
4 THE SMALL FINDS JUDITH STONES

With contributions by Dr Helen Bennett, Dr David Caldwell, P J Davey, Dr A Fenton, Alison Goodall, Dr Ian Goodall, J B Kenworthy, Arthur MacGregor and Dr Nigel Trewin.

INTRODUCTION

With very few exceptions the small finds described and illustrated here were recovered from the Broad Street, Queen Street and 42 St Paul Street excavations. The present writer has taken overall responsibility for the production of this report, and she is greatly indebted to a number of experts for their substantial contributions. These contributions are acknowledged at the beginning of each section of the catalogue. Where there is no such attribution, the present writer is the author. She is also most grateful for advice from other sources, which is acknowledged at the appropriate place within the text.

CATALOGUE

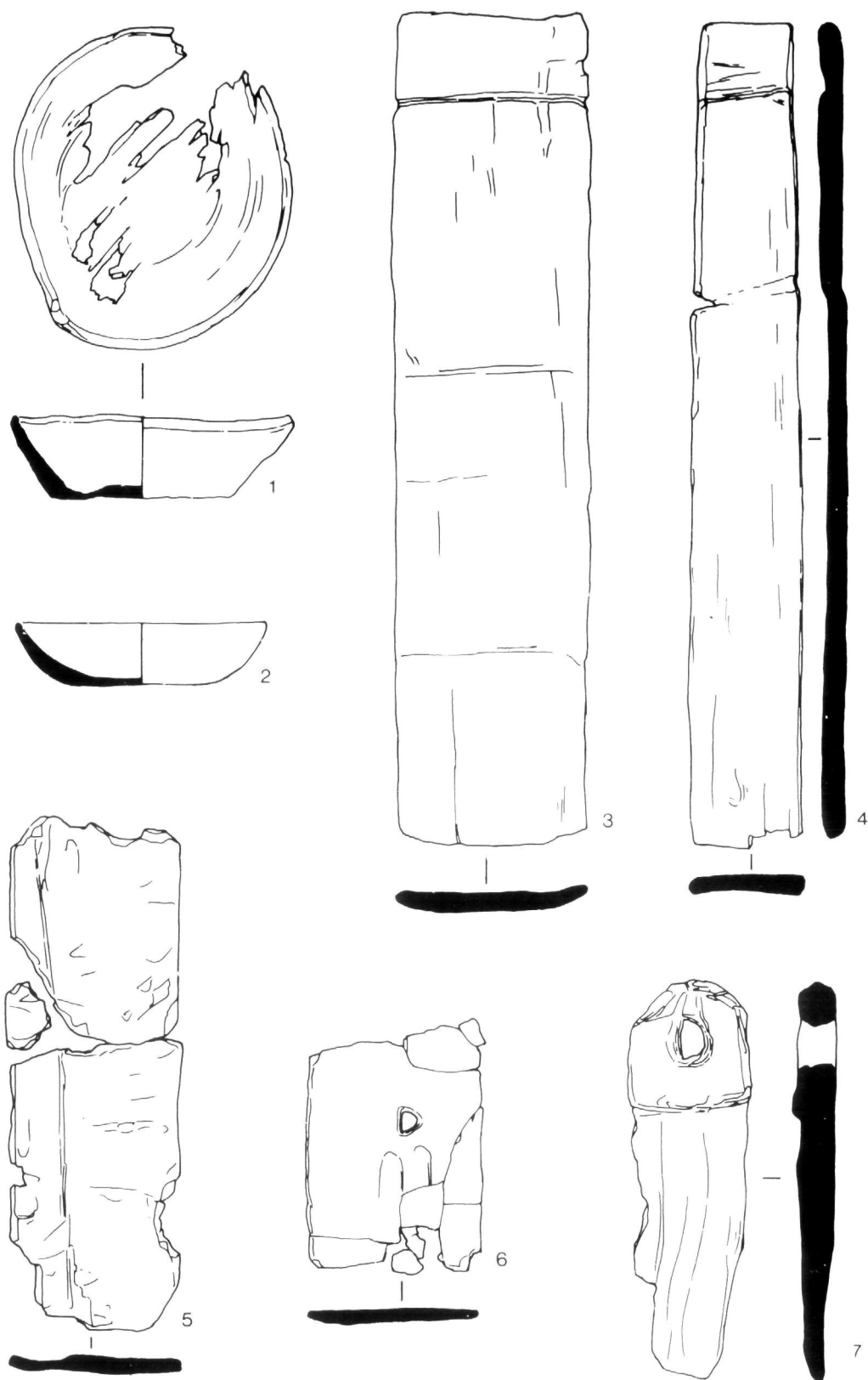
In the catalogue the description of each object is followed by details of the site, area, trench and layer in which it was found, as appropriate. Where possible, a phase number is also included, referring to the phases detailed in the excavation report of that particular site. Most items in the catalogue are also followed by a small find number, given to the object immediately upon excavation, each site having a separate numbering system for this purpose. It will be noticed that certain items in the catalogue have no small find numbers. This simply reflects differences from site to site in the practice of allocating these numbers. The small finds have been deposited at Aberdeen Art Gallery and Museum, with the exception of catalogue nos 49 and 50.

WOODEN OBJECTS NO 8 BY A FENTON

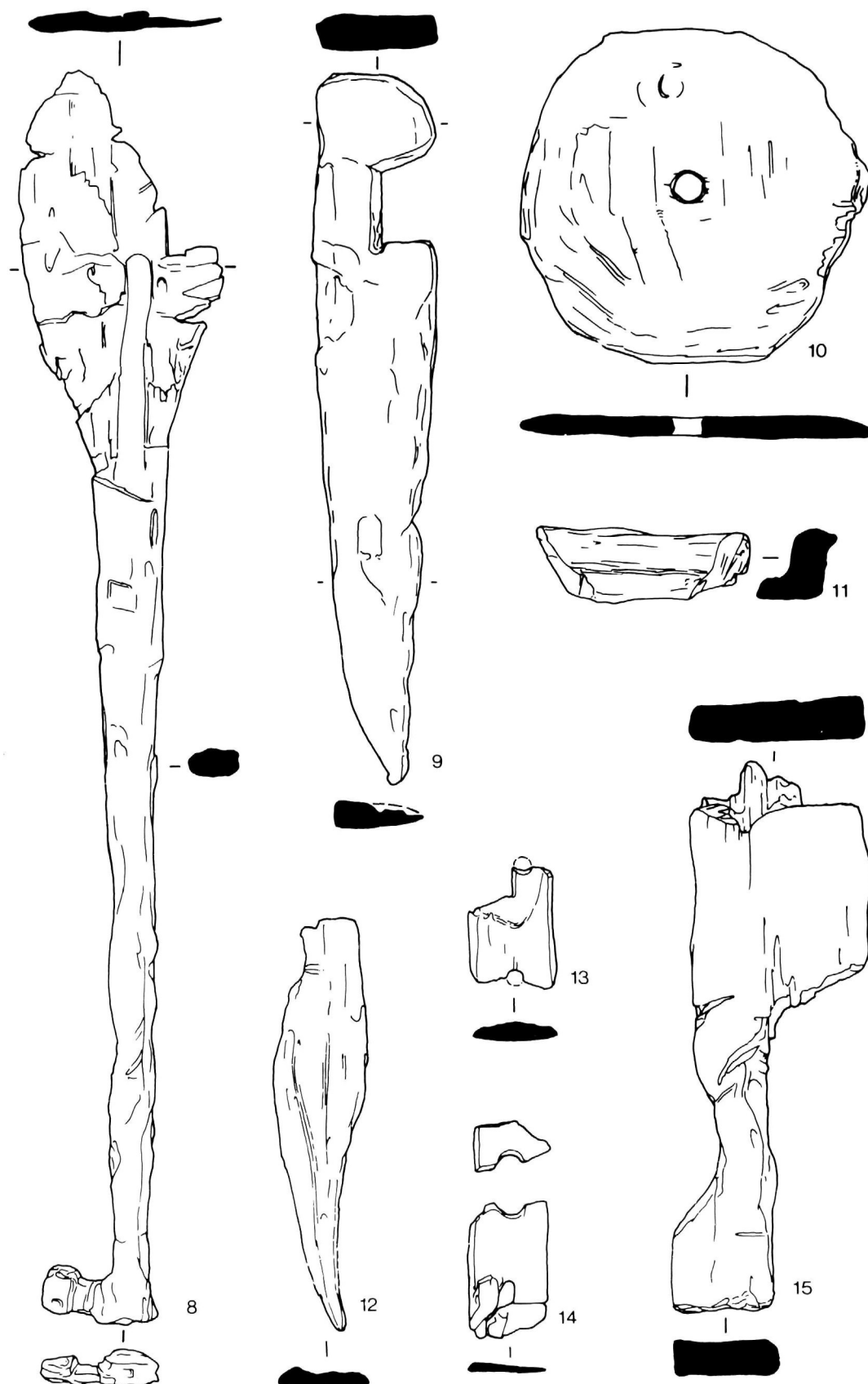
All worked wood, except obviously structural pieces, has been included in this catalogue, whether or not its function can be satisfactorily identified. The species of wood, identified by J S Murray (Department of Forestry, University of Aberdeen), is given only where it could be established without damage or before the urgent conservation which all wooden objects required.

