6 THE FINDS

6.1 Pottery, by Derek Hall and George Haggarty

This excavation produced 243 pieces of pottery, ranging in date from the 12th to the 18th centuries. Each sherd has been identified by eye and where possible assigned a recognised fabric name and provenance.

6.1.1 Medieval wares

198 of the sherds are in variations of Scottish White Gritty Ware (SWGW), assumed to be a local product, which began production in the 12th century (Jones et al 2003). The largest group, from the fill of a Phase 3 pit (338), is very abraded, indicating that this material has been moved around quite a bit. Sherds from Phase 1 (from the fill of the well and the gully) and Phase 4, associated with SK5, are very thick and would seem to belong to the later end of this industry, dating to the 15th century. There are good parallels for this material from previous excavations in Leith at both Burgess Street and Ronaldson's Wharf (Lawson forthcoming a & b).

Vessels in the distinctively glazed fabrics of Yorkshire-type Ware were the most common imports in the east coast burghs in the 13th and 14th centuries (McCarthy & Brooks 1988, 227–52). There were two sherds from the large Phase 3 pit (338) and the Phase 1 well (262), which are both from glazed jugs.

6.1.2 Late and post-medieval wares

Scottish Post-Medieval Oxidised Ware (SPMOW) was first identified in excavations at Stirling Castle in the late 1970s (Haggarty 1980). It represents a late-medieval transition from the Scottish Redware fabrics produced from the 13th century and dates from the mid 15th to mid 18th centuries. There are 31 sherds in this assemblage and the most common vessel type is the green-glazed jug.

Phase 2 (midden 226) produced one tiger-glazed grey Frechen/Cologne stoneware body sherd dated to *c* 1600–1650 and one basal angle sherd from a slightly under-fired white stoneware jug covered with a light-brown exterior glaze, which has a double cordon above the expanded and rounded foot. Vessels of this type are rare in this fabric and are generally thought to be Cologne products, but this example has evidence of the diagnostic concentric arcs of Frechen on its base.

Phase 3 produced one body sherd from what may be a Martincamp flask; the exterior is a reduced orange-brown colour and the interior buff.

Phase 4 (Context 212) produced one late Saintonge buff-coloured body sherd from the shoulder of a vessel which has a single spot of glaze on its exterior and groove at what is probably the junction of neck and shoulder. Also from this context is an unglazed, abraded and heavily rilled body sherd in pale pink fabric, which has abundant tiny mica inclusions. It is probably French, but not Saintonge, and from a small jug or similar vessel.

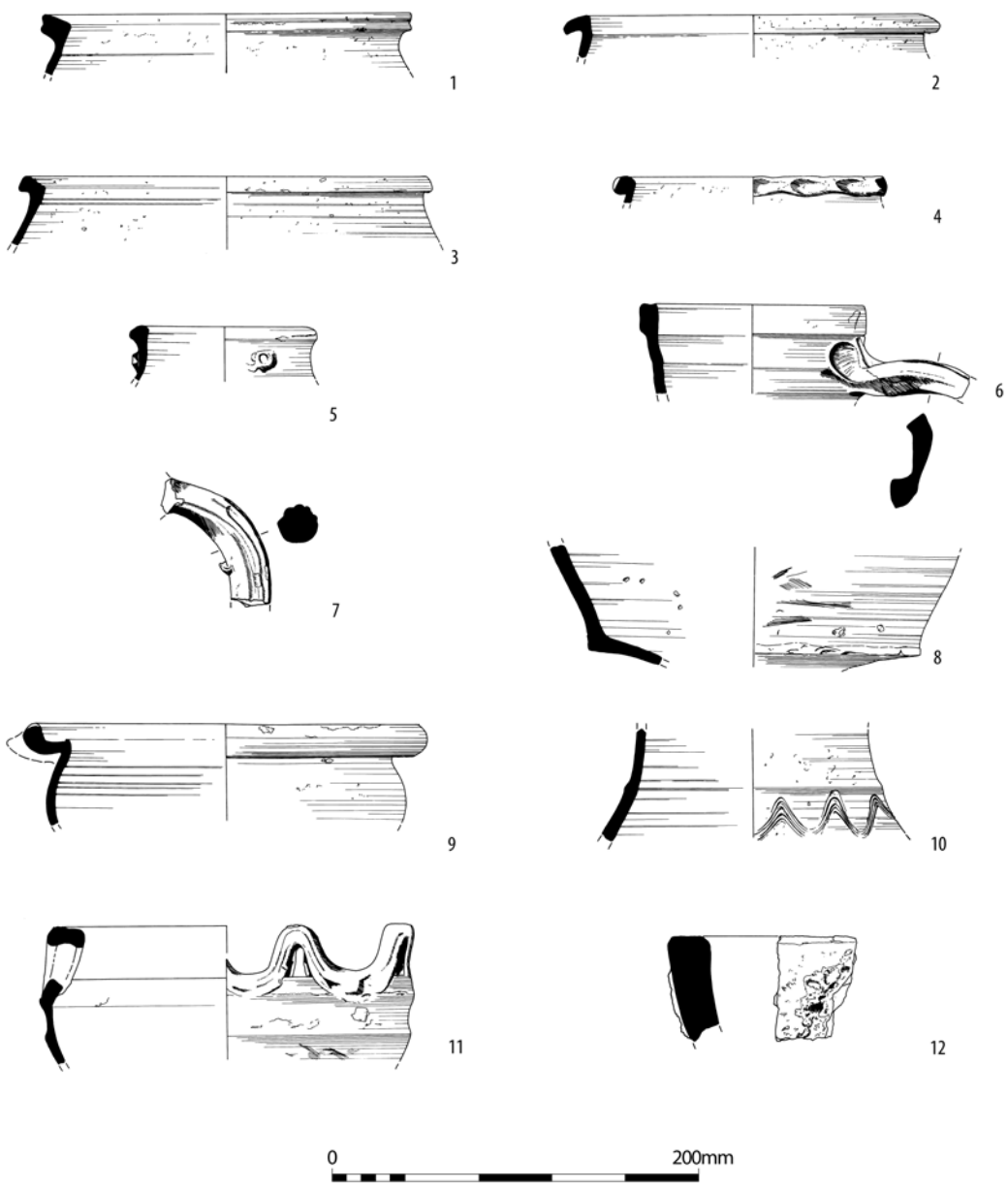
Associated with SK5 is one body sherd from the shoulder of a Siegburg vessel, probably a jug, which is covered on its exterior with an orange-brown ash glaze. There are two shallow grooves at the junction of the neck and shoulder. It probably dates to AD 1450–1550.

