mollusc shells have survived and are accessioned as 1989.123.1, 2 and 3 in the collection of Perth Museum and Art Gallery. The present report is an account of these three boxes of shell, which appear to be the complete collection from the site.

These mollusc shells are in good to fair condition, their appearance ranging from chalky white to dense and nacreous, occasionally blackened or stained dark. A few fragments of calcined bone which had previously been identified as shell (due to its white colour and chalky texture) survived by chance amongst the molluscan remains and were all that remained of the animal bone assemblage. These could only be identified as indeterminate mammal.

Method

The shells were separated into species, and in the case of the oysters, were weighed and the numbers of right (upper) and left (lower) valves were counted. Incidences of shells bearing various epibiotic or parasitic organisms were scored, as were shells which had been cut or chipped during preparation as food. No attempt was made to age the shells by counting incremental lines as this has been shown by various authors to be inaccurate and unpredictable. Annual growth lines, spawning lines and trauma lines may be indistinguishable, particularly in archaeological specimens which have undergone burial (Claassen 1998, 132–5).

Results

Total numbers of valves (in the case of bivalves) or single shells (in the case of gastropods) by context, along with the weights present, are shown in Table 4.

The main bivalve mollusc found at 1–5 High Street was the oyster Ostrea edulis, representing a minimum number of 278 individuals across all contexts, based on the presence of right valves. (Left oyster valves numbered 255). Oyster shells accounted for 17,932 grams in total, representing 98.66% of all shells recovered from the watching brief.

Mussels (Mytilus edule) were the second most frequent species but accounted for only 0.8% of the total. Other marine species were even more infrequent and consisted of small fragments of cockle (Cerastoderma sp), limpet (Patella sp), scallop (?Pecten sp), buckie (Buccinum ondatum), wulk/periwinkle (Littorina sp) and indeterminate small gastropod. One freshwater species, the pearl mussel Margaritifera margaritifera was also present (approximately 0.3%).

Oyster pests and epibionts

The oysters were scrutinised for the presence of parasitic and epibiotic organisms as this can be taken as an indicator of the general health of the population (Winder 2011). The main parasite affecting the Perth oysters appears to be a sponge (Cliona celata) which has bored through the shell, leaving numerous small perforations, apparent on 17.1% of the oyster shells from 1–5 High Street (see Table 4). Repeated attacks by parasitic sponges may penetrate the shell, forming ‘extensive galleries . . . which come to permeate the entire surface, the shell becoming so friable it may be crumbled between finger and thumb‘ (Yonge 1960, 125). Oysters can become so heavily parasitised that they are exhausted by the effort of secreting substances to seal off the attack, become emaciated and may die off (ibid). It seems that a significant proportion of the Perth oysters were parasitised in this way, but only in a few cases have the perforations entirely penetrated the chamber and attacked the living adductor muscle itself. Nevertheless, there is evidence of much damage to the shells within the Perth material.
A further significant oyster pest, bristle worms of the genus *Polydora*, also bore into the shell, forming numerous small burrows in which the living creatures find refuge from predators. *Polydora* does not compete with the oyster but the burrows can seriously weaken the shell (*ibid* 126). At 1–5 High Street, about 3.25% of the shells bore evidence of *Polydora* attack (Table 4).

Evidence of the oyster drill or European sting winkle (*Ocenebra erinacea*), a gastropod predator, is less definite within the Perth material. Instances where only one perforation has occurred may be due to boring by this parasite, rather than the sponge, which produces numerous holes in the shell. However it has been noted that oyster spat are more likely to be destroyed by this pest than are older ‘market-sized’ adults, although they too may be attacked (Hancock 1969, 6).

Another gastropod which may prey opportunistically on oysters is *Buccinum ondatum*, a large whelk known locally as the buckie: two shells from this species were recovered from 1–5 High Street (Table 4) and may represent a by-catch.

Evidence of predators which pry open the shell, for example starfish and crabs, is unlikely to be preserved in archaeological material.

Other marine organisms which use the oyster shell as a habitat (epifauna) were observed in the Perth material. Barnacles or barnacle scars were observed on 10.1% of the shells, and Bryozoa on 8.2%. The calcified tubes of Serpulid worms and the sandy tubes of Sabellid worms were seen on 17.5% and 3.6% of shells respectively (Table 4). These organisms can coexist with the oysters without causing harm to the shell itself but may cause serious problems of competition for available ground on which the young oyster spat can settle (Hancock 1969, 16).

All of the above parasitic and symbiotic animals were found on the outside of the oyster shells, indicating the oysters were harvested when alive. In only one case was the interior of a shell colonised (by Bryozoa and Serpulid tubes) indicating the animal within had died before the time of collection (Context 1000, Acc G283). The shell was presumably dredged up along with the live catch.