BOWLS (Ill 102)

- 1 Birchwood. Maximum diameter: 180 mm. Groove on interior near rim, irregularly placed 20-60 mm below rim, 2 mm deep. Broken and warped. Burnt patch, 40 mm × 60 mm on base and wall inside. 42 St Paul Street, Area F, Layer 55, Phase 8, (Small Find 792).



III 102 : Wooden objects. Scale 1/4



III 103 : Wooden objects. Scale 1/4

- 2 Birchwood. Maximum diameter: 160 mm. Part of base and wall remaining. Undecorated. 42 St Paul Street, Area F, Layer 29, Phase 9, (Small Find 784).

BARREL STAVES (Ill 102)

- 3 Length: 522 mm. Shallow groove 2 mm deep, 50 mm from upper end. 42 St Paul Street, Area F, Layer 55, Phase 8, (Small Find 804a).
- 4 Length: 522 mm. Groove c 3 mm deep, 55 mm from upper end. 42 St Paul Street, Area F, Layer 55, Phase 8, (Small Find 804b).
- 5 Fragmentary. 42 St Paul Street, Area F, Layer 55, Phase 8, (Small Find 804c).
- 6 Flat object. Part of barrel stave (?) with triangular hole (bung-hole?) towards one end. 42 St Paul Street, Area C, Layer 217, Phase 4, (Small Find 733).

MISCELLANEOUS (Ill 102, 103)

- 7 Upper part of bucket stave with handle hole. 42 St Paul Street, Area A, Layer 139, Phase 7, (Small Find 809).
- 8 Oak paddle? Length: 820 mm. Handle originally T-shaped. Probably used for propelling small boat or currach. 42 St Paul Street, Area A, Layer 166, Phase 8, (Small Find 738).

A paddle still extant in Elgin Museum (1978: 1516), belonging to an 18th-century currach, has a T-shaped handle, although the blade is rectangular and longer than the Aberdeen example. The Elgin paddle, discussed in Fenton 1972, is approximately 1.14 m long. The Aberdeen one, originally c 0.90 m, is shorter and therefore just feasible as a paddle. Jenkins (1974, 137-8) illustrates the paddles used in Welsh coracles, one of which, the Teifi paddle, has a claw at the end of the handle to slip under and engage the basal bar of the seat support when the coracle is hoisted on the owner's shoulders. The claw also makes a good finger grip when

paddling straight ahead with the paddle used over the bow.

In spite of the greater size of the Welsh examples, it seems at present reasonable to interpret the Aberdeen object as a paddle. The oval shape is certainly unusual, but the T-handle and the one-sided convexity are compatible with such an explanation.

- 9 Weaving sword? Length: 470 mm. Used to close the weft threads after passing them through a vertical loom. 42 St Paul Street, Area C, Layer 23, Phase 8, (Small Find 696).

A lack of comparative examples makes this identification necessarily tentative. The closest parallel so far is one in Perth Museum (92), but it is not well provenanced, having been a chance find in the Watergate in 1898 and is therefore of little use in determining the true function of the Aberdeen example. The Perth sword is more slender than the Aberdeen object and probably shorter, 0.50 m to the 0.82 m of the Aberdeen example, although the exact original length of the Perth sword is uncertain because it is now in two pieces. Knowledge of cloth preparation in medieval Scotland is still very limited, but the finding of this possible weaving sword on an urban site raises the question of the continued use of the vertical loom at this period.

- 10 Lid? Diameter: c 217 mm with central perforation, diameter: 22 mm. 42 St Paul Street, Area C, Layer 185, Phase 9, (Small Find 747).
- 11 Portion of base or lid of container? 42 St Paul Street, Area C, Feature CC, Phase 5, (Small Find 810).
- 12 Curved spatulate object, flat on reverse side. Length: 270 mm. 42 St Paul Street, Area F, Layer 36, (Small Find 799).
- 13 Fragmentary object with remains of circular hole at each end. 42 St Paul Street, Area F, Layer 55, Phase 8, (Small Find 804d).
- 14 Small broken object with irregular hole towards one end. 42 St Paul Street, Area A, Layer 139, Phase 7, (Small Find 740).
- 15 Large object, fashioned into curve at narrower end. Broken at both ends. 42 St Paul Street, Area A, Layer 222, Phase 3, (Small Find 758).

BONE, ANTLER AND IVORY OBJECTS

A MACGREGOR (except 17)

A feature of this group of objects is the use of antler. In many urban settlements it is possible to demonstrate widespread utilisation of antlers, sometimes on a scale indicative of a well-developed industry in professional or semi-professional hands. In the British Isles such intensive utilisation can be demonstrated at Dublin (*Viking and Medieval Dublin*, 15-16) and York (MacGregor 1978, 46-8). As yet we have only the few artefacts mentioned below (16, 17, 20, 21, 25, 30) and three offcuts (31-33) from Aberdeen to suggest that the same practice may have been followed here. The extent to which this craft was practised in medieval Aberdeen will be established only by further excavation in appropriate areas, the evidence from which will be crucial in identifying key aspects of the early development of the City's economy.

ANTLER HAMMERS (Ill 104)

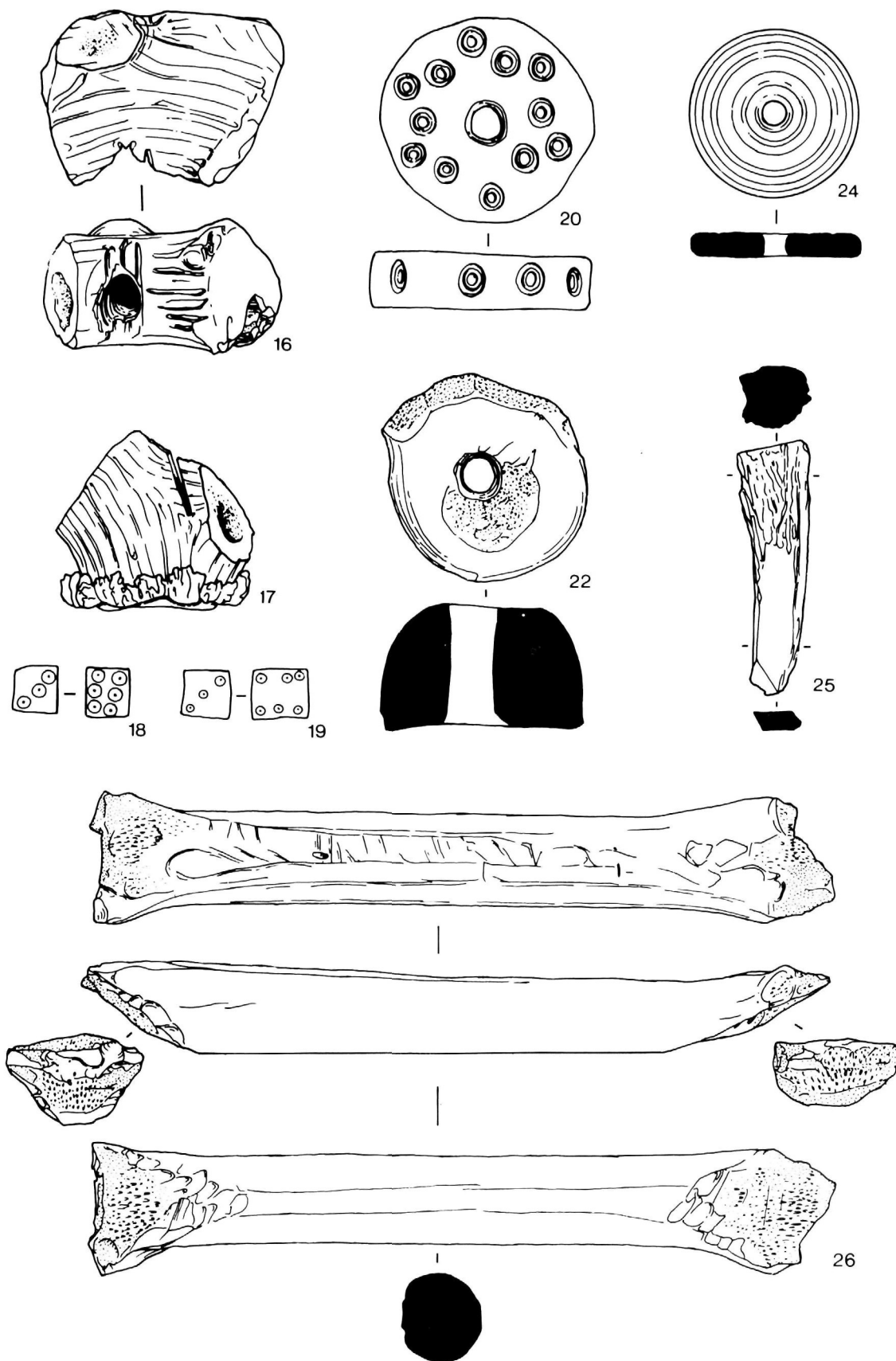
- 16 Base of shed antler of red deer, severed above base of brow tine; brow tine sawn off. Transversely drilled at base of brow tine, some flattening at the burr from

hammering. Saw-cut 1.5 mm wide at base of brow tine. Queen Street, Midden Area, FN57A, Phase 1, (Small Find 38).