Phase 4 (sand layer 212 sealing the skeletons) produced one small body sherd from a large Redware crock with reduced core. Phase 5 (Context 208) produced a small, unglazed strap handle fragment in a sandy fabric with a reduced core, pinkish surfaces and sooting. This may be an early example of Scottish post-medieval Redware affected by secondary firing (16th century?).

The Phase 5 dump of clay smoking pipes (214) produced one rim fragment from a Hurst-type C.VIII Saintonge chafing dish which has an applied green-glazed arcaded knop, the beginning of another and interior sooting (illus 13, no. 13). John Hurst published, in considerable detail, a catalogue of the then known chafing dish variants (Hurst 1974, 233–47) of which only a few of the more uncommon types are known from Scotland. The only other recorded Scottish example of a Hurst-type C.VIII chafing dish comes from Ayr (Franklin & Hall forthcoming) and these can be paralleled by two examples from Plymouth (Clark 1979, 30) and an almost complete example from Grimsby Lane, Hull (Watkins 1993, 106, fig. 74, no. 261), dated *c* 1550.

There was one unstratified sherd of fine orange-red sandy Merida-type ware, covered with a lead glaze on its interior surface and a green glaze on the majority of its exterior but which stops with a definite line about 20mm from the bottom. The sherd also thickens markedly towards the bottom, suggesting that it may be near the base and that it might be from a bowl. The sherd possibly dates from *c* 1575 to *c* 1625.

One small rim sherd from a Low Countries Redware pipkin was recovered as an unstratified find. A very small sherd of thinly potted Tin Glazed Earthenware in an off-white fabric was also an unstratified find; this open vessel has traces of cobalt-blue decoration on its exterior and dates to the late 17th or 18th century.



Illus 13 Pottery

6.1.3 Unidentified

A Phase 5 levelling deposit produced one rimsherd from a small, thin, all over lead-glazed vessel. This is of uncertain origin and date as it does not appear to be Scottish Post-Medieval Oxidised Ware and may be 18th-century.

6.1.4 Discussion and conclusions

This assemblage is very mixed, containing several late-medieval continental imports, but it seems unlikely that any of them were found in situ. This is also reflected in the medieval assemblage, where many of the sherds of Scottish White Gritty Ware are very abraded and have clearly been moved around.

The discovery of a rimsherd from a Hurst-type C.VIII chafing dish serves to confirm that excavations in Leith are always very likely to discover late-medieval imported wares that are not well represented in other parts of Scotland.

6.1.5 Illustrated pottery (illus 13)

1. SWGW abraded rimsherd from unglazed jar. Step foundation 206, Phase 5.
2. SWGW rimsherd from unglazed jar. Gravel layer 235, Phase 3.
3. SWGW rimsherd from unglazed jar. Gravel layer 235, Phase 3.
4. SWGW frilled rimsherd from unglazed jar. Pit fill 337, Phase 3.

5. SWGW rimsherd from jug with traces of green glaze and applied red clay 'eye'. Sump lining 239, Phase 5.
6. SWGW rim and handle junction from green-glazed jug. Midden layer 226, Phase 2.
7. SWGW narrow-ribbed rod handle from jug with traces of green glaze. Deposit 212, end of Phase 4.
8. SWGW basal angle from unglazed vessel. Well fill 264, Phase 1.
9. SPMOW rimsherd from vessel internally glazed green with traces of external smoke blackening. Drain fill 243, Phase 5.
10. SPMOW bodysherd from jug glazed green-brown with incised wavy decoration. Gravel layer 235, Phase 3.
11. A rimsherd from a Saintonge Ware Hurst-type C.VIII chafing dish with green-glazed applied arcaded knob. Deposit 212, end of Phase 4.

