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The development of a medieval street frontage: the evidence from excavations at 80–86 High Street, Perth

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ABSTRACT

In advance of redevelopment, an excavation was carried out in 1992 by the Scottish Urban Archaeological Trust Ltd (SUAT) at 80–86 High Street, Perth. Three burgage plots were identified on this prime street frontage site, with medieval occupation spanning some three centuries from the mid- to late 12th century through to the late 14th or early 15th century. Structural remains were not well represented, but there was significant evidence for small-scale craftworking on the site. Most importantly, perhaps, the burgage plots had been laid out over a wattle-lined ditch, radiocarbon dated to cal AD 998–1039, which may have defined an enclosure around an early church, the first real evidence (other than stray finds) for pre-burghal settlement in Perth. The project was funded by the developer, United Biscuits Pension Investments Ltd, Historic Scotland, Perth & Kinross Heritage Trust and Perth & Kinross Common Good Fund.

INTRODUCTION

Situated within the core of the medieval burgh, the excavated site lies towards the eastern end of High Street, on the south side, and to the west of Kirkgate (illus 1). Within the medieval townscape, this site lay close to the very heart of the market place, indeed the mercat cross itself stood only a short distance to the east in High Street, at the junction of Skinnergate and Kirkgate.

From the mid-1970s onwards, a number of excavations have been carried out in Perth, several of which were in close proximity to this site. The largest of these was directly across High Street where Marks & Spencer stands today (75–95 High Street; illus 1). Carried out between 1975 and 1977, these excavations were amongst the first of their kind in Scotland, and clearly demonstrated the considerable potential Perth possessed for the depth and preservation of archaeological deposits (Bogdan & Wordsworth 1978; Bogdan 1992). Even closer, to the south-west, a smaller-scale excavation was undertaken at Kirk Close (86–100 High Street; illus 1) in 1979 (Blanchard 1987a). On both sites, burgage plots, complete with timber buildings and communal pathways, rubbish pits and middens, were uncovered. The anaerobic soil conditions, prevalent across much of medieval Perth, also ensured the preservation of wood, bone, leather and botanical remains. Even today, the finds assemblages from these sites remain unsurpassed in

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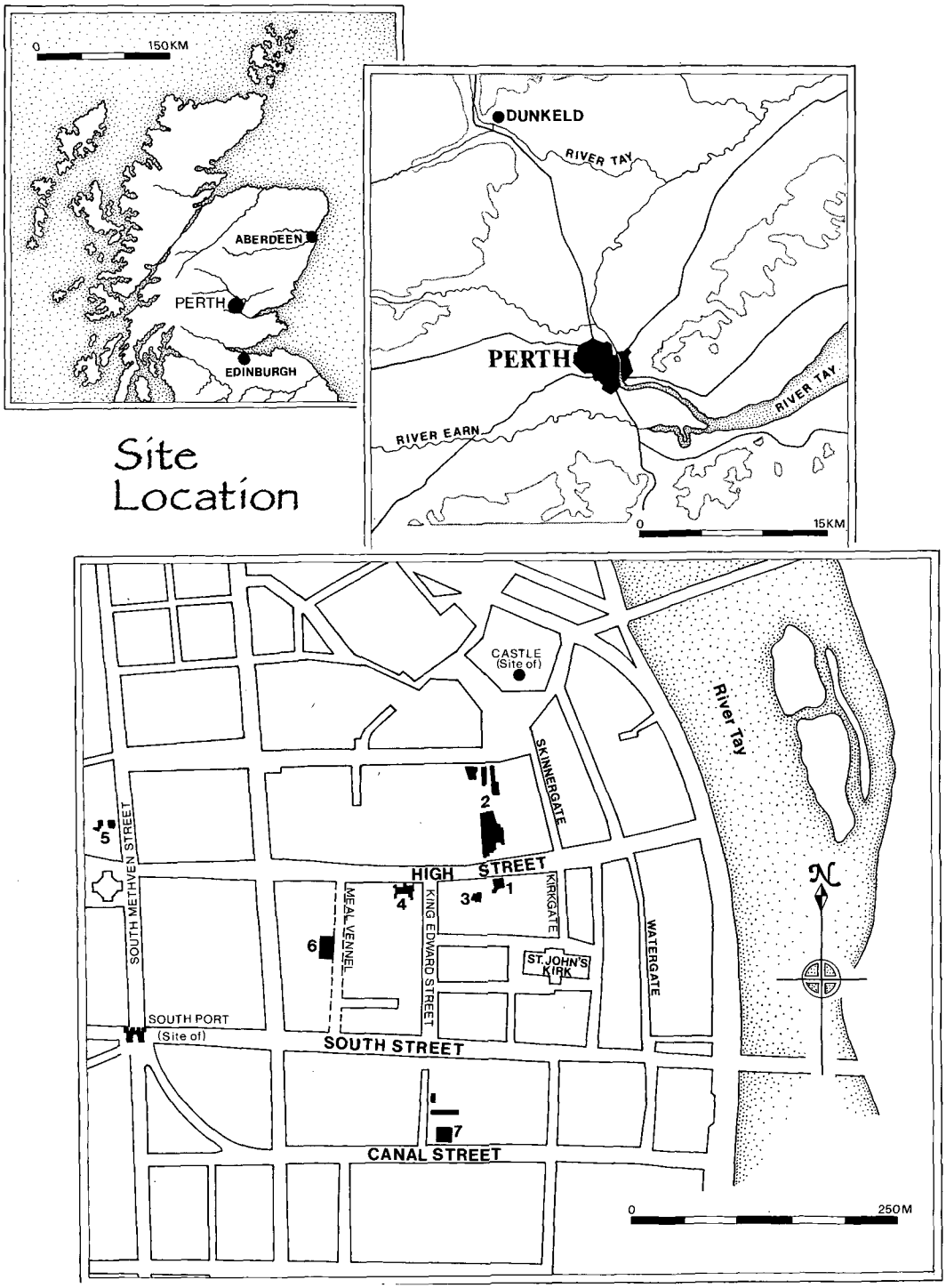


ILLUS 1 Excavations at 80–86 High Street, Perth (1 — 80–86 High Street; 2 — 75–95 High Street; 3 — Kirk Close; 4 — King Edward Street; 5 — Methven Street; 6 — Meal Vennel; 7 — Canal Street). (*Based on the Ordnance Survey map © Crown Copyright*)

medieval Scotland in terms of their range and quality. Items of clothing and footwear, wooden plates, bowls and buckets, an *in situ* toilet seat, pots, combs and gaming pieces, arms and armour and agricultural tools are just some of the everyday objects that have provided a unique and tantalizing glimpse of the routine of daily life and living conditions in a medieval town, albeit a particularly successful and prosperous one.

HISTORICAL BACKGROUND

The origins of settlement at Perth are obscure, but its position at the highest navigable point on the River Tay (where routes of communication over both land and water converged) must have made it an important place (Stavert 1991, 13). The earliest settlement is thought to have centred on the west bank of the river, at Watergate. From c 1130 onwards, however, the focus of settlement rapidly shifted from this predominatly north/south axis parallel to the river, to an east/west axis that led to the creation of, first, High Street, and then South Street. Two of the earliest streets, Kirkgate and Skinnergate, once connected St John's Kirk with the castle. Probably of motte-and-bailey type, the latter was swept away in the flood of 1209. Meal Vennel may have provided an early western boundary to this settlement, before the limits were extended yet further to Methven Street. By the late 12th century, Perth's familiar grid-iron street plan was in place, with the whole settlement probably enclosed by a wet ditch fed from the River Almond.

The first mention of Perth as a burgh is during the reign of David I (1124–53). The earliest surviving charter, however, is of 1209, and dates from the reign of William the Lion (1165–1214). By this time, Perth was a thriving market centre, the rights and privileges bestowed on the burgh creating lucrative trading monopolies for the burgesses. The charter also refers to a merchant guild, an organization of merchant burgesses whose very existence reflects the commercial success of the medieval burgh.

RESEARCH OBJECTIVES

As two excavations (75–95 High Street & Kirk Close) had been carried out in the near vicinity, and several watching briefs, notably at 102–110 High Street (Cachart, SUAT Archive Rep) and 108–110 High Street (DES 1991, 73), this site offered a further opportunity to examine in detail the development of one part of the town. The principal research objectives were as follows:

1 To test A A M Duncan's hypothesis (Duncan 1974, 34–6) that a marked change of direction in the alignment of High Street may be evidence of an earlier pre-burghal trackway. This would have entered Perth at South Street Port, connecting with High Street at its junction with Watergate. The excavation at 80–86 High Street was directly in the line of this supposed trackway.

2 To confirm that this was one of the earliest settled areas within the town. Perth is believed to have originated around the river and harbour at its east end, and then developed towards the west. As this site was the furthest east to be excavated since the 1970s High Street excavations, it offered an opportunity to investigate one of the earliest areas of settlement.

3 To compare and contrast the results of this excavation with those at 75–95 High Street, Kirk Close and King Edward Street (illus 1).

4 To identify whether the site's close proximity to the market place, where intense competition for space would be expected, is reflected in the archaeological record — for example in

buildings with workshops, booths on the street frontage, and in the movement of property boundaries.

THE EXCAVATION

The development by United Biscuits Pension Investments Ltd comprised the demolition of a 19th-century standing building and the erection of a new shop unit fronting on to High Street. The archaeological work was carried out post-demolition, over a period of three months between June and October 1992. The area selected for excavation measured c 7 m by 8 m, with a small annexe, c 2 m by 2 m, at the south-western corner (illus 2). A Victorian cellar had removed the upper 2 m of deposits, leaving a depth of approximately 1.4 m of archaeological deposits to be excavated (illus 3). By way of comparison, excavated archaeological levels reached 3.5 m in depth at 75–95 High Street, and at Kirk Close 1.5 m, though the latter site was not fully excavated.

Eight broad phases of activity were identified, spanning some 400 years, from the 11th to the late 14th or early 15th centuries. For the purposes of this report, the three plots established in Phase 2 have been labelled Plots A, B and C, and provide a convenient framework within which to discuss the settlement history of the site. Throughout the text, groups of post-holes or stake-holes that may have formed structures, possibly buildings (but not fence-lines), have been assigned Structure numbers (eg S1). Only a selection of the more notable finds are included in the published finds catalogue (eg no 1).

PHASE 1: 11TH-CENTURY DITCHED ENCLOSURE (ILLUS 4)

This primary phase of activity on the site represents the first tangible evidence to date of pre-burghal settlement in Perth — a wattle-lined ditch. Its form, alignment and relative proximity to St John's Kirk suggest it may have defined an enclosure or precinct around the church. A radiocarbon date from the wattles provided a date of cal AD 998–1039 for its construction (see below). No other features or finds could be attributed to this early phase of activity. Natural sub-soil, comprising sand, was located between 3.98 m and 4.42 m OD.

Wattle-lined ditch

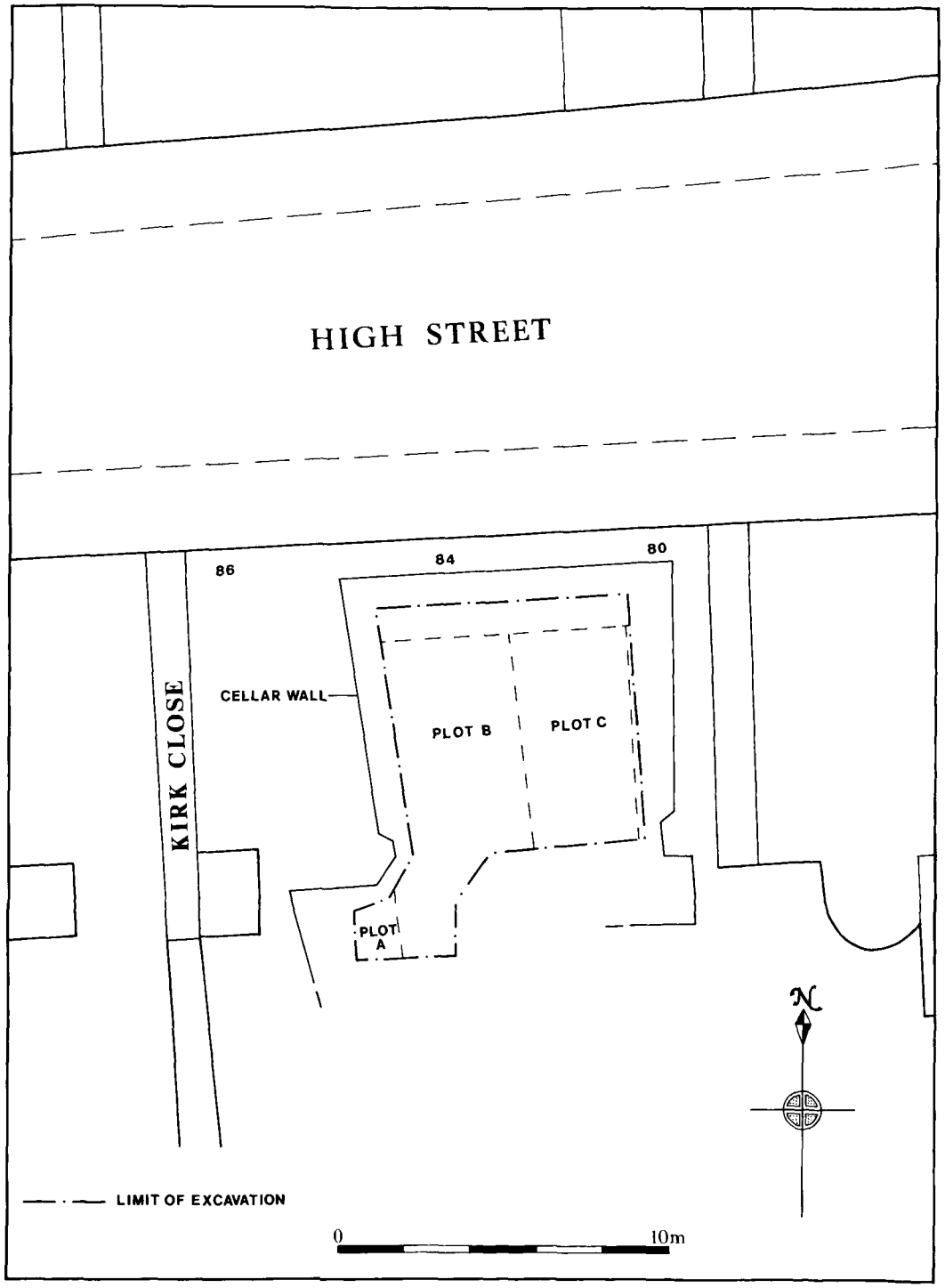
A substantial, though narrow and slightly irregular ditch, set on an east/west alignment, had been cut into the natural sand. It lay parallel with the later High Street, approximately 4.5 m south of the present street frontage, and terminated at a deliberate butt-end close to the eastern edge of the excavation. Some 2 m in depth, the ditch measured only 1 m in width, and had a V-shaped profile (illus 4). The sides were lined with oak wattle, a radiocarbon date from which provided the following date:

Lab No	Material Dated	BP	d13C (‰)
GU-3479	oak charcoal from ditch lining	990 ± 50	-26.6

The calibrated age ranges, determined from the University of Washington Radiocarbon Dating Program (1987) are as follows:

1-sigma level — cal AD 998–1039, cal BP 952–911
2-sigma level — cal AD 970–1160, cal BP 980–790

The narrowness but considerable depth of the ditch indicates that it was not defensive. More symbolic than functional, it would make most sense as a boundary, and its location, relative to St John's Kirk, suggests it



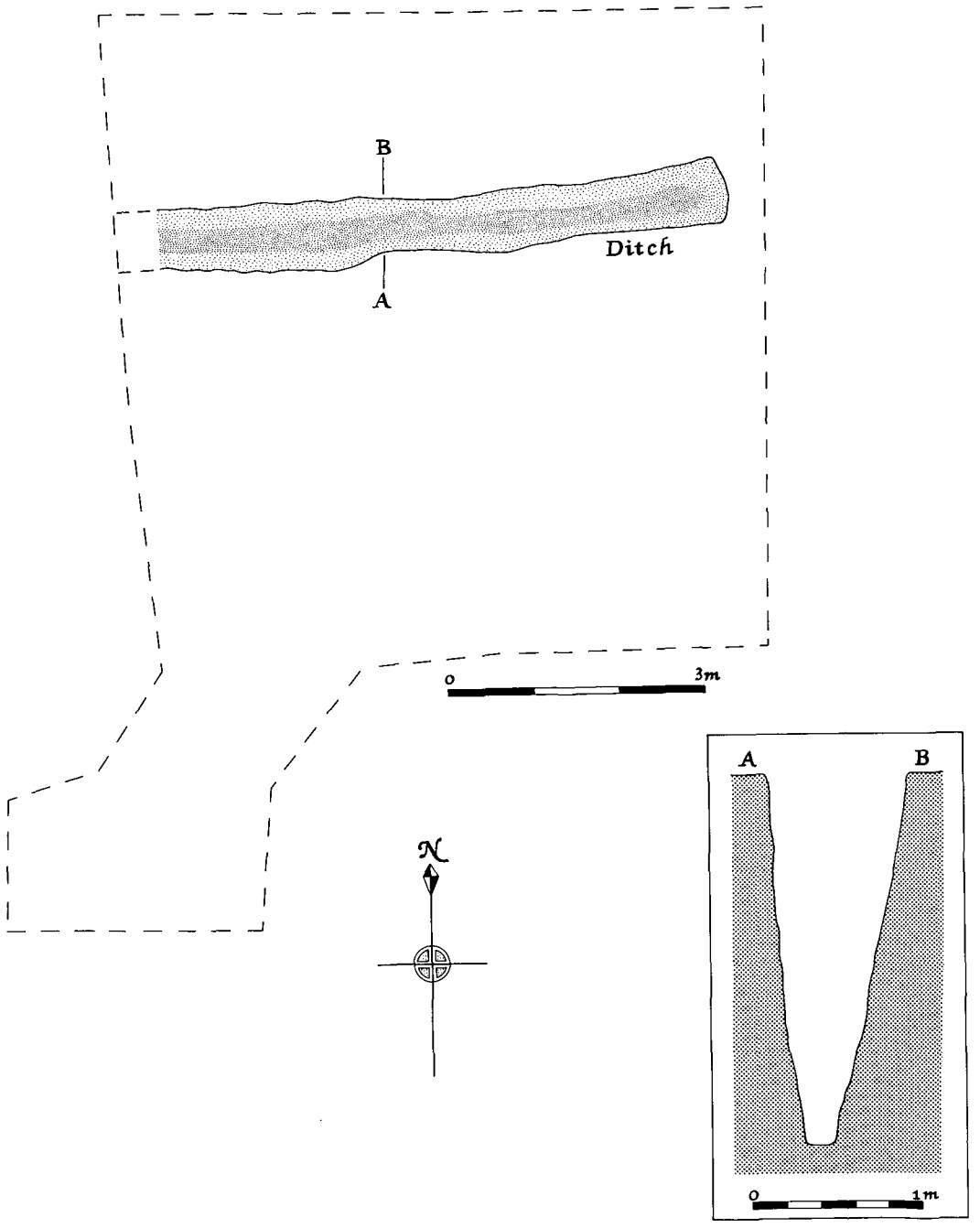
ILLUS 2 80–86 High Street, Perth: trench locations map

ILLUS 3 Excavation of the High Street frontage, looking south

defined a precinct around an early church. The butt-end to the ditch also implies the existence of a crossing point through the enclosure, immediately to the east of the excavation. The absence of any silting in the primary fills suggests that the ditch was cleaned out regularly prior to its backfilling. A date within the one-sigma level range (cal AD 998–1039) would place the establishment of this ditch at least a century before the formal granting of burgh status to a settlement at Perth in the second quarter of the 12th century; a date in the middle of the two-sigma level range (cal AD 970–1160) would still pre-date the burgh by half a century (see Discussion). The pottery assemblage recovered from the backfill of the ditch (see Phase 2 below) is datable to the mid- to late 12th century, and indicates a time-lag between cutting the wattles and backfilling the ditch of around a century, if not longer. If so, the ditch must still have been open well after High Street had been established (see Discussion).

PHASE 2: THREE HIGH STREET PROPERTIES (ILLUS 5)

During this phase, the ditch was backfilled and three plots laid out: Plots A, B and C. The principal features associated with this phase include a timber structure complete with hearth, possibly a building, on or near the frontage within Plot B, and evidence for bone-working and horn-working within Plot C. The pottery assemblage recovered, particularly from the backfill of the ditch, indicates a mid- to late 12th-century date for the laying out of the three properties and the first occupation of this High Street frontage site (see Hall, below). The more diagnostic finds (see Cox *et al*, below) include an iron candlestick (Artefacts Cat, no 53), antler offcuts (nos 106 & 109), a wooden bowl (no 148) and a textile fragment (no 136).



ILLUS 4 Phase 1: the early boundary ditch

Backfilling of ditch and establishment of properties

The backfilling of the ditch, which may have been in use for around a century, marks the beginning of this phase. The pottery recovered from the fills, 11 sherds in all, of which six were Low Countries Greywares, indicates a mid- to late 12th-century date for the end of use of the ditch. Approximately 100 fragments of animal bone, including an antler offcut, were also recovered from the fill of the ditch.

Plot A (Illus 6)

Few observations could be made about Plot A, except that a wattle fence, of which the lower part still survived, had been driven through redeposited natural sand, forming the property boundary between Plots A and B.

Plot B & Structure 1 (S1)

This, the central plot, appears to have been the first developed, with sand deposited within its boundaries probably to level the ground surface. The truncated remains of a hearth, cutting the sand, at the north end of the plot, and a pit at the southern end were the first features to be established within the new property (not illustrated).

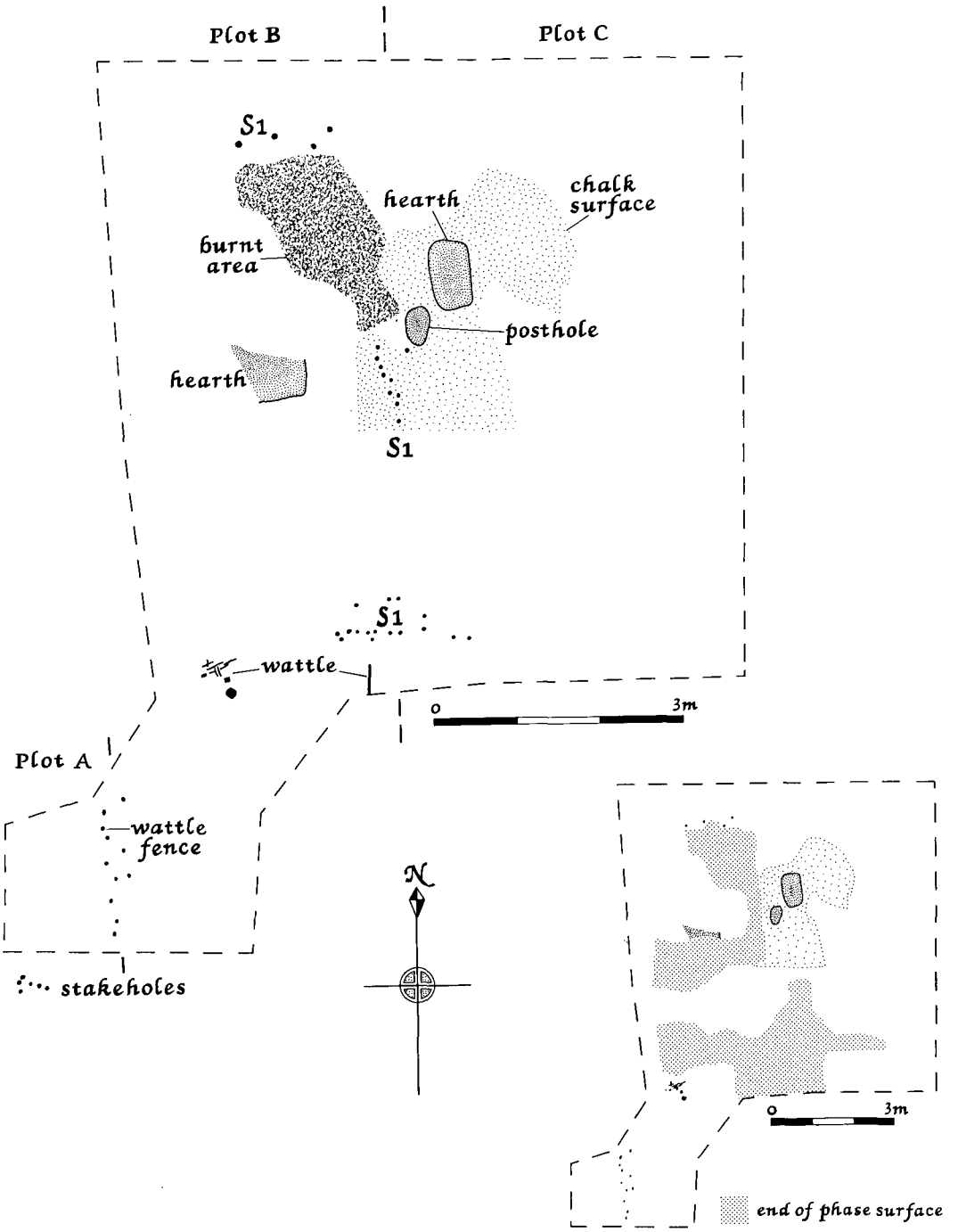
The earliest structure on the site was situated near the frontage of Plot B, and comprised three lines of stake-holes (S1). The southern line was best represented, and included a short length of collapsed wattle, but the northern line was defined by only four stake-holes, while there were considerable gaps in the east wall. No evidence of the west wall survived, but it may have lain outwith the excavation. The only evidence for load-bearing posts was a single post-hole in the east wall. The area enclosed within this possible structure was rectangular in plan, with its long axis aligned north/south, at right angles to the street frontage. It measured approximately 5.5 m from front to back, and if the western limit was provided by the Plot A boundary, then the maximum possible width would have been c 4 m. A floor surface may have been provided by the sand deposited at the beginning of the phase, but was confined to the northern end of the structure. A second hearth had been cut into the sand, and an area of burning to the north of the hearth may have defined a working area.

Occupational debris accumulated over the surface within the structure, before a new sand floor was laid. The east wall or fence of the structure was also replaced or repaired. The south wall of the structure went out of use, and midden was dumped over the western end of it. Unlike the east wall and floor this wall or fence line was not replaced towards the end of the phase. Instead, extensive spreads of clay loams were dumped, perhaps as levelling, at the southern end of the property, and also appeared to have spilled across into the neighbouring property, Plot C. These dumps produced fragments of animal bone, leather scraps and a fragment of textile (no 136). In the south section of the trench, a protruding timber (not illustrated), possibly a sill or base plate, may represent a second structure. A wooden bowl (no 148) was recovered from a possible surface, close to the Plot A boundary.

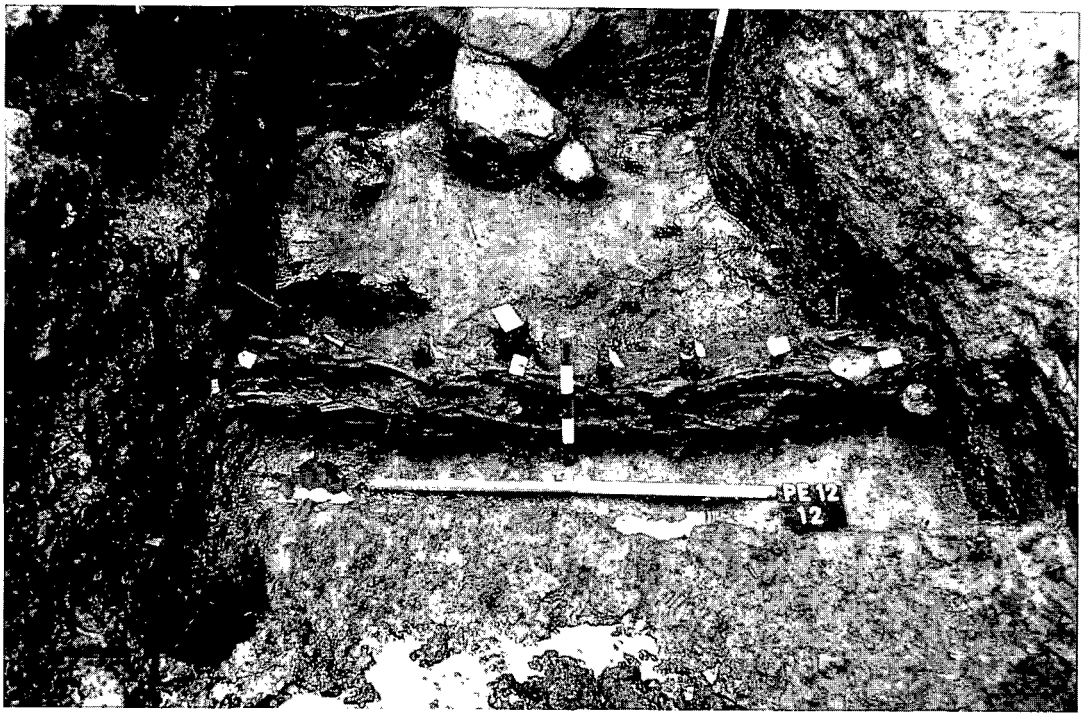
Plot C: rubbish pit, floors & hearth

The earliest activity in Plot C is represented by two pits, possibly quarry pits, both located at the northern end of the property (not illustrated). The larger of the two pits contained domestic refuse, such as pottery and animal bone but also included nine horn cores and an iron candlestick (no 53). Environmental analysis of the main pit-fill also identified a mass of heather twigs and leaves (see Fairweather, below). Heather was often used as roofing or bedding (mattress) material, perhaps suggesting domestic accommodation elsewhere on the plot.

Plot C was heavily truncated by later pitting, but a series of sand surfaces, and one chalk-like deposit with a central hearth, were identified. It has not been determined whether this was industrial waste or a deliberately laid floor surface. The hearth contained no finds other than four antler offcuts (nos 106 & 109).