- 17 Base of shed antler of red deer, severed above base of bez tine; bez and brow tines sawn off. Transversely drilled at base of brow tine, damaged at burr and in centre of beam. Broad Street, Trench 8, unstratified, (Small Find 17a).

These belong to a relatively uncommon class of implement. One example comes from a multi-period site at Staines, Middlesex, where it was found in a destruction level of the 18th century (Crouch 1976, 124-5, figs 27, 37) and another (unpublished) from York (Yorkshire Museum 55.33.38). Features common to all these pieces are the transverse perforation, apparently for the insertion of a narrow haft, and the damage displayed on the base (that is, the burr) from repeated use.

The limitations placed on the size (and hence the strength) of the handle by the small diameter of the drilled socket suggests that it was a craft tool, perhaps for working sheet metal, rather than a general purpose hammer.



Ill 104 : Bone, antler and ivory objects. Scale: 16, 17, 24-26 at 1/2; 18-20, 22 at 1/1

BONE DICE (III 104)

- 18 9 mm × 8 mm × 8 mm. Queen Street Midden Area, Layer 2, Phase 2, (Small Find 7).
 19 8 mm × 8 mm × 8 mm. Queen Street Midden Area, Layer 3, Phase 2, (Small Find 8).

Diminutive bone dice of the type represented by 18 and 19, with numerical values shown in incised ring-and-dot motifs, have a long history stretching from the Roman to the late medieval period. While those of pre-Norman date are, like present day dice, generally numbered so that the values on opposite faces always total seven (that is, 1 is opposite 6, 2 is opposite 5 and 3 is opposite 4) it appears that medieval dice often followed a different convention: in these 1 is opposite 2, 3 is opposite 4 and 5 is opposite 6. Examples of dice with this method of numbering include ten from Dublin (*Viking and Medieval Dublin*, 13), nine from Winchester, found in contexts ranging from the 13th to the 15th century in date (Brown forthcoming), a 13th-century example from Southampton (Platt and Coleman-Smith 1975, 271, fig 247: 1927) and another from a pit containing 16th-century material at Streatley, Bedfordshire (Dyer 1974, 19-20, fig 4), while an unstratified die of this type was found on a medieval site at Water Newton, Huntingdonshire (Green 1964, 80, fig 5, 12).

Although dice such as these could have been used to determine the moves of pieces on a board, it is perhaps more probable that they were used on their own in games of hazard. Coming as they do from adjacent layers of the Queen Street midden, they may well originally have formed a pair.

SPINDLE WHORLS (III 104)

- 20 Antler. Diameter: 34 mm. Queen Street Midden Area, Feature 22, Phase 1, (Small Find 21).
 21 Antler. Edge fragment, decorated on obverse and reverse surfaces with incised ring-and-dot motifs. Thickness: 7 mm. Broad Street, unstratified, (Small Find 29). Not illustrated.
 22 Bone. Cut from a (?) pig femur-head, eccentrically perforated. Diameter: 35 mm. Broad Street, Trench 1, Layer 27, Phase 3, (Small Find 36).
 23 Bone. Cut from (?) femur-head, cancellous tissue only surviving. Diameter: 30 mm, diameter of central hole: 10 mm, thickness: 13 mm. Broad Street, Trench 5, unstratified, (Small Find 18). Not illustrated.
 24 Ivory. Lathe-turned disc cut from an elephant tusk. Diameter: 55 mm. Queen Street Midden Area, FN 63, Phase 1, (Small Find 30).

Centrally perforated antler discs such as 20 are usually interpreted as spindle whorls. The natural plano-convex shape of the femur-heads of certain animals also recommended them for utilisation as whorls. 22 is one of these femur-head whorls, although its off-centre perforation would certainly have detracted from its effectiveness.

It may be that 23 is also derived from a femur-head, although all the compact surface tissue has been lost, rendering positive identification impossible.

Whether or not the large disc of ivory, 24, is another whorl is uncertain; no parallels for it have been noted. The identity of the raw material in this case is confirmed by the concentric curving lines of alternating lighter and darker tissue visible on the edge, characteristics which clearly show that the disc was cut in the longitudinal axis from an elephant tusk (Penniman 1952, 13-20, pl I, II).

MISCELLANEOUS (III 104, 105)

- 25 Antler wedge. Tine, cut into a flat rectangular-sectioned point. Longitudinally striated on the tip,

hammered on the base. Length: 82 mm. Broad Street, Trench 8, unstratified, (Small Find 176).

Antler wedges, represented here by 25, have been found in varying degrees of elaboration elsewhere, notably at York (MacGregor 1978, 48, fig 31:1-5). The naturally pointed tines of red deer antlers needed little additional shaping for this purpose, while the inherent toughness of antler rendered it particularly suitable for use in this way. Whether they were used in splitting material such as timber or for making fast or clamping some device has not yet been established.

- 26 Bone skate, made from a horse metatarsal. Length: 246 mm. All the projecting features on the upper (posterior) surface have been trimmed flat. The front (distal) end shows signs of having been pointed but is now broken. On the lower (anterior) face both the articular ends have been roughly cut to give an upswept profile at either end. A slight facet marked by longitudinal striations from contact with the ice has been worn on the lower surface. Queen Street Midden Area, Layer 2-4, Phase 2, (Small Find 122).

Most of the features of the Aberdeen skate can be paralleled on bone skates elsewhere (MacGregor 1976). Trimming of the upper surface provided a firm and comfortable foot-hold for the skater, while a pointed and upswept front would have been an advantage in a light snow covering or on irregular ice. Only the upswept rear end is unusual and appears to serve no useful purpose. Perhaps there was some initial confusion on the part of the maker as to which end would serve as the front: the pointing of the distal end shows that he eventually followed the practice invariably adopted on other skates.

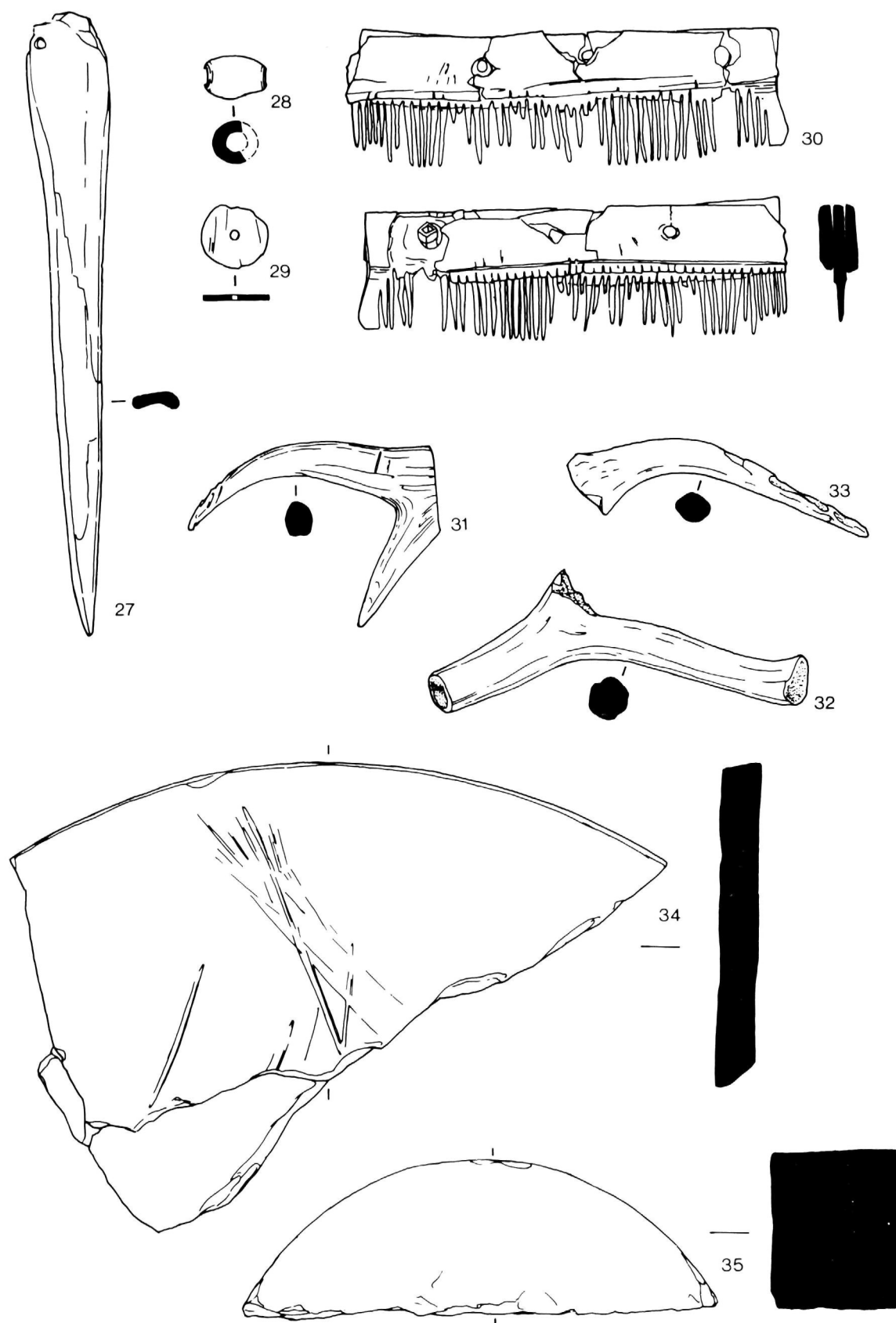
On some examples the face destined to form the contact surface with the ice was ground flat before use, but the Queen Street skate, along with many others, shows that this was an optional process. The characteristic wear on the bottom (MacGregor 1975) indicates only limited use before the skate was lost or abandoned.