6.2 Clay pipes, by Dennis Gallagher

A total of 117 clay pipe fragments comprising 14 bowls, 12 mouthpieces and 91 stems were examined from eight different contexts, the majority being from one context in Phase 5 (sump fill 214). None of the context groups were large but Context 214, with 89 fragments including 11 bowls, is of particular interest as it consists of apparent wasters. A full catalogue can be found in the site archive.

All the pipes appear to be local products, having a small bulbous bowl with a heel. The form is one common to many production centres in the early 17th century, before regional characteristics were fully developed. The largest group consisted of a deposit of wasters, unused bowls and other fragments, from Context 214. These are generally similar to the pre-1637 sealed group from the Tron Kirk (Gallagher 1987, 270). Stylistically most of the bowls from Context 214 can be dated to *c* 1630–40. The exception is one bowl which is slightly later, *c* 1650. This is a long-necked, forward-leaning bowl marked with a W on one side of the base, the other side being illegible. This mark may be identified as a product of William Banks. Banks held a monopoly of Scottish pipemaking in the early 17th century and, while this did not go unchallenged, the ubiquity of his products in excavated groups of the mid 17th century would suggest that he held most of the market. It is probable that the other pipes from Context 214 are his products. Although initially based in the Canongate, by 1635 he was resident in Leith. It is not known from the documentary evidence if he manufactured pipes in Leith, but the existence of the present waster material would suggest that this was the case. Recent excavations, including the present one, have uncovered more marked pipes from this period but more work is required on development of the early forms to refine dating.

The pipes are in a variety of fabrics, including red and grey clay as well as the more normal white. One bowl and a number of stem fragments show signs of over-firing, resulting in a grey fabric with a gritty surface. All the bowls are from low-quality products, with their rims bottered (smoothed) but not milled. Several of the heels are trimmed at an angle. Only one of the bowls has a maker's mark: a basal stamp that has a very crude rendering of the castle motif that became almost ubiquitous on later Edinburgh products. Only two fragments, both stems, are burnished. Certain of the stems are defective, having holes in their length caused by extremely off-centre bores. A few stems are bent at a sharp angle. Others have a gritty, or partially gritty, grey fabric, some with splashes of dark glaze. Some of the glaze splashes cover the breaks. As glaze was not used on pipes of this period, it would suggest that they shared a kiln with a potter's products. Few fragments joined, but from stem thickness and taper it is estimated that the average stem length was approximately 200mm.

Two stems had decoration consisting of multiple lines of milling applied with a roller stamp. Whilst uncommon on Edinburgh products, it has been noted on a pipe of mid 17th-century date recovered from recent excavations at Tower Street, Leith (Franklin forthcoming).

Mouthpieces rarely survive intact in assemblages of Edinburgh pipes, as they were the narrowest part of the stem and thus very fragile. The relatively large number of mouthpieces from Context 214 suggests that they were dumped very quickly after manufacture. All were of a simple rounded form formed in the mould, the usual form found on 17th-century Edinburgh products.

6.3 Ceramic building material and fired clay, by Sue Anderson

6.3.1 Kiln furniture

Fragments of heavily vitrified fired-clay kiln lining and pieces of kiln furniture were recovered from Phase 4 and 5 contexts, a total of 34 fragments (11,555g). Some fragments were recovered from the Phase 4 midden layer 212. In Phase 5, the majority were associated with clay pipes in dump 214, but small pieces were also found in nearby features: drain 207, sump fills 231 (sump 240) and 237 (sump 230). Terminology in the following descriptions follows Peacey (1996).

Most of the pieces were heavily vitrified kiln lining and were 60+mm thick. The vitrified surface was generally dark brown with deep cracks and the clay itself was white-firing and appeared to be tempered with ferrous or grog inclusions. One exception was a red brick (65mm thick) tempered with calcareous material, which was covered in thick slag-like vitrified material. In one case the vitrified surface was convex, perhaps suggesting that it covered an internal buttress.

Pieces of probable kiln structure were also present.

A short 'column' consisting of four U-shaped tiles in white firing clay, welded together by vitrification, measured 130mm in height, 90mm wide and 92mm deep; the surfaces were vitrified and deeply cracked. Another piece appeared to consist of fragments of two similar tiles stuck together.

Fragments of six possible 'bats' were identified. These were roughly formed in white-firing clays, some containing grog and others ferrous material, and with smoothed surfaces and rounded edges. They varied in width from 64mm to 91mm. Thicknesses varied from 22mm to 40mm, although most were under 30mm thick. There was also a possible saggar or dish (illus 13, item 12) which appeared to be bowl-shaped in form, *c* 300mm in diameter, and had two ?rectangular cut-outs *c* 37mm below the rim and 30mm apart. None of the examples provided by Peacey have cut-outs, however.