ILLUS 5 Phase 2: property boundaries and other features



ILLUS 6 Phase 2: wattle fence between Plots A & B, looking west

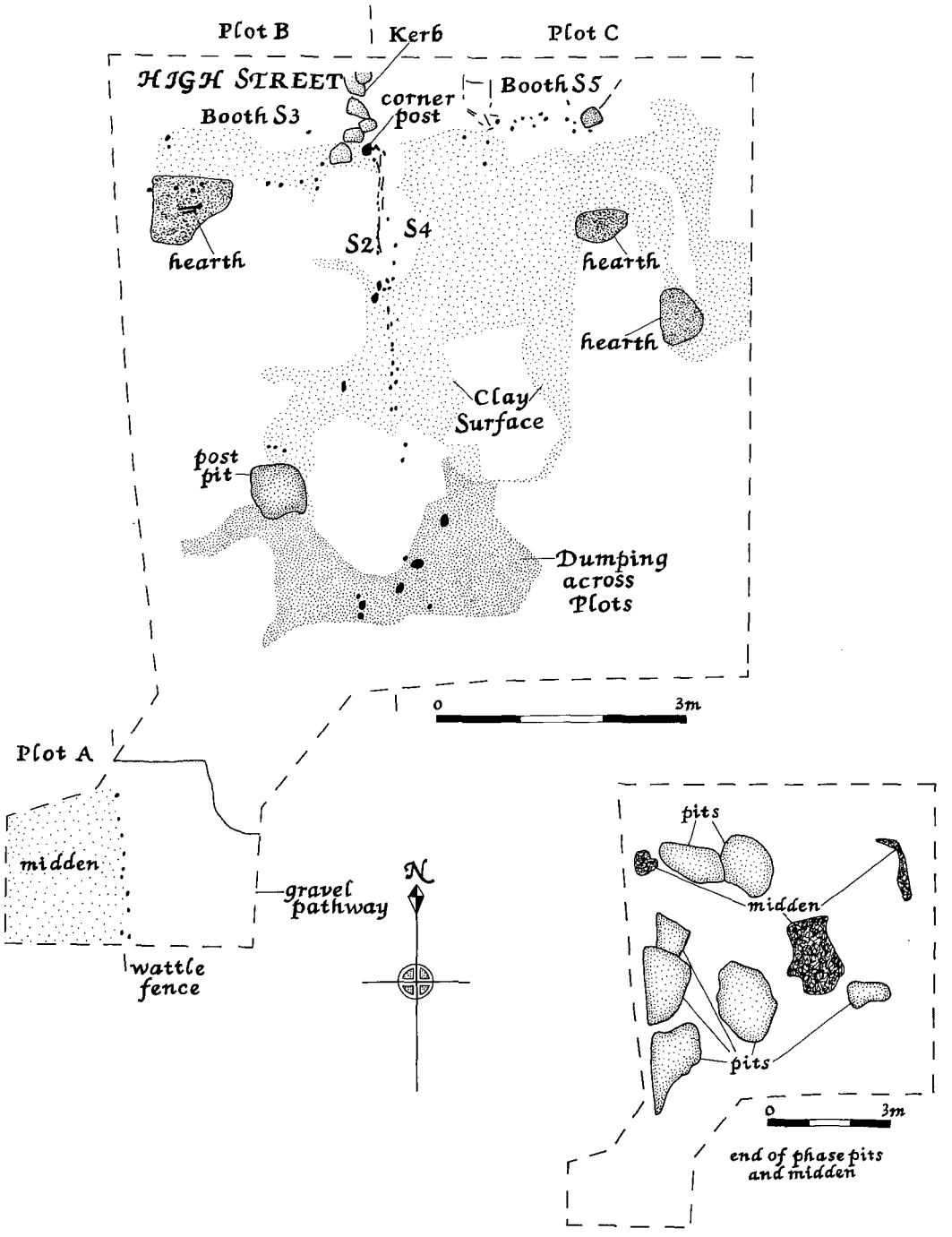
There was no evidence that these surfaces were contained within a timber structure. The property boundary between Plot B and C was difficult to identify, but the east wall of Structure 1 (Plot B) may have served this purpose.

High Street

A strip of beaten earth along the northern end of the trench (not illustrated) may represent the first appearance of High Street, which must have been in existence since at least the mid-12th century. The southern edge lay some 3 m south of the present High Street, perhaps providing extra width at this point to accommodate a market area.

PHASE 3: BOOTHS ON HIGH STREET (ILLUS 7)

This phase saw structures established on the frontages of both Plots B and C, with booths or stalls attached. High Street, or an area of foreland between these structures and the street frontage, was also metalled. Towards the end of this phase, these structures went out of use and a large number of pits was dug within Plot B, while midden was spread across Plot C. The pits produced interesting assemblages of finds, including leather objects and scraps, horn cores and antler offcuts, but no clear evidence for specific craftworking. The pottery assemblage indicates a late 12th- to early 13th-century date for this phase of activity (see Hall, below). Amongst the more diagnostic finds were copper alloy needles (nos 7 & 32), the complete body of a whittle-tang knife (no 65), a large assemblage of leather including a possible scabbard (no 144), wooden objects such as a bowl (no 147) and a cask-head (no 149), and textiles (nos 137 & 138).



ILLUS 7 Phase 3: booths on High Street and other features

Plot A: midden

The wattle-fence boundary between Plots A and B was rebuilt during this phase, on the same alignment. Dumps of structured peaty material accumulated over a clay surface abutting the fence. It is possible that cattle or horses (a horse hair was also recovered) were being penned in this area, as environmental analysis identified the peaty material as predominantly moss and oat straw stems (see Fairweather, below). Moss was often used for rope, wound dressings or even instead of toilet hygiene, as at Kirk Close, where a latrine complete with *in-situ* toilet seat was found to contain large quantities of moss. The finds assemblage, however, was one of the most varied and interesting from the whole excavation, and indicates this was a long-established midden heap. Contained within the midden were large quantities of leather, bone and pottery, amongst which were shoes, belts and straps, a possible scabbard (no 144), a wooden bowl (no 147), textiles (no 138), including a sleeve of a garment (no 137), an antler offcut (no 101), half a cat's skull, and a cask head (no 149).

Plot B: Structures 2 (S2) & 3 (S3)

The structure erected on the frontage in Phase 2 (S1) was rebuilt. The east wall was clearly defined, constructed of wattle and daub. A large post at the extreme north end may represent the junction of the east and front walls. Later pitting removed much of the southern end of the structure, but a cluster of posts and stakes may define the south-east corner. This new structure would have measured c 5 m in length. A post-pit within the interior may mark the position of a roof support or an internal division. Assuming the front of the structure was not open to the street, there may have been a timber base plate, since removed, which supported the front (north) wall. No associated floor surface could be attributed to this phase of construction.

In its final form (S3), Structure 2 appears to have been repaired, or improved, rather than reconstructed. The east wall was partially replaced. A new front wall was then added onto the structure. This may also have formed the back wall of a stall or booth that extended out into High Street by c 0.35 m. At the north end of the building a clay floor was laid down and a hearth set into it, which was found to contain both hammer-scale and slag.

A gravel pathway was constructed at the rear of the plot continuing southwards into the backlands. The trample which had accumulated over the pathway contained a small assemblage of leather scraps.

Pits Towards the end of the phase, the main structure, and perhaps the stall, went out of use. Extensive spreads of dumped material sealed the south-east corner of the building and much of the east wall. One of these produced the complete blade of a whittle-tang knife (no 65). Large pits, notably at the front of the property, were dug on the line of the walls of the abandoned building. The small assemblage of finds produced by these pits suggest they were dug primarily as quarry pits. Only one of these, the southernmost pit, could be securely identified as a rubbish pit. A fragment of a quernstone was recovered from one of the fills.

Plot C: Structures 4 (S4) & 5 (S5)

At the beginning of this phase two hearths were in use at the front of the property. Extensive ash and charcoal deposits, probably raked out from the hearths, were spread around the northern end of the plot.

The hearths were still in use when the first timber structure on this property was erected (S4). The east wall of Structure 2 (S2 & S3) in Plot B may also have defined the west wall of this structure in Plot C. The north wall was well represented, with a gap possibly forming an entrance into the structure or property, in the north-west corner. The remaining walls proved difficult to identify. The west and north walls did, however, enclose an extensive clay surface, which provides a rough estimate of the size of this structure. The dimensions — c 4.2 m north/south and at least 4 m east/west — suggest that this structure was either square in plan, or that it lay with its long axis parallel to the street frontage.

The finds assemblage from within this structure suggests general domestic refuse, but includes a copper alloy needle (no 7), as well as two antler offcuts, six horn cores and one cat bone amongst the animal bone assemblage.

The stake-holes representing the north wall of Structure 4 may also define part of a stall or booth (S5), similar to that in Plot B (S3). Some rebuilding or repair work was evidently carried out, projecting this structure even further out into High Street. Fragments of broken wattles were found in trample deposits between the front of the stall and the edge of the street. Possibly contemporary with the repair work to the stall, an L-shaped gully (not illustrated) was cut around the north-west corner of the main structure. This may have been a sill-beam trench to support a more substantial wall, or a drainage cut.

Spreads of midden and a small rubbish pit cut through the clay surface mark the end of this phase, though the structures here seem to have continued in use up to the end of the phase.

High Street The beginning of this phase also saw High Street metalled with a stony surface which extended some 2 m into the site and at least 4 m south of the present High Street frontage. A crude pavement was constructed over this surface, comprising roughly rectangular flagstones and cobbles (not illustrated). A pathway, constructed of coarse rounded cobbles was laid over the L-shaped gully (see Plot C above), running southwards from High Street for a short distance between Plots B and C. A linear arrangement of flat uncoursed sandstone blocks may have formed a kerb to the pathway. Trample deposits accumulated over High Street throughout this phase, and repairs may have been made to the street surface itself.

PHASE 4 (ILLUS 8)

This phase saw new structures erected on the street frontages in Plots B and C, again with stalls or booths attached. Towards the end of this phase, these structures went out of use and a series of hearths and rubbish pits was established across both plots. There was definite evidence for leather-working and horn-working in Plot B, and for metal-working and horn-working in Plot C. The pottery assemblage recovered from this phase of activity indicates an early to mid-13th-century date range. The more diagnostic finds retrieved included a stone hone (no 114) and two decorated pins (nos 11 & 12).

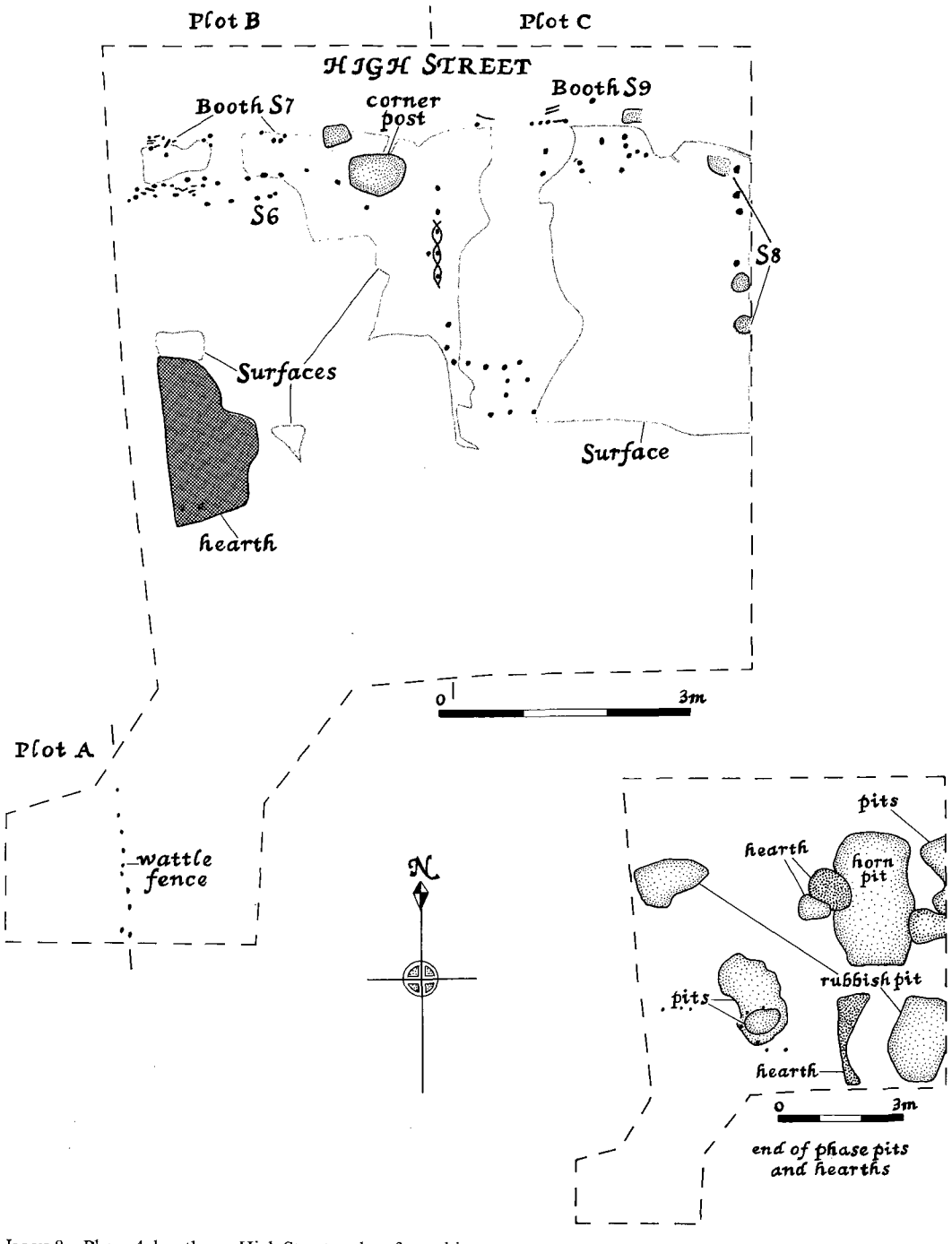
Plot A

The wattle-fence forming the boundary between Plots A and B, first established in Phase 2 and reconstructed in the previous phase, appears to have continued in use throughout Phase 4. No other observations could be made concerning this property.

Plot B: Structures 6 & 7 (S6 & S7)

The numerous pits dug in the previous phase were backfilled and a new structure built at the front of the property (S6). Only the north end of this structure survived, but this was enough to suggest it comprised wattle-and-daub walls with at least one large corner post at the junction of the north and east walls. A slot trench with stakes driven into the base of the cut formed the foundation for the north wall. The east wall comprised stakes pushed into the ground, with a short length of wattling preserved *in situ*. Later activity, towards the rear of the plot, obscured the south end of the structure, and therefore the ground plan or dimensions could not be recovered. A second row of stake-holes, with wattling, and one larger post-hole beyond the front wall, mark the position of another booth (S7) extending a short distance out into High Street.

Two hearths were located on the western side of the main structure. The larger of the two was recut several times until, in its final phase, it measured almost 2 m in diameter. The structure (S6) on Plot B



ILLUS 8 Phase 4: booths on High Street and craft-working

continued to be repaired during this phase, and several layers of occupation debris acumulated within it, but were confined to the northern end. Enough leather scraps, offcuts and finished objects were recovered from these layers to indicate leather-working in the vicinity.

Pits Towards the end of this phase, both the building and the hearths were abandoned, though two new post-holes associated with the booth suggest this may have continued in use. A large rubbish pit, containing four halved sheep skulls, was dug in the north-west corner of the plot. In the south of the plot a small group of stake-holes may represent an internal plot division. A circular arrangement of stake-holes to the south-east may have formed a wind screen around another pit, before it too was cut by a large quarry pit.

Plot C: Structures 8 & 9 (S8 & S9)

A similar pattern of activity to Plot B is represented here at the beginning of this phase. An L-shaped slot trench, with stakes driven into the base, at the eastern edge of the plot, appears to form the north-east corner of a new structure (S8), with two more post-holes on the same alignment slightly further to the south. A line of widely spaced stake-holes formed the north wall, with a possible gap in the north-western corner. The west wall was again shared with the neighbouring structure on Plot B. A marked corner in the alignment of the stake-holes in the south-west may form the corner of this structure. This would define a ground plan for a sub-square structure measuring approximately 3.5 m by 4 m. An extensive spread of compact clay defined the internal floor surface, upon which an iron loop (no 81) and an iron strip and loop (no 92) were recovered.

Beyond the front wall was a second line of stake-holes (S9), with some wattling preserved, and a post-hole, representing another stall on the street frontage.

Horn pit By the second half of this phase, and perhaps contemporary with events in Plot B, the Plot C structure was abandoned, and a large, rectangular pit, measuring over 2.5 m in length and nearly 2 m in width, was dug at the front of the plot. Twenty-five horn-cores, and antler offcuts, were present within a large assemblage of animal bone. In contrast, only a small number of pottery sherds was recovered. Backfilled and recut on several occasions, the pit may have been in use intermittently, or, more likely, the odorous contents sealed regularly.

Pathway & pits Towards the end of the phase, after the structures had gone out of use (S8 & S9), an earthen pathway was established along the western edge of the plot (not illustrated), perhaps connecting the backlands with High Street. This appears to have had a short life-span as features were then cut through it. After the horn-core pit had finally been backfilled, a number of intercutting pits, together with up to three hearths, were established across the plot. The largest of these pits, in the south-east corner of the plot, appears to have been the only one used as a rubbish pit; and produced a stone hone (no 114) and two decorated copper alloy pins (nos 11 & 12).

PHASE 5 (ILLUS 9)

During this phase, the frontages of both Plots B and C remained open, as was the case at the end of the previous phase, though there may have been a structure some distance back from the frontage in Plot B, and possibly one in Plot A. There seems, generally, to have been a slight downturn in activity during this phase before a considerable upturn in activity in the next phase (see Phase 6 below). Even so, a large rubbish pit and adjacent midden spread in Plot B produced a fascinating assemblage of finds which appeared to have been cleared out from a workshop, and which provides evidence for leather-working, metal-working, horn-working and cat-skinning. Midden, a hearth and a rubbish pit in Plot C produced leather objects and scraps but no real

evidence of craft-working. The pottery assemblage recovered from this phase indicates a date range between the mid- and late 13th century (see Hall, below). The more diagnostic finds associated with this phase (see Cox *et al*, below) include metalwork notably a copper alloy buckle frame (no 3), mounts (nos 4 & 5) and a length of chain (no 54), a possible whalebone butchering block (see Smith, below), a bone ice-skate (no 95), and leather objects including shoes (nos 139 & 140), a pouch or bag (no 146) and a possible scabbard (no 142).

Substantial timbers were visible in the main south section-face of the cutting. These suggest substantial buildings which were set back from High Street rather than fronting onto it. No other structures were located within the two main Plots B and C, other than plot boundaries.

Plot A: Structure 10 (S10)

The stake fence boundary between Plots A and B was reconstructed at the beginning of this phase. A cut containing a group of stake-holes and a packing stone, together with a single stake-hole may represent a lean-to structure, built against the property boundary. An area of cobbles may have formed a floor associated with the structure, within which a copper alloy buckle frame (no 3) was recovered. Traces of burning on the timbers suggest both the boundary fence and the lean-to structure were destroyed by fire; the area was subsequently levelled over. Contained within this levelling deposit was a bone ice-skate (no 95), and an assemblage of leather scraps.

Plot B: Structure 11 (S11), pits & midden

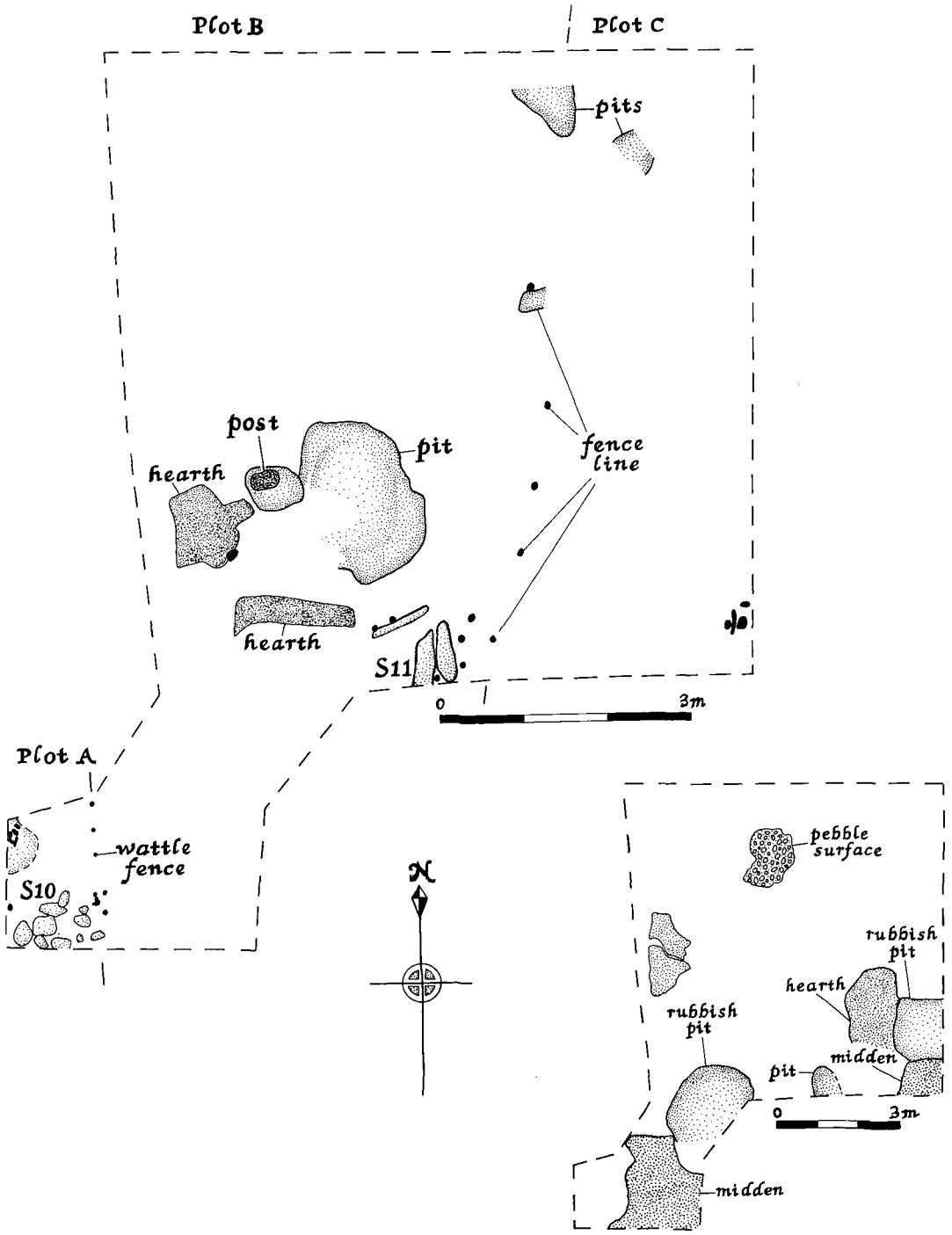
The boundary between Plots B and C was not represented by the wall of a structure on either plot, but by a fence-line. Widely spaced and slightly skewed, the stake-holes mark the property division which had been realigned approximately 2 m further east of its long-established position.

Pits & hearth There was a marked decrease in the level of activity in this phase, with only a few small to medium-sized intercutting pits, two hearths, and associated spreads of burnt deposits. The majority of the pits contained few finds of any nature, and all the activity was concentrated at the rear of the property. Burnt vegetation and hazel-nuts in the fills of the northernmost of the two hearths suggests that its function was domestic rather than industrial. A post-hole immediately to the north-east may have supported a secondary structure associated with the hearth, or the adjacent large pit.

After the pits were backfilled, the area was then levelled and, perhaps, a timber structure erected to the rear of the plot. The surviving remnants which were visible comprised a jumble of timbers, two of which lay in an east/west linear cut. The timbers were substantial, however, and were probably associated with a structure, much of which lay to the south of the excavation. One of the timbers displayed the only evidence of carpentry from the excavation. Pegged into place, it contained a mortice joint on one face and a rebate on the north end.

A possible surface (not illustrated) to the north of these timbers produced a small assemblage of leather, including shoes and scraps, a knife blade and two iron strips. Also recovered were five fragments of whale bone, probably from the same bone, which may originally have formed a chopping block for butchering animal carcasses.

Rubbish pit & midden In the second half of this phase, a rubbish pit was established in the south-west corner of the property and, immediately adjacent, a spread of midden . These produced a large and varied assemblage of finds which provides clear evidence for a range of craft-working activities being carried out within this or an adjacent property. The nature of this assemblage suggests that waste products and part-finished items from activities such as leather-working, metal-working, horn-working and cat-skinning had been cleared out from a nearby workshop and dumped here. The rubbish pit was found to contain over 250



ILLUS 9 Phase 5: open frontage with craft-working

sherds of pottery, and over 650 fragments of animal bone, including numerous horn-cores and a number of cat bones with knife cuts. Smaller quantities of leather scraps and textile scraps were also recovered. The more diagnostic objects included a number of leather shoes (nos 139 & 140) as well as parts of shoes and strap fragments. Amongst the metalwork were two copper-alloy mounts (nos 4 & 5), a fragment of a copper alloy pin shaft (no 10), a copper-alloy rivet (no 13) and a length of chain attached to a swivel ring, used either to suspend an object or tether a horse (no 54).

Immediately to the south of this rubbish pit was an extensive spread of midden. The contents were remarkably similar, containing, amongst many other finds, horn cores, an antler offcut, cat bones with knife cuts, leather straps and offcuts, a leather pouch (no 146) and a fragment of a wooden bowl.

Plot C

For the first half of this phase the front of this property seems to have been largely unused, with only two small cut features visible near the street frontage. At the rear of the plot structured peaty material, probably midden, had accumulated or been dumped (not illustrated), and was found to contain lenses of straw, shell and hazel-nuts, as well as animal bone and pottery. A small group of stake-holes had been sealed by the midden.

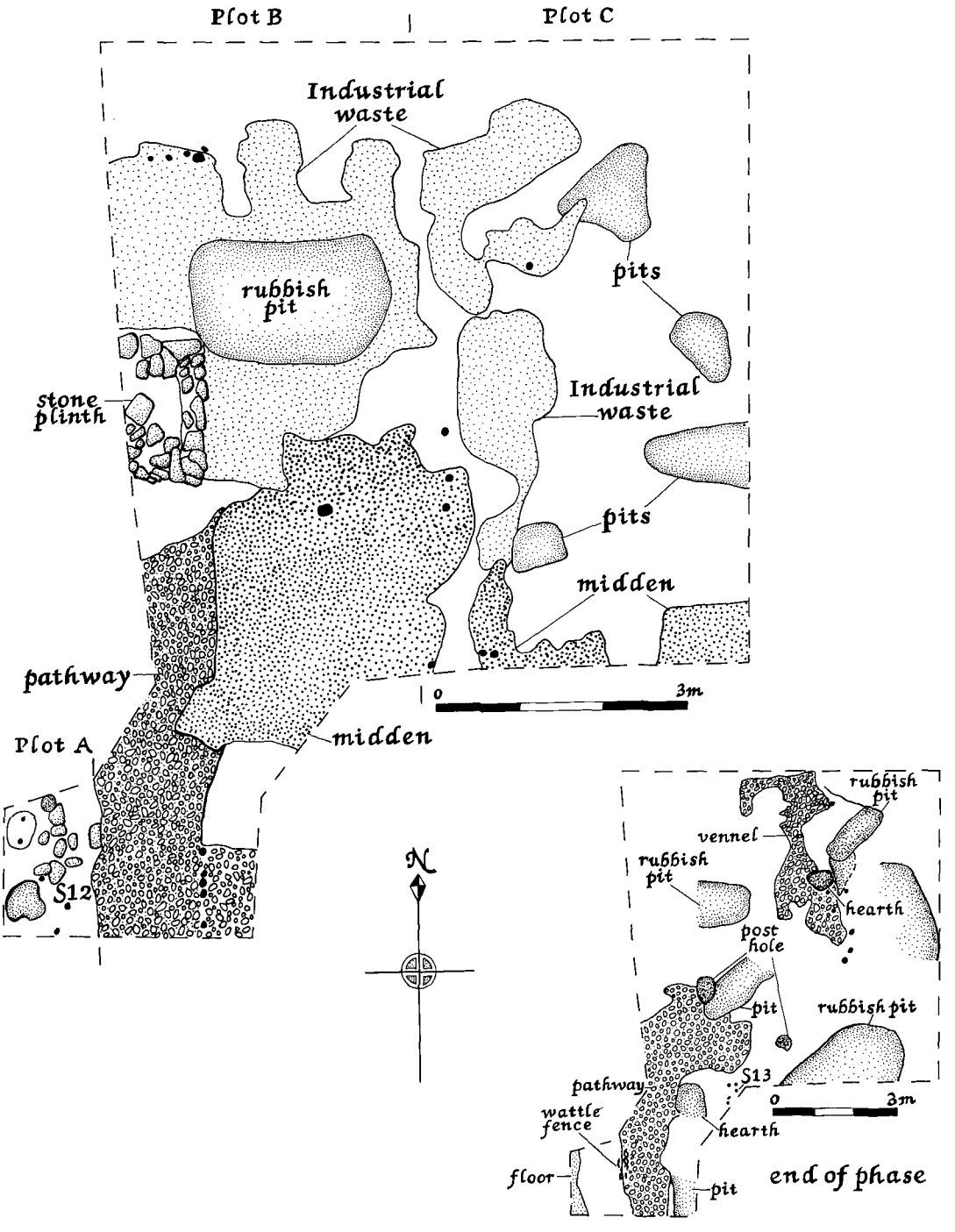
Hearth & pits In the second half of the phase, the level of activity appears to have increased slightly, again concentrated at the rear of the property. A mixture of peat, ash and clay was dumped over the earlier midden, through which two pits were dug. One of these was found to contain two sheep horn-cores, a possible leather scabbard (no 142), a leather belt or strap and shoe, and a copper alloy mount or boss (no 5). After backfilling, a large hearth was placed over the western edge of the pit, the contents of which consisted almost entirely of hazel-nuts (see Fairweather, below). A spread of trample deposits on the boundary between Plots B and C produced more scraps of leather, together with a fragment of lead sheet and crucible.

PHASE 6 (ILLUS 10)

Of all the eight phases identified, Phase 6 was the period of most intense activity, despite the fact that both frontages were again open to High Street. This phase also produced the largest assemblage of finds, derived largely from rubbish pits and midden spreads. There was, however, evidence for structures at the rear of both Plots A and B, a gravel pathway within Plot B and possibly a common vennel shared between Plots B and C. Extensive midden spreads across Plot B and a large rubbish pit in Plot C produced the bulk of the finds retrieved from this phase and provide evidence for leather-working, metal-working (including jewellery-making), horn-working and cat-skinning in Plot B, and horn-working, cat-skinning and leather-working in Plot C. The pottery assemblage recovered indicates a late 13th- to early 14th-century date for this phase of activity. Amongst the many finds from Phase 6, the more diagnostic include a leather shoe sole (no 141), a stone hone (no 113), two spindle whorls (nos 118 & 119), a pair of copper alloy tweezers (no 14), an iron knife (no 62) and needle (no 66), a cluster of part-manufactured brooch components (no 2) and a complete two-piece ring mould (no 117).