There are no fastening holes on the Aberdeen skate and this too is quite common: fourteen of the horse metapodial skates noted in a survey (MacGregor 1976, Table 1) had neither toe nor heel holes. Recent accounts of their use confirm that fastenings were often eschewed, especially by skilled skaters. This was made possible by the method of use, in which the skates stayed permanently in contact with the ice while the skater pushed himself along with a spiked pole. The technique has therefore more in common with ski-ing than with present-day skating, except that one pole only was normally used and bone skates were used on ice and not on snow.

The earliest examples recovered from stratified contexts in Britain are of the 8th century AD, but earlier skates dating back to the Bronze Age have been recorded on the Continent. They survived in use in some areas up to the present century.

- 27 Bone pin beater? Oval in section at eye, crescentic at middle, oval at point. Length: 213 mm. 42 St Paul Street, Area B, Layer 38, Phase 11, (Small Find 704).
 28 Bone bead fragment. Diameter: 4 mm. Length: 5 mm. Queen Street Frontage, unstratified, (Small Find 114).
 29 Bone button or button former? Diameter: 10 mm. In use this would have been covered with textile matching the material of the garment on to which it was sewn. Broad Street, Trench 4, Layer 1, (Small Find 65).
 30 Antler comb. Five tooth plates survive, connected by flat straight-backed side-plates fixed with iron rivets. Incised marginal line on lower edge of each side-plate. Length: 74 mm. 42 St Paul Street, Area A, Layer 212, Phase 3, (Small Find 768).

This small composite comb is a late example of the type which was first introduced into the British Isles in the late-Roman period and which was eventually displaced during the medieval period by single-piece combs in bone, wood and horn. An example of a stylistically earlier comb of this type



III 105 : Bone, antler and stone objects: Scale 31-33, 35 at 1/4; 27, 34 at 1/2; 29, 30 at 1/1; 28 at 2/1

which is thought to have been found in Aberdeen is in the collection of the Society of Antiquaries of London: according to the catalogue (Way 1847, 24-5) it is 'apparently the comb found at a depth of 19 feet in Skipraw [Shiprow] Street, Aberdeen, in 1761', where it was 'supposed to have been buried when the city was burned by Edward III'. The curving back and angular-section side-plates ornamented with linked ring-and-dot motifs suggests a date some three centuries earlier, however. The flat outlines of the St Paul Street comb are more in harmony with the 12th or 13th century. The method of construction of these composite combs is now well established (Ambrosiani 1981). The antler tooth-plates and side-plates were cut, shaped and riveted together, following which the individual teeth were finally cut: evidence for this

sequence of events can be seen on 30, where the saw marks from the cutting of the teeth are extended in a more-or-less decorative manner on to the underside of the side-plate.

- 31 Antler offcut. Terminal tines (2) sawn from red deer antler. Some small secondary cuts. Broad Street Trench 1, Layer 31, Phase 1, (Small Find 106).
- 32 Antler offcut. Section of beam of red deer antler, sawn at both ends. One tine has been broken from the central area. Queen Street Frontage, Layer 16, (Small Find 62a).
- 33 Antler offcut. Sawn tine of red deer antler. The tip is much eroded, but probably not from systematic utilisation. Queen Street Frontage, Layer 16, (Small Find 62b).

STONE OBJECTS N H TREWIN

SHARPENING WHEELS (Ill 105)

- 34 Medium-grained laminated sandstone. The large flat surfaces are natural lamination planes. The sandstone contains small fossil burrows of a type found in the Old Red Sandstone. Lithology and the trace fossils are identical with lower Old Red Sandstone deposits in Kincardine and Angus. The rock is possibly from a quarry in the Forfar area. Since the wheel is broken and the rock naturally splits parallel to the lamination, the full original thickness of the wheel may not be preserved. Original diameter c 380 mm. 42 St Paul Street, Area A, Layer 166, Phase 8, (Small Find 798).
- 35 Worn around outside edge. Sandstone with patchy quartz cement. Resembles some of the Permo-Trias sandstones of the Elgin area, or could possibly be from the Devonian (Old Red Sandstone) or Carboniferous of the Midland Valley. Original diameter c 366 mm. 42 St Paul Street, Area C, Layer 172, Phase 11, (Small Find 728).

SPINDLE WHORLS (Ill 106)

- 36 Diameter: 30 mm. Broad Street, Trench 8, unstratified, (Small Find 40).
- 37 Diameter: 32 mm. Broad Street, unstratified, (Small Find 16).

Both 36 and 37 are made of identical material, weathered green micaceous mudstone which has been slightly metamorphosed. Probably of local origin. It is likely that the material was soft and weathered before the whorls were carved from it.

- 38 Decorated with horizontal scratches. Fine-grained metamorphic rock with small scale 'spotting' due to recrystallisation of minerals. Probably local, from NE Scotland; similar rocks occur commonly in the Buchan area. Diameter: 30 mm. 42 St Paul Street, Area F, Layer 16, Phase 10, (Small Find 779).

WEIGHTS (Ill 106)

- 39 Loom or net weight? Possibly a lump of calcareous tufa (deposit of a carbonate rich spring). Easily carved but not very heavy. Diameter: 110 mm. 42 St Paul Street, Area B, Layer 44, Phases 8-11, (Small Find 702).

- 40 Part only remaining. Coarse mica-schist, probably of local origin. Could be found within Aberdeen. 42 St Paul Street, Area G, Layer 7, (Small Find 776).

WHETSTONES (Ill 106)

It is difficult to be certain how many of these objects are complete, but it is probable that only numbers 45 and 47 survive to their original length.

- 41 42 St Paul Street, Area B, Layer 49, Phase 9, (Small Find 705).
- 42 42 St Paul Street, Area C, Layer 257, Phase 4, (Small Find 745).
- 43 42 St Paul Street, Area A, Layer 210, Phase 4, (Small Find 750).