Six pieces of 'furniture supplements' were found. These consisted of four fragments of two thin, flat sheets or straps (4mm thick), a Type 4 'bun' with a roughly curving edge (9mm thick, *c* 320mm in diameter) and a heavily vitrified fragment which may have had a rolled edge.

The only evidence that the pieces represented pipe-kiln waste comes from their association with clay pipe wasters dated *c* 1630–40 (see Gallagher at 6.2 above). Whilst some of these pieces show similarities to 19th-century pipe-kiln waste, particularly the flat straps or sheets, none of the fragments had impressions of pipe stems or bowls on their surfaces, and there were no waste fragments of slag-like material containing clay pipe stems. However, there is at present very little evidence for early pipe kilns and it may be that the types of kiln furniture in use in this early period were slightly different from those of the 19th century. If these fragments were from a pipe kiln, they are clearly of great importance in the early history of clay pipe manufacture in Scotland.

6.3.2 Illustrated sherd (illus 13)

12. Fragment from white-firing clay saggar. Drain 207, Phase 5.

6.3.3 Brick and tile

Two fragments (785g) of ceramic building material were collected. There was a small piece of floor tile with honey-coloured glaze, 32mm thick, from fill 271 of the Phase 1 curving wall foundation cut. A handmade brick in a red, medium sandy grog-tempered fabric was found in Phase 3 pit 338 (fill 335); it measured 110mm wide and 45mm thick, a size compatible with a date in the 16th century.

6.3.4 Terracotta, by Adam Jackson

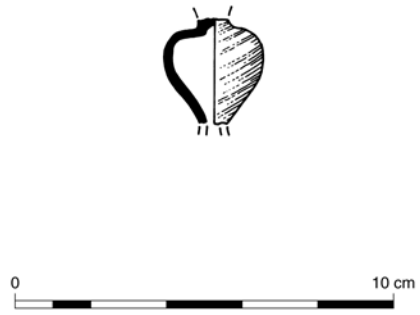
A terracotta trefoil (unstratified) has been broken at its stem and probably once formed the decorative end of a ridge tile from a roofed structure or coping from a wall. It would originally have been formed by pressing clay into a mould and then being fired in a brick kiln. Such building components were, in the 19th century, mass-produced by numerous companies across the UK, and would have appeared in sales catalogues that were widely available. In the absence of a maker's stamp it is impossible to identify the origin of this object. The trefoil or shamrock is a common decorative motif, particularly in church architecture, as it symbolises both perpetuity and the Holy Trinity.

6.4 Stone, by Adam Jackson

A fragment of sandstone carved in a scroll form, and with feather or leaf detailing, was an unstratified find. The latter had breaks at both ends and probably formed part of the decoration on the top of a tombstone or some other funerary or commemorative monument. Scrollwork is commonplace on funerary and commemorative monuments, particularly from the 18th century to the present day. It is probable, however, that the object is broadly, but not definitely, of 19th-century date.

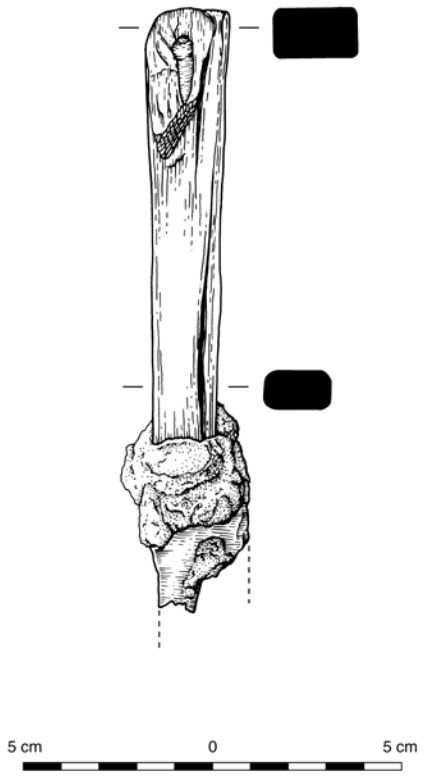
6.5 Glass, by Sue Anderson

Seven fragments of glass were collected, two unstratified, three from deposits, one from a drain fill and one from a pit fill. They included shards of window, bottle and vessel glass.



Illus 14 Glass stem

The earliest find in this small assemblage was a wine-glass fragment from Phase 5, the fill of sump 230 (illus 14). It is a hollow-blown inverted baluster-shaped knop in slightly opaque, very pale green ?soda glass, and was part of the stem of a late 17th-century wine glass. It is likely to have been imported, possibly either Venetian or Dutch, and would not have been out of place on the tables of Balmerino House. A fragment of unstratified 17th-century window glass with a muff edge shows signs of burning, perhaps evidence of a house fire if it was



Illus 15 Knife

in situ at the time. Nothing else in this group is of particular note, consisting of post-medieval green beer/wine bottles which occur commonly on sites of 17th- to early 20th-century date, a very fragmentary window quarry of uncertain date, and a fragment of modern uncoloured window glass. A full catalogue can be found in the site archive.