Plot A: Structure 12 (S12)

The boundary fence between Plots A and B was rebuilt at the beginning of this phase. A group of post-holes and two stake-holes may represent either a lean-to structure, built against the boundary fence, or the east wall of a structure located further west. An area of cobbles, set in a levelling dump of clay, may have formed a floor surface associated with this.



ILLUS 10 Phase 6: open frontage and craft-working

In the latter part of this phase the boundary was partly replaced or repaired with a double-skinned wattle-and-daub fence. A possible sand floor surface suggests that a structure still existed against the boundary fence, though no associated post-holes could be identified.

By the end of the phase, the boundary fence and any associated structure had been abandoned. Extensive midden deposits were then spread across this area (not illustrated), ignoring the old boundary between Plots A and B. A solitary post-hole, cut through the midden, was the last feature to be identified in this area until the final phase (see Phase 8 below).

Plot B: Structure 13 (S13) & other features

Pathway & fence A line of stake-holes along the eastern edge of the plot appears to reinstate the property boundary to its Phase 4 position (in Phase 5 it had shifted slightly to the east). A gravel path was also laid out along the western edge of the property, providing access to the backlands. This was maintained and resurfaced until the end of this phase when, after the Plot A boundary had been abandoned, midden was strewn across the whole area. An east/west alignment of four stake-holes and a post-hole at the very north end of the plot most probably defined the boundary of the property itself rather than another stall.

Stone feature & rubbish pit (illus 10) Towards the middle of the phase, a fence was erected at the rear of the plot, along the east side of the gravel pathway, though whether this could have been a communal pathway shared between Plot A and B is unclear. Just beyond the north end of the pathway was a rectangular arrangement of flagstones, only partly visible and extending further west. Its size, nearly 2 m long by at least 1 m wide, suggests that it formed the base or support for a free-standing structure, possibly industrial. Spreads of charcoal, ash and slag across the northern end of the plot may be associated with this, but contained few finds other than some leather scraps and an iron fitting. These may, however, have been brought in as part of a general levelling of the area, in advance of the establishment of a large rubbish pit, 1.5 m deep. The contents of the pit included more than 300 sherds of pottery, over 500 fragments of animal bone including 60 fish bones and significant numbers of sheep head parts. The nature of the assemblage is generally domestic, but horn-working waste is well represented.

The rear of the plot, between the pathway and the boundary to Plot C, was covered with extensive spreads of midden, which in turn had sealed an earlier rubbish pit (not illustrated) containing animal bone and horn cores. The midden contained over 650 fragments of animal bone, including 23 horn cores, two cat skulls with knife cuts and the bone of an eagle. A stone hone (no 113), an iron bar and two leather shoe soles (no 141) were also recovered.

Structure 13 (S13) Cut through the middens were a number of post-holes and stake-holes which may define the north-western corner of a structure, much of which lay to the south of the excavation. Perhaps contemporary with its construction, the gravel pathway appears to have been re-laid to form an L-shaped yard around Structure 13. At the north end of the plot, the property boundary between Plots B and C seems to have been replaced by a common vennel. A rubbish pit to the west of the vennel contained large quantities of animal bone, particularly fish bones, but little else.

Middens Both Structure 13 and the yard were short lived, and by the end of the phase midden was being dumped here again (not illustrated). The contents of this midden indicate the clearing out of a workshop, presumably within this property. This workshop was almost certainly manufacturing metalwork, as the assemblage comprised a pair of copper-alloy tweezers (no 14), sheets of copper alloy, lead-alloy waste, an iron needle (no 66) and an iron knife (no 62). The most notable finds were a cluster of copper-alloy brooches and part-manufactured brooch parts (no 2 & illus 16), and one half of a ring mould (no 117), capable of producing five different rings (see Cox, below). Spreads of midden nearer the Plot A boundary produced a small assemblage of leather shoe parts.

Plot C: hearth & pits

For the first half of this phase, activity within Plot C was distinctly less intense than that in Plot B. Initially, a group of four small pits was dug, but these contained little to indicate the nature of use. After the pits went out of use, midden-like material accumulated or was dumped at the rear of the plot, and close to the Plot B boundary there were spreads of charcoal, ash and slag. The latter produced few finds except for some animal bone and a spindle whorl (no 119).

Towards the middle of this phase the pathway or vennel was established, possibly communal to both Plots B and C, with a row of stake-holes to the east perhaps fencing off Plot C. A group of three pits was dug at the north end of the plot, only one of which appeared to have been used as a rubbish pit, and was found to contain one cat mandible with skinning cuts, as well as animal and fish bone.

At the end of the phase a small hearth partly cut through the eastern edge of the path or vennel, and a large rubbish pit was dug at the rear of the plot. This contained quantities of leatherwork, scraps and offcuts, half a ceramic jug, and over 500 animal bone fragments, including 25 horn cores and one antler offcut. Environmental analysis of the contents of the pit also identified a mass of cereal straw stems (see Fairweather, below), commonly used as animal fodder, floor covering or roofing material. The assemblage, however, was clearly dominated by leather-working, horn-working and bone-working waste. Surprisingly the other half of the ring mould (no 117) found in a midden spread in Plot B was also recovered here.

PHASE 7 (ILLUS 11)

After the intense activity of the previous phase, there was a marked downturn during Phase 7, continuing into the final phase (see Phase 8, below). There did, however, appear to be a structure on the frontage in Plot B, and possibly a common vennel between Plots B and C. A stone well had been constructed on the Plot C frontage. There was no definite evidence for any craft-working activities. The pottery recovered from this penultimate phase of activity indicates a date range between the early and mid-14th century (see Hall, below). There were few finds from this phase generally, but the more diagnostic include a decorated copper-alloy pin (no 8), a glass bead (no 131) and a fragment of a bone scale or mount (no 94).

Plot B: Structure 14 (S14) & other features

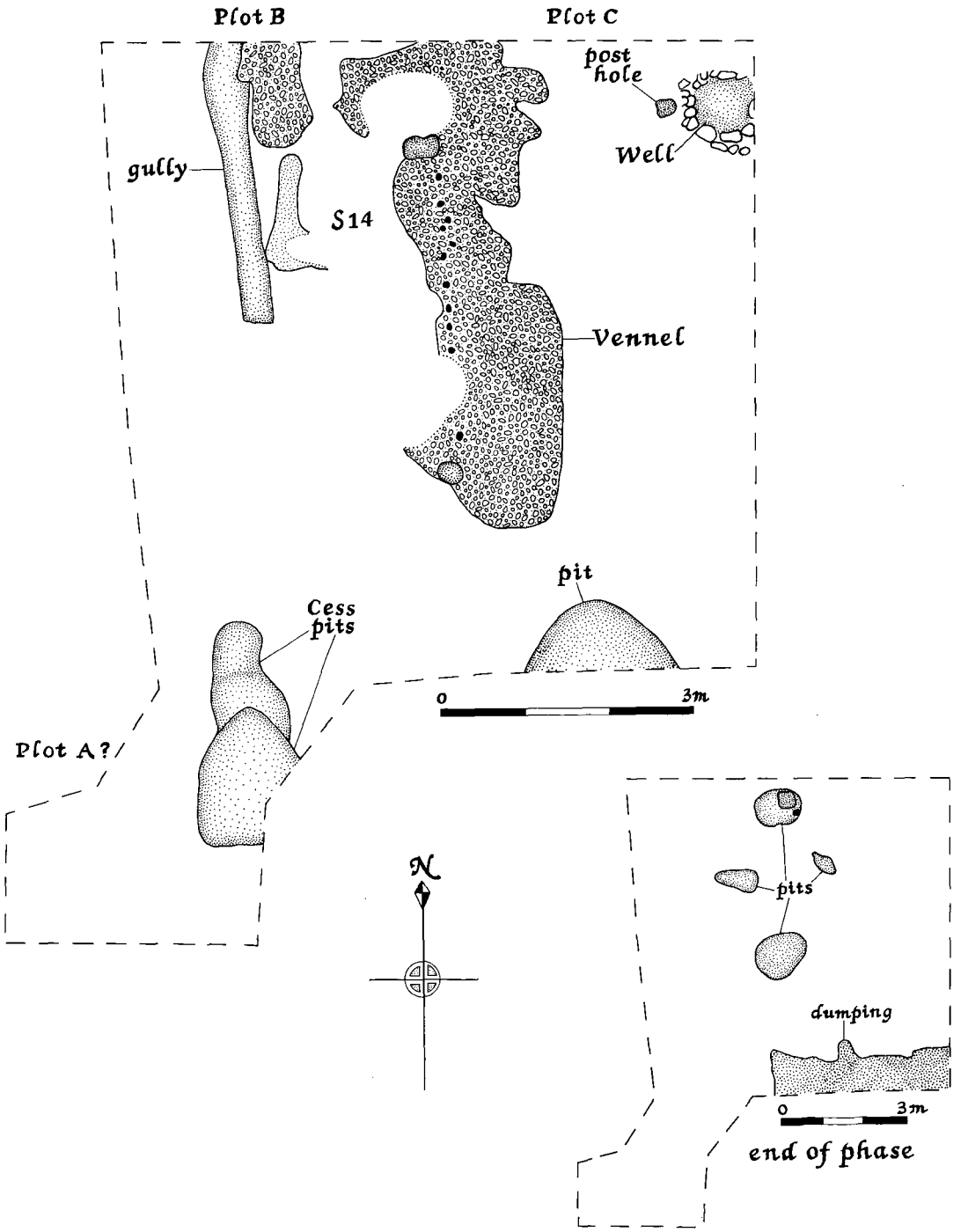
At the beginning of this phase the property boundary between Plots B and C was established; this comprised a series of stake-holes. At the rear of the plot were two intercutting pits, truncating the midden dumped at the end of the previous phase. The composition of the fills, and the lack of finds, suggest they may have been cess pits.

By the second half of the phase, a rectangular structure had been erected at the front of the property. The east wall comprised wattle and daub, with two post-pits at the north and south respectively, providing the main structural support. The east wall, which replaced the fence-line, may also have defined the boundary between Plots B and C. No evidence of the north wall was found. A narrow slot trench, aligned north/south, in which a timber base-plate could have been set, may represent the robbed-out remains of the west wall. Traces of possible floor surfaces survived within the structure. No finds were recovered from these surfaces but slag and coal were present in the occupation levels.

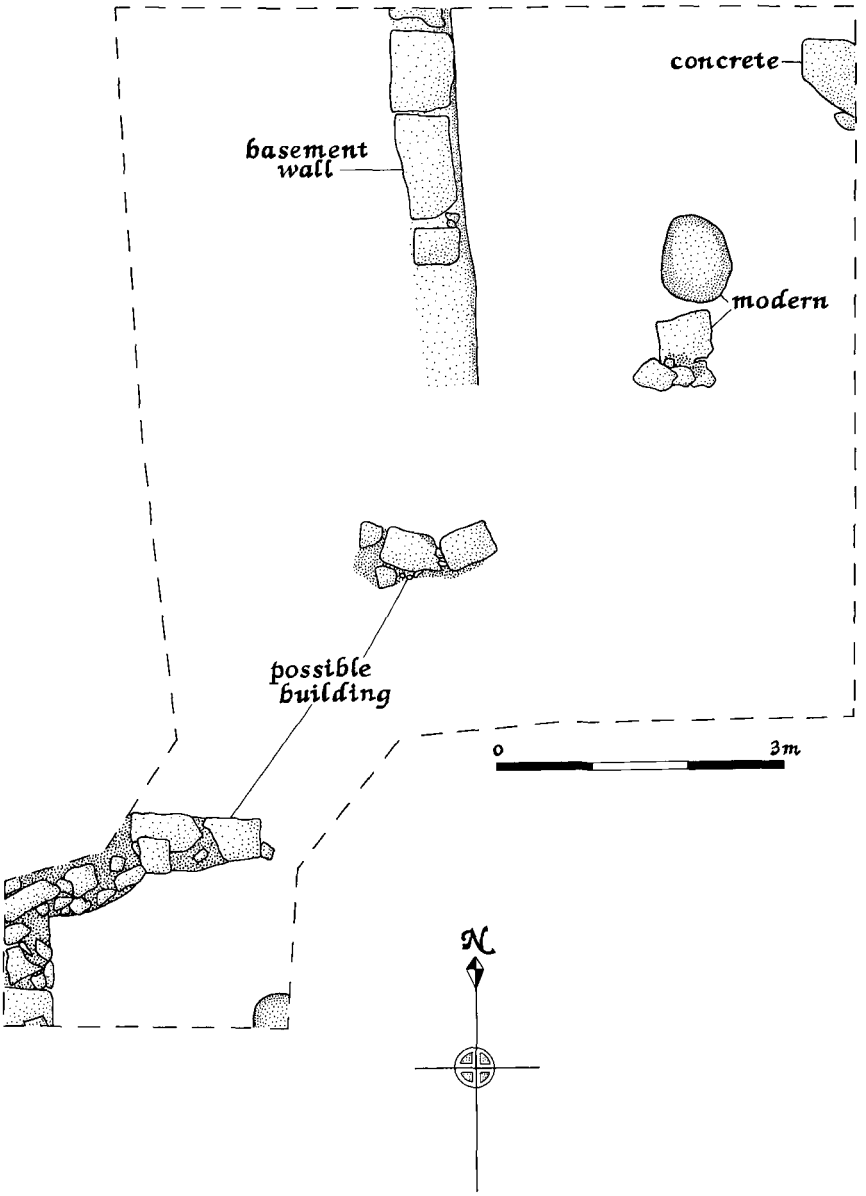
At the end of this phase, a group of four small pits was dug at the northern end of the plot, possibly in the course of robbing out timbers from Structure 14.

Plot C: High Street & vennel (illus 11)

There appears to have been little activity within this plot during the first half of this phase except for two large, shallow pits dug in the central area of the property (not illustrated). A post-hole and a stake-hole may



ILLUS 11 Phase 7: vennel and other features



ILLUS 12 Phase 8: stone buildings

have formed a light structure associated with the northernmost pit. A post-hole at the extreme north end of the plot perhaps defined the limit of the property. A circular stone-built well was then constructed in the north-east corner of the plot, and at the rear of the plot a large pit was dug.

The position of the well in this plot, and the gully in Plot B, indicates that the alignment of High Street had shifted northwards by at least 1 m, if not beyond the excavation area. After Structure 14 had gone out of use in Plot B, a vennel was established between Plots B and C, providing access from High Street to the backlands. A decorated copper-alloy pin (no 8) was recovered from trample deposits on the surface of the vennel.

At the end of this phase, the pit at the rear of the plot had been backfilled and midden dumped throughout. This was found to contain over 200 sherds of pottery and a glass bead (no 131), one of the few diagnostic finds from Phase 7.

PHASE 8 (ILLUS 12)

This final phase saw the first stone buildings constructed on the frontage. Much of the detail, however, had been destroyed by Victorian cellars and only short, truncated lengths of walls, of uncertain date, survived. There were generally few finds from this final phase, and no evidence for any craft-working activities. The pottery assemblage indicated a mid- to late 14th-century date (see Hall, below) and of the more diagnostic finds only a horseshoe fragment merits a mention.

Plots A, B & C: stone building remnants & cellarage

The structure in the south-western corner suggests that Plot A had been amalgamated with its neighbour (Plot B). Three sections of stone walling survived here, but may represent two separate phases of construction. The north wall and west wall appear to be contemporary, and each comprised a single course of rough sandstone blocks, dressed on both faces, set within a white, pebble, mortar. The angle between the two walls appears to have been filled in at a later date, and two red bricks were incorporated into the packing.

Within the former Plot B, a short length of wall, which included one large reused sandstone block, may have delineated another structure. This lay across the line of the long-established property boundary between Plots B and C which indicates that this boundary had gone out of use. It was, however, reinstated or 'fossilized' in the basement wall of the Victorian cellar, displaying a remarkable degree of continuity from the mid-12th century to the present day. The stone feature within the former Plot C proved to be modern, and a concrete cap had been placed over the Phase 7 well.

Finally, the removal of the basement had exposed a section-face, 1.7 m deep, through High Street which showed 10 successive metalled surfaces, extending from the late medieval period to today's pedestrianized precinct.

SPECIALISTS' REPORTS

THE POTTERY

D W Hall

Introduction and methodology

The stratified wares from this site were examined by $\times 20$ binocular microscope and then divided into fabric groups. Each group is identified, where possible, by its common name, then described and commented on. Colour descriptions are approximations. Descriptions of frequency and size of inclusions use the following terms for frequency: occasional (less than 5 per 25 sq mm, moderate (5–15 per 25 sq mm), and abundant (over 15 per 25 sq mm); for size: small (up to 0.1 mm), medium (0.1–0.75 mm), and large (over 0.75 mm). Hardness is based on the Moh scale. A list of the common vessel types and their known date ranges is also given. This study has been undertaken without the benefit of petrological analysis.

Scottish wares

Perth Local Ware

Colour	Buff to orange when oxidized, grey when reduced.

Hardness	Medium hard.
Inclusions	Micaceous with moderate quartz and occasional to moderate red and black ferruginous fragments.
Surface treatment	Bright orange to green glaze on oxidized sherds, brown to dark green on reduced sherds. Sometimes slipped white prior to glazing.
Vessel types	Jugs, cooking pots, bowls, also statuary and roof furniture.
Date range	13th to 15th century (Macaskill 1989; Hall 1995).

East Coast White Gritty Ware

Colour	Off-white, often partly reduced to pale or medium grey.
Hardness	Medium hard to hard.
Inclusions	Slightly micaceous with moderate to abundant quartz grits and varying frequencies of red and black ferruginous fragments and other rock fragments.
Surface treatment	Glazed pale yellow or green to very dark green. Cooking pots unglazed and smoke blackened.
Vessel types	Jugs, cooking pots.
Date range	12th to 15th century (Brooks 1980; Haggarty *et al.* 1984; Hall 1995).

Possible Local/Scottish

Colour	Varies from red or grey-buff to grey-brown and light or dark grey.
Hardness	Medium hard to hard.
Inclusions	Moderate to abundant mica. Moderate small to medium, sometimes large, quartz grits. Occasional red and black ferruginous grains. Occasional unidentified rock fragments.
Surface treatment	Sometimes glazed yellow to green to brown. Unglazed pieces smoke blackened. Some glazed pieces slipped.
Vessel types	Cooking pots, jugs.
Date range	12th century? (Hall 1995)

This fabric group contains a variety of sherds with similar characteristics, with a fabric similar to the identified Perth Local wares. However, the vessel forms represented are mainly cooking pots and this fabric may be an early local product. It is designated possible local in the discussion and PoLo in the pottery tables.

English wares

London Sandy Ware

Colour	Orange to reddish buff varying to light grey, particularly at the core.
Hardness	Medium hard to hard.
Inclusions	Abundant small to medium quartz grains. Occasional small dark brown ferruginous grains.
Surface treatment	Orange to green glaze, occasionally brown, green-brown or pale brown over painted decoration.
Vessel types	Decorated jugs.
Date range	1150 to early 14th century (Pearce *et al.* 1985).

London Shelly Ware

Colour	Brown to red-brown varying to grey, particularly at the core.
Hardness	Soft to medium hard.

Inclusions	Abundant small to medium quartz grains, abundant large shell flakes, abundant tiny mica plates, occasional small black and dark brown grains.
Surface treatment	Unglazed and externally blackened by burning.
Vessel types	Cooking pots.
Date range	1150 to early 14th century (Pearce *et al.* 1985).

Stamford Ware

Colour	Off-white to light grey.
Hardness	Hard.
Inclusions	Occasional small quartz grains in a fine textured matrix.
Surface treatment	Clear glaze speckled with green.
Vessel types	Jugs.
Date range	11th or 12th century (Kilmurry 1980).

Yorkshire Wares

Colour	Buff or off-white.
Hardness	Hard.
Inclusions	Sandy.
Surface treatment	Lustrous green glaze, sometimes orange and orange-green, decorated with lines or streaks of dark green.
Vessel types	Jugs
Date range	1225–1350 (Farmer & Farmer 1982).

In the past all fabrics of this type have been classified as Scarborough ware. As there are known to be more than one production centre for this fabric it was felt easier to group them under this general heading which will allow for individual identification at some future time.

European wares

Pingsdorf Ware

Colour	White.
Hardness	Hard.
Inclusions	Abundant medium angular quartz grains, occasional small black grains.
Surface treatment	Light brown with red painted decoration.
Vessel types	Jugs.
Date range	10th to 13th century (Dunning 1968).

Low Countries Greyware

Colour	Light or dark grey, surfaces sometimes darker than core which can be very light in colour.
Hardness	Medium hard to hard.
Inclusions	Moderate to abundant small quartz grains. Occasional red-brown or black ferruginous grains.
Surface treatment	Unglazed.
Vessel types	Cooking pots, pitchers.
Date range	1150–1250 (Verhaeghe 1983).

Low Countries Redware

Colour	Orange to orange-red, sometimes with a grey core.
Hardness	Medium hard.
Inclusions	Abundant small sub-angular quartz grains and red ferruginous inclusions
Surface treatment	Brown or brown-green glaze.
Vessel types	jugs, cooking pots, skillets.
Date range	Mid-13th to mid-15th century (Verhaeghe 1983).

Low Countries Redware (Aardenburg type)

Colour	Orange-red with a grey core.
Hardness	Hard.
Inclusions	Small to moderate sub-angular quartz inclusions and occasional red and black ironstone grits.
Surface treatment	Glazed light brown green over a white slip.
Vessel type	Jugs.
Date range	1250–1325 (Verhaeghe 1983).

Group X highly decorated pottery

Colour	Varies from red-brown to orange-red, often with reduced grey core.
Hardness	Hard to very hard.
Inclusions	Fine to very fine quartz, occasional reddish iron oxide.
Surface treatment	Externally glazed dark greenish-brown. Surface has glossy heat skin and slightly pimply feel. Some sherds have raised strips triangular in section, sometimes with notches on top.
Vessel type	Jugs, globular in shape with sagging bases.
Date range	Late 12th to mid-14th century (Verhaeghe 1983).

This fabric was given its nomenclature by Franz Verhaeghe (1983, 34). It is very close to the Aardenburg type wares but has enough variations to argue for a different origin. This origin is uncertain but may be an unknown northern French source or a southern English one. It is possible that a southern English source, at Reading, has been identified (G Haggarty, pers comm).

Blue/Grey (Paffrath) Ware

Colour	Light grey to grey-white with grey surfaces.
Hardness	Medium hard to hard.
Inclusions	Abundant small to medium quartz grains. Occasional ferruginous grains and unidentified rock fragments.
Surface treatment	Unglazed with blue-grey surface.
Vessel types	Cooking pots, ladles.
Date range	11th or 12th to early 13th century (Verhaeghe 1983).

Andenne Ware

Colour	White to off-white.
Hardness	Medium hard.
Inclusions	Fine textured matrix with moderate small to medium quartz grains.

Surface treatment	Orange external glaze.
Vessel types	Jugs.
Date range	11th or 12th century (Dunning 1968).

Rouen Ware

Colour	White to pale grey.
Hardness	Medium hard.
Inclusions	Fine sandy inclusions.
Surface treatment	Pale green or yellow external glaze, coloured brown in places as part of its elaborate and distinctive design.
Vessel types	Decorated jugs.
Date range	13th century (Dunning 1968).

Saintonge Ware

Colour	White or off-white.
Hardness	Medium hard.
Inclusions	Very fine sandy inclusions.
Surface treatment	Pale yellowish external glaze with some areas painted green and outlined in dark lines under the glaze.
Vessel types	Decorated jugs.
Date range	Late 13th to early 14th century (Dunning 1968).

Rhenish Stonewares: Langerwehe

Colour	Dark grey.
Hardness	Very hard.
Inclusions	Fine with few inclusions.
Surface treatment	Often covered by iron-wash giving purple matt finish on unglazed examples. Underfired examples show buff or reddish hard earthenware under iron wash. Also salt glazed examples resulting in patches of glossy grey and brown colours.
Vessel types	Jugs, bowls and cups.
Date range	14th to 15th century (Hurst *et al.* 1986).

Discussion

The pottery assemblage from 80–86 High Street is the first published group from a site close to the burgh's early nucleus. For this reason alone it is interesting that the amount of 12th-century material present in the assemblage is not as great as one might expect, particularly when compared with the pottery from the King Edward Street excavations (Hall 1995) which lie further west and therefore further away from the early nucleus.

The variation in fabrics seems to suggest a tight date bracket between the 12th and late 14th or early 15th century for occupation on this site (see Table 1). Any later material had been removed by the cellars.

Dating Phase 2 did not produce any fabric that suggests a date later than the 12th century. There are no Perth Local wares present and no Low Countries Redwares. Both these wares begin to appear in Phase 3, suggesting that 13th-century occupation begins at this point. The appearance

of Yorkshire wares in this phase suggest a 12th/13th-century date bracket may be more accurate. It is not until Phase 6 that fabrics appear to suggest a date of the 14th century. These include sherds of Langerwehe Stoneware, and the first appearance of Rouen ware. Phases 7 and 8 would also seem to be of a similar date.

Conclusions

The suggested dating of the pottery seems to indicate that the laying out of properties on this site does not start until the late 12th or early 13th century at the earliest. There is no trace of any 12th-century buildings or occupation, such as might have been expected so close to the burgh's early nucleus.

This assemblage does include some good examples of Low Countries Redwares and Rouen wares. In the past, sherds of such pottery have not been recovered in any great number due to the destruction of Perth's later archaeology by cellarage.

TABLE 1
Pottery by phase

PHASE Fabric Type	2	3	4	5	6	7	8	Fabric Total
PoLo	8	10	0	0	0	0	0	18
PL	0	14	38	87	570	150	23	1026
WG	14	275	513	386	1204	388	34	2824
X	0	0	0	3	32	4	1	40
Sc/Y	0	0	18	23	40	10	3	94
Stam	1	17	5	1	3	4	0	31
Grim	1	4	0	0	0	0	0	5
Ping	5	2	0	0	5	0	0	12
LCG	17	0	26	83	95	17	0	238
LCR	0	0	7	19	76	9	1	112
Aard	0	2	0	4	8	4	0	10
And	1	11	1	1	0	0	0	14
Rouen	0	0	0	0	3	6	2	11
Losh	2	0	0	3	2	1	0	8
Losa	3	0	4	1	6	0	0	14
Paff	0	0	3	1	1	1	0	6
Saint	0	0	0	1	1	0	0	2
Stnwr	0	0	0	0	4	0	0	4
French	0	0	2	1	1	2	0	6
Unid	36	95	38	58	89	35	3	354
Phase Total	88	451	655	671	2127	631	67	

Grand Total 4690 sherds

FABRIC KEY

PoLo	Possible Local ware	Aard	Low Countries Redware (Aardenburg type)
PL	Perth Local ware	And	Andenne ware
WG	White Gritty ware	Rouen	Rouen ware
X	Fabric X	Losh	London shelly ware
Sc/Y	Scarborough/Yorkshire ware	Losa	London sandy ware
Stam	Stamford ware	Paff	Blue/Grey Paffrath ware
Grim	Grimston ware	Saint	Saintonge
Ping	Pingsdorf ware	Stnwr	Rhenish Stoneware
LCG	Low Countries Greyware	French	Northern French
LCR	Low Countries Redware	Unid	Unidentified

The suggestion that the Perth Local pottery industry begins in the late 12th/early 13th century (MacAskill 1989; Hall 1995) is not contradicted by the evidence from this site.