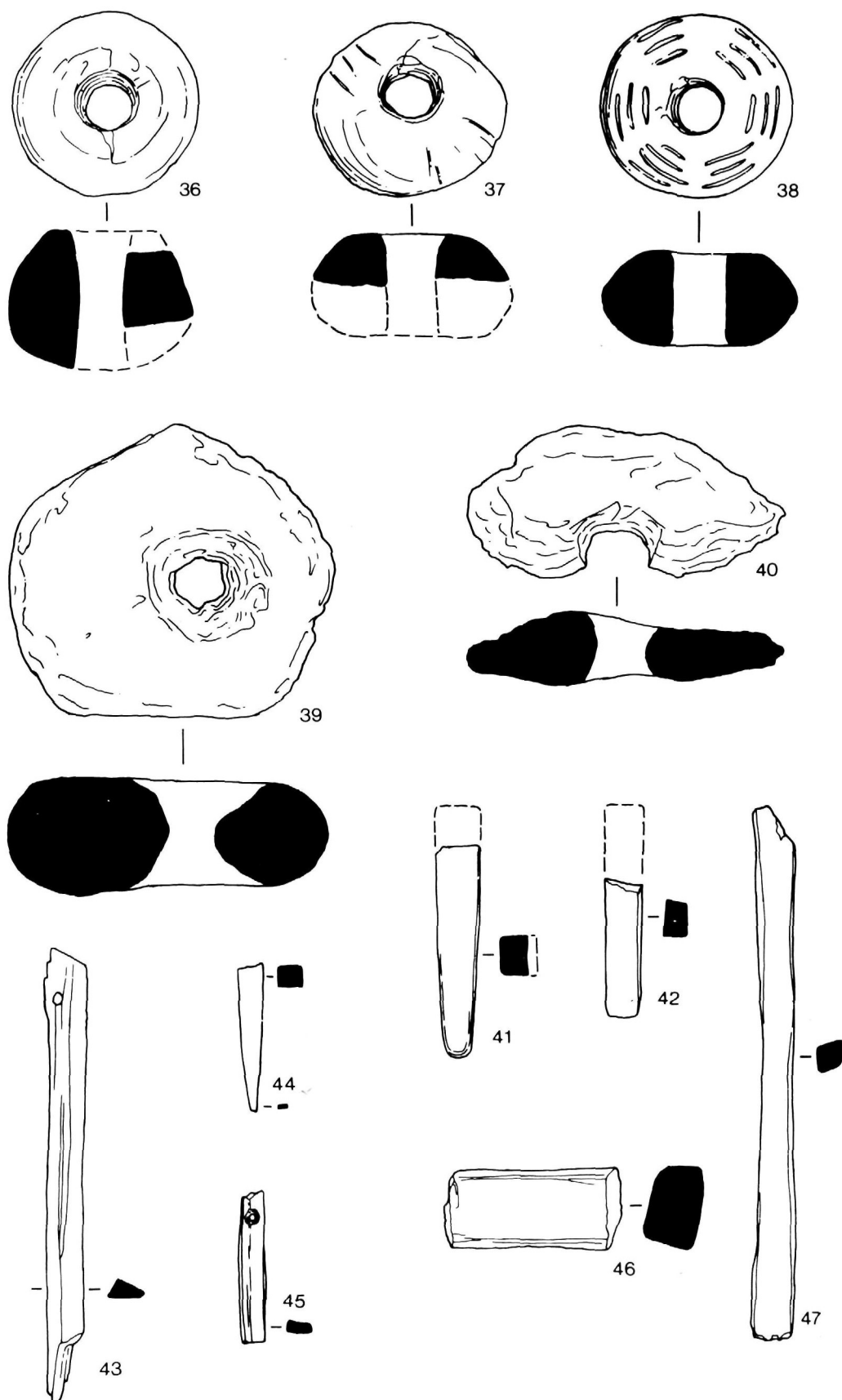
41, 42 and 43 are of a very similar rock type, probably from a single locality. The rock is a slate which splinters naturally into rod shapes suitable for use as hones with little modification of the natural form. Probably local in origin (NE Scotland, N of the Highland Boundary Fault).

- 44 Metamorphic quartzite, brown colour, probably of local origin. Queen Street Midden Area, unstratified, (Small Find 118).
- 45 Originally a fine-grained silty mudstone weakly metamorphosed. Probably local, perhaps from the Macduff Slate group of the Upper Dalradian, outcropping from Macduff on the Moray Firth Coast inland to the Glens of Foudland, about thirty-five miles NW of Aberdeen. Length: 47 mm. 42 St Paul Street, Area A, Layer 149, Phase 7, (Small Find 736).
- 46 Fine-grained greenish micaceous quartzite. Broad Street, Trench 1, Layer 5, Phase 4/5, (Small Find 35).
- 47 Fine-grained blue-grey micaceous quartzite. Fractured at centre. Length: 335 mm. Queen Street Midden Area, FN57A, Phase 1, (Small Find 35).

The rock types of 46 and 47 are very similar and are probably of local origin.

MISCELLANEOUS

- 48 Piece of grey-white limestone with fossil fragments. Not of local origin, possibly part of building stone imported to the area. Probably from a Jurassic limestone, the nearest likely localities being Yorkshire or the Bath-Cotswolds area. Broad Street, Trench 1, Layer 8, Phase 4, (Small Find 119). Not illustrated.



Ill 106 : Stone objects. Scale: 47 at 1/4; 39, 40, 43, 46 at 1/2; 36-38, 41-42, 44-45 at 1/1

COINS DAVID CALDWELL

- 49 Sterling of Edward I, Fox group X c-e, crown 2. 42 Loch Street, unstratified. Not illustrated.

- 50 Sterling of Edward I, Fox group C c-e, crown 1, colon at end of obv. legend. 42 Loch Street, unstratified. Not illustrated.

COPPER ALLOY OBJECTS NO 64 BY A R GOODALL

BROOCHES (III 107)

- 51 Annular brooch. Diameter: 42 mm. Virginia Street, unstratified.

Probably in original state had four diamond-shaped attachments on front of ring. A brooch of similar form, although of silver, occurred in the Langhope hoard, deposited in the 14th century and now in the National Museum of Antiquities of Scotland in Edinburgh (Callander 1924, fig 5). John Cherry, to whom I am grateful for parallels for 51, 52 and 53, suggests a 1275-1350 date range for the Aberdeen object.

- 52 Brooch? Width: 26 mm. Half of pelleted oval surmounted by two opposed bird or reptile heads. Probably both heads originally identical, but left one broken off at beak. No decoration on reverse. Broad Street, Trench 3, unstratified, (Small Find 75).

A similar object, found at Sandwich in Kent and privately owned is complete but undated. It has the form of an annular brooch. The birds have stylised 'feet' at the lower end of the oval, and a pin across the middle. In the place of the pellets of the Aberdeen example there are raised settings for stones. Both objects are very similar in size, the Sandwich object being c 37 mm long and c 27 mm wide.

BUCKLES (III 107)

- 53 Width: 61 mm. Virginia Street, unstratified. A fairly common type dated by Fingerlin (1971, 66: 51,52) to the latter half of the 13th century.
- 54 Buckle and plate. Width: 26 mm. One rivet still in position on plate. 42 St Paul Street, Area A, Layer 93, Phase 9, (Small Find 708).
- 55 Part of buckle and plate. Two rivets still in place in plate, prong bent back. Queen Street Midden Area, FN26, Phase 3, (Small Find 24).

PINS (III 107)

- 56 Spiral ornament at top of shaft and cross motif on head. Length: 92 mm. 42 St Paul Street, Area B, Layer 52, Phase 10, (Small Find 703).

An example from excavations at Cramond, near Edinburgh (CR 78 V 2 Small Find 22) is identical except that its spiral has six rings, while the Aberdeen one has five. The Cramond example would seem to show superior workmanship. (Information from N M McQ Holmes, Archaeological Officer, Edinburgh City Museums and Art Galleries).

- 57 Head formed by passing wire 1½ times round shaft. Length: 92 mm. 42 St Paul Street, Area A, Layer 13, Phase 13, (Small Find 577).

- 58 Shaft of pin? 42 St Paul Street, Area C, Layer 11, Phase 11, (Small Find 691).

BUTTONS (III 107)

- 59 Button or button former, perhaps covered with textile in use. Diameter: 6 mm. Queen Street Midden Area, FN57A, Phase 1, (Small Find 34a).
- 60 Button or button former, identical to 59. Diameter: 6 mm. Queen Street Midden Area, FN57A, Phase 1, (Small Find 34b). Not illustrated.

MISCELLANEOUS (III 107)

- 61 Part of ring. Width: 22 mm. Broad Street, Trench 3, Layer 22, Phase 3, (Small Find 20).
- 62 Staple. 42 St Paul Street, Area B, Layer 52, Phase 10, (Small Find 711).
- 63 Fragment of clasp? Queen Street Midden Area, Layer 2, Phase 2, (Small Find 3).
- 64 Annular boss, 90 mm × 85 mm, with twelve projecting arms with perforated terminals; two retain pins. Four of the arms are longer so that the boss is approximately square when viewed from the top. Queen Street Midden Area, FN57B, Phase 1, (Small Find 59).

The object is reminiscent of the gilt eight-armed mounts found for instance at Lydford Castle, Devon (Goodall, A R 1980) and Baile Hill, York (Addyman and Priestley 1977, 142, 145, fig 11:82) and may belong to the same class of fittings which are dated to the 12th and 13th centuries.