6.6 Metalwork, by Sue Anderson

6.6.1 Textile-working objects

A copper alloy machine-made thimble was found in Phase 5 (foundation-levelling Context 225). It had flaring sides, a domed end and concentric rings of dots at the top, and was slightly squashed. The height was 24mm and the diameter was *c* 20mm at the open end. Machine-made thimbles were first produced in the Netherlands in the 17th century (Margeson 1993, 187), so it is possible that this object could be contemporary with its context.

6.6.2 Tools

An iron blade-tool (illus 15), probably a large knife, with a plain, rectangular-section, tapering handle of ivory, was found in Phase 4 (Context 212). The handle was *c* 120mm long, 22mm wide and 13mm thick. The blade, which was heavily corroded and incomplete, had a long tang (67mm long). A further length (37mm) of a more radio-dense metal circular-section rod was present at the opposite end of the handle, the end of which can be seen at a break in the ivory. This may indicate that the current blade was a replacement. A similar handle, used for a mirror, was found at South Berwick, New England, at a site which is closely datable to the third quarter of the 17th century (Baker n.d.).

6.6.3 Nails and miscellaneous fittings

The majority of ironwork collected from this site consisted of nails, a total of 32 objects. All except one were handmade, with square- or rectangular-section shafts, and where heads were present these were flat, sub-square sheet types. The exception was an unstratified fragment that was either a machine-made nail or a fragment of straight wire. Complete nails varied in length from 37mm to 71mm, although one incomplete example was over 84mm long.

Six nails were collected from contexts associated with skeletons SK4 and SK5 and could be coffin nails, although they may simply have been redeposited in the grave fills as there were so few. Two of these nails had very large square heads and could be classified as studs.

Mineral-preserved wood was present on eight nails from the fill of Phase 5 drain 207 (pine) and unphased wall foundation fill 271 (oak) (species identifications by M Cressey).

A fragment of rectangular plate or strap (22+mm long, 16mm wide, 2mm thick), with a dome-headed rivet (7mm diameter) in situ and a hole for another at the broken end, was an unstratified find. The degree of preservation suggested it was probably modern.

A curving strap fragment (127+mm long, 18mm wide, 8mm thick) with a rectangular section came from Phase 2, midden 226. It may be part of a drop handle of the type used on chests, coffins or drawers. A square rivet hole was present at one end.

6.6.4 Unidentified

Two concreted lumps of iron in very poor condition were found with SK2. One of these had mineral-preserved wood within the corrosion products, but it was unidentifiable (M Cressey pers comm). Radiographs suggest that at least one of the fragments may be ferrous slag.

A fragment of an object with a rectangular section (49+mm long, 12mm wide, 8mm deep) was found in Phase 2, midden 226.

6.7 Vitrified material, by Dawn McLaren and Andrew Heald

Eight samples of vitrified material or slag were recovered during the excavations. Visual examination allows the material to be broadly classified

using standard terminology (eg McDonnell 1994; Spearman 1997; Starley 2000). Slags can be produced during a range of pyrotechnic processes and are not necessarily indicative of ironworking. A range of slag morphologies are produced during iron production and generally fall into two types: macro-slags and micro-slags. Only a few, for example tapped slag and hammerscale, are truly diagnostic (of smelting and smithing respectively). In many slag assemblages there is a significant amount of material which is unclassifiable, making the allocation of individual pieces – particularly small samples – to specific types and processes difficult (Crew & Rehren 2002, 84). Further scientific analyses would be necessary to classify the material more conclusively. Only macro-slags were recovered from the excavations. None of the micro-slags that may suggest in situ ironworking (eg hammerscale) were recovered. Further, only a few of the pieces could be confidently assigned to iron-working, possibly smithing.

One piece (892g) from the fill of Phase 3 pit 282, appears to be an amalgam of at least two slag pieces. One lump appears to be superimposed on a compact, dense slag retaining the sub-rectangular form of the hearth/furnace structure. Vitrified slag adheres to the upper surface and one side. The small dimensions and lack of substantial charcoal inclusions may suggest that this is likely to be the result of iron smithing rather than smelting activities where hearth bottoms appear to be larger and heavier, with large inclusions of charcoal or organic material.

The remaining seven slags do not have any diagnostic features which allow them to be classified to specific types; the pieces are, therefore, best described as unclassified slags. Such slags are a common component within a slag assemblage and, as noted, can be produced during a range of pyrotechnic processes and not just ironworking. They often form the bulk of an assemblage and can be present in a wide variety of sizes and a range of colour and density. Recognising class by visual examination alone is difficult and for this reason such slags are often referred to as undiagnostic slags (US). This assemblage is dominated by such material, with 576g coming from five contexts. Possible inclusions of coal and lime within the vitrified matrix suggest a medieval or post-medieval date. The majority of the slag (354g) was unstratified and tells us little about on-site activities.