Pottery catalogue (illus 13–15)

Perth Local Ware

1 Perth Local Ware rim from cooking pot, unglazed. Context 498; Phase 4
2 Perth Local Ware rim from jug, glazed speckled green. Context 590; Phase 4
3 Perth Local Ware rim from jug, glazed brown slipped white inside and out. Context 627; Phase 5
4 Perth Local Ware basesherd from bowl, glazed brown internally. Context 233; Phase 6
5 Perth Local Ware rimsherd from cooking pot, unglazed. Context 153; Phase 6
6 Perth Local Ware bodysherds from jug decorated with applied stamped pads, glazed green. Context 14; Phase 8

White Gritty Ware

7 White Gritty Ware rim from cooking pot, unglazed. Context 1041; Phase 3
8 White Gritty Ware rimsherd from cooking pot, unglazed. Context 875; Phase 3
9 White Gritty Ware rimsherd from cooking pot, unglazed. Context 877; Phase 3
10 White Gritty Ware rimsherd from cooking pot, unglazed. Context 535; Phase 4
11 White Gritty Ware cooking pot rim, unglazed. Context 631; Phase 4
12 White Gritty Ware rimsherd from cooking pot, unglazed. Context 573; Phase 5
13 White Gritty Ware rimsherd from cooking pot, unglazed. Context 932; Phase 5
14 White Gritty Ware rimsherd from cooking pot, unglazed. Context 437; Phase 5
15 White Gritty Ware cooking pot rim, unglazed. Context 627; Phase 5
16 White Gritty Ware rim from cooking pot, unglazed. Context 100; Phase 6
17 White Gritty Ware rimsherd from cooking pot, unglazed. Context 343; Phase 6
18 White Gritty Ware. Frilled cooking pot rim, unglazed. Context 172; Phase 6
19 White Gritty Ware rimsherd from cooking pot, unglazed. Context 150; Phase 7

Possible Local Ware

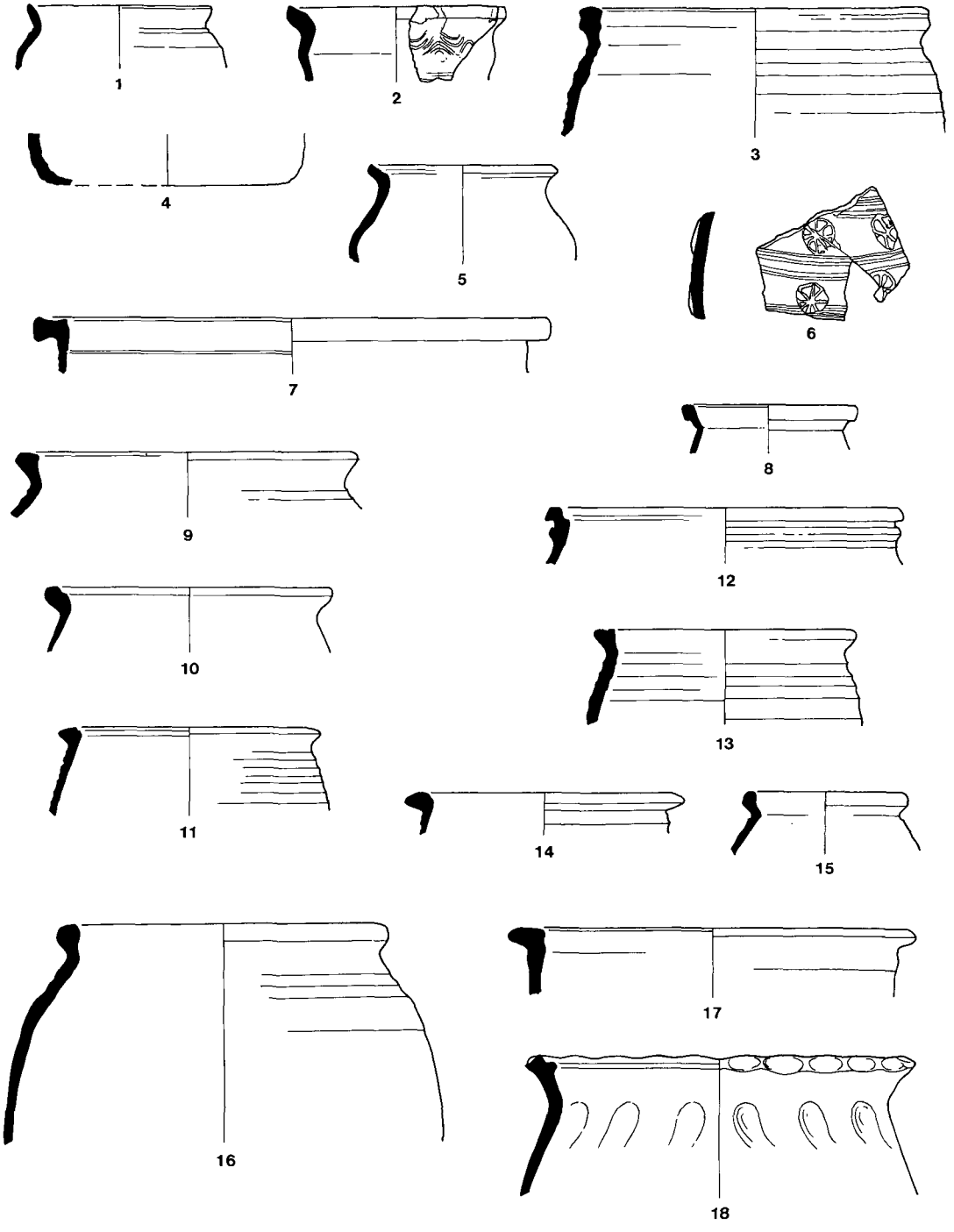
20 Possible local ware rimsherd from cooking pot, unglazed. Context 1167; Phase 2
21 Possible local rimsherd from cooking pot, unglazed. Context 1167; Phase 2
22 Possible local rimsherd from cooking pot, unglazed. Context 1076; Phase 2
23 Possible local ware rimsherd from cooking pot, unglazed. Context 1036; Phase 3

London Shelly Ware

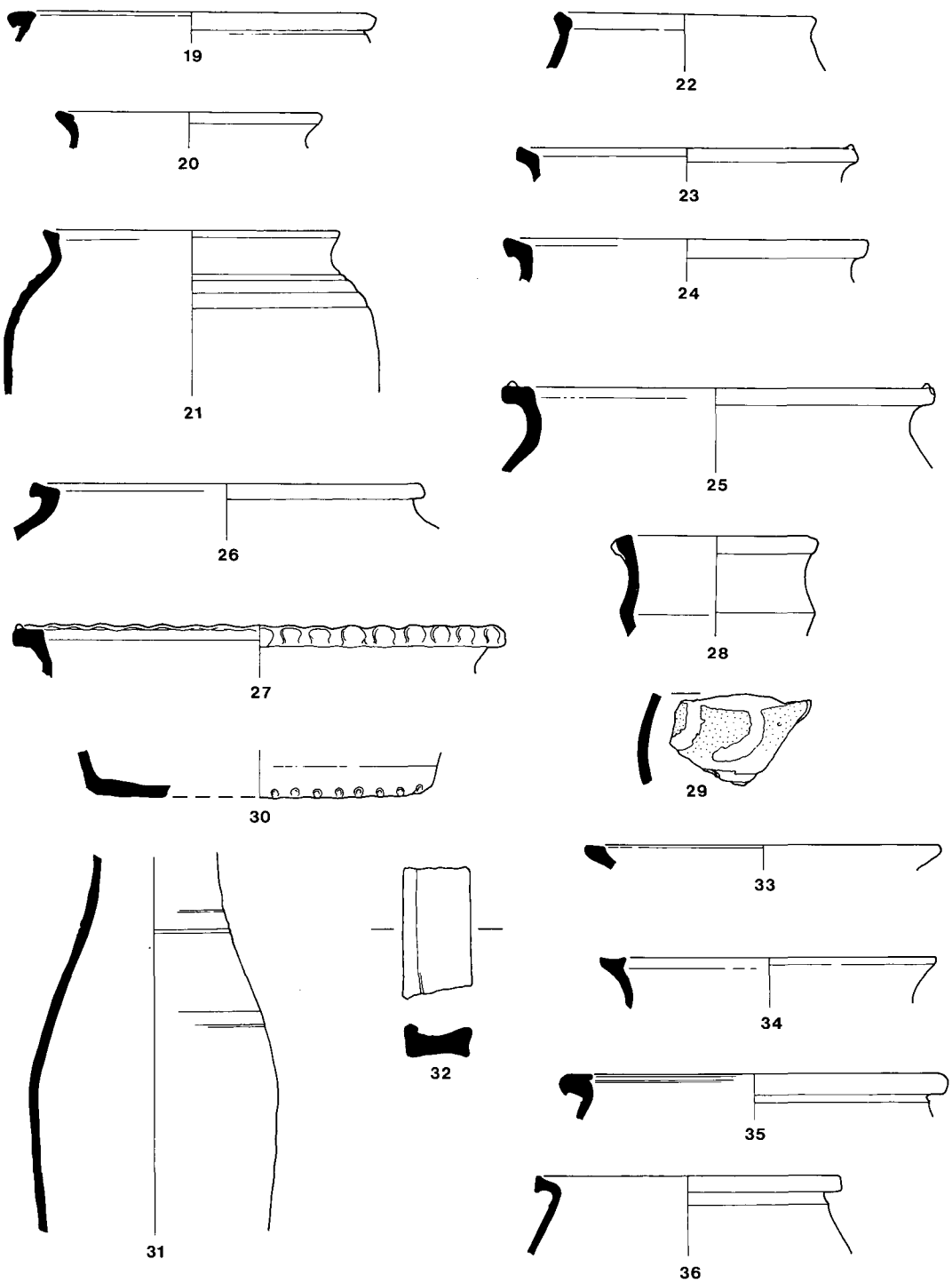
24 London Shelly Ware rimsherd from cooking pot, unglazed. Context 1167; Phase 2
25 London Shelly Ware. Frilled rim from cooking pot, unglazed. Context 1036; Phase 3
26 London Shelly Ware rim from cooking pot, unglazed. Context 934; Phase 3
27 London Shelly Ware. Frilled rim from cooking pot, unglazed. Context 625; Phase 5

London Sandy Ware

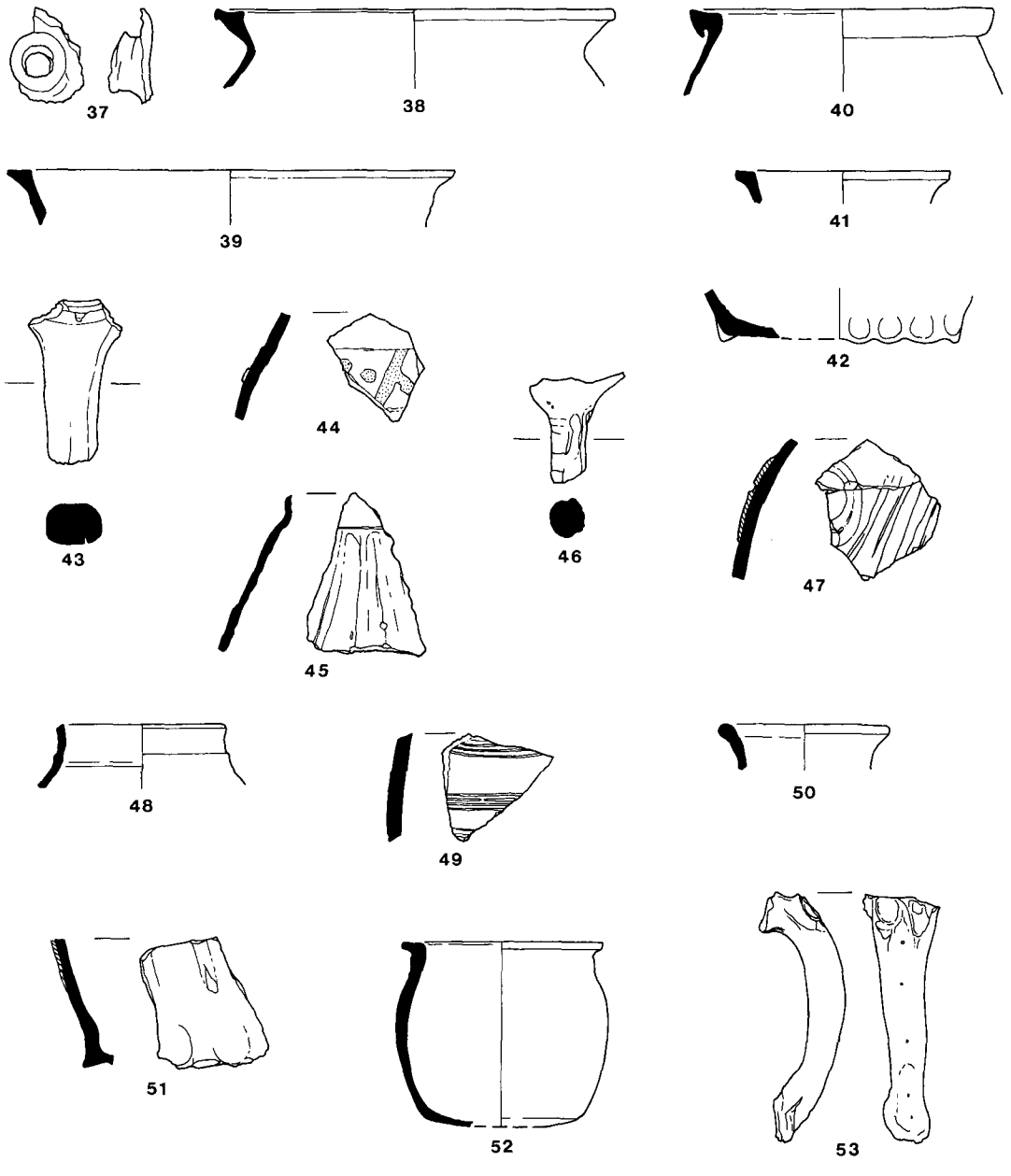
28 London Sandy Ware rimsherd from jug, glazed green. Context 906; Phase 3
29 London Sandy Ware bodysherd from jug, light green strips on green glaze. Context 297; Phase 6



ILLUS 13 Pottery (scale 1:4)



ILLUS 14 Pottery (scale 1:4)



ILLUS 15 Pottery (scale 1:4)

Yorkshire Ware

30 Yorkshire Ware basesherd from jug, glazed green. Context 159; Phase 6

Stamford Ware

31 Developed Stamford Ware body and neck of jug, glazed speckled green. Context 1066; Phase 3

32 Stamford ware. Strap handle, glazed speckled green brown. Context 297; Phase 6

Low Countries Greyware

33 Low Countries Greyware rimsherd from cooking pot, unglazed. Context 1042; Phase 2
34 Low Countries Greyware rimsherd from cooking pot, unglazed. Context 1035; Phase 3
35 Low Countries Greyware rimsherd from cooking pot, unglazed. Context 361; Phase 5
36 Low Countries Greyware rim from cooking pot, unglazed. Context 235; Phase 6
37 Low Countries Greyware bodysherd from pitcher with bunghole, unglazed. Context 989; Phase 2
38 Low Countries Greyware rimsherd from pitcher, unglazed. Context 1174; Phase 2
39 Low Countries Greyware rim from pitcher, unglazed. Context 735; Phase 4
40 Low Countries Greyware rimsherd from pitcher, unglazed. Context 361; Phase 5

Low Countries Redware

41 Low Countries Redware rimsherd from jug, glazed green brown. Context 376; Phase 6
42 Low Countries Redware frilled base from jug, glazed green brown. Context 343; Phase 6
43 Low Countries Redware rim and rod handle, glazed green brown. Context 343; Phase 6
44 Low Countries Redware bodysherd from jug decorated with lines and pellets, glazed yellow green on brown glaze. Context 372; Phase 6

Fabric X

45 Fabric X bodysherd from jug, decorated with angular strips glazed brown. Context 361; Phase 5
46 Fabric X rim and rod handle, glazed green brown. Context 297; Phase 6
47 Fabric X bodysherd from jug decorated with applied lines. Context 372; Phase 6

Langerwehe Stoneware

48 Langerwehe Stoneware rimsherd from jug, glazed green brown. Context 297; Phase 6

Unidentified

49 Unidentified bodysherd from jug with incised lines, glazed green. Context 1035; Phase 3
50 Unidentified rimsherd from jug, unglazed. Context 1035; Phase 3
51 Unidentified frilled base from jug, glazed light green. Context 369; Phase 6
52 Unidentified rim and bodysherds, unglazed. Context 172; Phase 6
53 Unidentified rod handle from jug, glazed red and yellow. Context 75; Phase 6

THE ARTEFACTS

Adrian Cox
with contributions on the coins by Nicholas M McQ Holmes
and on the textiles by Rob Janaway & Paul Harrison

A broad range of artefacts, representing a variety of material types, was recovered from this excavation. Analysis of the artefact assemblages suggests that several categories of artefact were being manufactured in small-scale workshops, with these activities concentrated particularly in Phases 3, 5 and 6. The quantity and diversity of artefacts reflects both an economy which encompassed a variety of craft enterprises and the excellent conditions for preservation of organic materials on this site.

The artefacts are described below by material type. A selective catalogue of the artefacts is presented here, with numbers corresponding to those in the full catalogue. The full catalogue, notes on phase assemblages and supporting data form part of the project archive, which has been lodged with the National Monuments Record of Scotland.

Copper-alloy objects (illus 16 & 17)

The 42 copper-alloy artefacts from the excavation represent a range of functional categories, including costume accessories, textile equipment, personal accessories and evidence of artefact manufacture on or near the site.

Evidence for the casting of copper alloy is present in Phases 5 and 6, in the form of fragments of crucibles with diagnostic metallic residues. Components of a ring mould and a further mould core fragment provide evidence of the types of artefacts that were being cast. The cold working of sheet metal is indicated by numerous offcuts.

A small, circular boss from Phase 3 (cat no 1) is one of several belt or strap fittings recovered from the excavation. Artefacts such as these served a largely decorative function, both on items of clothing and on horse equipment.

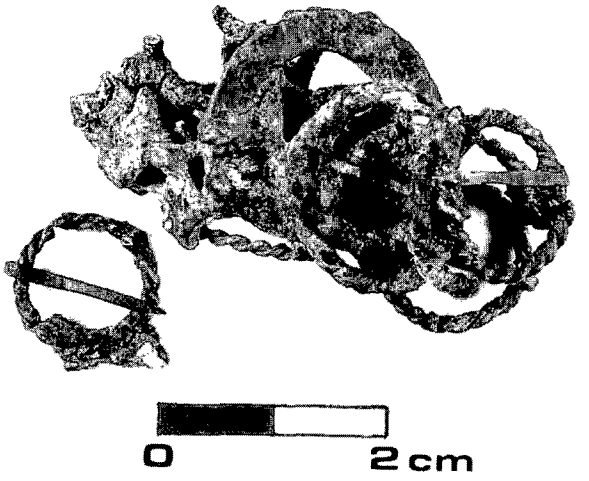
1 **Boss** Diameter 8 mm; thickness 3 mm
Circular, conical object of sheet metal, probably a boss or a mount, broken at the apex. There are two small nicks in the outer edge. (Not illustrated)
Context 1066; Find no 01873; Phase 3

A group of brooches and brooch components (no 2; illus 16) was recovered from a deposit interpreted as pathway material or trample at the rear of Plot B. The brooches must have been deposited together in a cluster, as they have been joined together by their corrosion products and proved difficult to disentangle from each other during conservation treatment. The nature of this cluster appears to indicate that it represents workshop waste. The brooches were closely associated with other possible products of this activity, including a decorative copper-alloy pin (no 9), a pair of sheet copper-alloy tweezers (no 14), a loop of tin (no 44) and several copper-alloy sheet offcuts and pieces of waste lead-alloy. One of two stone ring mould components (no 117) was also part of this assemblage. Workshop activity in which small, cast items of copper alloy and lead alloy were being manufactured, is indicated by this assemblage.

With a single exception, the frame of each brooch was made by twisting two fine wires together. The brooch pins were made from narrow strips of copper alloy, simply looped around the frame at one end. The brooch depicted in illus 17 is a typical example, which lay at the edge of the cluster and was separated from it during conservation. One of the brooches is of a different style, with a plain annular frame.

2 **Brooches** Dimensions of cluster: length 42 mm; width 24 mm; thickness 15 mm
Group of brooches and brooch fragments, representing 12 or 13 brooches in total, attached by corrosion products. With one exception, each brooch frame (diameter c 14 mm) is made from two wires twisted together. The brooch pins are made from narrow strips, looped around the frames and tapering to points. A single brooch at the centre of the cluster is larger (diameter c 20 mm) and has a plain, annular frame. (Not illustrated)
Context 172; Find no 02529; Phase 6

The only buckle frame recovered from the excavation (no 3) is a rectangular type with small projections from its corners. It survives only in a fragmentary condition.



ILLUS 16 Copper-alloy brooches & brooch components (Artefacts Cat no 2)

3 **Buckle frame** Largest fragment: length 27 mm; width 10 mm; thickness 4 mm
Three fragments, interpreted as being from a single buckle frame. The surviving fragments indicate a frame a roughly rectangular form, with small lobes projecting from the corners of the bar upon which the tip of buckle the pin rested. This bar has a small, central platform to accommodate the pin tip. (Not illustrated)
Context 883; Find no 01783; Phase 5

A quatrefoil mount, made from thin copper alloy sheet (no 4) came from a pit fill in Plot B. The cavity on the underside of this object has been filled with lead-alloy, possibly to help maintain its shape or as a repair to the central shank. Mounts of this form were used on clothing and on leather straps for decorative effect. The surface of the object was examined by X-ray fluorescence to determine whether it had been gilded or otherwise plated, but no trace of a surface plating was detected. A smaller quatrefoil mount, with more rounded lobes, was found at Threave Castle in Galloway, in a context probably dating to the 14th to mid-15th century (Caldwell 1981, 107, fig 10, no 17). Number 5 is another quatrefoil mount or boss, from the same phase of activity as Mount no 4. This much larger example has a domed centre, bordered by four rounded lobes. Between the lobes are four rivets for attachment.

4 **Mount** Length 23 mm; width 22 mm; thickness 6 mm
Quatrefoil sheet metal mount. The cavity on the underside of the object has been filled with lead.
Context 465; Find no 01354; Phase 5

5 **Mount or boss** Length 57 mm; width 50 mm; thickness 12 mm
Quatrefoil sheet metal mount or boss with a domed centre. One arm or lobe is missing. The object was secured by rivets, which survive *in situ*. Two have remnants of square roves attached on the underside of the object.
Context 361; Find no 01076; Phase 5

One of two needles from Phase 3, no 7 was made from a tightly rolled sheet of copper alloy. It has a circular eye which may have been produced by a punch. This needle is similar to examples found at Meal Vennel, Perth (Cox 1996), and to an example from King's Lynn (Geddes & Carter 1977, 289, fig 130, no 20).

7 **Needle** Length 43 mm; width at eye 3 mm
Complete needle made from rolled sheet. The eye is circular and the upper part of the shaft is roughly oval in cross-section, becoming more circular in the lower part.
Context 967; Find no 01831; Phase 3

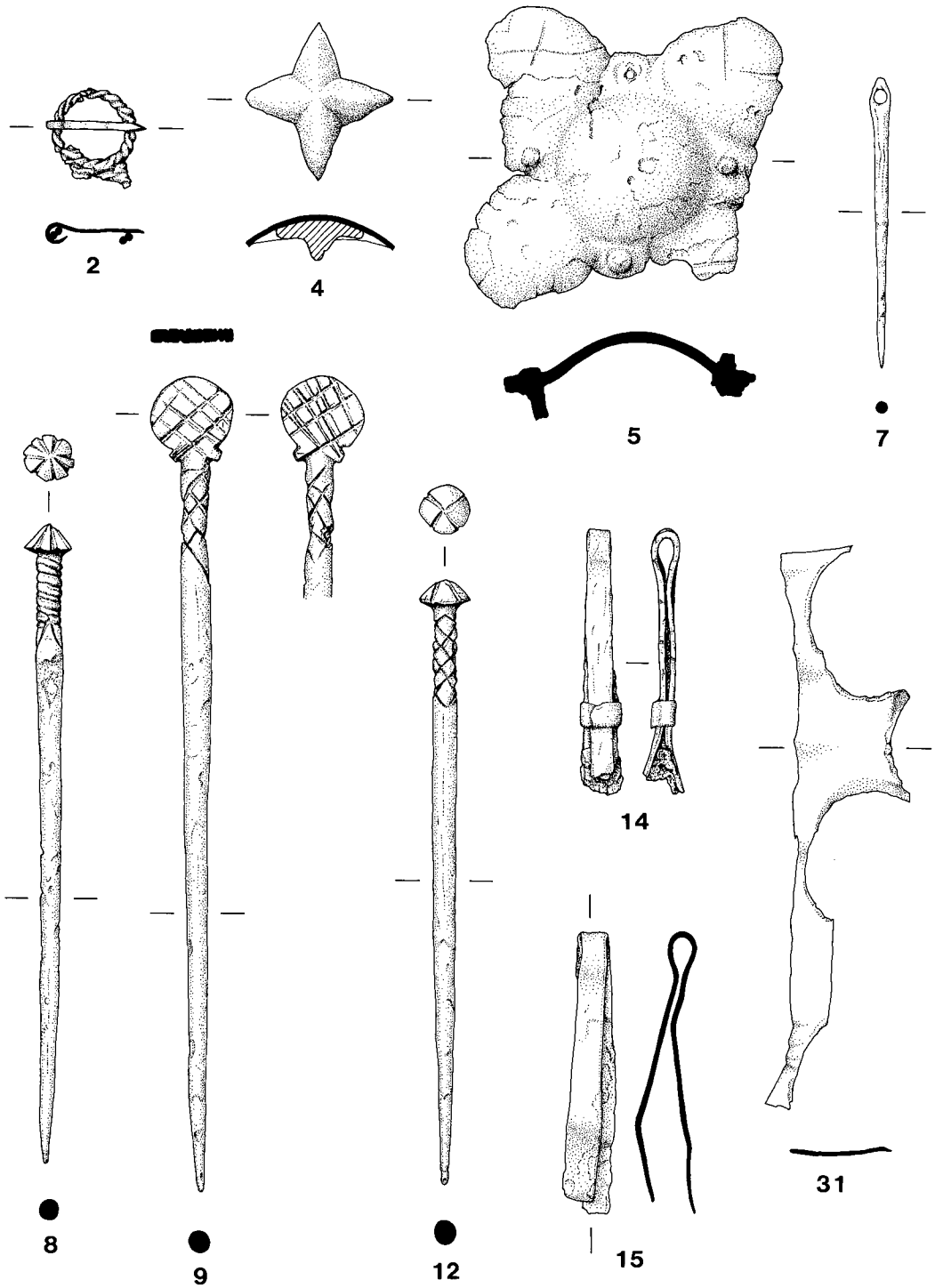
Numbers 8–12 are decorated pins. Numbers 8 and 12 are of very similar form and decorative style. Although there are distinct differences in the details of the decoration on the heads and shafts of these two pins, their styles appear to be variations upon a theme. A further variation occurs on a pin found in a 14th-century context at Meal Vennel, Perth (Cox 1996, 767–8). This example is very similar to no 8 in particular, but has only three grooves radiating from the apex of its head. A further pin belonging to this type was found at Aberdeen (Stones 1982, 187, fig 107, no 56). The style of decoration on Pin no 9 bears some similarity to that on nos 8 and 12, including patterns of crossed lines on the head and the upper part of the shaft. This is a larger pin, however, with a discoid, rather than conical, head.

8 **Pin** Length 94 mm; diameter of head 7 mm
Complete pin with a conical head and a tapering, circular cross-sectioned shaft. The head is decorated by eight radial grooves, converging at the apex. Below the head, the upper part of the shaft is decorated by a spiralling groove which terminates approximately 11 mm below the head. Below this is a pattern of crossed lines. The lower part of the shaft is undecorated.
Context 210; Find no 00970; Phase 7

9 **Pin** Length 121 mm; width of head 13 mm; diameter of shaft 4 mm
Complete pin with a roughly discoid head, with a small, blunted projection at either side of the top of the shaft. The shaft is of circular cross-section and is widest c 15 mm below the head, before tapering gradually towards the tip. Both faces of the head and the upper 18 mm of the shaft are decorated by incised, crossed diagonal lines.
Context 231; Find no 04664; Phase 6

12 **Pin** Length 90 mm; diameter of head 8 mm
Complete pin with a conical head and a circular cross-sectioned shaft, which is widest at approximately mid-shaft. The head is decorated by four radial grooves, converging at the apex. Below the head, the upper part of the shaft is decorated by a pattern of crossed, diagonal grooves which terminates approximately 16 mm below the head. The lower part of the shaft is undecorated.
Context 535; Find no 01337; Phase 4

Two pairs of tweezers of similar size but slightly different construction (nos 14 & 15) were found in Phases 5 and 6. Number 14, made from a thicker strip of copper alloy, has its arms enclosed by a movable loop, which would have secured the arms in position when closed around an object. Number 15 is representative of the simplest form of tweezers, examples of which have also been found at Goltho (Goodall 1975, 93, fig 44, no 35) and King's Lynn (Geddes & Carter 1977, 289, fig 130, no 30), although the latter example has slightly expanded terminals.



ILLUS 17 Copper-alloy objects (scale 1:1)

14 **Tweezers** Length 40 mm; width 6 mm; thickness 7 mm
Tweezers, with arms made from a folded strip. The arms are enclosed by a further strip near to the open end, at which they expand slightly and are broken. A corroded remnant of an iron object rests between the broken ends of the arms.
Context 172; Find no 00080; Phase 6

15 **Tweezers** Length 42 mm; max width 9 mm; max thickness 6 mm
Tweezers made from a single folded strip. One of the arms is angled. The object is distorted.
Context 465; Find no 01361; Phase 5

A variety of personal accessories could be suspended from a belt or strap by a fitting such as no 19. Bar mounts of this type, with pendent loops, would have been riveted onto the belt or strap, often in pairs, and purses, pouches and other items could be suspended from them.

19 **Strap fitting** Length 38 mm; width of strip 5 mm; diameter of loop 17 mm; thickness 7 mm
Mount of D-shaped cross-section, looped over at one end and rivetted, to suspend a nearly circular ring or loop. The ring or loop is of circular cross-section and has been made from a single piece of wire with its ends abutting. A further rivet perforates the mount at the opposite end. (Not illustrated)
Context 102; Find no 04044; Phase 6

A total of 28 offcuts of copper-alloy sheet were found, concentrated particularly in two features, a pit fill in Plot B in Phase 5 (eg nos 28–35) and trampled deposits at the rear of the same plot in Phase 6 (eg no 22). Offcuts from the former feature revealed evidence of the cutting or punching out of discs of metal with diameters of c 20–22 mm, from which small, circular mounts and bosses (artefacts such as no 1, above) could perhaps have been manufactured. Where these circular pieces have been cut from the sheet, the edges are rough and the metal has been depressed slightly, possibly indications that some kind of punch or saw was used rather than a blade. Most of the offcuts are in an excellent state of preservation, some even retaining a degree of flexibility. The thickness of each offcut was measured, and a thickness of 0.5 mm is predominant, with only small numbers of offcuts having greater or lesser thicknesses. The consistent use of a particular thickness of metal may be accounted for by several factors, including the most suitable thickness for the artefacts being manufactured, the amount of metal available and any rules laid down by external authorities such as the guild. Tradition may also have played a part.

22 **Sheet** Length 23 mm; width 20 mm; thickness 0.9 mm
Sheet fragment with trimmed edges. (Not illustrated)
Context 172; Find no 00076; Phase 6

28 **Sheets** Largest fragment: Length 97 mm; width 6 mm; thickness 0.5 mm
Ten pieces of offcut sheet, found together. All have trimmed edges and most are in the form of narrow strips. One broader sheet has been folded. (Not illustrated)
Context 465; Find no 01367; Phase 5

31 **Sheet** Length 80 mm; width 17 mm; thickness 0.5 mm
Sheet fragment with trimmed edges. Four of the edges are curved, possibly forming arcs of circles, indicating that roughly disc-shaped pieces were cut from the sheet and that this is the remnant. When the arcs are projected to form circles, diameters of c 20–22 mm are indicated.
Context 465; Find no 04031; Phase 5

32 **Sheet** Length 35 mm; width 12 mm; thickness 0.5 mm
Sheet fragment with trimmed edges. Two of the edges form arcs of circles. When the arcs are projected to form circles, diameters of c 22 mm are indicated. (Not illustrated)
Context 465; Find no 04032; Phase 5

35 **Sheet** Length 17 mm; width 16 mm; thickness 0.5 mm
Sheet fragment with trimmed edges. Two of the edges form arcs of circles and there is a recess formed by the cutting out of a subrectangular piece. (Not illustrated)
Context 465; Find no 04035; Phase 5

Lead alloy & tin objects (illus 18)

Artefacts of lead alloy include a probable brooch frame (no 43), with alternating zones of decoration. Brooches in which the pin is looped through a hole in the frame are less common than those in which the pin is attached to a constriction in it, but several examples are known from London (Egan & Pritchard 1991, 248). Two small lugs on the decorated face of no 43 may reveal something of the form of the mould in which this artefact was made, although their survival points to the possibility that this object is unfinished or represents a trial piece, made to test a mould in which copper-alloy brooches would be made. Also possibly representing part of a brooch, no 44 is a small loop made from tin, with a fragment of iron, possibly a remnant of a pin, attached to one part of its edge.