In several cases, larger oyster shells were cemented to smaller shells, either of oyster or of scallop. On one oyster valve, a scallop shell had left impressions of its shell on the growing oyster (Context 600, Acc G014) before becoming detached. These attached fragments are the remains of the ‘cultch’ or substrate of broken shells to which the larval oyster spat attaches itself. The cultch is of such importance in the life cycle of the oyster that it has been deliberately replaced in the past as part of oyster culture (Yonge 1960, 153).

**Other marine mollusca**

The remains of other marine species, with the possible exception of the mussel (*Mytilus edulis*) may be fortuitous. As noted above, buckies or whelks (*Buccinum ondatum*) feed on oysters and may have been a by-catch rather than deliberately harvested. The scallop shells were probably associated with the oyster substrate or cultch and therefore collected fortuitously, probably as dead shells. This may also be the origin of the very few small gastropod and limpet shells, which do not share the oyster’s habitat.

**Freshwater mollusca**

Several shells of the freshwater pearl mussel, *Margaritifera margaritifera* were retrieved (Context 200, G056; Context 400, G126 and possibly Context 600, G014). This species has been recovered from several other medieval sites in Perth, notably 75–77 High Street where it was described as ‘fairly abundant’ (Heppel *et al* 2011, 62). 314 freshwater mussel valves were found at the High Street site, compared with 6393 oyster valves (*ibid* 60). Other Perth sites from which this species has been recovered are Kirk Close, South Methven Street and Horse Cross (Vasey 1987, 199; Smith 2007, 186).

**Evidence of man-made marks**

Several of the oyster valves bore evidence of man-made marks, such as knife cuts or deliberately chipped edges.
Knife cuts were visible on the internal, nacreous surface of 3.7% of the oyster valves, often in the region of the adductor muscle scar and were obviously made when the meat was removed from the shell. In addition, there were signs of tool marks at the lower edge of many of the shells, in the form of sub-rectangular chips. Apparently an implement, in some cases chisel-shaped, had been used to prise open the shells, resulting in visible damage. Interestingly, Ford (1987, 153; Illus 85) reports on several 14th century oyster shells with straight-edged rectangular perforations placed towards the edges of the valves. Those holes on examples found at Kirk Close may have been made by a similar implement, possibly for the same reason, to that used at 1–5 High Street.

Discussion

This assemblage is dominated by oyster shells which are presumed to have been collected for food (as shown by cut marks inside the shells) rather than as raw material for shell mortar or for use as pinning within masonry. However, once the meat was removed there is no reason why the empty shells could not have been re-used in building construction. One shell did indeed have mortar adhering and at least one other showed evidence that it had been encrusted by marine organisms on the interior of the shell, indicating a ‘dead’ shell, although the latter may have formed part of the oyster cultch or substrate on which the animals settle.

As is almost universally the case in archaeological oyster assemblages, right (upper) valves outnumbered left (lower) valves in the ratio of 278:255. In a study of oyster assemblages from 44 sites in England, Law and Winder (2009) found that right valves were almost always more numerous than left. Reasons for this may be due to taphonomy: in shape the right valve is flatter than the cupped left valve. The right is also more durable because it is solid throughout, whereas the left may contain hollow chambers. Disposal of right and left valves may also follow different patterns because the meat may be served in the cupped left valve, the right ‘lid’ having been removed in the preparation area (ibid). Where oyster shells are used as pinning between mortared masonry joints, the flatter right valves are preferred: such selection may have occurred at St John’s Kirk, Perth, where several of the valves had mortar adhering (Smith 2011). Standing medieval buildings such as Rosslyn Chapel in Midlothian preserve examples of oyster shells used in this way.

Although oysters are tolerant of wide variations in salinity, the Tay at Perth is at the limit of its tidal range. If oysters were indeed present at the seaward end of the firth in the medieval period they must have been shipped to Perth by boat. At the present day there are no oysters in the estuary although they are frequent finds at archaeological sites along the east coast, from Perth to Montrose (Heppel et al 2011, 61–2). While it is possible that some of these oysters originated in the Forth, where a fishery survived until the 19th century (Yonge 1960, 157) an now-extinct bed in the Tay should not be ruled out. The presence of oyster pests such as the parasitic sponge indicates that a wild, rather than a maintained, population of oysters was being exploited. If the oyster beds had been ‘farmed’ then it would be expected that parasitised and badly affected shells would have been removed from the beds. Hancock (1969, 21) suggests that infected dredged oysters are relaid high up on the shoreline, where the parasite will die off. Another method is to dip the oysters in saturated saline solution: the increased salinity is fatal for the sponge (ibid).

Although mussels were found at 1–5 High Street, they were not numerous. At other excavated medieval sites in Perth, oysters have also dominated. This may be due at least in part to the durability of oyster shells with respect to other more delicately shelled species. Mussels may have been used as a primary food source although on the North-east coast of Scotland their more important use was as bait in line-fishing. Their immediately local use as bait seems problematic since on the River Tay at Perth freshwater fish such as salmon and trout are more likely to have been caught using nets or leisters (fish spears). Mussels themselves are not locally available but would have been sourced downriver as the Tay estuary opens out to the sea. In the early 20th century, mussel-beds at Montrose, the South Esk basin, Broughty Ferry and Newport, Fife were supplying the coastal fisheries and when bait was in short supply, mussels could be brought in from as far afield as Lancashire and Holland (Hay and Walker 1985, 29–30; 59).