6.7.1 Discussion

This small assemblage was derived from secondary or residual contexts and is consequently limited in the information that it can provide about on-site activities. The vitrified material is dominated by unclassified slags, the majority from unstratified contexts, which are neither diagnostic of a specific ironworking process nor chronologically distinctive. Only one fragment, the slag amalgam encompassing a plano-convex hearth bottom, is diagnostic of smithing activities. The absence of micro-slags, such as hammerscale or slag spheres, and associated structural elements (eg hearth or furnace lining) does not indicate in situ metalworking. The stratified material was mainly recovered from medieval or post-medieval deposits (Phase 3 (282) and Phase 4 (212)) that predate the foundation walls of Balmerino House. The use of coal and possibly lime detected within the vitrified material is consistent with a medieval or post-medieval date.

6.8 Worked bone, by Catherine Smith

A broken cattle first phalange from Phase 4 shows some modification of the proximal articular surface: a small, smooth-edged, circular hole was bored into the proximal surface, placed centrally in the natural groove between the peripheral and abaxial halves of the bone. The hole penetrates into the internal cavity of the bone. It is probable that the intention was to produce an artefact of some sort, since trying to extract marrow from the bone by this means would have resulted in a larger, rougher hole. In any case, very little marrow would have been produced for the effort expended.

Perforated cattle phalanges interpreted as toys or gaming pieces are known from sites dating from the late Neolithic and the Iron Age in the Northern Isles (Sharples 1984, 105–6) as well as from urban medieval sites in mainland Scotland and the Netherlands. Phalanges from medieval Dunfermline (Cox 1996, 99, cat. no. 121) and 16th-century Dokkum (van Gelder-Otway 1979, fig. 2, 115), with more than one piercing, are probably intended as miniature skittles. The holes were possibly used to introduce lead into the interior of the bone, in order to weigh the pieces down. The phalange from Leith may be an example of this type of artefact, although given its incompleteness, it is not possible to state this with certainty.

6.9 Animal bone, by Catherine Smith

6.9.1 Species present

Table 3 shows the species present by phase. Species which were present in all phases were cattle and sheep/goat, both being equally frequent (168 fragments each). Pig bones were present in Phases 2, 4 and 5 and were far less frequent than either cattle or sheep/goats, totalling only 15 bones. Horse bones were present in Phases 1, 2 and 4 (ten bones) and were also recovered from unstratified contexts. Other domesticated animals present were cat (eight bones from Phases 2, 4 and 5) and dog, represented by seven bones in Phase 2 and an unstratified skeleton, SK3. Wild mammals were represented by a single bone of ?fox (*Vulpes vulpes*) in Phase 4, one bone of hare (*Lepus capensis*) in Phase 3 and three of rabbit (*Oryctolagus cuniculus*) in Phases 2 and 5.

Table 3 Animal and bird bone species quantification by phase

	No. of bones					
Species	**Phase 1**	**Phase 2**	**Phase 3**	**Phase 4**	**Phase 5**	**Total**
Cattle	23	54	17	35	39	168
Sheep/goat	22	56	10	43	37	168
Pig		11		3	1	15
Horse	1	4		5		10
Roe deer	1				1	2
Dog		7				7
Dog/Fox				1		1
Cat		5		2	1	8
Hare			1			1
Rabbit		1			2	3
Large ungulate	9	37	10	13	28	97
Small ungulate	3	17	3	10	29	62
Indeterminate mammal	34	93	26	81	38	272
Domestic fowl	7			2	15	24
Grey partridge	1					1
Domestic/Greylag goose	2			1	3	6
Duck cf Mallard			1			1
Gannet		1				1
Gull species					1	1
Indeterminate bird	1	4	2		5	12
Fish	+			+		+
Total	104	290	70	196	200	860

Roe deer (*Capreolus capreolus*) bones were present in Phases 1 and 5.

Bird species found at the site were domestic fowl (*Gallus gallus*), grey partridge (*Perdix perdix*), domestic/greylag goose (*Anser anser*), duck cf mallard (*Anas platyrhynchos*), gannet (*Sula bassana*) and gull species (Laridae). An unphased context (271) contained the skeleton of a domestic fowl.

6.9.2 Ages of animals at death

Epiphyseal fusion state was examined to provide evidence of the ages at which animals were killed or died. Long bones with surviving articular ends were scrutinised to determine whether fusion of the epiphyseal plates had taken place. Bones were then categorised as belonging to one of the following age categories: juvenile; juvenile or immature; immature; immature or adult; and adult. There was thus a certain amount of overlap between the age categories, due to the degree of variation in timing of epiphyseal closure between individuals. This method of estimating age at death is generally agreed to be more imprecise than that derived using dental criteria. However, sheep/goats were the only species for which there was dental evidence of age at death at the site and thus it was the only method available for cattle.