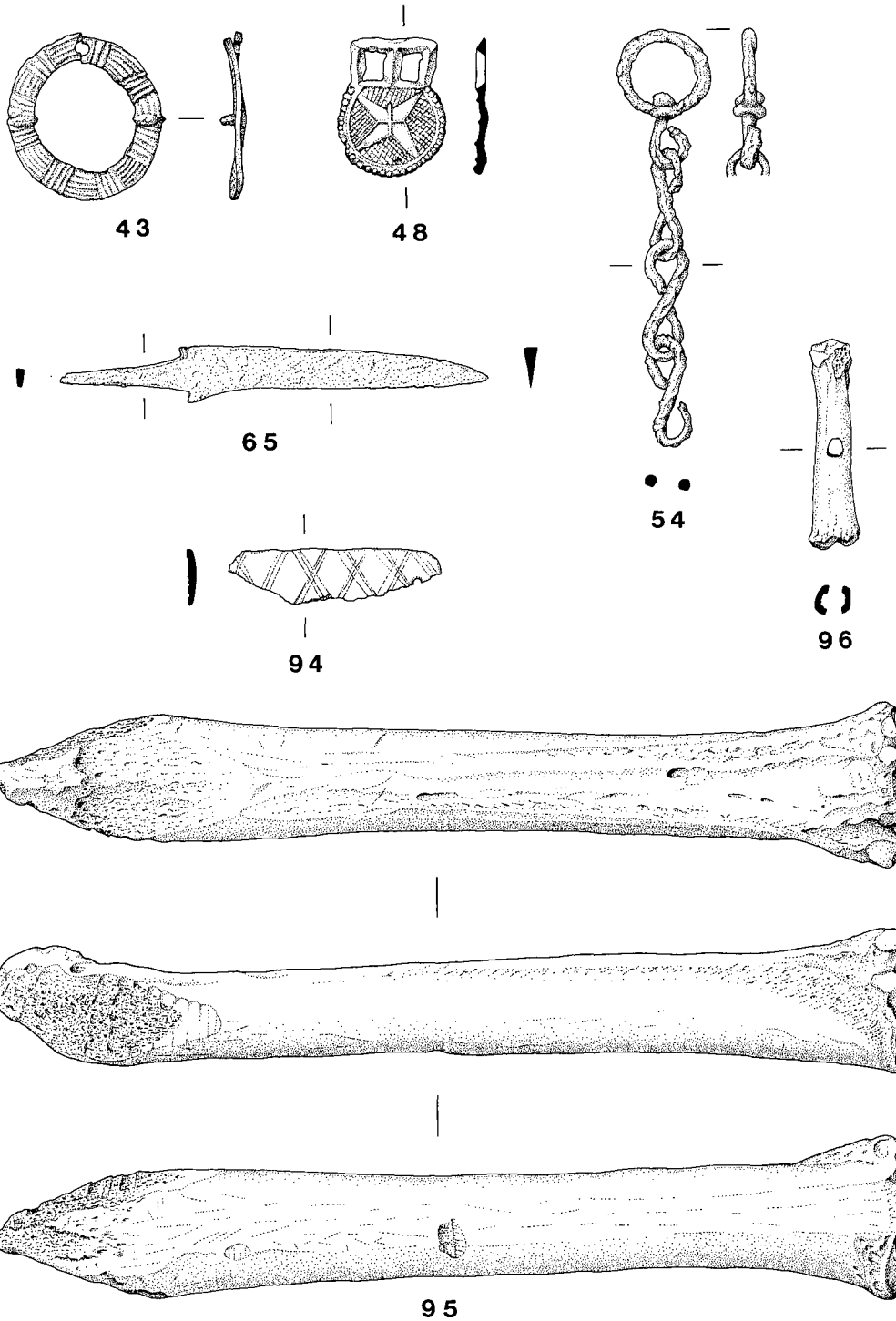
43 **Brooch?** Diameter 23 mm; max thickness 3 mm
Annular brooch or trial piece, probably of pewter, broken across a circular hole which would presumably have accommodated the missing pin. One surface is decorated by alternating bands of concentric and radial lines. Also on this surface are two small projections or lugs at opposite sides of the object. The reverse face is plain.
Context 465; Find no 01339; Phase 5

44 **Loop** Diameter 17 mm; thickness 2 mm
Distorted, circular loop, possibly from a small brooch, with a roughly oval cross-sectioned edge. A small fragment of iron is attached at one point on the circumference, possibly representing a remnant of a brooch pin. XRF analysis revealed that the loop itself is of tin. Heavily corroded. (Not illustrated)
Context 172; Find no 00094; Phase 6

This excavation produced the first example of a spangle from Perth since the 1975–7 excavation of 75–95 High Street (no 48). Spangles were made of pewter, and it is clear from their finish that they were manufactured in moulds (Egan & Pritchard 1991, 235). They are in the form of a thin disc with a rectangular projection incorporating two holes. The disc element carries a geometric or zoomorphic design. On no 48 the design is a geometric one, in the form of a four-pointed star with a central cross. An example incorporating zoomorphic design is among three found at the 75–95 High Street excavations (Bogdan, Goodall & Goodall, forthcoming).

Evidence from several excavations indicates that spangles were first manufactured and used as early as the late 12th century. One of those from the 75–95 High Street excavation was dated to the later 12th century by pottery and dendrochronology. Evidence from London suggests that spangles were still in use in the late 13th century or early 14th century (Egan & Pritchard 1991, 237). No development in the style of the designs on the spangles is detectable over this late 12th-century to early 14th-century period. Found in a pit fill in Plot B, assigned to Phase 5, no 48 would appear to belong to the latter part of this date range.

The function of these small objects is not fully understood. As badges of authorization, their small size would have rendered them quite inconspicuous (*ibid*, 237). The style of their decoration appears to coincide with a range of designs which were popular for brooches, rings and other items of personal adornment, and it may be that they functioned as just one of many types of such adornments.



ILLUS 18 Lead-alloy, iron & bone objects. Nos 43 & 48 scale 1:1; Nos 54, 65, 94–96 scale 1:2

48 **Spangle** Length 19 mm; width 15 mm; thickness 0.9 mm
Spangle in the form of a circular sheet with a rectangular projection from the upper edge. The projection has bevelled edges and two rectangular perforations. The circular area bears moulded decoration, central to which is a four-pointed star with a cross at its centre. The area outwith the star is decorated by cross-hatching and the circular area is bordered by beading around the edge. The reverse face is plain.
Context 465; Find no 01340; Phase 5

Iron objects (illus 18)

Iron objects from the excavation include a range of household items, structural fittings, horse equipment and implements. The site did not produce large quantities of ferrous metal working debris, and it appears unlikely that smithing took place here on anything more than a very small scale, if at all. However, the presence of a group of un-used roves indicates that components of objects were brought to the site for assembly and use there.

A socketed arrowhead of slender form (no 51) came from Phase 2 and may be of 12th- or 13th-century date. Socketed arrowheads with leaf-shaped points have been found at other Scottish medieval sites, eg Threave Castle, Galloway (Caldwell 1981, 112, fig 12, nos 108 & 109).

51 **Arrowhead** Length 66 mm; max width 10 mm; diameter of socket 8 mm
Socketed arrowhead with a slender, leaf-shaped point. (Not illustrated)
Context 1076; Find no 04029; Phase 2

Number 53 is a probable example of a pricket-type candlestick. Unlike socketed candlesticks, which have a socket into which a candle could be inserted, pricket candlesticks incorporate a spike onto which a candle could be impaled. They also have a pointed shaft, for driving into wood or into crevices in stonework. Scrolls or loops, which occur on some examples, including this one, appear to have served a largely decorative function. Six candlesticks of this type were recovered from excavations at Meal Vennel (Cox 1996, 774–5), where they may have been used to light smithing workshops.

53 **Candlestick?** Length 103 mm; width 26 mm; thickness 17 mm
Possible pricket-type candlestick. The object appears to have a central spike between two side components which terminate in scrolls or loops. It is very heavily corroded. (Not illustrated)
Context 1168; Find no 04038; Phase 2

Swivel rings were used on the ends of chains, affording greater manoeuvrability to suspended objects. They were also used in tethering horses, as is suggested from four examples from Urquhart Castle (Samson 1982, 466, nos 3–6). Number 54 is a rare example of a swivel ring with a connected length of chain.

54 **Chain & swivel ring** Total length 120 mm; length of longest chain link 35 mm; diameter of ring 27 mm
Object consisting of three connecting, S-shaped chain links and a swivel ring.
Context 465; Find no 01370; Phase 5

Two clench bolts (eg no 56) were found in Phase 6. Clench bolts were used to secure double thicknesses of timber, and were used in the construction of buildings, boats and various plank-built structures. Each consists of a nail, which would be driven through the timbers, and a rectangular or diamond-shaped plate called a rove, which would be positioned over the tip of the nail. The nail would then have been bent over to secure the fastening. A strip of unused roves was also recovered from Phase 6 (see no 69, below).

56 **Clench bolt** Length 16 mm; max width of rove 36 mm
Clench bolt consisting of a circular headed nail with a rectangular cross-sectioned shaft, and a diamond-shaped rove. (Not illustrated)
Context 372; Find no 01062; Phase 6

Hasps were used in conjunction with staples and padlocks to fasten doors and gates or to secure the lids of chests and boxes. Number 57, of elongated, figure-of-eight form, was found in a context of probable 14th-century date. Two figure-of-eight hasps of 16th- or 17th-century date were found in excavations at Meal Vennel (Cox 1996, 781).

57 **Hasp** Length 148 mm; width 27 mm; thickness 7 mm
Hasp of elongated figure-of-eight form, with rectangular cross-sectioned sides. (Not illustrated)
Context 172; Find no 00085; Phase 6 .

Four incomplete horseshoes were recovered from Phases 6 to 8. The most complete (no 61) has a pronounced sinuous outline and rectangular nail holes in deep, oval countersinkings. Shoes of this type from London (Clark 1995, 95) date from the 12th and 13th centuries, although examples of slightly later date have been found elsewhere, for instance in Exeter (Goodall 1984, 338). Coming from Phase 6, no 61 is likely to be of 14th-century date, although it could possibly be a residual find.

61 **Horseshoe** Length 111 mm; width 99 mm; thickness at calkin 16 mm
Nearly complete horseshoe with a pronounced sinuous outline. There are six nail holes, arranged symmetrically in two groups of three. Each hole is rectangular, with deep, elongated countersinkings. One calkin, of heavy, rectangular cross-sectioned form, survives. (Not illustrated)
Context 409; Find no 01636; Phase 6

Four knife blades were found. Two of these survive only as small fragments and are of uncertain type. The more complete examples (nos 62 & 65) are of whittle tang type. Blade no 65 is slightly distorted along its length and this may account for its discard. Some knives were also discarded when the steel cutting edge had worn away through use and only the softer ferritic iron remained.

62 **Knife** Length 65 mm; width 13 mm; thickness 5 mm
Blade and tang fragment from a whittle tang knife. The blade back is straight and the blade widens at its junction with the tang. The tip is missing. (Not illustrated)
Context 153; Find no 04028; Phase 6

65 **Knife** Length 124 mm; width 16 mm; thickness 4 mm
Complete blade and tang of whittle tang type. The blade edge has a concave curvature near to its junction with the tang but is otherwise nearly horizontal. The blade back slopes forward. The blade is distorted along its length.
Context 917; Find no 01836; Phase 3

Two fragments of barrel padlocks were recovered. Number 67 represents the casing of a padlock, decorated by vertical ribs and originally plated with copper alloy. This object appears to have been damaged by pressure or a blow to the casing, hence it may have been deliberately broken open. No 68 is a small fragment of a padlock's casing attached to part of its internal spring mechanism.

67 **Padlock casing** Length 59 mm; diameter 35 mm
Casing from a barrel padlock of cylindrical form. Only one of the circular end plates survives intact. This has three roughly square holes through it. Part of the side of the casing and the opposite end plate are missing. Regularly-spaced, vertical ribs decorate the external surface of the casing, and

occasional traces of copper-alloy corrosion products on this surface indicate that it may have been plated. (Not illustrated)
Context 235; Find no 00925; Phase 6

68 **Padlock fragment** Length 44 mm; width 30 mm; thickness 15 mm
Fragment of a barrel padlock of roughly cylindrical form, consisting of parts of the casing and the internal spring mechanism. The external surface of the casing is decorated by shallow, vertical ribs, between which are raised, horizontal bands. Traces of copper-alloy corrosion products on the external surface indicate that the lock was plated. Part of the spring mechanism survives *in situ* within the body of the lock. Very heavily corroded. (Not illustrated)
Context 917; Find no 01947; Phase 3

A strip of three uncut roves (no 69) came from Phase 6. Diagonal grooves were scored across the strip, probably by the use of a chisel, so that individual roves could be broken off and used. On one example, the hole has been incompletely punched, which would have made the object difficult to use. Roves were used in conjunction with nails in forming clench bolts (see no 56, above), to secure double thicknesses of timber.

69 **Roves** Total length 62 mm; width 19 mm; thickness 3 mm
Set of three uncut, diamond-shaped roves, one of which is fragmentary. The roves are still joined edge to edge, forming a strip. One has a circular hole through its centre; another has an incomplete hole. (Not illustrated)
Context 378; Find no 01075; Phase 6

From a midden deposit at the rear of Plot B in Phase 6 came a heavily corroded fragment from a pair of shears (no 70). Shears may have had a multiplicity of uses in the medieval period. Larger examples were used for shearing sheep and napping cloth. Smaller examples would probably have been used for a range of domestic functions such as cutting hair or thread.

70 **Shears** Individual blades: Max length 52 mm; max width 16 mm; thickness 3 mm
Fragment of a pair of shears, consisting of the middle sections of both blades, attached by corrosion products. Heavily corroded. (Not illustrated)
Context 414; Find no 01131; Phase 6

Two fragments representing the terminals of spur arms (eg no 72) were found in a pit fill in Plot B. Both have figure-of-eight terminals, to which spur leathers and their accompanying buckles would have been attached.

72 **Spur** Length 52 mm; width of terminal 12 mm; max thickness 5 mm
Spur fragment with figure-of-eight terminal. The terminal is perforated by two rivets *in situ*. (Not illustrated)
Context 465; Find no 01355; Phase 5

Commonly found on medieval sites, U-shaped staples such as no 73 could be used in conjunction with hasps (see no 57, above) to fasten the lids of chests and boxes. Larger staples were used to fasten doors and gates. Similar forms appear to have been in use over a considerable period of time.

73 **Staple** Length 59 mm; width 29 mm; thickness 6 mm
Complete, U-shaped staple with square cross-sectioned arms, each terminating in a point. (Not illustrated)
Context 465; Find no 01237; Phase 5

Bone & antler objects (illus 18)

with species identification by C Smith

Derived from an ungulate rib, no 94 appears to represent either part of a scale from a scale-tanged knife or other implement, or part of a side plate from a composite comb. Its form and size point to the former identification as perhaps the more likely. It has been rather crudely decorated by incised, crossed diagonal lines.

94 **Scale or side plate** Length 61 mm; width 16 mm; thickness 2 mm
Derived from an ungulate rib, split longitudinally. Scale, side plate or mount fragment with one surviving long edge and part of one short edge. The other edges are broken irregularly, possibly across a circular rivet hole near one end. The external surface is decorated by a series of roughly incised, crossed lines in sets of three. The medullary structure of the bone is exposed on the reverse side.
Context 96; Find no 02505; Phase 7

Recovered from a levelling deposit in Plot A, no 95 is an ice-skate, fashioned from a horse metapodial. The original bone has been modified to give the skate a pointed, upswept toe. This feature would have ensured that the skate would be less affected by irregularities in the surface of the ice and may have proved useful in light snow (MacGregor 1976, 59). The anterior surface of the bone has been smoothed, perhaps partly through use. The minimal amount of abrasion indicates that the skate had been used only for a short time, if at all.

Many of the skates found in Britain and northern Europe are modified on their posterior surfaces to improve the foothold of the wearer. Many also have holes for their attachment to shoes by means of straps or cords. Number 95 has neither of these modifications, both of which would have been optional. Since the friction between the skate and the ice would be lower than that between the skate and the foot, the body weight of the skater would normally have been enough to hold the skates in position (*ibid*, 61).

95 **Skate** Length 270 mm; max width 46 mm; max thickness 39 mm
Derived from a horse right metatarsal. The lateral and medial surfaces have been diagonally sawn at the distal end to form a pointed toe. The anterior surface has been smoothed, possibly with a plane or draw-knife, removing projections at the epiphyses and giving an upswept profile to the toe. There is a further hack mark on the anterior surface at roughly mid-shaft. The posterior surface is unmodified.
Context 633; Find no 01592; Phase 5

Number 96 is a left metatarsal of a pig, modified by a single perforation cut through the centre of the shaft. These objects are fairly common finds on medieval sites and have been variously interpreted as bobbins, clothes fastening devices and musical toys. This latter interpretation gives rise to the term buzzbone (Lund 1981, 256–7), and Fenton (1978, 503–4) describes the custom in the Northern Isles for children to claim pig metapodials for making a toy called a snorie bane, so called because of the snoring sound it made when rotated quickly by means of a twisted cord fastened round it. No diagnostic wear traces which might point to a particular function are visible on no 96. Scottish parallels include examples from Meal Vennel, Perth (Cox 1996, 787), St Nicholas Farm, St Andrews (Cox 1995, 64, illus 11, no 20) and Cinema House, St Andrews (Maxwell forthcoming).

96 **Toggle or buzzbone** Length 59 mm; width 14 mm; thickness 13 mm
Derived from a pig left metatarsal IV. The proximal facet has been trimmed on the posterior medial aspect. A circular hole has been bored through the mid-shaft in an antero-posterior direction. The distal epiphysis is unfused.
Context 535; Find no 02538; Phase 4

Small numbers of sawn red deer antler offcuts were recovered from throughout the stratigraphic sequence, indicating long-term (if perhaps small-scale) use of this material for artefact manufacture on or near this site. Of a total of 14 antler offcuts recovered, six were found in Phase 2 and represent some of the earliest evidence for workshop-based or craft activity from the excavation. The occurrence of two cast or shed antler burrs (nos 98 & 100) indicates that the deliberate collection of antlers took place.

One of the antler tines (no 111, from Phase 6) has a roughly circular hole drilled in its base, possibly to receive the tang of an implement of some kind. The tip of this tine has also been modified by trimming with a knife.

98 **Offcut** Length 63 mm; width 61 mm; thickness 63 mm
Red deer antler, cast burr and beam with brow tine. The beam and tine have been sawn. (Not illustrated)
Context 101; Find no 02530; Phase 6

100 **Offcut** Length 62 mm; width 78 mm; thickness 64 mm
Red deer antler, cast burr and beam with brow tine. The beam and tine have been sawn. (Not illustrated)
Context 735; Find no 02531; Phase 4

101 **Offcut** Length 62 mm; width 20 mm; thickness 15 mm
Red deer antler tine, sawn across the base. There are also saw marks across the longitudinal axis of the tine. (Not illustrated)
Context 928; Find no 02533; Phase 3

106 **Offcut** Length 65 mm; width 13 mm; thickness 4 mm
Derived from red deer antler. The internal face has been sawn and the external face probably filed smooth. The short edges of the offcut have been sawn parallel to the base of the antler. (Not illustrated)
Context 1125; Find no 02545; Phase 2

109 **Offcut** Length 206 mm; max width at base 46 mm; max thickness at base 30 mm
Red deer antler. Two crown tines, sawn across the base, leaving a small lug at one edge. There is a series of short knife cuts in the angle between the tines and there are further short knife cuts on one side of the larger tine. Both tines have been pared lightly, although their tips are unmodified. (Not illustrated)
Context 1125; Find no 02548; Phase 2

111 **Unfinished artefact?** Length 149 mm; width 29 mm; thickness 25 mm
Red deer antler tine, sawn across the base. The central core has been removed to a depth of c 18 mm at the base, leaving a roughly circular hole of c 12 mm diameter. The tip of the tine has been trimmed to a point, probably with a knife. The remainder of the tine is unmodified. (Not illustrated)
Context 129; Find no 02532; Phase 6

Stone objects (illus 19)

Artefacts of stone include two (possibly three) hones, three spindle whorls and a mould for casting a series of rings. A small, oval slate disc and a quernstone fragment were also recovered, from Phase 6 and Phase 3 respectively.

Two hones and a possible third candidate were found. Hones can vary greatly in size, depending on their intended function and requirements of portability. The two illustrated examples (nos 113 & 114) are very different in size and form but both appear to be derived from the same type of hard, fine-grained, micaceous rock.

The largest of the hones (no 113) was found in two conjoining fragments from different contexts. Both contexts were parts of midden deposits at the rear of Plot B in Phase 6. This long, narrow hone would probably have been used in a workshop and appears to have been well used, having been worn thin along two parts of its long edges by the repeated sharpening of blades. While one face was used for blade sharpening, the opposite face (illustrated) appears to have been utilized for the sharpening of points (eg of awls, pins, needles or knives): a groove apparently representing this type of wear runs along the middle of this face for approximately one third of its length. The hone has fractured across one of the zones worn thin by blade sharpening. The larger hone fragment may have continued in use after the other had been discarded, with only its central section being utilized. Along the line of fracture, however, there is no evidence of the further use of either fragment after the break had occurred.

A much smaller hone (no 114) was found in a pit fill in Phase 4. This example has been perforated so that it could be suspended from a belt and worn about the person. It too exhibits evidence of considerable wear from repeated use for sharpening blades, and has fractured across its thinner end.

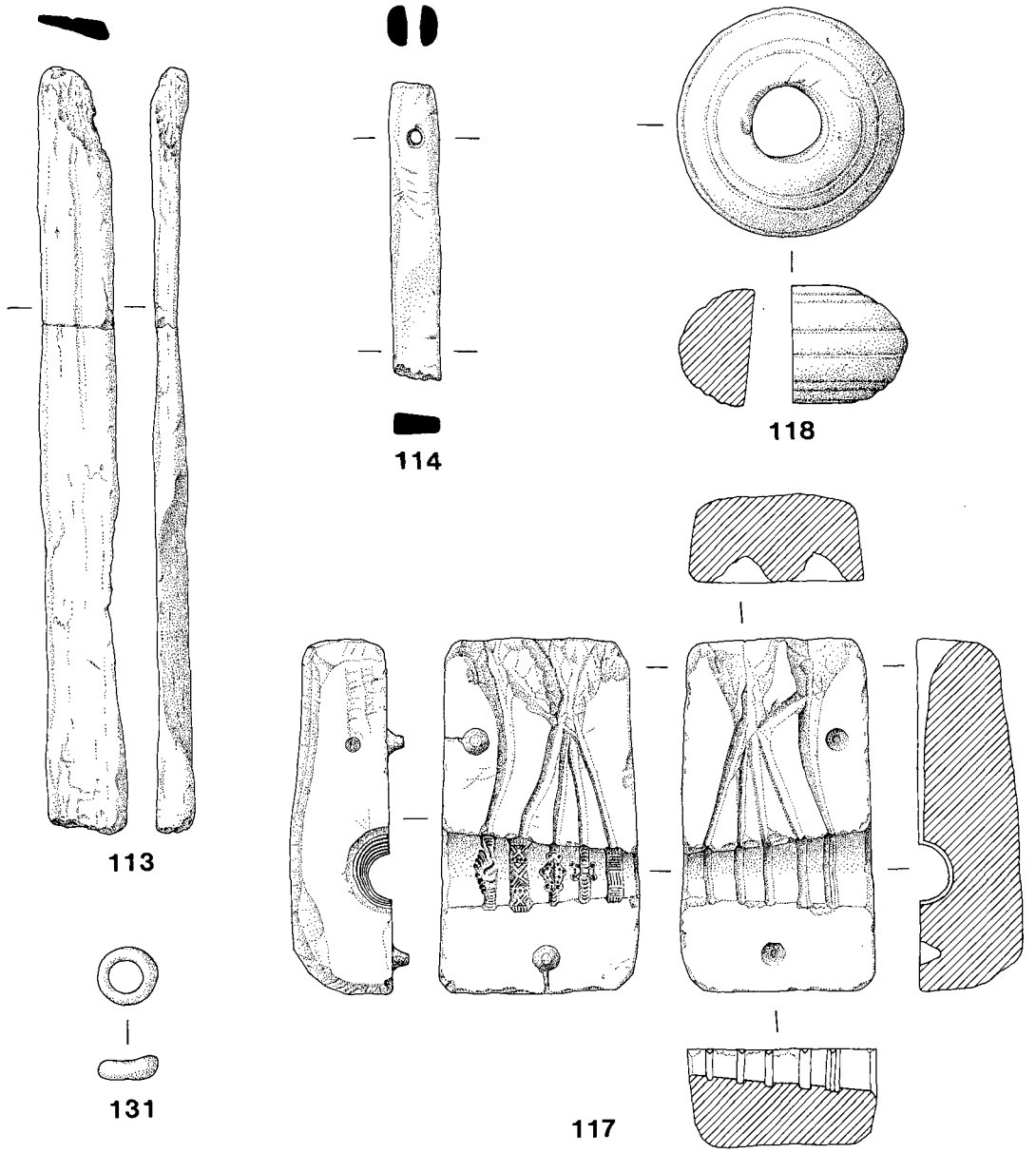
113 **Hone** Length 428 mm; width 44 mm; thickness 20 mm
Slender, sub-rectangular cross-sectioned hone, in two conjoining fragments which were recovered from different contexts. There has been very little abrasion in the area of the fracture. On one face, the object has been worn down in two areas on opposite long edges. In one of these areas, the edge has been almost completely worn away. On the reverse face, the main feature is a central, linear groove, which may have resulted from the sharpening of pointed tools.
Contexts 330 and 414; Find no 01132; Phase 6

114 **Hone** Length 82 mm; width 13 mm; max thickness 11 mm
Sub-rectangular cross-sectioned hone, tapering in thickness towards a broken end. At the other end the object is perforated for suspension. Both sides of the object are worn below the hole.
Context 535; Find no 01348; Phase 4

Two components from a ring mould (no 117) were found in Phase 6, one in trample deposits in Plot B and the other in the fill of a pit in Plot C. The piece from Plot B, in particular, was associated with several artefacts indicative of workshop-based, non-ferrous metal working, for example a cluster of copper-alloy brooches (no 2), several sheet offcuts (eg no 22) and pieces of lead-alloy waste.

The mould would have enabled the production of five different rings, the forms and sizes of which may be ascertained from an examination of their templates within the mould. Each of the rings would be of D-shaped cross-section, with a convex outer edge and a flat inside edge. The smallest of the rings would be decorated on only half of its circumference by five zones of linear ridges, with each set of ridges running at 90° to the adjacent set. The second ring in the sequence would also be decorated on just half of its circumference. It would have an external diameter of 17 mm and an internal diameter of 15 mm. The decorated part of the hoop would have a roughly equally spaced series of ridges running across it, and the ring would have a roughly square, central bezel. A rectangular indentation at the centre of this bezel may have been intended as a setting for a stone or glass paste, and a small, raised pellet would appear at each corner of the bezel.

The third ring bears some similarity to the second, having the same style of decoration on the hoop and incorporating a central bezel, in this case diamond-shaped rather than square. A



ILLUS 19 Stone objects & glass bead. Nos 118 & 131 scale 1:1; Nos 114 & 117 scale 1:2; No 113 scale 1:4

series of raised pellets would decorate the bezel, with a further two at each of its 'shoulders'. This ring would have an external diameter of 18 mm and an internal diameter of 16 mm. In form, the fourth ring is similar to the first, but is larger, perhaps accommodating the customer who approved of the design of the first ring but required a larger size. This fourth ring has an external diameter of 21 mm and an internal diameter of 19 mm. The decoration consists of seven zones, the central five of which alternate between narrow bands of raised pellets and broader ones decorated by saltires.

The fifth type of ring produced in this mould is the largest, thickest and the only one of the five to be decorated around its full circumference. The main decorative feature of this ring would be the depiction of a pair of clasped hands in relief. This central design is bordered by a series of closely-spaced ridges across the hoop, terminating half way around its circumference. The rear part of the hoop would be decorated by ridges running parallel to its edges. The ring would have an external diameter of 22 mm and an internal diameter of 20 mm.

Moulds for casting metal artefacts have rarely been found in Perth, despite abundant evidence for non-ferrous metal working activities both from this excavation and from Meal Vennel (Cox 1996). However, a mould of similar construction to no 117, used to manufacture annular brooches, was found in a 13th-century context at 75–95 High Street (Bogdan, Goodall & Goodall forthcoming).

117 **Ring mould** Length 97 mm; width 53 mm; thickness 56 mm
Incomplete mould for the casting of rings, consisting of two interlocking components which were recovered from separate contexts. Wide-mouthed channels have been cut into each component to receive molten metal. The channels terminate in a tapering, circular-edged hollow, each channel leading into a template for a ring. Five rings of different size and design would have been produced in each casting.

One mould component bears decorative carving within each ring template. The other component, forming the lower part of each ring, has four plain templates, the fifth being grooved. The surviving mould components were joined when in use by lead plugs. These project from one component, corresponding with receiving holes in the other. The plugs were formed by pouring molten lead through channels which open to the exterior surface of the mould while the two components were joined. The missing component of this mould was a tapering, cylindrical piece which would have been encircled by each ring.
Contexts 129 and 172; Find no 00081; Phase 6

The three spindle whorls from the excavation came from Phases 5 and 6. Number 118 is decorated by a series of incised lines, encircling the central hole, while the other two whorls are undecorated. The largest and heaviest of the three (no 120) appears to have been rather roughly fashioned.

118 **Spindle whorl** Diameter 30 mm; thickness 15 mm; diameter of hole 11 mm
Spindle whorl of shallow bi-conical form, with a central, circular hole. The surface is decorated by seven narrow, incised, concentric rings. Some wear is evident around the edges of the hole.
Context 172; Find no 00072; Phase 6

119 **Spindle whorl** Diameter 30 mm; thickness 20 mm; diameter of hole 10 mm
Spindle whorl with a central, circular hole. The surface is plain and shows signs of pitting and erosion. (Not illustrated)
Context 372; Find no 00991; Phase 6

120 **Spindle whorl** Diameter 34 mm; max thickness 22 mm; diameter of hole 11 mm
Spindle whorl with flat upper and lower surfaces and a central, circular hole. The object has been roughly fashioned, being slightly thicker on one side than on the other and the sides retaining tool marks. It is possibly unfinished. (Not illustrated)
Context 567; Find no 01567; Phase 5

Ceramic crucible and mould fragments

Five crucible fragments were found, two coming from Phase 5 (eg no 127) and three from Phase 6 (eg no 125). All are in a reduced, partially vitrified fabric. The fabrics of crucibles are almost invariably reduced, as metals must be melted under reducing conditions to prevent them from being oxidised and lost into the crucible slag (Bayley 1992, 3). X-ray fluorescence analyses of the

metallic residues and slags adhering to these fragments indicated that they had been used to melt lead and copper alloys.

A fragment of a mould core (no 128) was also used in the casting of objects of lead and copper alloy. It was made from a coarse clay fabric with abundant organic inclusions, as such a fabric would possess the required thermal properties. Mould cores such as this one could be removed from a mould and reused; however, small fragments of the core can become detached as it is removed, and that may have occurred in this case. A possible use in the manufacture of needles or pins is indicated by the size and form of the channels in no 128.