- 65 Balance arm, broken at both ends. Queen Street Midden Area, FN57B, Phase 1, (Small Find 125).
- 66 Curved fragment with linear decoration on one edge. Broad Street, Trench 4, unstratified, (Small Find 65).
- 67 Thin plate, one edge bent over. Two irregular rivets in small holes (5 mm diameter). A third hole lies immediately adjacent to the right hand hole. Broad Street, Trench 1, Layer 21, Phase 3, (Small Find 8).
- 68 Two fragments of strapping? 10 mm × 15 mm. One piece has a small punched hole 5 mm from its end. 42 St Paul Street, Area A, Layer 95, Phase 9, (Small Find 694). Not illustrated.
- 69 Piece of folded sheet. Queen Street Midden Area, FN57B, Phase 1, (Small Find 60).
- 70 Flat sheet, laminated or folded, 130 mm × 90 mm × 3 mm. Queen Street Midden Area, FN57B, Phase 1, (Small Find 41). Not illustrated.
- 71 Fragments of curved and folded sheet, possibly remains of bowl or other vessel. Queen Street Midden Area, FN57B, Phase 1, (Small Find 59). Not illustrated.
- 72 Two fragments of thin sheet, each 10 mm × 5 mm × 5 mm. 42 St Paul Street, Area B, Layer 92, Phase 8, (Small Find 807). Not illustrated.



III 107 : Copper alloy objects. Scale: 51, 53-56, 64, 67-69, 69 at 1/2; 52, 57-63, 65-66 at 1/1

 IRON OBJECTS NO 73 BY I H GOODALL

BARREL PADLOCKS (Ill 108)

- 73 Iron barrel padlock, now incomplete, but originally having a case with keyhole and bolt entry in opposing ends, a side fin with outer tapering tube and a U-shaped padlock bolt. The case, strengthened and decorated by seven horizontal straps set between encircling end straps, has lost the keyhole but the stub of a fin and part of a bolt with three spines, all with double leaf springs, survive. The padlock has copious traces of the copper base brazing fluid used in its construction. Queen Street Midden Area, FN57A, Phase 1, (Small Find 129).

Barrel padlocks of this type were in common use during the medieval period, and are found as late as the 14th century. Perth has produced several examples (PHSEC, forthcoming), and a similar but larger one is known from North Elmham Park, Norfolk (Goodall, I H 1980, 509, fig 265:9).

- 74 Part of iron barrel padlock. 42 St Paul Street, Area G, Layer 4, (Small Find 781). Not illustrated.
- 75 Fragments of iron barrel padlock. 42 St Paul Street, Area C, Layer 23, Phase 8, (Small Find 707). Not illustrated.

NAILS AND CLENCH BOLTS (Ill 108)

- 76 Clench bolt. Queen Street Midden Area, FN26, Phase 3, ((Small Find 90).
- 77 Clench bolt. As 76.

The Broad Street and Queen Street excavations produced the remains of eight clench bolts, of which four were complete. These may have been used originally in boat construction, but their abundance on domestic sites is probably attributable to re-used timber. Clench bolts consist of an ordinary nail

and a diamond-shaped plate. After the nail had been fastened through two overlapping boards, the plate was hammered flat onto its point.

- 78 Nail. Broad Street, Trench 2, Layer 15, Phase 1/2, (Small Find 9).
- 79 Nail. As 78.
- 80 Nail. As 78.
- 81 Nail. Queen Street Midden Area, FN7, Phase 3, (Small Find 96).
- 82 Nail. Queen Street Midden Area, FN57, Phase 1, (Small Find 85).

From the Broad Street and Queen Street sites a total of 22 iron nails, complete or fragmentary, was recovered. Their advanced state of corrosion lessens the effectiveness of illustration, but a representative selection is shown and catalogued. Most conform to a similar pattern, with the shank square and the head approximately circular. Shank length varies from 40 mm to 110 mm, with diameter of head ranging from 5 mm to 25 mm. Two examples (78 and 79) had wood impressions over the head and upper portion of the shaft.

MISCELLANEOUS (Ill 108)

- 83 Iron horseshoe. Queen Street Midden Area, unstratified, (Small Find 53).
- 84 Iron shears. Broad Street, Trench 3, Layer 8, Phase 3, (Small Find 128).
- 85 Iron link? Queen Street Midden Area, Phase 1, FN57, (Small Find 80).
- 86 Iron handle? Very fragmentary. Queen Street Midden Area, FN63, Phase 1, (Small Find 78). Not illustrated.
- 87 Part of iron knife-blade. 42 St Paul Street, Area D, Layer 34, Phase 10, (Small Find 751).

 LEAD OBJECTS

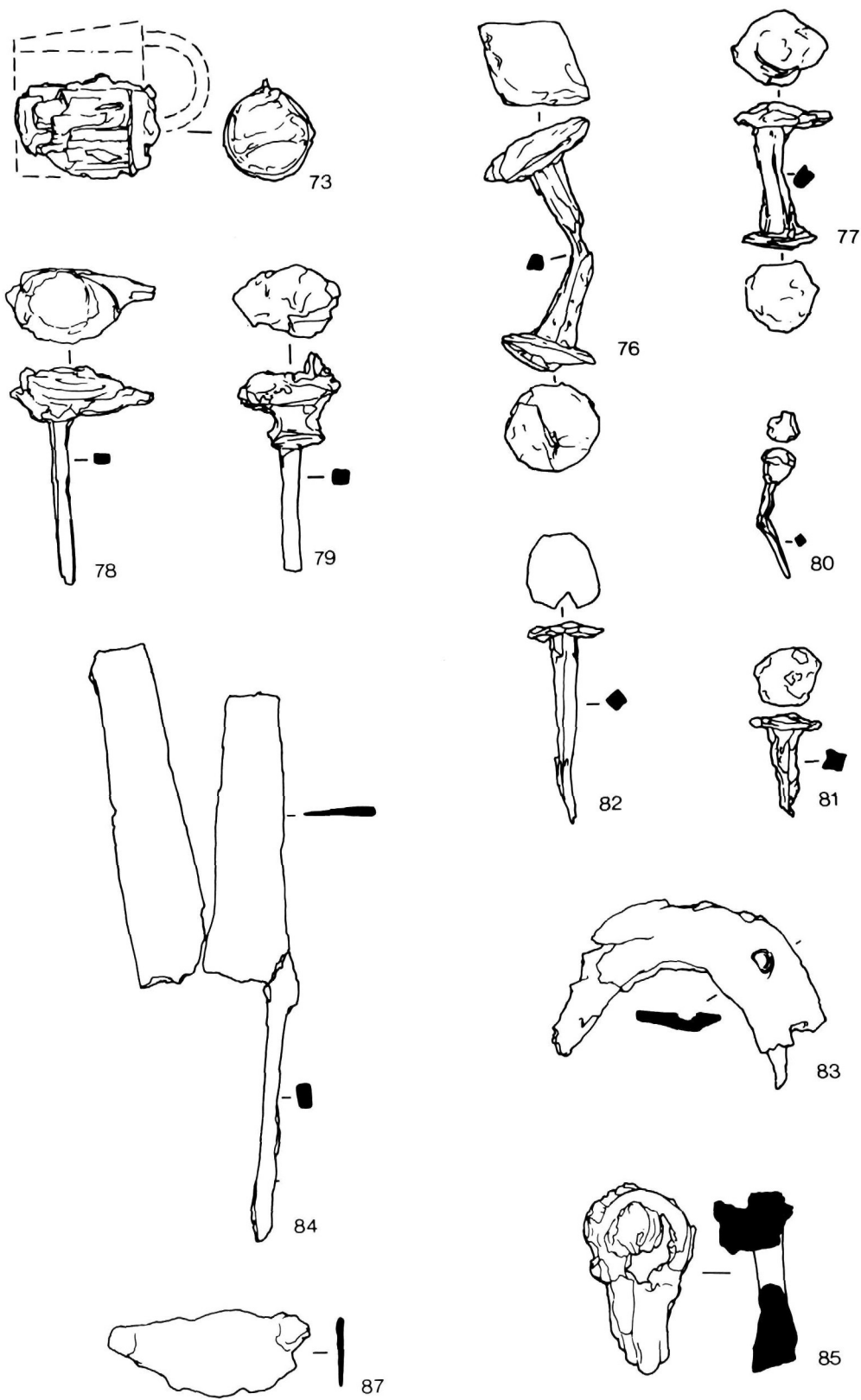
MISCELLANEOUS (Ill 109)

- 88 Cloth seal. Diameter of upper lobe: 13 mm. Broad Street, Trench 3, FN8, Phase 3, (Small Find 24).