In the case of cattle, no bones of very young animals were recovered. A small percentage of bones, 9.3%, did however fall into the juvenile or immature category, and represent calves. The remainder of the bones came from animals which were immature or adult at death. Cattle which were definitely adult accounted for 50% of the sample. These figures, however, represent a fairly small sample and should therefore be treated cautiously. Preservation factors should be taken into account, bearing in mind that bones of younger animals are less highly mineralised than those of adults and thus under adverse burial conditions survive less well. The distribution pattern is therefore likely to be skewed towards older individuals. The presence of adult individuals indicates that animal husbandry was of a sufficiently high standard to allow the survival of many animals over several winters before culling. These animals may represent the breeding stock.

By contrast, there is evidence that more sheep were killed at a young age, borne out by both the mandibular and long bone evidence. The cull

pattern showed no marked dissimilarities between the earlier phases (1–4) and later Phase 5.

6.9.3 Individual animal burials

Two more or less complete animal skeletons were recovered from the site. One, SK3, was a male dog, buried in front of Balmerino House and thought to be a pet animal. On the basis of tooth wear and overall dental health, this dog was probably an older adult. In the left mandible, the canine, first and second premolars were all missing. Since there was a degree of resorption of the jaw bone it was evident that the teeth had been lost during life (ante mortem). The dog was otherwise healthy, at least in regard to the evidence of the skeleton. In appearance, it would have been of the 'plain dog' type, the skull having a fairly wide zygomatic arch, a muzzle neither unduly long nor short and a well-developed sagittal crest. Its estimated height (after Harcourt 1974) was approximately 49cm, or about the size of a modern Border collie.

The second skeleton was that of a domestic fowl (Context 271). Although the head and beak were missing, most of the post-cranial skeleton was present. There was evidence of some pathology in the pelvis: the synsacrum was deformed, with a severely twisted vertebral column, skewed to the right side. The lumbo-sacral vertebrae were also markedly skewed. The long bones of the legs were normal in appearance, despite presumably having been forced to compensate for the deformities in the pelvis. There was little further evidence of pathology apart from expansion of two rib facets. The bird may have died naturally, or was perhaps in too poor a condition before death to have been considered fit for human consumption.

6.9.4 Butchery

There was plentiful evidence of butchery style and the types of implements used. In all phases there was little evidence that saws had been used. Instead, the main implements used to disjoint and divide carcasses of cattle, sheep/goats and pigs appear to have been axes or cleavers. This was apparently the norm throughout Scotland in the medieval and post-medieval periods.

Most of the butchery marks appear to have been made by individuals with a modicum of skill, requiring only one or two cuts to sever a bone or joint. However, one bone in Phase 5, a cattle scapula, has been subjected to a barrage of blows, resulting in a series of about 16 hacking cuts on the ventral surface. The positions of the hacks near to the neck indicate that the intention must have been to sever the joint between the scapula and the humerus, although this appears to have proved a difficult task for the butcher. By contrast, in one context in Phase 2, the flesher seems to have disjointed articulating bones using only a knife: deep cuts are apparent around the tubercles of a proximal cattle tibia at the knee joint, and a cattle calcaneum (tarsal) shows knife cuts on the shaft and the proximal end, characteristic of boning out by a skilled operator.

There were also two examples of horse butchery. A horse radius from Phase 2, although entire, had been hacked at least eight times along the medial and proximal part of the shaft, in a medio-lateral direction. If the intention was to sever the lower part of the leg, the job was unfinished. In the same context, a left metatarsal, possibly from the same horse, showed evidence of parallel knife cuts on both the anterior and posterior aspects of the shaft. The marks on the metatarsal possibly relate to skinning, although those on the radius hint at removal of the meat rather than the hide.

A horse radius/ulna associated with dog skeleton SK3 was sawn across the shaft near to the olecranon process. In addition, knife cuts and cleaver hacks were present on the medial aspect of the radius shaft. This appears similar to the way in which cattle radii are butchered, and also indicates meat production. Horses have been butchered and their meat eaten by humans, or prepared as dog food, throughout Scotland from the Iron Age to the early modern period (Smith 1998), and to find evidence of this practice in Leith in both medieval and post-medieval contexts is not surprising.

6.9.5 Size of the animals

Several intact long bones of sheep survived, allowing an estimation of live withers height (or height at the shoulder) to be made. In the case of sheep, two radii in Phases 1–4 were estimated to come from animals of 57.3cm and 60.7cm, while a metacarpal and metatarsal from Phase 5 were from sheep of about 53.8cm and 58cm respectively. These animals fall within the range of 46.7–65.8cm recorded on the large medieval assemblage from the Marks and Spencer site, High Street, Perth (Hodgson et al forthcoming).

Two complete horse radii were recovered, from which withers heights were estimated. One bone from Phase 2 was from an animal standing approximately 140cm, or about 13:3 hands' height at the shoulders, and another from Phase 4 was from an animal of about 126cm, or 12:1 hands. Both of these animals are smaller than 14:2 hands, the defining upper height limit for ponies, and thus can be considered as such.

In general, most of the bones from Phases 1 to 4 at the site fell within the size ranges of those from the substantial medieval assemblage recovered from the Marks and Spencer site, High Street, Perth and other medieval assemblages from Scotland. One bone, a cattle calcaneum from Phase 1, appeared substantially larger than the medieval norm, perhaps indicative of disturbance or re-deposition from elsewhere.