125 **Crucible** Larger fragment: Length 29 mm; width 25 mm; thickness 12 mm
Two fragments of a crucible in moderately coarse, partially vitrified, grey to black fabric, found in close association and interpreted as probably being from a single object. There is a vitreous deposit on the convex surface. XRF analysis revealed that the crucible was used to melt a leaded brass. (Not illustrated)
Context 138; Find no 00022; Phase 6

127 **Crucible** Length 34 mm; width 30 mm; thickness 11 mm
Crucible fragment in a moderately coarse, partially vitrified, grey to black fabric. The fragment is curved and may be from the base of the crucible. XRF analysis revealed that metallic residues adhering to the interior surface were of a lead-copper alloy with traces of zinc, mercury and tin. (Not illustrated)
Context 567; Find no 01682; Phase 5

128 **Mould core** Length 65 mm; width 29 mm; thickness 8 mm
Part of a core from a casting mould, in a coarse, reduced fabric with abundant grass or straw inclusions. One long edge of the object survives intact but the other long edge and both ends are broken. Two channels of tapering, semicircular cross-section are cut into each face. Small fragments have broken away from the mould core around the edges of the channels. XRF analysis revealed that the object was used in the casting of a lead and copper alloy. (Not illustrated)
Context 526; Find no 01588; Phase 4

Ceramic building material

A single fragment of ceramic floor tile (no 129) was found in Phase 6. It is a corner fragment with a patchy, green to orange glaze on its upper surface. Also found in Phase 6 was a possible finial fragment (no 130).

129 **Floor tile** Length 112 mm; width 55 mm; thickness 20 mm
Corner fragment of a floor tile in a moderately coarse, oxidised, buff to orange, micaceous fabric. A patchy, green to orange glaze decorates the upper surface. (Not illustrated)
Context 233; Find no 02539; Phase 6

130 **Roof furniture?** Length 71 mm; width 49 mm; thickness 11 mm
Possible finial or other roof furniture fragment, in a coarse, buff to orange fabric with a patchy green glaze. The unglazed surface has a concavo-convex curvature. There are thumb impressions, forming a line, on the glazed surface. All the edges are broken. (Not illustrated)
Context 172; Find no 04042; Phase 6

Glass (illus 19)

A single glass bead was found in Phase 7. It is of annular form and made from green glass. Henderson (1986, 213) notes that beads of this form were probably made by winding filaments of glass around a tapering metal rod and then reheating the glass to cause the strands to fuse.

131 **Bead** Diameter 8 mm; thickness 3 mm
Roughly circular, green bead with a D-shaped cross-section and a slightly tapering, central, circular hole.
Context 72; Find no 02495; Phase 7

Amber

Fragments of an amber ring or bead (no 129) were found in a pit fill in Plot B, in which favourable conditions existed for the survival of this material. MacGregor (1982, 91) notes that the source of the raw amber used in York to support a well-established industry there in the Anglo-Scandinavian period was likely to ultimately have been the Baltic region, but that it could easily have been collected along the North Sea coasts of England, where it is washed up in some quantities. Medieval amber beads have been excavated previously in Canterbury (Henig & Woods 1988, 228) and Southampton (Harvey 1975, 276).

132 **Ring or bead** External diameter 14 mm; internal diameter 9 mm; thickness 3 mm
Ring or bead, now in several fragments and held intact by its original matrix. It is of circular cross-section and is now opaque and orange to brown. One part of its circumference is largely missing. (Not illustrated)
Context 465; Find no 01152; Phase 5

Coins

Nicholas M McQ Holmes

Only two coins were recovered from this site, both being in a poor state of preservation. The early Scottish sterling (no 133) represents an unusual find from an urban excavation, and it is unfortunate that it can not be identified more precisely.

133 Probably DAVID I, silver sterling, uncertain type (1135–53?).
Diameter 19.0 mm; weight 0.96 g; die axis uncertain.
obv: legend missing/illegible; crowned bust to right with sceptre. rev: legend missing/illegible; short cross moline, with pellet in each angle. Clipped and angular flan; much surface corrosion; apparently weakly struck or fairly worn. (Not illustrated)
Context 498; Find no 01208; Phase 4

134 English silver cut halfpenny, short cross, uncertain class (1180–1247), possibly Northampton mint; weight 0.28 g.
obv: illegible. rev: . . .. .ORh (?) .. Much corroded; accompanied by a skin of dirt and corrosion lifted from the reverse surface of a short-cross coin, possibly this one, bearing the incuse imprint of a cross and quatrefoil. (Not illustrated)
Context 162; Find no 00053; Phase 6

Textiles

Paul Harrison & Rob Janaway

The soil on the site was acidic, waterlogged and anaerobic, forming optimum conditions for the survival of protein based organic materials such as hair and wool. The site produced an assemblage of 17 fragments of woven textile, comprising 12 identifiable objects. Four of these, nos 135–8 are described below. In addition there are also 14 separate cords, of which six are silk, six are woollen and two are hair.

The textiles were cleaned with an aqueous solution of non-ionic detergent. Fibre identification was by transmitted light microscopy of fibre whole mounts using Euparal as a

mounting medium (Textile Institute, 1970). Where sample size allowed fibre diameter measurements were taken and the percentage of medullated fibres counted. This has enabled these samples to be assigned to the fleece types identified by Ryder (1981). A preliminary study of dye residue analysis was conducted utilizing the methodology of Walton & Taylor (1991). Sub-samples of yarn were detached and placed in a 50% aqueous solution of pyridine at 60°C, which would extract residues from direct or vat dyes. All the tests were negative for this type of dye. These samples were then discarded and fresh fibres were tested for mordant dyes using an extraction solution of 10% sulphuric acid in ethanol at 90°C. All 12 samples tested positive for mordant dyes, with madder being identified in a number of cases.

The textiles from Perth can be compared with those of a similar date published from London (Crowfoot *et al.* 1992). The London sites have produced just below 1000 samples, whereas the Perth group is very small. A comparison of weave showed that 1:1 plain weave was the most common in London, whereas at this site, the preference was for 2:1 twill, which was the second most popular textile from London. It is perhaps not surprising that the small assemblage from Perth differs considerably from the London material in both spin and weave. The London material was subject to a much more extensive programme of dye analysis than was possible with the limited Perth sample. Only 63% of London textiles had extractable dye residues, the Perth material gave a surprisingly high result, although this may be due to the small sample size. In both locations the most common identifiable dye residue was from madder.

135 **Textile** Length 140 mm; width 128 mm.
Fragment of 2:1 twill with cut, turned edges but no evidence of a hem, one edge shows evidence of a seam. The yarn is 0.4mm in diameter, Z spun, with a medium twist. Thread count 16/14 per cm. The fibres are of generalized medium wool type, with no medulla. Probably dyed with madder. (Not illustrated)
Context 465; Find no 01558; Phase 5

136 **Textile** Length 161 mm; width 64 mm.
Fragment of 2:1 twill. The yarn in one system is 0.6mm in diameter with a tightly twisted Z spin , the other is 0.6 mm in diameter with an S spin. Thread count 11/9 per cm. The fibres are of a fine wool with no medulla. Probably dyed with madder. (Not illustrated)
Context 1033; Find no 01857; Phase 2

137 **Textile** Length 420 mm; width 450 mm.
This is the largest textile found at this site. It is a sleeve constructed from three panels of identical cloth. These were joined by plain seams. A further fragment of cloth (320 mm by 150 mm) is probably part of the same sleeve, although now detached. The attachment to the body of the garment does not survive, so it is unclear whether it was a stitched or laced sleeve. The cuff is finished with a hem. The maximum circumference was 300 mm, the minimum is 460 mm, with a length of at least 525 mm. The weave is 2:1 twill with a count of 16–18/14–15 threads per cm. The yarn of both warp and weft are Z spun with a diameter of 0.4/0.5 mm.
Spun from a fine wool with no medulla. Probably dyed with madder. (Not illustrated)
Context 1041; Find no. 01868; Phase 3

138 **Textile** Length 330 mm; width 150 mm.
Fragment of 2:1 twill with plain selvedge. Thread count 16/12 per cm. The yarn is Z spun, 0.4–0.5 mm in diameter, from a general medium wool with 1–2% medullated fibres. There is evidence of a wool running stitch, with an average stitch length of 7 mm.
Probably dyed with madder. Associated with the woven textile is a two ply woollen cord 315 mm long by 2 mm thick, spun from generalized medium wool with 8% of fibres have a medulla. (Not ilustrated)
Context 1041; Find no 02487a; Phase 3

Leather (illus 20–23)

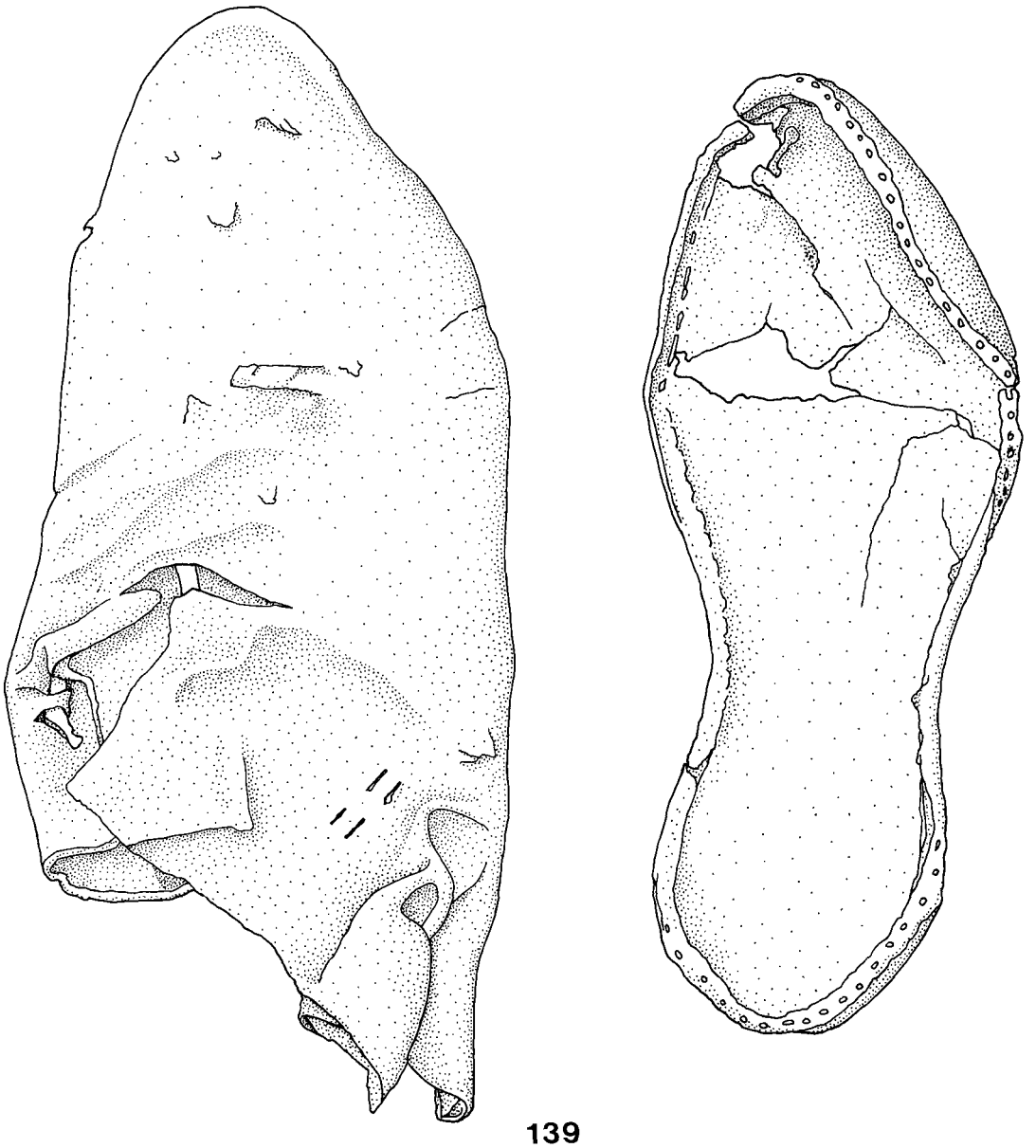
A total of c 900 pieces of leather was recovered, including 85 pieces from shoes (mostly fragmentary but including a small number of almost complete shoes), 45 belt and strap fragments, a possible scabbard, a small pouch or bag and a large quantity of offcuts and scraps. Leather finds occurred throughout Phases 3–6 in the waterlogged levels of the site. One of the largest concentrations occurred in peaty deposits within a possible animal pen in Phase 3, from which five shoes, 24 belt or strap fragments and numerous scraps were recovered. The presence, particularly in Phases 5 and 6, of large quantities of scraps and offcuts in pits, middens and other deposits, mostly at the rear of the plots, indicates the manufacture and/or repair of leather items on the site or in the close vicinity. The site lies close to medieval Skinnergate, thought to be a focal area for the production of leather goods in the burgh. Large quantities of leather objects were recovered from the deep, waterlogged deposits of the 75–95 High Street excavation site (Bogdan & Thomas forthcoming), which lies directly across High Street from this site. An assemblage of around 6000 items from the 1975–7 excavation included numerous shoes, among them children's footwear. A wooden patten for a child's shoe was also discovered. This would have raised the wearer up while walking in wet or muddy conditions.

In common with most of the medieval footwear from excavations in Perth, the examples from 80–86 High Street are mainly in the form of low ankle boots of turnshoe construction. These were made inside out, and when they were finished were turned the right way around so that the grain surface was on the outside. Two of the most complete shoes recovered (nos 139 & 140) are catalogued below and illustrated. In most cases only the soles survive (eg no 141) and a majority of these correspond to Type 3 as defined by Thomas (in Bogdan & Thomas forthcoming). This was the most common type represented at the 1975–7 excavation, dating from the 12th to the 14th centuries. Examples have been found at a number of other sites, including Oxford (Hassall 1976, 275–8) and York (Goodfellow & Thornton 1972, 97–104).

Nos 139 and 140 are shoes of similar form and are of almost identical length, however the sole of the latter is more slender at the waist. The uppers, though similar, exhibit different fastening styles. A small, angular piece of grit has penetrated the sole of no 140, and, as considerable pressure would have been required, it seems at least possible that this occurred during the use-life of the shoe and was one of the factors precipitating its discard.

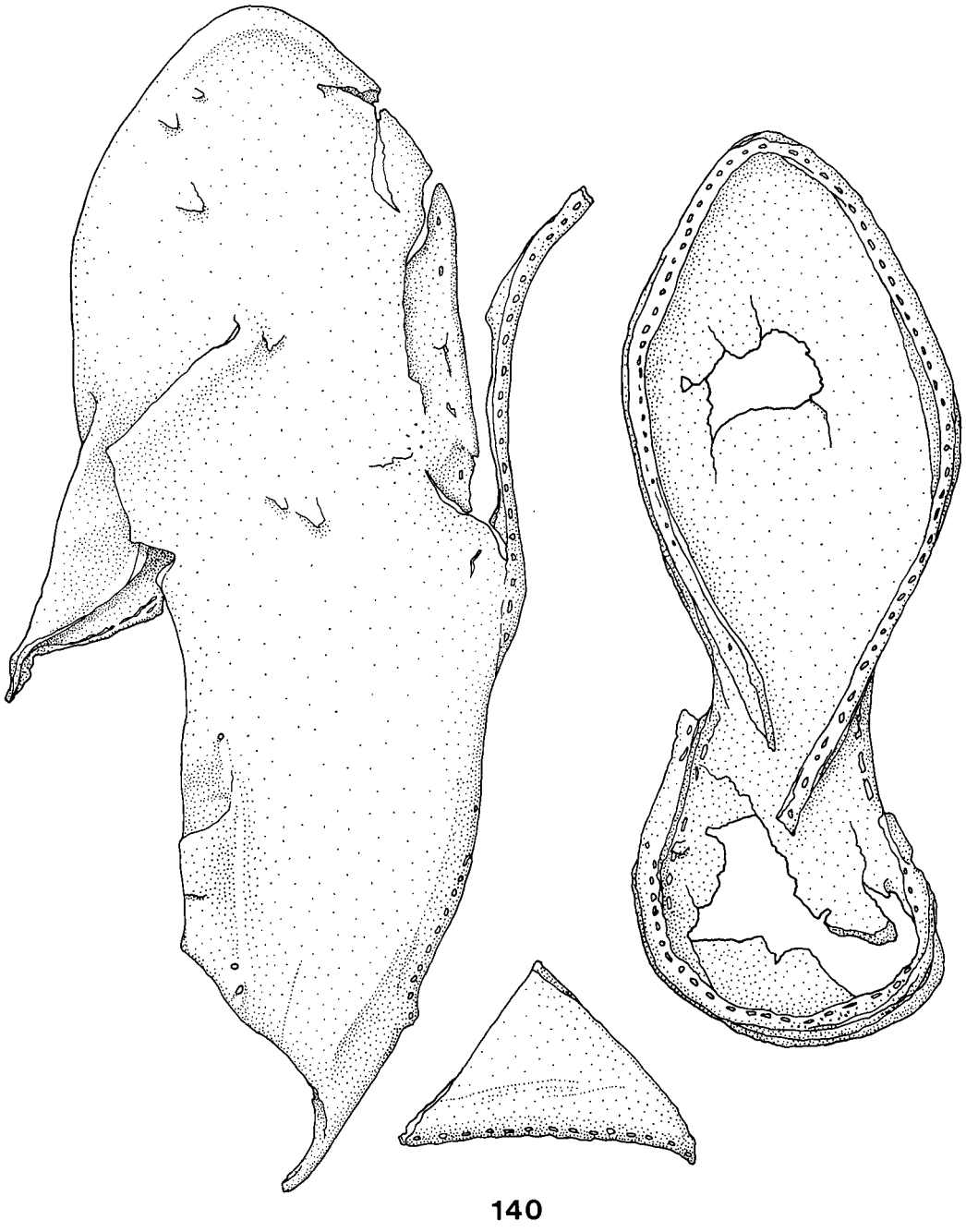
139 **Shoe** Length 258 mm; max width of forepart 102 mm; max width of seat 76 mm
Components of a right turnshoe, including the sole, upper, triangular insert and rand fragments. The Type 3 sole has a broad, gently curved forepart with an oval toe, and narrows at the waist (min. width 59 mm). The stitch length is 5–7 mm. The sole is worn, particularly across the centre of the forepart and at the toe, where there are holes, and is delaminated. The (Type B?) upper is less worn. It has a single tunnel hole, occupied by a thong fragment.
Context 465; Find no 01156; Phase 5

140 **Shoe** Length 257 mm; max width of forepart 92 mm; max width of seat 81 mm
Components of a right turnshoe, including the sole, upper, triangular insert and rand fragments. The Type 3 sole has a broad, gently curved forepart with an oval toe and a slender waist (min. width 43 mm). The stitch length is 6–7 mm. The sole is worn, particularly at the seat and the centre of the forepart, where there are holes, and is slightly delaminated. A small, angular piece of stone has penetrated the outer part of the sole just behind the waist. The (Type B?) upper is less worn. It has two sets of thong holes with a groove worn by the thong between them.
Context 465; Find no 01432; Phase 5

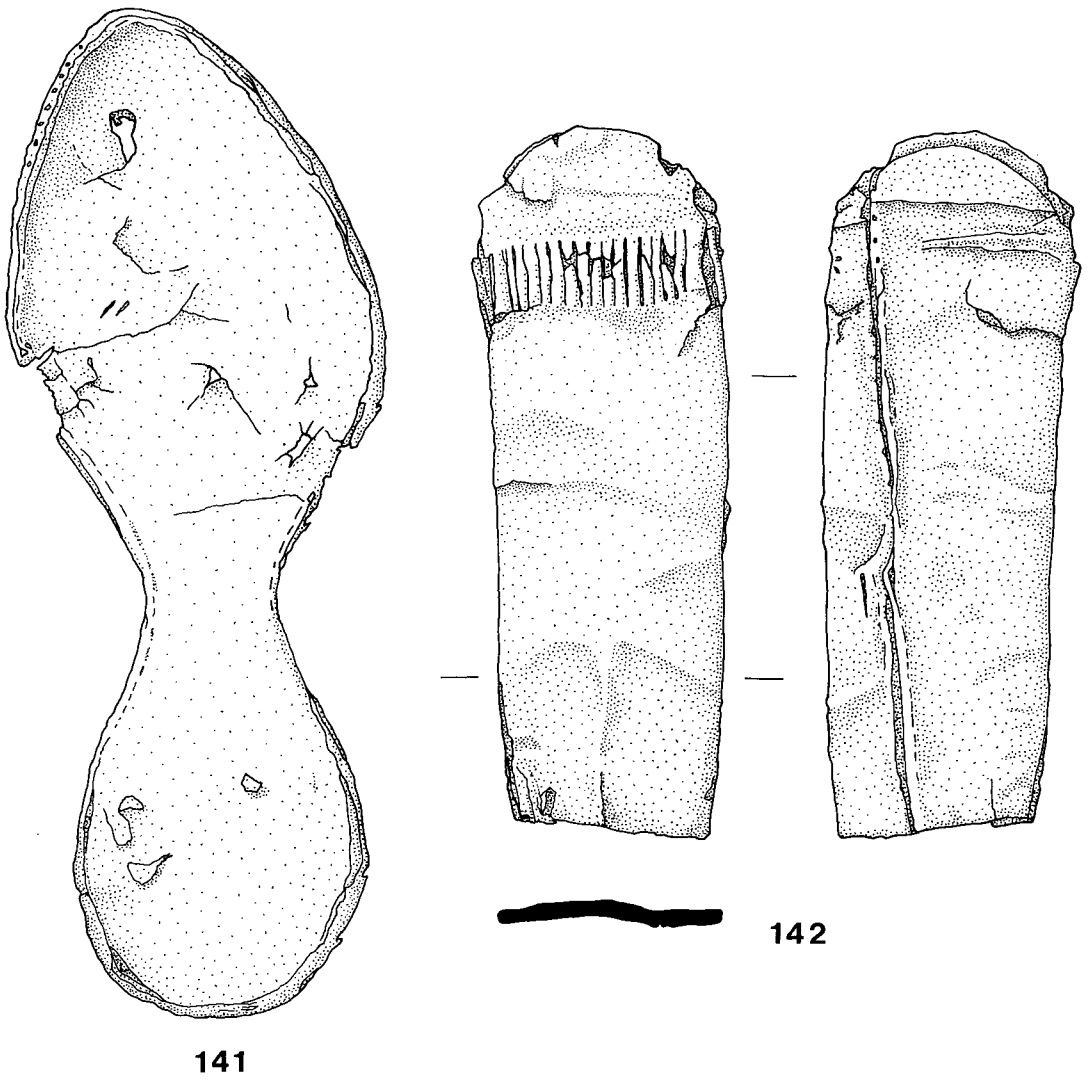


ILLUS 20 Leather shoe (scale 1:2)

141 **Sole** Length 269 mm; max width surviving of forepart c 97 mm; max width of seat
Sole of right turnshoe, Type 3 or 5. It has a broad, gently curving forepart with an oval toe, a narrow waist (min. width 34 mm) and a rounded seat. The stitch length is 5–6 mm. The centre of the forepart is worn and there is a small hole near the toe. Part of the underside is delaminated.
Context 398; Find no 01092; Phase 6



ILLUS 21 Leather shoe (scale 1:2)



ILLUS 22 Leather sole & possible scabbard (scale 1:2)

Part of a possible scabbard or sheath (no 142) was found in a pit fill in Plot B (Phase 5). It was made from a single piece of leather, folded once and stitched along a slightly oblique, butted seam. Perforations either side of this seam were possibly for attachment to a belt. The only decoration is in the form of a series of closely spaced, vertical slits near to the rounded terminal.

142 **Scabbard?** Length 188 mm; max width 62 mm; thickness 3 mm
Possible scabbard or sheath, gently rounded at the closed end and cut obliquely across the open end. A series of short, vertical slits (length 14–17 mm) form a horizontal zone across the front of the object and a butted seam runs up the back. It is slightly torn near the closed end.
Context 361; Find no 00989; Phase 5

The numerous strap or belt fragments from the site were mostly made by folding a single piece of leather inwards from both edges towards the centre, whereupon it was stitched along a butted seam. At least some of the straps were intended to be of short length (eg no 144) and probably represent horse harness gear rather than clothing items. Smaller, narrower straps, of which no 143 is a typical example, may have had a variety of uses, from securing components of horse harnesses to use on clothing or personal equipment. Number 145 is part of a narrow strap, ornamented with closely-spaced, metallic studs. X-ray fluorescence analysis of the studs revealed that they are plated with tin, hence they were certainly intended to be decorative. This fragment could be from horse harness or clothing. None of the straps was found with strap ends or buckles attached, possibly indicating that these were removed for recycling or re-use before straps were discarded.

143 **Strap** Length 86 mm; width 11 mm; thickness 4 mm
Strap fragment with one finished and one torn end, with lines of closely spaced stitching along its length, c 3 mm in from each long edge. Near the finished end is an elongated slit (length 8 mm). (Not illustrated)
Context 465; Find no 04656; Phase 5

144 **Strap** Length 243 mm; width 26 mm; thickness 7 mm
Strap formed from a single piece of leather, folded down each edge with a central butted seam. At one end a single thickness is folded back on itself and this end has six rivet holes through it. The opposite end is also perforated.
Context 1041; Find no 01862; Phase 3

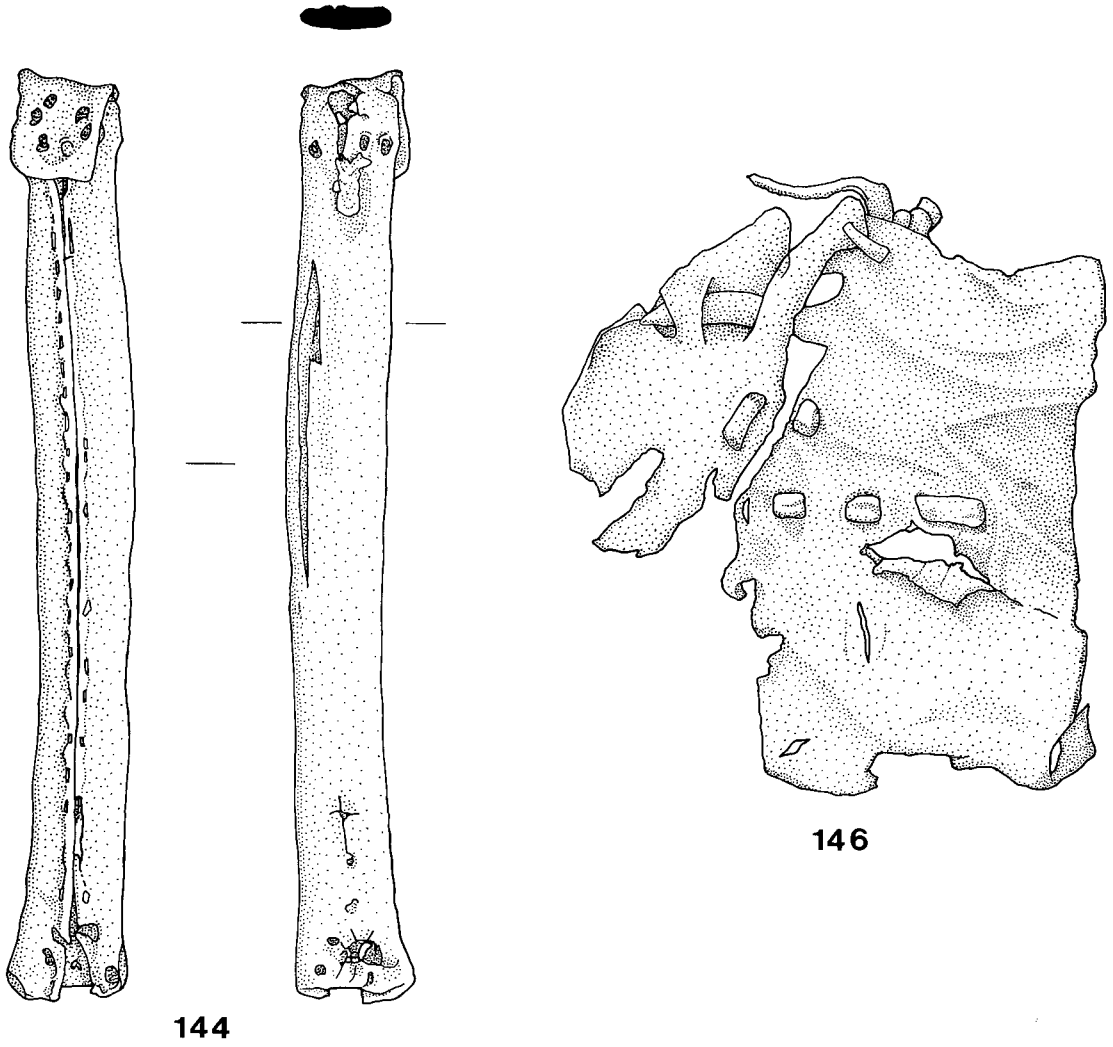
145 **Studded strap** Length 46 mm; width 8 mm; thickness 3 mm (6 mm including studs)
Narrow strap fragment with one finished and one torn end, with five holes along its centre, three of which are occupied by tin-plated, iron studs. Each stud has a plain, domed, circular head (diameter *5 mm) and a roughly rectangular cross-sectioned shank. The holes are between 9 mm and 12 mm* apart. (Not illustrated)
Context 465; Find no 01368; Phase 5

A small leather pouch (no 146) was found in a deposit of structured peat in Plot B (Phase 5). It appears to have been made from two pieces of leather, attached tightly together by thongs threaded through a series of slits in both pieces. The thongs would also have served as drawstrings to close the top of the pouch when in use, and perhaps to secure it about the person. At the base of the pouch is a tear, approximately 46 mm in length, which probably explains its discard. The two pieces of leather could indicate that the pouch had already undergone one repair, and perhaps a second repair would have been impractical. A small pouch such as this one may have been used to hold coins or other small objects. It is tempting to think of it as having belonged to the proprietor of a street frontage stall, who discarded it nearby when it had become torn and ceased to perform a useful function. The illustration shows the inside surface.