The collection of fish hooks recovered from 75–77 High Street, Perth (Franklin and Goodall 2012, 149; Illus 135) together with the dominance of marine fish at that site (Jones 2011, 53) indicates that mussel bait may have been used in sea fishing in the medieval period.

Discussion of the assemblages

The examination of the pottery and artefacts from the PEX series watching briefs has shown that the majority of items fall within the date ranges of much larger excavations carried out in the medieval burgh. The artefacts of metal, wood, leather and bone fall comfortably within the 12th to 14th centuries and are comparable with assemblages recovered elsewhere in Perth, particularly from 75–77 High Street. One item, a copper alloy M-shaped handle found at PEX 64 (High Street/King Edward Street), is the only example of this type so far found in Perth. Leather items such as the fragment decorated with a fleur-de-lys motif, from the same location, and
a decorated knife sheath from PEX 15 (1–5 High Street) are of some importance. The knife sheath in particular has been decorated to a degree not previously recorded in Perth or indeed Scotland and reflects if not the wealth or prestige of the owners then at least their fashion sense.

Collections of wooden and bone pins, possibly used as bale pins, as well as fairly rough woollen textiles surviving at PEX 79 (High Street/George Street/King Edward Street) speak of a healthy commerce in wool. Together with the evidence of the leather it can be seen that the economy of Perth was bound up with a thriving livestock trade of which so much evidence survives throughout the burgh, in the form of animal bones, of which the large assemblage from 75–77 High Street is a good example. Antler and bone offcuts from PEX 79 are further evidence of a small scale animal-based activity, which has previously been reported at sites particularly on the High Street and St John’s Square.

At a distance of several decades from the date of the original watching briefs, it is not surprising that some of the original assemblages could not be found. The large collection of animal bones from PEX 15 could not be located and the assumption is that due to a lack of storage space, and the fact that the material had not been subject to close analysis at the time it was archived, it could safely be discarded. This is regrettable, but it is almost inevitable that the value of this material may be viewed in direct proportion to the number of boxes in which it is contained and its long term storage requirements. However, despite this, the mollusc collection had somehow survived, allowing a detailed analysis of the shells, from which it could be concluded that the oyster population of medieval Scotland existed in a healthy environment. The mystery of the location of the oyster beds, whether in the estuary of the Forth or the Tay, however, still remains to be resolved. The presence of shells of the pearl mussel is a further indicator of a clean, relatively pollution-free river environment. Recycling was not unknown: leather shoes were shown to have been repaired and even metal items like a rotary key had been patched and riveted together.

Other metal objects such as iron hinge pivots, timber dogs, staples and numerous nails as well as lead flashing and other fittings were plentiful, particularly at PEX 63, PEX 64 (1–5 High Street) and PEX 79 and are evidence of the type of buildings to be found elsewhere on the High Street during the 12th to 14th centuries.

Away from the medieval ‘hotspots’ of the High Street and King Edward Street, there is an occasional glimpse of the post-medieval period, through the crown window glass from PEX 08 (South Street), for example. Cellar excavation in the 18th and 19th centuries has effectively removed most of the deposits dating to the centuries between the medieval and the modern and it is rare for material of this period to survive. It can only be imagined how much light these windows, made of glass which might otherwise have been discarded, shed on the work of linen weavers within their small dwellings.

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The illustrations are by Dave Munro (Illus 1), Tamlin Barton (Illus 9, Illus 10 and Illus 14) and Laura Fyles (Illus 2–8, Illus 13a–d). Textiles (Illus 15–18) were photographed by Vanessa Habib.

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References


Goodall, I H 2011 Ironwork in Medieval Britain. (=Society for Medieval Archaeology Monogr 31). London.


Haggarty, G and Hughes, M 2015 ‘A programme of ICP analysis on medieval pottery from Bishop’s Close, Brechin’, Medieval Ceramics, 35, 24–30


Keeping a close watch: pottery, artefacts and faunal remains from watching briefs in Perth (PEX series) 71


**Abstract**

Analysis of artefacts of metal, leather and wood, pottery, textile and environmental remains from archaeological watching briefs in Perth in the 1980s and 1990s has uncovered several items including decorated leather fragments and an M-shaped handle of a type not previously recorded in Perth. Mainly dating to the 12th to 14th centuries, these objects are evidence of medieval crafts and living and working environment and demonstrate the survival of waterlogged archaeological deposits throughout the core of medieval Perth. Deposits of horn cores at several of these locations indicate the focus of horn working on the edges of the medieval burgh.

**Keywords**

watching brief
Perth leather pottery medieval oyster

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