6.9.6 Discussion

The range and frequency of occurrence of the domestic and wild mammal and bird species recovered from the site is typical of a Scottish medieval urban assemblage. Cattle and sheep/goats were the mainstay of the domestic economy and were the most frequently occurring species at this site, as they are at many other sites on the east coast of Scotland (Hodgson 1983). Pigs were much less frequent than either cattle or sheep/goats, as is the case at other medieval Scottish sites. The diet of the inhabitants of the site may also have included horse flesh, although it is possible that the butchered horse bones were the remains of meat prepared as food for dogs.

Wild mammals, such as hare and roe deer, were also utilised, but their bones were nowhere near as plentiful as those of the domesticates. It is not possible to state whether the rabbit bone in Phase 2 was from an animal which was eaten, since it was unbutchered. If medieval, it is an early example of a species whose introduction from continental Europe was only established with some difficulty by monastic communities. However, since the rabbit is well-known for its burrowing habits, it is fairly likely that the bone is intrusive.

Both domestic and wild birds were also eaten. The former included domestic fowl, goose and possibly duck, although the last could as easily have been a wild mallard as a domestic bird. Wild species were the grey partridge, a well-known game bird up to the present day, and the gannet, a species which is not so widely used as in the past. Gannet bones have been recovered from sites of medieval date both around and on the islands of the Firth of Forth, for example North Berwick, Dunbar and the Isle of May (Smith 2008 and forthcoming) and are evidence of seasonal exploitation of marine resources.

6.10 Overview of the finds and dating evidence, by Sue Anderson

Finds from Phase 1 consisted largely of pottery and animal bone. One small fragment of a late-medieval floor tile was also found. Most of the pottery came from the well feature 262 and ditch 274, and suggests that the former was probably of 13th/14th-century date, and that both had been infilled in the 15th century. Recut pit 276/280 produced two sherds of post-medieval oxidised ware, suggesting a date no earlier than the 15th century.

Overlying the Phase 1 features, a thick layer of midden soil or abandonment horizon contained large quantities of animal bone, a small group of medieval and post-medieval pottery, an iron ?handle and a piece of slag. The mixed nature of the deposit suggests that it may have been reworked as a garden or cultivation soil. This may explain the presence of apparently intrusive material such as the Frechen stoneware sherd of 16th/17th-century date. It is likely that this deposit was originally laid down in the 15th century.

The earlier of the two Phase 3 pits (338) produced 77 sherds of medieval pottery, including some Scarborough Ware, much of which was abraded. The large pit (282), which cut 338, produced only one sherd of post-medieval oxidised ware, but also contained a half-brick of probable 16th-century date. A small quantity of animal bone and two pieces of slag were also recovered from these features, but it seems likely that many of the finds, from pit 338 at least, were redeposited from earlier layers.

Phase 4 included the remains of six human skeletons, the bones of which produced radiocarbon dates spanning the mid 15th to mid 17th centuries. The presence of clay pipe wear on the teeth of two individuals suggests a date towards the end of this range. As clay pipes were not widely available until the 1590s in England (and were not made in Scotland until the 1620s), a date in the later 16th or early 17th century would seem most likely for the burials. Residual pottery of medieval and mid 15th- to mid 16th-century date was recovered from soil surrounding two of the burials.

The majority of artefacts from Phase 4 came from the layer sealing the burials. Again there was a high proportion of residual material in this layer (212), including medieval pottery and probably animal bone. The latest pottery consisted of late Saintonge Ware and post-medieval oxidised wares. A clay pipe of *c* 1640–60 was recovered, as well as a shard of window glass, and a few pieces of kiln waste also came from this layer. The iron blade tool with the ivory handle, potentially also of 17th-century date, came from this layer. It seems likely that, like the Phase 2 midden layer, this layer represents reworked garden soil.

Finds from Phase 5 were collected from the make-up layers below the step foundation, the foundation itself, and the fills of pits, sumps and drains. Seventeen sherds of medieval and fifteen of post-medieval pottery were recovered, including the possible Merida Ware vessel and the Saintonge chafing dish rim. Other finds included animal bones, a 17th-century or later thimble and a fragment of late 17th-century wine glass. The largest group of finds from this phase consisted of the kiln waste and clay pipe fragments from dump layer 214. Given the presence of some of this material in the Phase 4 layer overlying the skeletons, it is possible that the material was redeposited following the excavation and creation of sump 240 and used to backfill the earlier, defunct sump 230. If so, it must be presumed that the waste was dumped on the site whilst it was still waste ground, prior to the construction of Balmerino House in 1631. It seems unlikely that it would be dumped in the grounds after the house had been built.

Material from the 20th-century Phase 6 demolition of the house was all of modern date and, with the

exception of a piece of slag, no finds were recovered from contexts of this phase.

Unphased material included the decorative terracotta and stone fragments which could have been related to St Mary's itself, several shards of glass bottles, a dog burial, some iron slag and pottery collected from test pit contexts.