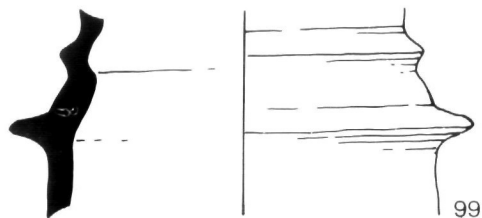
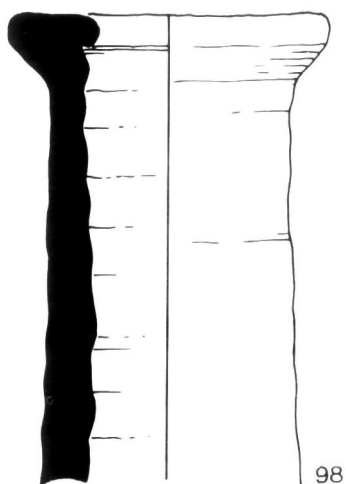
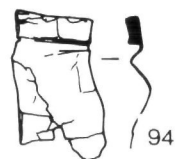
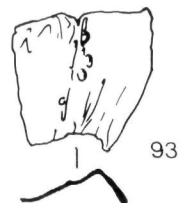
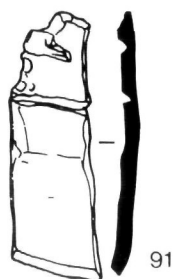
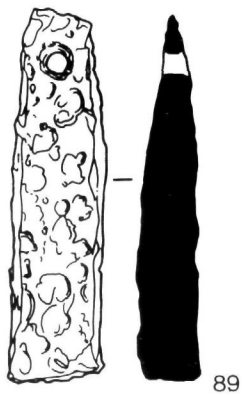
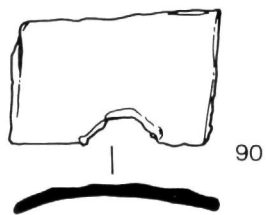
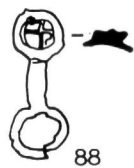
Lead seals were used in the later medieval period for sealing cloth and other merchandise. Two other Scottish examples, from the Tron Kirk, Edinburgh (Holmes 1975, 149, pl xxiv, xxv) and from Huntly Castle, Aberdeenshire (Peterhead Museum H662) are of a different character. An example from London (Swan Lane, layer 2063, find no 2246) has a cross on one side and an incomplete device on the other. This may be from a late 13th or early 14th-century deposit, but is more likely to be from later (perhaps 17th-century) contamination (Information from Geoffrey Egan, Department of Urban Archaeology, Museum of London). The context of the Aberdeen seal, although apparently 13th-14th century, may

also have suffered some later disturbance; at present such seals are not considered to be earlier than the late 15th century.

- 89 Weight. Queen Street Midden Area, FN33, Phase 4 (Small Find 124).
- 90 Rectangle, with semicircle roughly cut out at one side. Queen Street Midden Area, Layer 2, Phase 2, (Small Find 17).
- 91 Waste piece. Queen Street Midden Area, Layer 2, Phase 2, (Small Find 92).
- 92 Waste piece. Queen Street Midden Area, FN57B, Phase 1, (Small Find 55).
- 93 Fragment. Queen Street Midden Area, Layer 2, Phase 2, (Small Find 100).
- 94 Lead/copper alloy fragment. Queen Street Midden Area, Layer 4, Phase 2, (Small Find 46).



III 108 : Iron objects. Scale 1/2



CERAMIC OBJECTS

MISCELLANEOUS (Ill 109)

- 95 Part of rim of small glazed vessel. Estimated diameter: 47 mm. Vitrified patch on external surface might suggest a crucible. 42 St Paul Street, Area G1, Layer 33, (Small Find 814).
- 96 Portion of mould, local fabric, showing outline of two or possibly three ? pin heads and upper parts of shafts. Rectangular decorated head on left, in centre circular head. Impression on extreme right may indicate shaft of third pin. Broad Street, Trench 2, unstratified, (Small Find 10).
- 97 Fragmentary object, in pinkish mottled fabric. Surviving length: 60 mm. Three edges fractured, the other (left in ill) smooth and curved. Flat on side not shown, illustrated side rounded. This bears remnants

of what might be a figure in relief, possibly part of a naked limb with associated drapery. 42 St Paul Street, Area B, Layer 12, Phase 10, (Small Find 815).

The identification of a ceramic fragment from Southampton (Platt and Coleman-Smith 1975, vol 2, 94: no 570, pl 84) makes speculation tempting although it is in practise difficult to fit this particular piece into such a context, especially in view of its small size.

- 98 Water spout? Longitudinal streak of dark staining inside and over rim, but pronounced flange inside rim might reduce its efficacy as a spout. Fabric 7. Queen Street Midden Area, Layer 2-3, Phase 2, (Small Find 130).
- 99 Portion of roof finial? Fabric 8, with remnants of green/brown external glaze. 42 St Paul Street, Area A, Layer 95, Phase 9, (Small Find 816).

LEATHER OBJECTS

The medieval leather discussed and catalogued here comes from the Broad Street, Queen Street and 42 St Paul Street excavations. The pages which follow do not represent the fullest possible publication of the leather. No attempt has been made to identify species, for example, and it is hoped that a more thorough examination may be made available in the future. Shoe remains constitute by far the greatest quantity of material. However, several belts and a number of other pieces are also included. The three sites together produced a vast quantity of leather pieces. It would be wasteful to illustrate or catalogue every single item, particularly some of the smallest fragments. Therefore, the following selective process has been used. Only the most complete soles and uppers are illustrated, and in addition a number of the less fragmentary ones are catalogued.

Apart from main sole and upper pieces, a selection of other distinctive items, such as patches and binding strips, has been illustrated or catalogued. The catalogue follows the order: Uppers, Soles, Two-Part Soles, Repair Pieces and Cobbling Scrap, Non-Shoe Leather. The only exception to this is the one case where an illustrated sole (139) has a number of additional upper pieces associated with it, which are too fragmentary to illustrate. These fragments are included in the catalogue entry dealing with the sole.

All the shoe material discussed here follows the standard medieval turnshoe pattern, by which the sole and upper were stitched together while inside out and then turned. One sole (126) has been shown in section to illustrate the rounded profile resulting from the poor fit of such footwear. Where several parts of an upper remain, it is evident that the pieces were attached to each other by means of edge-flesh, butt-seamed joints.

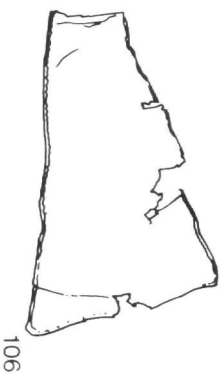
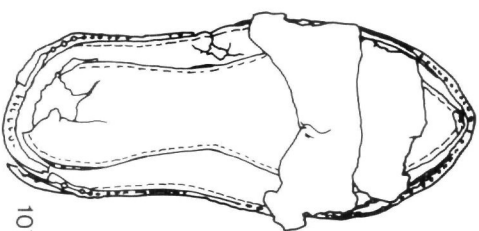
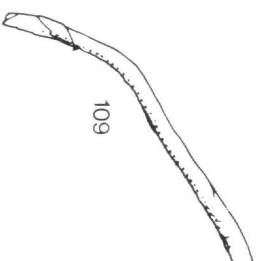
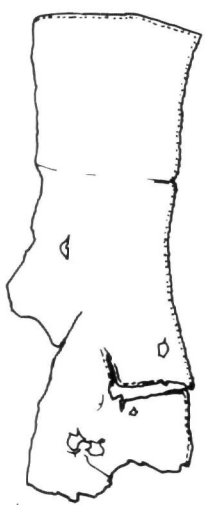
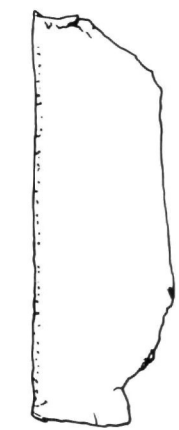
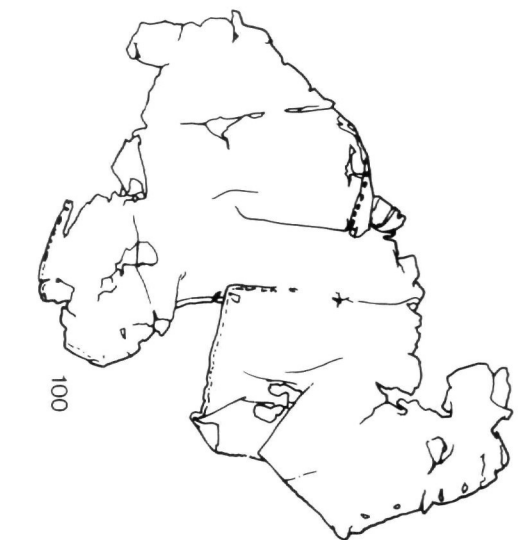
As so many of the soles were severely delaminated or split into several layers, thicknesses have not normally been given.