146 **Pouch** Length (open, as illustrated) 151 mm; surviving width c 130 mm; thickness of sides 2 mm
Pouch formed from two pieces of leather, secured by thongs, some of which are missing. In use, the grain side of the leather would have formed the outer surface, the flesh side the inner surface. The base is roughly torn.
Context 627; Find no 01601; Phase 5

Wood objects (illus 24 & 25)

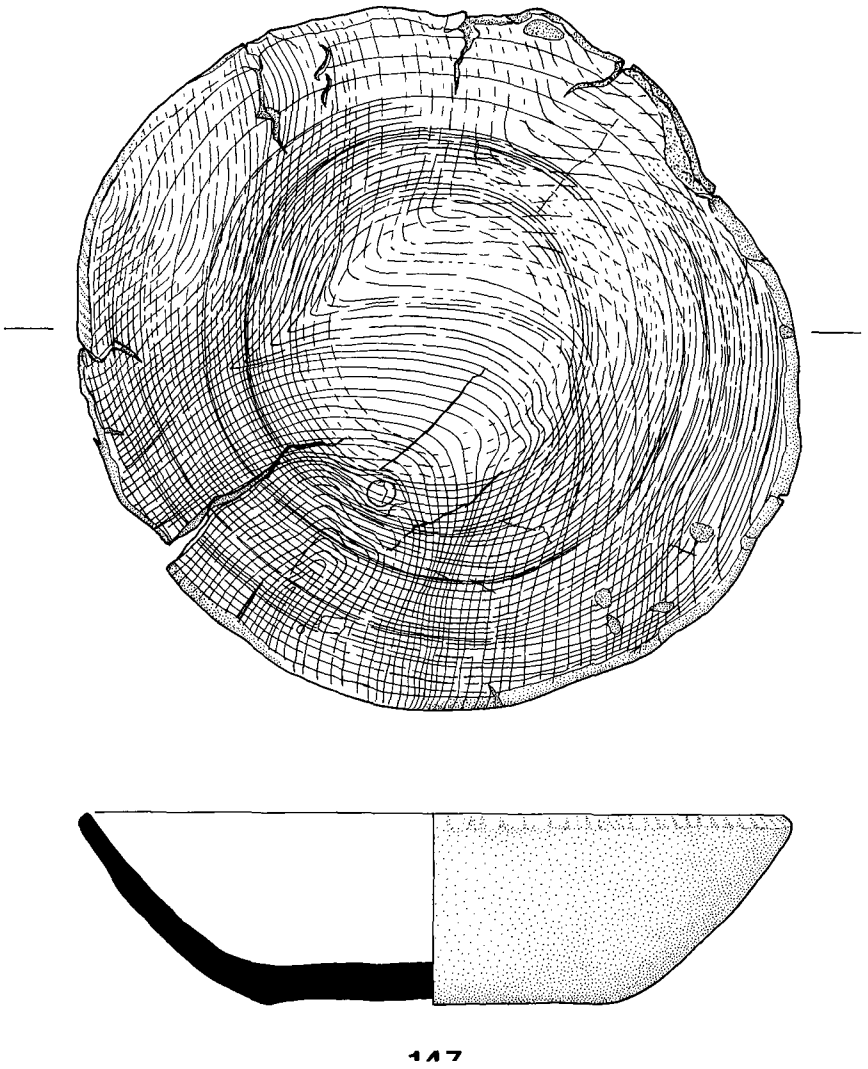
Waterlogged wooden artefacts found during the excavation included a number of stakes of different sizes, which formed components of wattle walls and fence lines. A proportion of these was retained. Two lathe-turned bowls (nos 147 & 148) and a single cask head fragment from a stave-built vessel (no 149), were also recovered.



ILLUS 23 Leather strap & pouch (scale 1:2)

Wooden bowls would have performed a variety of functions during the medieval period, such as holding food or liquids. For shallow, dish-like vessels and small bowls there are no obvious ceramic parallels, and wood alone seems to have been used for vessels of these types. Taphonomic conditions favouring the survival of wooden vessels are exceptional, hence they are represented only sparsely in the archaeological record. However, documentary sources indicate their widespread use during the medieval period, and simple forms of lathe-turned bowls such as the two from this site are known archaeologically from a broad date range.

The larger and more complete of the two bowls (no 147) was made from maple. It was found in peaty deposits within a small building in Phase 3. Its rim and sides have been distorted by post-depositional pressures and there is a scar on its base. The smaller bowl (no 148) is more fragmentary, with only a section of the rim being present. Found on a possible surface in Phase 2,



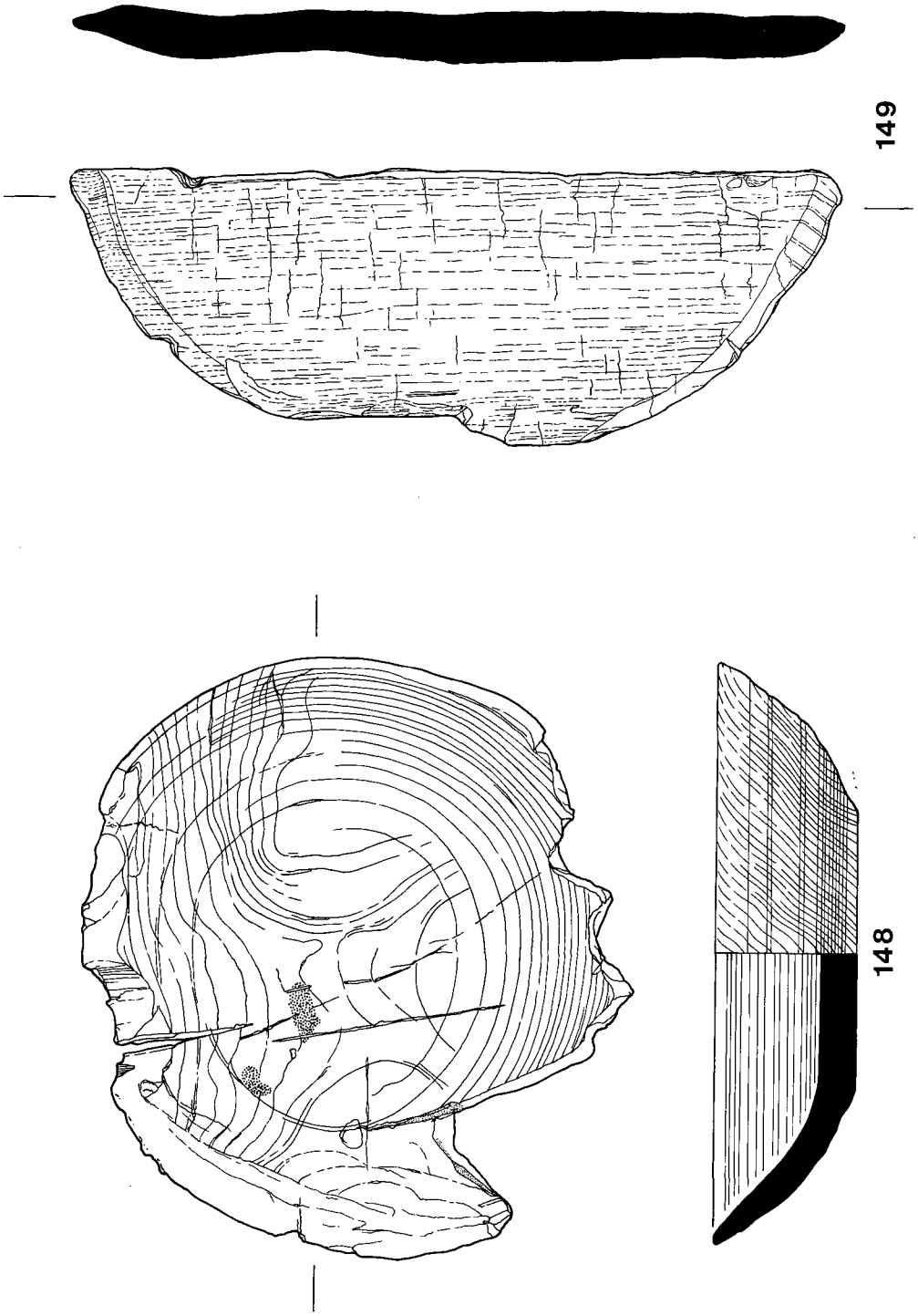
ILLUS 24 Wooden bowl (scale 1:2)

this bowl has a more rounded profile than no 147 and was made from ash. Four bowls recovered from the nearby Kirk Close excavation (Ford 1987, 141–3, nos 123–6) were of similar forms to those from this site, and were all fashioned from ash. Bowls made from ash are also known from other Scottish sites, such as Threave Castle, Galloway (Barber 1981, 117, nos 143 & 145).

Made from radially cleft oak, no 149 is an end stave from a cask head, found near to bowl no 147. This stave indicates a vessel diameter of c 240 mm.

In the following catalogue all measurements were taken prior to conservation.

147 **Bowl** Max diameter 204 mm; height 42 mm; thickness 5–13 mm
Lathe-turned bowl made from maple (*Acer* sp.), with a shallow, straight-sided profile. There are internal and external turning lines. Almost the entire rim is present. The sides are slightly distorted. The base is slightly concave and is scarred.
Context 1041; Find no 01935; Phase 3



ILLUS 25 Cask head fragment & wood bowl (scale 1:2)

148 **Bowl** Max surviving diameter 177 mm; height 28 mm; thickness 5–13 mm
Incomplete, lathe-turned bowl made from Ash (*Fraxinus excelsior*), with a shallow, rounded profile. There are internal and external turning lines and a mandrel point. Slightly less than one-quarter of the rim is present; the other rim edges are broken. A roughly triangular section (max width 54 mm) appears to have been cut or broken from the edge.
Context 1201; Find no 04663; Phase 2

149 **Cask head** Length 231 mm; max width 80 mm; thickness 7–13 mm
End stave from a cask head, made from radially cleft oak (*Quercus*), with a curved edge, bevelled on both sides, and a straight edge.
Context 1041; Find no 04662; Phase 3

ANIMAL BONE

C Smith

Initially, due to constraints on time, an interim report was prepared based on identifications of animal bones from 50 contexts chosen from major features such as pits, middens and ditches. Approximately one-third of the total animal bone assemblage was treated in this way. Subsequently it proved possible to continue work on the material, allowing total identification to species level. However, although important observations such as recording of anatomical measurements and evidence of butchery marks were made for the original sample, it was not possible to do so for the remainder of the assemblage. Exceptions were made for measurements of bones in further large contexts, as well as for all bird bones. The final report, therefore, as well as presenting the findings for the complete assemblage, had the additional aim of testing the accuracy of the initial sampling procedure. The report as presented here is a summary of the results of analysis of the animal bone assemblage. A full version with supporting data is lodged in the site archive, at the National Monuments Record of Scotland.

Methods and measurements

The bones were identified by direct comparison with modern reference specimens. Bones of mammals and birds were identified as far as possible to particular bone and species. Fish bones were merely recorded as such. Sheep and goat bones were separated where possible using Boessneck's (1971) criteria, but where indistinguishable were designated sheep/goat.

Mammalian bones which proved impossible to allocate to species were recorded as large ungulate, small ungulate or indeterminate mammal. Large ungulate included bones which were probably derived mainly from cattle, but could have come from horse or red deer, while small ungulate fragments were most likely to have come from sheep or goat but could have been from pig. All ribs and vertebrae other than the first two cervical vertebrae, the atlas and axis, were described as large or small ungulate. Other long bone fragments were described as indeterminate mammal.

Anatomical measurements, where taken, were made mainly in accordance with the scheme of von den Driesch (1976) and are expressed in millimetres.

Mandibular tooth eruption and wear patterns were assessed using Payne's (1973) scheme for sheep/goat from all contexts and Grant's (1982) scheme for cattle, sheep/goat and pig from the initial sample only. Cattle horn cores from the initial sample were aged according to Armitage's (1982a) system.

Relative frequency of animals

In total, 9539 bone fragments were recorded. The following mammalian species were identified: cattle, sheep, goat, sheep/goat, pig, horse, red deer, roe deer, dog, dog/fox, cat, hare, rabbit, rat species, small

mammal and cetacean. Birds identified were domestic fowl (*Gallus gallus*), domestic goose/greylag (*Anser anser*), domestic duck/mallard (*Anas platyrhynchos*), pinkfooted goose (*Anser brachyrhynchus*), raven (*Corvus corax*), crow (*Corvus corone*), probable redshank (*Tringa species*) and eagle. The eagle bone could have come from either golden (*Aquila chrysaetos*) or white tailed sea eagle (*Haliaeetos albicilla*). The numbers of bones from each species found in each phase are shown in Table 2. It is apparent that the most frequently recovered animals were cattle and sheep/goats. Goat bones are notoriously difficult to distinguish from those of sheep and do not appear to have been plentiful at the site; however a few caprid horn cores and post-cranial bones (particularly metapodia) confirmed their presence. Pigs were not common; neither were horses, red or roe deer plentiful. Cats were much more abundant than dogs. As regards birds, domestic chickens and geese supplied a far greater amount of meat than did wild fowl.

A comparison of the percentages of food-forming mammals (cattle, sheep/goat, pig, horse and deer) with those at other medieval sites in Perth is shown in Table 3. It would appear that, compared with cattle, a higher percentage of sheep/goats was found at 80–86 High Street than at many of the other sites. The difference in the cattle: sheep/goat ratio was thought initially to have resulted from the sampling strategy employed at 80–86 High Street, since at all the other sites the total recovered assemblage was recorded. In addition, although the state of preservation at the two High Street sites was felt to be equally good, the fragmentation rate may have differed at other sites in the burgh. However, on completion of the study, the relative percentages were found to be remarkably consistent for both the initial sample and the whole site sample. Thus a real fluctuation in the proportion of sheep/goat to cattle slaughtered in the burgh may be

TABLE 2
Numbers of animal bones in each phase

Phase Species	2	3	4	5	6	7	8	Total
Cattle	95	164	275	247	923	98	28	1830
Sheep/goat	22	89	160	219	669	80	15	1254
Goat	4	4	7	5	32	5		57
Pig	24	25	43	64	192	22	10	380
Horse		1	2		1			4
Red deer	7	4	2	1	3		1	18
Roe deer			1	1		2		4
Dog			2		5	1		8
Dog/fox					1			1
Cat	4	13	11	38	61	3	1	131
Hare				1	5	1		7
Rabbit					2			2
Rat *sp.*		1						1
Small mammal					1			1
Cetacean				5				5
Domestic fowl *Gallus gallus*	7	9	32	41	148	11	5	253
Domestic goose/Greylag *Anser anser*	2	9	11	35	60	8	3	128
Pinkfooted goose *Anser brachyrhynchus*				1	1			2
Mallard/Domestic duck *Anas platyrhynchos*		1	1	1	2			5
Anatid (goose/duck)					1			1
Eagle *sp.*					1			1
Tringa sp.					2			2
Wood pigeon *Columba palumbus*					1			1
Crow *Corvus corone*					1			1
Raven *Corvus corax*				1				1
Indeterminate bird		1	1	9	24		4	39
Fish	8	31	49	202	813	93	36	1232
Sub-total	**173**	**352**	**597**	**871**	**2949**	**324**	**103**	**5369**
Large ungulate	68	99	201	209	553	88	12	1230
Small ungulate	30	58	146	131	516	47	30	958
Indeterminate mammal	51	71	157	168	1326	147	62	1982
Sub-total	**149**	**228**	**504**	**508**	**2395**	**282**	**104**	**4170**
Total	**322**	**580**	**1101**	**1379**	**5344**	**606**	**207**	**9539**

indicated: it is known from documentary sources that the level of trade in hides and woolfells did not remain constant throughout the medieval period (Lynch 1988, 269).

Age of animals at death

The mandibles of cattle, sheep/goat and pig were assessed as to tooth wear and eruption pattern in order to estimate probable age at death (Grant 1982; Payne 1973; Bull & Payne 1982). Horn cores of cattle also provided evidence of age, based on surface texture of the bone (Armitage 1982a).

Cattle In all the cattle mandibles in which the third molar survived, the third pillar or fifth cusp was in wear, indicating an age of at least three years in modern terms (Grigson 1982, quoted in Hillson 1986, 206). No mandibles of very young calves were found. The evidence from cattle horn cores from the original sample agrees broadly with the mandibular evidence, the majority of the animals (76.4%) occurring in adult age classes 4 and 5. Only one horn core came from a juvenile. The relative maturity of the cattle beasts at death is a strong indication that they were slaughtered for their hides rather than their meat.

Sheep/goat In the case of sheep/goat, 101 mandibles from the initial sample were complete enough to allow assessment by Payne's (1973) method. The culling pattern indicates that over half of the animals (63.4%) had died between the ages of one to three years, comparing well with the situation at 75–95 High Street, where 49.9% of the total sample (n = 638) died between one and three years old (Hodgson 1983, 21). The early age of death of the sheep at both sites indicates animals raised for woolfells and meat, rather than wool, which Hodgson (*ibid*, 12) found surprising in view of the well-documented trade in wool. Comparison with the rural medieval site of Rattray in Aberdeenshire (Hamilton-Dyer *et al.* 1993, 204) where the majority of the sheep (63%) died between the ages of four and eight years of age suggests that the flesh, at least, of many older animals never in fact reached the burgh market, but was consumed by the rural population which had reared it.

Pigs An estimate of mandible wear stages for ten pig mandibles covered the range from stages 8–42 (Grant 1982), in other words, from juvenile to old adult. A further scale of ages was devised using Habermehl's data for late maturing modern pigs, (quoted in Bull & Payne 1982, 56). This indicated that mandibles of very young piglets, that is, under the age of about eight months, were absent from 80–86 High Street (although foetal long bones were present in Phase 6). In contrast, at 75–95 High Street, where the mandible sample size was very much larger (n = 217) than at 80–86 High Street, 14.8% of the animals were estimated to have died at an age of less than eight months in modern terms. It is possible that differences in conditions of preservation or indeed recovery technique at the two sites may account for the lack of fragile young mandibles. However, in the older age ranges, 71% of the pigs at 75–95 High Street, died at an age greater than 13 months in modern terms. This is broadly similar to the situation at 80–86 High Street, where 80% of the animals were aged 13 months or over.

Butchery evidence

Evidence of man-made marks on bones of cattle, sheep/goat, pig and domestic fowl was interpreted as resulting from butchery. Thin knife cuts were present on long bones and ribs, and had presumably been made by metal knives during removal of meat from the bones. Occasionally meat had been removed more roughly, using cleavers or axes, resulting in deeper hack marks. Shafts of long bones were also chopped roughly across, saws being reserved only for dealing with the more valuable bony parts of the carcass, such as antlers. Vertebrae of large and small ungulates (most probably cattle and sheep) were chopped either once only, in the sagittal plane, or twice, laterally, depending on the method of carcass division. If the carcass was

suspended in order to facilitate butchery, sagittally split vertebrae resulted, while if the animal was butchered along the flanks while lying on a flat surface, laterally split vertebrae were produced (Armitage 1982b, 98).

Horn cores of cattle, sheep and goat frequently bore evidence either of thin knife cuts around their bases, or of having been chopped from the skull near their junction with the frontal bone. Presumably these marks occurred during the deliberate removal of the useful parts, the horn sheaths, during horn working after which the cores would have been discarded as useless.

Fourteen red deer antler fragments were further evidence of animal-based industry; all were carefully sawn at least once and included some discarded offcuts. Two of the antler burrs were cast or shed, implying deliberate collection of antlers, rather than importation of the whole carcass. As only four deer long bones were found at the site, antler collection in spring or mid summer seems very likely. This situation is very similar to that encountered at Meal Vennel, Perth, where 19 out of a total of 25 red deer fragments were antler (or 76%, as compared to 77.8% at 80–86 High Street).

Evidence for the skinning of cats was also observed in the form of thin knife cuts on feline mandibles, skulls and a single humerus from Phases 5 and 6 (Table 4). Skinning of cats and dogs has also been noted at the medieval sites of Meal Vennel and Canal Street, Perth as well as at 75–95 High Street, Perth (Hodgson *et al*, forthcoming).

Five fragments of slab-like cetacean bone (Context 567) were probably all originally part of the same bone but unfortunately could not be identified, either as to the particular bone or to species. However, one of the fragments showed evidence of hack marks on one of its surfaces. It is possible that the bone, because of its large size and durability, may have been used as a chopping block. A similar use for an axis vertebra, probably of blue whale, has been suggested for a specimen with numerous chop marks found at the Roman

TABLE 3
Percentages of food forming mammals from 14 sites in Perth, based on fragment count

	Cattle	Sheep/Goat	Goat	Pig	Horse	Deer
75–95 High Street (PHSE)[1]	63.5	22.2	4.9	8.3	1.0	0.1
St Ann's Lane[2]	57.6	32.8	*	8.9	0.4	0.2
Methven Street[3]	81.5	17.3	*	1.2		
Kirk Close[3]	76.1	18.7	*	4.8	0.2	0.1
Mill Street[4]	62.7	26.3	4.1	3.8	3.0	0.2
King Edward Street[4]	62.6	23.3	2.8	10.5	0.5	0.3
Kinnoull Street[4]	63.1	29.3	*	7.6		
Blackfriars House[4]	67.1	21.4	*	11.4		
Scott Street[5]	66.7	27.8	0.2	3.0	2.1	0.2
Canal Street I[6]	58.2	32.1	0.1	5.8	3.6	
Canal Street II[3]	67.7	27.1	*	3.4	1.8	
Canal Street III, Phases 1–5[7]	66.0	28.1	*	4.5	1.3	0.1
Meal Vennel, Phases 1–5[5]	69.7	20.6	2.0	6.4	1.0	0.3
80–86 High Street (original sample)	51.4	35.1	2.8	10.1	0.4	0.2
80–86 High Street (complete sample)	51.8	35.6	1.6	10.6	0.1	0.2

Notes:
Only phases dating to earlier than and including the 15th century are included in this table, therefore Phase 8 of 80–86 High Street is excluded.
Sheep and goat are expressed as one figure in some cases (*).
Antler fragments not attached to skulls are omitted.

Sources:
1 Hodgson & Smith, forthcoming
2 Hodgson & Jones 1982
3 Smith & Hodgson 1987
4 Smith 1995
5 Smith 1996a
6 Hodgson & Jones 1984
7 Smith 1996b

site of Corbridge (Hodgson 1980, 15). In the Northern Isles, the practice of using whale vertebrae as chopping blocks has continued almost until the present day; one specimen survives in a house at Lerwick (Redman 1994, 36).

Size and type of animals

The anatomical measurements of the bones of the domestic livestock fall mainly within the size ranges published for the large assemblage found at 75–95 High Street (Hodgson 1983; Hodgson *et al*, forthcoming).

As at other sites in medieval Scotland, the cattle appear to have been of a shorthorn type. With the exception of one unusually short and strongly curving horn core (Context 297), all of the cores came from animals with gently curving horns of a similar type to those found at other medieval sites in Perth. Horn cores which were thought to have come from females outnumbered those from males. No polled, or naturally hornless, cattle skulls were found.

Cattle withers' heights may be estimated from the greatest length of the metacarpal (Armitage, quoted in Hodgson 1980, 46). However, only three complete metacarpals were available; withers heights estimated from these bones were 104.5 cm, 110.3 cm, 107.3 cm and 110.3 cm, all of which fell within the previously recorded range of 95.6–113.4 cm at 75–95 High Street (*ibid*).

As regards the sheep at 80–86 High Street, all were horned; the horn shape was robust and curving, with the exception of one example, which consisted only of a short rudimentary scur (Context 129). Similarly shaped horn cores were found at 75–95 High Street and were thought to have come from females or castrates (*ibid*, 33). One very small, nipple-like horn bud was from a very young lamb while another horn bud probably came from a juvenile (Contexts 465, 129). Estimated sheep withers heights (Teichert 1975) ranged from 51.17 cm to 68.1 cm, all falling well within the range of 46.76 cm to 65.83 cm at 75–95 High Street with the exception of a single metatarsal from a larger sheep which stood at 68.1 cm (Context 75).

For horses, withers heights could in some cases be calculated from the lengths of complete metatarsals (using Kieswalter's factors quoted in Ambros & Muller 1980, 30). One bone came from an animal with an estimated withers height of 134.85 cm, or roughly 13:2 hands height. A metatarsal which had been modified for use as an ice skate came from a horse of about 133.25 cm, or 13:1 hands height (Context 633; no 95). Both of the animals from which these bones came could be considered to be ponies, since they were less than 14:2 hands height.

A dog radius came from an animal which stood approximately 56.07 cm high at the shoulder, while a humerus came from a much smaller animal of about 30.96 cm shoulder height (Contexts 343, 129). A dog femur indicated an animal of about 42.7 cm shoulder height (Context 465). These dogs were, however, well within the 75–95 High Street range of from 24.2 cm to 60.5 cm shoulder height calculated from the radius. (Shoulder heights are calculated using Harcourt's (1974) method.)

Abnormal bones

A range of abnormalities was seen in bones of the domestic livestock. Some of these were minor congenital anomalies which would have had no bearing on the health of the animals; an example of this type of abnormality is the absence of the second premolar of cattle which was observed in three cattle mandibles from 80–86 High Street. More serious pathological conditions which would have had an effect on the animals' health were one instance of osteoarthritis in a cattle hip joint and two in cattle interphalangeal joints. These beasts may have shown some stiffness of gait, as would a sheep or goat, two of whose lumbar vertebrae were completely immobilized by bony lipping and ankylosis of the joint. Some dental conditions, when allowed to advance would have caused health problems for the animals concerned. These included varying degrees of periodontal disease, sometimes accompanied by ante-mortem tooth loss, and were seen in five cattle, one pig and six sheep/goat mandibles. Bone fractures were also seen in the material. In one case, a pig fibula, the break was well healed, although the alignment of the shaft of the bone had altered. Two large ungulate (or cattle) ribs also appeared to have suffered traumatic damage; in one example a false

joint had formed at the break, while in another, the break had healed over. Such injuries to the ribs may indicate rough handling of livestock or jostling by closely packed animals.

Conclusions

Comparison of the evidence originally compiled on the basis of a sample of 50 contexts with that from the complete recovered assemblage indicated that the sampling procedure did indeed provide a valid picture of the whole site. For example, relative frequencies of animals differed very little between the two samples; in the original sample, cattle made up 51.4% of the food-forming mammals, while for the whole site sample, the figure was 51.8%. Percentage frequencies for other economically important species also appeared consistent. In other respects, such as the age structure of the sheep population, the culling patterns for the sampled contexts and the whole site were almost identical. A few species were not found in the original sample, but were recovered only when the whole assemblage was examined: mammals recovered in this way were roe deer, rabbit, hare, rat *sp.* and cetacean, while bird species were eagle *sp*, wood pigeon and probable redshank (*Tringa sp.*). With the exception of roe deer (which has never been found in large quantities at Scottish urban sites, and so could reasonably expect to be overlooked) and cetacean, which is an unexpected and unusual find at an inland site such as Perth, all of the missing species are smaller mammals or birds of little economic importance. Indeed, it is not possible to say whether the rabbit bones were intrusive or were of genuine medieval date.

In general, then, cattle predominated over sheep/goats from the earliest phases of the site, although in Phase 5, the numbers of sheep/goat bones appeared to increase. However, sheep/goats were again less numerous than cattle by Phase 6. Since the Perth cattle and sheep bones are ultimately indicators of the state of the export trade in hides and woolfells, those from Phase 5 may be the by-products either of a relative upturn in the woolfell trade or a downturn in the hide trade. Such fluctuations in the market have been demonstrated by Guy (1986, 83) in an analysis of the late 15th- and early 16th-century Exchequer Rolls of Scotland.

The animal bone data from 80–86 High Street complements that from the large excavation at 75–95 High Street. Although the range of mammals and birds was less extensive than that recorded at 75–95 High Street, probably due to the smaller sample size, the anatomical measurements of long bones and horn cores (and thus the sizes of the animals) fell mainly within the range at 75–95 High Street. Only one sheep bone was noticeably larger. However, one apparent difference between the two High Street assemblages was noted with regard to the abundance of goat horn cores. Although relatively plentiful in some contexts at 80–86 High Street, and bearing definite evidence of horn removal, goat horn cores did not occur in the high concentrations which were found at 75–95 High Street. At 80–86 High Street, only 5.8% of the total sheep and goat bones were horn cores, as compared with 14.5% at 75–95 High Street. On the other hand, cattle horn cores were found in startlingly similar quantities: 13.9% at both sites. This evidence strongly suggests a centre for horn working was located on the High Street. It is also interesting to note that the percentage frequencies of all types of horn cores compared to post-cranial bones dwindled from the earliest to the latest phases at 80–86 High Street. Although it should be noted that sample sizes were not equal in all phases, if the numbers of horn cores present reflect the intensity of the horn working trade, then there was a decline in this craft at the site as time progressed.

Further evidence for small scale animal-based industry were the antler offcuts which appeared at almost every phase of the site, indicating a long history of antler working.

Although only two cat bones bore definite evidence of knife cuts, the abundance of feline bones and the high proportion of juvenile animals indicates that the skinning of cats may have occurred on a commercial basis.

An unusual find was that of the cetacean bone in Phase 5 (Context 567). It is unlikely that a large whale could have been beached so far up the Tay as Perth, despite the presence of a deep water channel in the river; its presence is more reasonably explained as a result of trade in the bone as a raw material. This could have been salvaged from a stranded whale recovered from farther down the Firth towards the sea out past the bar of the River Tay, as in the recent stranding of a 8 m minke whale, in June 1993, at Arbroath.

BOTANICAL REMAINS

Alan Fairweather

The botanical remains present in six selected samples are described by phase, below. The nomenclature used in this report follows Stace (1991).

Phase 2

Context 1042 (backfill of a ditch) *Brassica rapa ssp. campestris* (wild turnip), *Calluna vulgaris* (heather), *Carex sp.* (sedge), *Carduus crispus* (welted thistle), *Centaurea sp.* (knapweed), *Chenopodium album* (fathen), *Corylus avellana* (hazel-nut), *Galeopsis tetrahit* (common hemp), *Polygonum cf lapathifolium* (pale persicaria) and one Ignotum.

All waterlogged material with a few carbonized wood fragments. One insect skin of larva or puparium. One seed has not been identified. The sample contained no cereal material.

Context 1168 (fill of a large cut) *Hordeum vulgare* (six-row barley), *Hordeum/Triticum* (barley/wheat), *Agrostemma githago* (corncockle), *Atriplex cf patula* (orache), *Brassica rapa ssp campestris* (cabbage), *Calluna vulgaris* (heather), *Chenopodium album* (fathen), *Cirsium cf arvense* (creeping thistle), *Corylus avellana* (hazel-nut), *Eleocharis palustris/uniglumis* (mud rush), *Polygonum cf persicaria/lapathifolium* (persicaria), *Potentilla cf argentea* (cinquefoil), *Pteridium aquilinum* pinnae (bracken), *Ranunculus acris/repens* (buttercup), *Rumex acetosella* (sheep sorrel), *Spergula arvensis* (corn spurrey), *Stellaria palustris/graminea* (stitchwort) and three Ignota species.

The main body of the sample was composed of wood twigs with a minor component of Calluna twigs and leaves. The only carbonized material was present as occasional cereal grains. Although a number of species are represented, none was found as more than one or two seeds. Three species represented by three seeds have not yet been identified.

Phase 3

Context 1041 (a layer of structured peat) *Avena* (oats), *A. fatua* (wild oat), *Agrostemma githago* (corncockle), *Calluna vulgaris* (heather), *Chenopodium album* (fathen), *Galeopsis tetrahit* (common hemp nettle), *Lapsana communis* (nipplewort), *Leontodon autumnalis* (autumn hawkbit), *Polygonum aviculare* (knotweed), *P. persicaria/lapathifolium* (persicaria), *Pteridium aquilinum* pinnae (bracken), *Stellaria media* (chickweed), *Spergula arvensis* (spurrey) and two Ignota.

The sample was almost entirely composed of waterlogged material with few carbonized wood fragments. The main mass consisted of compressed moss and straw stems. The identifiable cereal parts were attributable to oats with one *A. fatua* grain fracture base. One horse hair was

identified. Several insect puparia or larval skins were present with one earthworm cocoon skin. Despite the range of species represented none was in any great abundance, and none other than common weed species of arable or disturbed ground. Besides these, heather and bracken parts were present (*Calluna* (heather) and *Pteridium* (bracken)) but not in great abundance. Two seeds have not been identified. It is most probable that the main body of material is oat straw and that some component of this may be attributable to *A. fatua* (wild oat, a common and troublesome weed of grain crops) owing to the identification of a fracture base diagnostic of that species.

Phase 5

Context 0333 (fill of a shallow cut) *Corylus avellana* (hazelnut), *Hordeum vulgare* (barley), *Avena* sp (oat), *cf Hordeum/Triticum* (barley/wheat), *Calluna vulgaris* (heather).

In this sample *Corylus avellana* (hazel-nut) was abundant, forming a high proportion of its volume.

Context 0465 (pit fill) *cf Avena* (oats), *Hordeum vulgare* (six-row barley), *Agrostemma githago* (corncockle), *Calluna vulgaris* (heather), *Chenopodium album* (fathen), *Corylus avellana* (hazel-nuts), *Lapsana communis* (nipplewort), *cf Myriophyllum* sp (water milfoil), *Polygonum persicaria/lapathifolium* (persicaria), *Prunella vulgaris* (selfheal), *Pteridium aquilinum pinnae* (bracken), *Ranunculus acris* (buttercup), *Schoenoplectus lacustris* (knawel).

The invertebrate remains present were an earthworm cocoon and insect larvae or puparia skins. A clump of hairy material was also noted. No species were represented in any great abundance although *C. vulgaris* (heather) was frequent throughout. Any interpretation as to special use or vegetation would not be productive on such limited evidence.

Phase 6

Context 0129 (fill of a large pit) *Agrostemma githago* (corncockle), *Carex* spp (sedge), *Carduus crispus* (welted thistle), *Corylus avellana* (hazel-nut), *Chenopodiaceae* sp (cereal weed of goosefoot family), *Galeopsis cf tetrahit* (common hemp-nettle), *Lapsana communis* (nipplewort), *Linum usitatissimum* (linseed), *Polygonum cf lapathifolium* (pale persicaria), *Pteridium aquilinum* pinnae, *Rumex obtusifolius* (docken), *Schoenoplectus lacustris* (common club-rush or bulrush), *Stellaria media* (chickweed).

The sample is almost entirely composed of waterlogged material with little charcoal represented. The mass of material consisted of compressed gramineous leaves and stems probably cereal straw, although no cereal grains were found. Abundant nutlets of *Schoenoplectus lacustris* (common club-rush or bulrush) were present with occasional nutlets of *Carex* spp (sedge). Stems and leaves mentioned above did not contain any identifiable cyperaceous component other than the nutlets mentioned. *S. lacustris* (common club-rush or bulrush) grows in pond or lake margins or at the edge of slow-flowing rivers. This sample was distinctive in composition compared with others from the site owing to the large straw component and abundance of *S. lacustris* (common club-rush or bulrush) nutlets and the absence of any cereal grains.

DISCUSSION

Russel Coleman

The results of this excavation both complement and contrast with those of 75–95 High Street, which lies directly opposite, and, in addressing the four principal research objectives set out prior

to the excavation (see above), they have also raised three topics that merit wider discussion: the pre-burghal origins of Perth; the development and nature of Perth's High Street frontage; and aspects of the local economy.

As the medieval town expanded and the focus of settlement shifted westwards, then sites along the newly established High Street should reflect this pattern of growth, with sites at the east end typically earlier in date than those at the west end of High Street. It was, therefore, postulated that as this site lay at the east end of High Street, it would have been one of the first to have been developed. Surprisingly, this hypothesis was found to be flawed. The ditch (Phase 1) is the earliest feature ever to have been found in medieval Perth, but pre-dates the existence of High Street, perhaps by a century or more. This site also proved to have been developed some time after sites both opposite (75–95 High Street) and further west (King Edward Street). First, however, it is worth discussing the implications of the ditch which has provided the first real evidence of pre-burghal settlement in Perth.

The early ecclesiastical history of most Scottish burghs is obscure, but it does appear that churches often pre-dated the formal erection of a burgh (Cowan 1988, 92). It seems most likely that the wattle-lined ditch (Phase 1) defined an enclosure or precinct around an early phase, if not the primary phase, of St John's Kirk, the first reference for which is 1128 when its income and rights were confirmed to Dunfermline Abbey by David I (*ibid*, 92). Unfortunately, during a major refurbishment of the church in the 1920s, no record was made of earlier structures known to have been found (Stavert 1991, 14). The church would have stood on the highest point within the medieval town, a largely flat area prone to flooding. The ditch, while defining an enclosure, would also have served to drain the area, and though it is not clear what would have been contained within such a precinct, an early church would naturally have been accompanied by a cemetery, for which dry ground would have been essential. (It is acknowledged, however, that there is no record to date of early burials in the area.) The deliberate butt-end of the ditch may therefore mark an entrance into this enclosure. The relationship between this possible 11th-century church and early settlement along Watergate is unclear, nor is it clear which was the earlier of the two. If there was a common factor, then it is likely to have been a ford or ferry crossing over the Tay which attracted both settlement and a church.

The pre-burghal dating for the ditch also provides a context for two other early finds from Perth (Sermon 1994). In 1862, a sword, now in Perth Museum, was found in what is widely regarded as the oldest part of Perth, Watergate. The method used in the production of the blade is thought to have been in decline by the ninth century. A cross slab, discovered in a garden in nearby Scone in 1978, had been brought there in 1946 from a family home at Kinnoull, a suburb on the east bank of the Tay. The family in question were wholesale grocers with premises in North St John's Street, adjacent to the kirk, and may have taken possession of the stone when extensive renovations were made to the kirk in the 1920s. The stone itself was part of a free-standing sandstone cross of ninth- or 10th-century date.

The existence of an enclosure or precinct around an early church also provides definite evidence to test A A M Duncan's hypothesis of a pre-burghal trackway from South Street Port to High Street at its junction with Watergate (illus 1). The merely negative evidence obtained from previous excavations has never been conclusive, as a trackway, perhaps insubstantial and unmetalled, would always be difficult to identify in the archaeological record. The existence of an enclosure around an early church would, however, seem to exclude the existence of such a trackway. First, the east/west alignment of the ditch is clearly not influenced by the route of the suggested trackway, which passes diagonally across the present street plan, and secondly, the enclosure itself would effectively have blocked such a routeway. It remains a possibility, however,

TABLE 4
Summary of principal features and activities on Plots A–C in each phase

PHASE	DATE	PLOT A	PLOT B	PLOT C
1	11th - Mid 12th Century	*Site lies within the Church Precinct*		
2	Mid 12th - Late 12th Century	*Ditch is backfilled & 3 Plots are laid out*		
			Structure with internal hearth on frontage	*Open frontage, floor with hearth* **BONE-WORKING HORN-WORKING**
3	Late 12th - Early 13th Century	*High Street surfaced with gravel*		
		Midden	*Structure with booth on High Street, floor & hearth & rubbish pit*	*Structure with booth on High Street, hearths & midden*
4	Early 13th - Mid 13th Century		*Structure with booth on High Street, 2 hearths & rubbish pit* **HORN-WORKING LEATHER-WORKING**	*Structure & booth on High Street, 3 hearths, rubbish pits & pathway* **METAL-WORKING HORN-WORKING**
5	Mid 13th - Late 13th Century	*Structure at rear of plot*	*Open frontage, structure at rear of plot, rubbish pit & midden* **LEATHER-WORKING METAL-WORKING HORN-WORKING CAT-SKINNING**	*Open frontage, midden, rubbish pit & hearth*
6	Late 13th - Early 14th Century	*Structure at rear of plot*	*Open frontage, gravel pathway, structure at rear of plot, rubbish pits & midden* **LEATHER-WORKING METAL-WORKING including JEWELLERY-WORKING HORN-WORKING CAT-SKINNING**	*Open frontage, midden, rubbish pit & gravel pathway* **HORN-WORKING CAT-SKINNING LEATHER-WORKING**
7	Early 14th - Mid 14th Century		*Structure on frontage & pits*	*Pits, stone well & gravel pathway*
8	Mid 14th - Late 14th Century	*Stone building(s)*		

that such a routeway led into the precinct rather than to a settlement along the west bank of the river.

The gap in time between the construction and the backfilling of the ditch indicates that it was open for at least a century, which, as already mentioned, raises interesting questions regarding the development of High Street itself. In comparison with 75–95 High Street, where eight phases of activity, including, most importantly, two successive phases of a building, were identified as being earlier than 1150, occupation on 80–86 High Street seems rather late (plots of land were not laid out until after the ditch was backfilled in the mid to late 12th century). Similarly, excavations at King Edward Street (Clark & Blanchard 1995), some distance to the west, also revealed settlement here in the early 12th century. In effect, 80–86 High Street appears to have been undeveloped even as land opposite and further west was being developed. The apparent late feuing out of land here could then be due to the precinct around the church surviving well into the period during which the burgh had expanded westwards along High Street. Increasing competition for space within the town may have encouraged the owners of this land, the chapter of Dunfermline Abbey, to market what must have been, by the mid-12th century, prime urban real estate fronting onto one of the most prosperous and successful market places of any Scottish town.

The nature of the buildings recovered from this site also provides a convenient framework within which to compare adjacent sites, in particular 75–95 High Street (Bogdan 1992; Bogdan & Wordsworth 1978), Kirk Close (Blanchard 1987b) and King Edward Street (Clark & Blanchard 1995). Murray (1980, 39–44) identified three main types of wooden and wattle buildings based on evidence recovered from sites excavated in Perth and Aberdeen: Group 1, wattle-walled, of which there are four sub-types; Group 2, plank-walled; and Group 3, clay-walled. There was little evidence for elaborate carpentry, and few, if any, seemed capable of supporting an upper floor. In general, the buildings were rectangular, the smaller buildings measuring 6–8 m in length, the larger ones up to 15 m in length. The widths varied between 3.5 m and 4.5 m, primarily in response to the width of the plot. Most of the buildings recovered were on backland sites, where they lay at right angles to the street frontage, their long axes parallel to the long axis of the plot boundaries. Buildings sited on the frontage, however, appear to have been smaller, and two, at least, lay with their long axes parallel to the street (B17 at 75–95 High Street & 45–47 Gallowgate, Aberdeen).

These differences suggest a complex relationship between frontage and backland (Murray 1980, 44), which has been confirmed in subsequent excavations. At 80–86 High Street, the evidence is rather poor, and of the structures that could be identified with any conviction, many seemed rather flimsy. There was also too little detail to support much confidence in their size and orientation, or identify any entrances or internal divisions. The little detail there was, however, suggests that the buildings here fall well within Murray's smaller buildings category. At 75–95 High Street, a large cellar had destroyed all but the very earliest deposits, though traces of two successive, but flimsy, structures were identified on the frontage (B15 & B17, Murray forthcoming), but also an extremely large pit. At King Edward Street (Clark & Blanchard 1995), four 12th-century buildings were identified on High Street frontage. Again, all would fall within Murray's smaller buildings category, and one (Structure 2) lay with its long axis parallel to High Street.

The Kirk Close buildings (late medieval in date) lay some 20 m back from the street frontage, but appear to have been of a higher quality than those at the present site. It is also worth remembering that some of the most substantial timbers from 80–86 High Street were just visible in the main south section, at the very limit of the excavation. The assumption has always been that the more prestigious buildings, perhaps those of the more wealthy burgesses, were on the

street frontage, yet this is not generally supported in the archaeological record. The nature of the finds assemblages, which will be discussed below, indicates a range of craft-working activities being carried out on, or very close to, the street frontage at 80–86 High Street, and a clustering of large rubbish pits. In fact, the phases with the largest finds assemblages, in particular evidence for craft-working, coincided with the absence of any structures on the frontage. Rather than domestic buildings, the structures on the frontage, which had booths attached, could be workshops, with residential accommodation perhaps sited further back in the backlands. This pattern may also be repeated at King Edward Street, where one interpretation of the buildings is of group of small workshops, ranged around a gravel yard (Clark & Blanchard 1995).

The last of the four principal research objectives questioned whether the proximity of this site to the market place could be reflected in the archaeological record. Excavations at Canal Street, Perth, in 1985 (Coleman 1996) provided an opportunity to examine property boundaries in detail. The site lay some 80 m back from the South Street frontage, and the boundaries were found to have shifted frequently, with plots amalgamating and subdividing continually between the 13th and 15th centuries. Would this pattern be repeated on a prime High Street site, close to the market place, where competition for space would presumably be more intense? At 80–86 High Street, the boundary between Plots A and B was remarkably constant. The boundary between Plots B and C was more difficult to recognize, and it was not always clear whether the wattle-line which regularly appeared here was a fence or part of a building. To further obscure the picture, at times a common vennel provided access between the two properties through to the backlands. However, there was enough evidence to suggest that there were two separate plots here, and that the boundary between them remained constant throughout all but one phase (Phase 5). Furthermore, there was no evidence for plot amalgamation and sub-division on the street frontage, until, perhaps, the final phase (Phase 8). Interestingly, the last two phases identified at this site (Phases 7 & 8) reflect a marked downturn in activity, a pattern repeated at other sites in Perth and perhaps attributable to a general economic decline in Scotland during much of the 14th century (Coleman 1996). It would appear then that the rigorous maintenance and rigidity of existing property boundaries evident on this street frontage site reflects the competition for space on a busy market place, even though at times there appear to have been gap sites on the frontage (Phases 5 & 6), whereas in the backlands, where competition was less intense, property boundaries were more informal.

If the evidence for buildings was somewhat disappointing, the nature of the finds assemblages offers a fascinating insight into the local economy as reflected in the history of two urban properties. For example, the proportion of cattle horn-cores against the total assemblage of animal bone from both this site and 75–95 High Street (13.9%), is quite remarkable, and clearly indicates that this section of High Street at least was a horn-working centre (see Smith, above). In contrast however, pits filled with horn-cores were recorded at 75–95 High Street, whereas horn-cores from this site were generally scattered throughout the assemblage. Specific crafts or semi-industrial activities are known to have been concentrated in certain parts of towns, such as horn-working at Methven Street and High Street, Perth (Spearman 1988, 140), but the picture at 80–86 High Street is of a range of small-scale craft-working, with no predominant craft and no one craft approaching semi-industrial scale. Table 4, based on the Sidbury model of Carver (1980, 155–220), identifies the principal features and activities, but also acknowledges the range of craft-working practised within individual plots during any one given phase. The evidence points to a diverse local economy, with skilled artisans operating from workshops on, or near, the High Street frontage providing a variety of goods and services, and, perhaps selling directly from booths on the street. Many of these activities, particularly those requiring animal-based raw

materials and foodstuffs, were clearly of a seasonal nature. Cast or shed antler burrs from the horn-pit in Plot C (Phase 4), were probably collected at specific times of the year and imply deliberate collection in the countryside rather than importation of the whole carcass (see Smith above). Similarly, the hazel-nuts found in the backfill of the ditch (Phase 2) and from both Plots B and C (Phase 5) must also have been harvested in the countryside in autumn. The collection of other organic materials such as moss for rope, bedding and toilet hygiene, cereal straw for roofing and animal fodder and heather for roofing and bedding also demonstrate the opportunistic exploitation of the rural hinterland, and the close links between towns and the countryside — after all urban dwellers were also farmers.

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REFERENCES

Ambros, C & Müller, H-H 1980 *Frühgeschichtliche Pferdeskelettfunde aus dem Gebiet der Tschechoslowakei*, Archäologisches Institut der Slowakischen Akademie der Wissenschaften. Bratislava.

Armitage, P L 1982a 'A system for ageing and sexing the horn cores of cattle from British post-medieval sites (17th to early 18th century) with special reference to unimproved British Longhorn cattle', *in* Wilson, B, Grigson, C & Payne, S (eds) *Ageing and Sexing Animal Bones from Archaeological Sites*, 255–61. Oxford (= BAR Brit Ser, 109).

Armitage, P L 1982b 'Studies on the remains of domestic livestock from Roman, medieval and early modern London: objectives and methods', *in* Hall, A & Kenward, H (eds) *Environmental Archaeology in the Urban Context*, 94–106. London.

Barber, J 1981 'Wooden objects', *in* Good, G L & Tabraham, C J 'Excavations at Threave Castle, Galloway', *J Medieval Archaeol*, 25 (1981), 116–23.

Bayley, J 1992 'Metalworking ceramics', *Medieval Ceram*, 16 (1992), 3–10.

Blanchard, L M 1987a 'The excavations: Kirk Close', *in* Holdsworth, P (ed) *Excavations in the Medieval Burgh of Perth 1979–1981*. Soc Antiq Scot Monogr Ser 5, 18–45.

Blanchard, L M 1987b 'The excavated buildings', *in* Holdsworth, P (ed) *Excavations in the Medieval Burgh of Perth 1979–1981*. Soc Antiq Scot Monogr Ser 5, 84–7.

Boessneck, J 1971 'Osteological differences between sheep (*Ovis aries Linné*) and goat (*Capra hircus Linné*)', *in* Brothwell, D & Higgs, E S (eds) *Science in Archaeology*, 331–58, 2nd edn. London.

Bogdan, N Q 1992 'The Perth High Street Archaeological Excavation 1975–77: final interim report', unpublished archive report.

Bogdan, N Q & Wordsworth, J W 1978 *The Mediaeval Excavations at the High Street, Perth, 1975–76: an interim report*. Perth High Street Archaeol Excav Com. Perth.

Bogdan, N Q, Goodall, A R & Goodall, I H forthcoming *The Perth High Street Archaeological Excavation 1975–77. Fascicule IV. The metalwork.*

Bogdan, N Q & Thomas, C forthcoming *The Perth High Street Archaeological Excavation 1975–77. Fascicule VI. The leatherwork.*

Bowler, D, Cox, A & Smith, C (eds) 'Four excavations in Perth, 1979–84', *Proc Soc Antiq Scot*, 125 (1995), 917–99.

Brooks, C M 1980 'Medieval pottery from the kiln site at Colstoun, East Lothian', *Proc Soc Antiq Scot*, 110 (1980), 364–403.

Bull, G & Payne, S 1982 'Tooth eruption and epiphysial fusion in pigs and wild boar', *in* Wilson, B, Grigson, C & Payne, S (eds) *Ageing and Sexing Animal Bones from Archaeological Sites*, 55–71. Oxford (= BAR Brit Ser, 109).

Cachart, R 'A watching brief at the Old Guildhall, 102–110 High Street, Perth', unpublished archive report, Scottish Urban Archaeological Trust Ltd.

Caldwell, D 1981 'Metalwork', *in* Good, G L & Tabraham, C J 'Excavations at Threave Castle, Galloway', *J Medieval Archaeol*, 25 (1981), 106–16.

Carver, M O H 1980 'Medieval Worcester: an archaeological framework', *Trans Worcestershire Archaeol Soc*, 7 (1980), 155–220.

Clark, J 1995 (ed) *The Medieval Horse and its Equipment*. London

Clark, P & Blanchard, L 1995 'King Edward Street', *in* Bowler, Cox & Smith (eds), 931–38.

Coleman, R 1996 'Burgage plots of medieval Perth: the evidence from excavations at Canal Street', *Proc Soc Antiq Scot*, 126 (1996), 689–732.

Cowan, I B 1988 'The emergence of the urban parish', *in* Lynch, M, Spearman, M & Stell, G (eds) *The Scottish Medieval Town*, 82–98. Edinburgh.

Cox, A 1995 'The Finds', *in* Hall, D W 'Excavations at St Nicholas Farm, St Andrews', *Tayside Fife Archaeol J*, 1 (1995), 48–75.

Cox, A 1996 'Artefacts from Meal Vennel', *in* Cox, A 1996, 'Backland activities in medieval Perth: excavations at Meal Vennel and Scott Street', *Proc Soc Antiq Scot*, 126 (1996), 733–821.

Crowfoot, E, Pritchard, F & Staniland, K 1992 *Textiles and Clothing*. London.

von den Driesch, A 1976 *A Guide to the Measurement of Animal Bones from Archaeological Sites*, Peabody Mus Bull no 1, Harvard Univ.

Duncan, A A M 1974 'Perth, the first century of the burgh', *Trans Proc Perthshire Soc Natur Sci*, Special Issue (1974), 30–50.

Dunning, G C 1968 'The trade in medieval pottery around the north Sea', *in* Renaud, J G (ed) *Rotterdam Papers. A Contribution to Medieval Archaeology*, 35–6.

Egan, G & Pritchard, F 1991 *Dress Accessories*. London.

Farmer, P G & Farmer, N C 1982 'The dating of the Scarborough ware pottery industry', *Medieval Ceram*, 6 (1982), 66–87.

Fenton, A 1978 *The Northern Isles: Orkney and Shetland*. Edinburgh.

Ford, B 1987 'Wooden objects', *in* Holdsworth, P (ed) *Excavations in Medieval Perth 1979–1981*, Soc Antiq Scot Monogr Ser 5, 141–7.

Geddes, J & Carter, A 1977 'Objects of non-ferrous metal, amber and paste', *in* Clarke, H & Carter, A *Excavations in King's Lynn, 1963–1970*, Soc Medieval Archaeol Monogr Ser 7, 287–91.

Goodall, I H 1975 'Metalwork from Goltho', *in* Beresford, G *The Medieval Clay-Land Village: excavations at Goltho and Barton Blount*, Soc Medieval Archaeol Monogr Ser 6, 79–98.

Goodall, I H 1984 'Iron Objects', *in* Allan, J P *Medieval and Post-Medieval Finds from Exeter, 1971–80*, 337–8, Exeter.

Goodfellow, A V & Thornton, J H 1972 'Leather shoe parts and other leather fragments', *in* Wenham, P *Excavations in Low Petergate, York, 1957–58, Yorkshire Archaeol J*, 44 (1972), 65–113.

Grant, A 1982 'The use of tooth wear as a guide to the age of domestic ungulates', *in* Wilson, B, Grigson, C & Payne, S (eds) *Ageing and Sexing Animal Bones from Archaeological Sites*, 91–107. Oxford (= BAR Brit Ser, 109).

Guy I 1986, 'The Scottish export trade, 1460–1599', *in* Smout, T C (ed) *Scotland and Europe 1200–1850*, 62–81. Edinburgh.

Haggarty, G, Cox, E & Hurst, J 1984 'Ceramic material', *in* Tabraham, C 'Excavations at Kelso Abbey', *Proc Soc Antiq Scot*, 114 (1984), 381.

Hall, D W 1995 'Pottery', *in* Bowler, D P, Cox, A and Smith, C (eds) 'Four excavations in Perth 1979–84', *Proc Soc Antiq Scot*, 125 (1995), 952–9.

Hamilton-Dyer, S, McCormick, F, Murray, H K & Murray, J C 1993 'The bone assemblage and animal husbandry', *in* Murray, H K & Murray, J C 'Excavations at Rattray, Aberdeenshire, a Scottish deserted burgh', *Medieval Archaeol*, 37 (1993), 203–5.

Harcourt R, 1974 'The dog in prehistoric and early historic Britain', *J Archaeol Sci*, 1 (1974), 151–75.

Harvey, Y 1975 'The small finds', *in* Platt, C and Coleman-Smith, R (eds) *Excavations in Medieval Southampton, 1953–1969 vol 2: The finds*, 254–313. Leicester.

Hassall, T G 1976 'Excavations at Oxford Castle, 1965–73', *Oxoniensia*, 41 (1976), 232–308.

Henderson, J 1986 'The glass objects from 34 Shambles', *in* Tweddle, D 'Finds from Parliament Street and other sites in the city centre', *The Archaeology of York*, 17 (1986), 210–24.

Henig, M & Woods, H 1988 'Amber beads' *in* Sherlock, D and Woods, H *St Augustine's Abbey: report on excavations 1969–1978*. Kent Archaeol Soc Monogr 4. Maidstone.

Hillson, S 1986 *Teeth*. Cambridge Manuals in Archaeology. Cambridge.

Hodgson, G W I 1980 *A comparative analysis of metrical data derived from mammalian remains from selected historic sites in Britain*, PhD Thesis, Univ Dundee.

Hodgson, G W I 1983 'The animal remains from medieval sites within three burghs on the eastern Scottish seaboard', *in* Proudfoot, B (ed) *Site, Environment and Economy*, 3–32. London (= BAR Int Ser, 173).

Hodgson, G W I & Jones, A 1982 'The animal remains', *in* Thoms, L M 'Trial excavations at St Ann's Lane, Perth', *Proc Soc Antiq Scot*, 112 (1982), 437–52.

Hodgson, G W I & Jones, A 1984 'Report on the animal remains from the medieval levels', *in* Blanchard, L 'An excavation at 45 Canal Street, Perth', *Proc Soc Antiq Scot*, 113 (1983), 489–520.

Hodgson, G W I, Smith, C & Jones, A forthcoming 'The mammal bone', *in* Bogdan, N Q, Hodgson, G W I, Smith, C, Jones, A, Fraser, M, Heppel, M D, Clarke, A S, Jones, A K G, Smart, I H M & Longmore, R B *The Perth High Street Archaeological Excavation 1975–77. Fascicule IX. The Environmental Evidence*.

Hurst, J G, Neal, D S & van Beuningen, H J E 1986 *Pottery Produced and Traded in North-West Europe 1350–1650*, Rotterdam Papers, VI.

Kilmurry, K 1980 'The pottery industry of Stamford, Lincolnshire, c. 850–1250'. Oxford. (= Brit Archaeol Rep, 84).

Lund, C 1981 'The archaeomusicology of Scandinavia', *World Archaeol*, 12(3), (1981) 246–65.

Lynch, M 1988 'The social and economic structure of the larger towns 1450–1600' *in* Lynch, M, Spearman, M, and Stell, G (eds) *The Scottish Medieval Town*, 261–81. Edinburgh.

MacAskill, N 1989 'The Perth pottery', *in* Stones, J A (ed) *Three Scottish Carmelite Friaries*, Soc Antiq Scot Monogr, 6, Edinburgh.

MacGregor A, 1976 'Bone skates: a review of the evidence', *Archaeol J*, 133 (1976), 57–74.

MacGregor, A 1982 'Anglo-Scandinavian finds from Lloyds Bank, Pavement and other sites', *in* Addyman, P V (ed) 'The small finds', *Archaeology of York*, 17, 67–174.

Maxwell, R forthcoming 'Bone objects', *in* Rains, M and Hall, D W (eds) *Excavations in St Andrews 1980–89: A decade of Archaeology in a Historic Scottish Burgh, Tayside and Fife Arch Committee monograph 1*.

Murray, H K forthcoming 'Wooden and clay buildings' *in The Perth High Street Archaeological Excavation 1975–77. Fascicule II. The archaeology*.

Murray, H K 1980 'Medieval wooden and wattle buildings excavated in Perth and Aberdeen', *in* Simpson, A T & Stevenson, S (eds) *Town Houses and Structures in Medieval Scotland: a seminar*. Scottish Burgh Survey. Edinburgh.

Payne S, 1973 'Kill-off patterns in sheep and goats — the mandibles from Aşvan Kale', *J Anatolian Stud*, 23 (1973), 281–303.

Pearce, J E, Vince, A G Jenner, M A 1985 'Medieval pottery London-type ware', *Trans London Middlesex Archaeol Soc*, 6 (1985).

Redman, N 1994 'Whalebones in Shetland', *Shetland Life* (April 1994), 34–6.

Ryder, M L 1981 In; M Jones & G Dimbleby, *The Environment of Man: the Iron Age and Anglo-Saxon Period*. Brit Archaeol Rep (Brit Ser) No. 87, 215–29.

Samson, R 1982 'Finds from Urquhart Castle in the National Museum, Edinburgh', *Proc Soc Antiq Scot*, 112 (1982), 465–76.

Sermon, R S 1994 'Digging Deeper into Perth's Past', *Perthshire Advertiser*, 28 January 1994. Perth.

Smith, C 1995 'The animal bone', *in* Bowler, D, Cox, A & Smith C (eds) 'Four excavations in Perth, 1979–84', *Proc Soc Antiq Scot*, 125 (1995), 986–90.

Smith, C 1996a 'The animal bone', *in* Cox, A, 'Backland activities in medieval Perth: Excavations at Meal Vennel and Scott Street', *Proc Soc Antiq Scot*, 126 (1996), 792–4.

Smith, C 1996b 'The animal bone', *in* Coleman, R J 'Burgage plots of medieval Perth: the evidence from Canal Street', *Proc Soc Antiq Scot*, 126 (1996), 725–6.

Smith, C & Hodgson, G W I 1987 'Animal bone', *in* Holdsworth, P (ed) *Excavations in the Medieval Burgh of Perth*, Soc Antiq Monogr Ser 5, 196–9. Edinburgh.

Spearman, R M 1987 'South Methven Street', *in* Holdsworth, P (ed) *Excavations in the Medieval Burgh of Perth 1979–1981*, Soc Antiq Scot Monogr Ser 5, 47–58. Edinburgh.

Spearman, R M 1988 'Workshops, materials and debris: evidence of early industries', *in* Lynch, M, Spearman, M & Stell, G (eds) *The Scottish Medieval Town*, 134–147. Edinburgh.

Stace, C A 1991 *New Flora of the British Isles*. Cambridge.

Stavert, M L 1991 *Perth: A Short History*, 2nd edn. Perth.

Stones, J A 1982 'The small finds', *in* Murray J C, (ed) *Excavations in the Medieval Burgh of Aberdeen 1973–81*, Soc Antiq Scot Monogr 2, 177–223. Edinburgh.

SUAT 1991 '108–110 High Street, Perth', *Discovery Excav Scot 1991*, 73.

Teichert, M 1975 'Osteometrische Untersuchungen zur Berechnung der Widerristhöhe bei Schafen', *in* Clason, A T (ed) *Archaeozoological Studies*, 51–69. Amsterdam.

The Textile Institute (1970) *Identification of Textile Materials*. The Textile Institute, Manchester.

Verhaege, F 1983 'Low Countries medieval pottery imported into Scotland: notes on a minor trade', *Medieval Ceram*, 7 (1983), 3–36.

Walton, P & Taylor, G 1991 'The characterisation of dyes in textiles from archaeological excavations', *Chromatography & Analysis* (1991), 5–7.

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