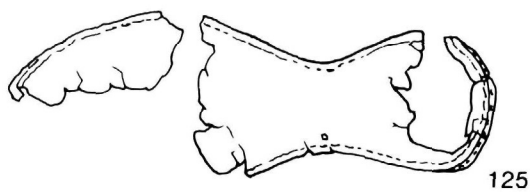
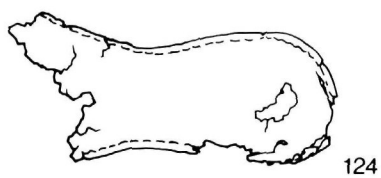
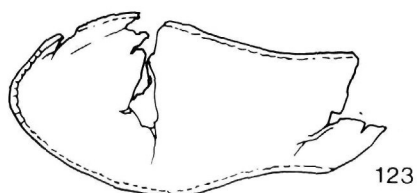
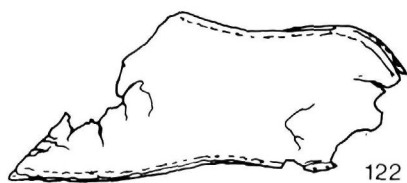
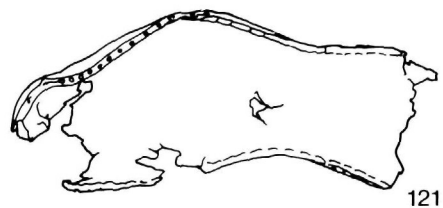
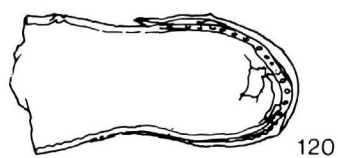
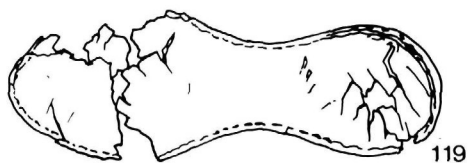
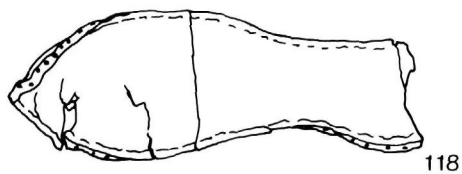
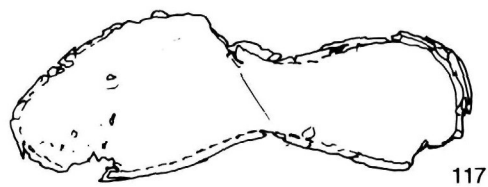
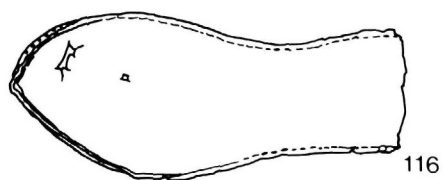
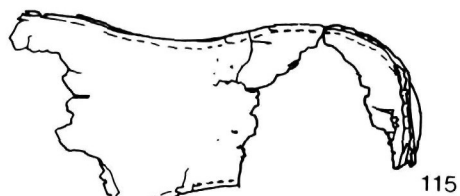
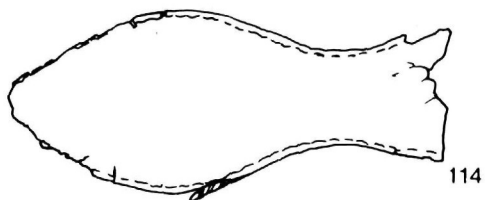
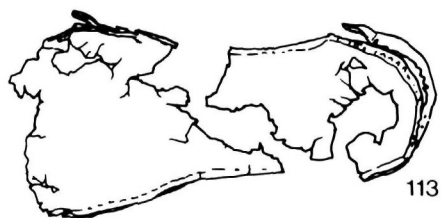
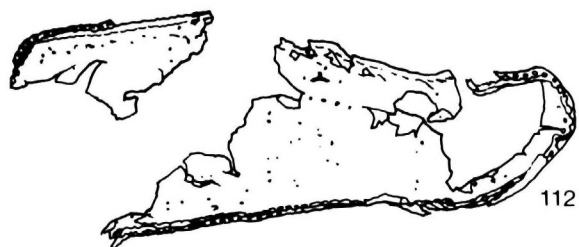
UPPERS (Ill 110)

- 100 Substantial portion of two-piece upper of ankle boot, one main piece missing, very similar in construction

to 108. Remains of stitching on edges, both for joining and for addition of binding strips. Five possible lace holes on quarters. Probably belongs to sole 125. 42 St Paul Street, unstratified.

- 101 Sub-rectangular piece of leather, 190 mm × 160 mm. Stitching along two edges and part of a third, elsewhere edges badly torn. Slight signs of shaping on one edge. May be part of upper. 42 St Paul Street, Area A, Layer 89, Phase 8. Not illustrated.
- 102 One large piece and several small fragments comprising substantial portion of vamp. Small piece of lace remains attached at throat. On a detached piece another thong has been fashioned into a leather 'button', presumably to fasten through one of the slits on the main portion of the vamp. The crescent-shaped piece may be a heel stiffener. 42 St Paul Street, Area E, Layer 4, Phase 8.
- 103 Part of quarters. Stitching on one long edge and part of another. Queen Street Midden Area, Layer 2, Phase 2.
- 104 Quarters, leg flap and part of vamp. Stitching on two sides and within L-shaped slit. May belong to same shoe as 139. 42 St Paul Street, Trench 1, unstratified.
- 105 Portion of upper, possibly part of vamp. Stitching on three edges, other edge has been torn away. 42 St Paul Street, Area A, Layer 261, Phase 8, (Small Find 796).
- 106 Portion of upper. Remains of stitching visible on all edges. Several much deteriorated pieces of vamp (not illustrated), from the same layer, probably belong to the same upper. 42 St Paul Street, Area A, Layer 89, Phase 8.
- 107 Left sole and part of vamp. Sole much worn at toe and seat with evidence of patching on underside. A second, more waisted sole appears to have been slipped (not stitched) inside the shoe as an improvised insole. No sign of stitching on vamp. 42 St Paul Street, Area A, Layer 190, Phase 4, (Small Find 743).
- 108 Three piece upper of ? right ankle boot. Triangular strengthener at heel. The triangular piece has been





Ill 111 : Leather objects. Scale 1/4

punched for stitching on one edge and has evidence of rough hem stitching on others. The lace was originally knotted at both ends. Queen Street Midden Area, Layer 3, Phase 2.

BINDING STRIPS (III 110)

Only a handful of these pieces has been found, mostly dissociated from their uppers. They were used to bind the exposed edges of uppers to finish and protect them. Made from a narrow (c 10 mm wide) strip of leather, they were folded over and stitched on to the edge of the upper.

- 109 42 St Paul Street, Area A, unstratified.
- 110 42 St Paul Street, Area C, Layer 174, Phase 8. Not illustrated.
- 111 42 St Paul Street, Area C, Layer 187, Phase 8. Not illustrated.

SOLES (III 111, 112, 113)

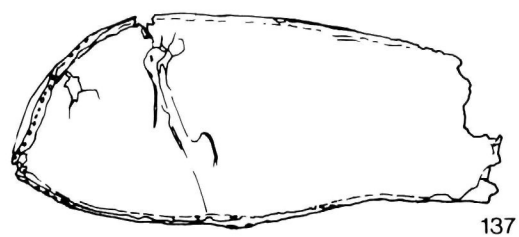
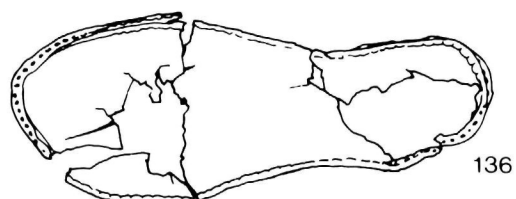
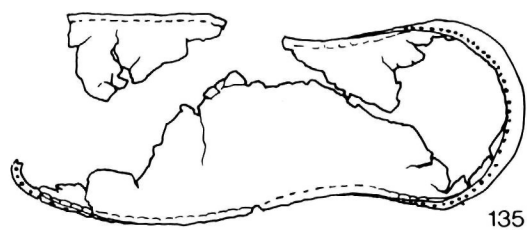
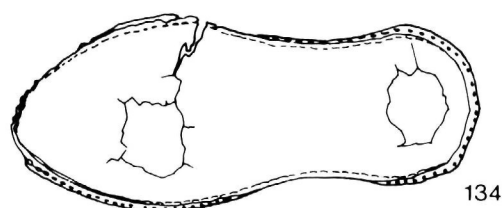
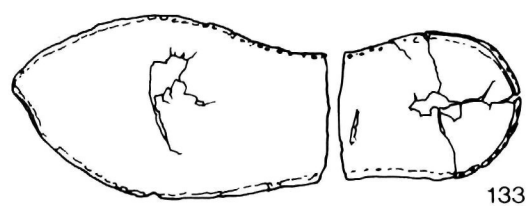
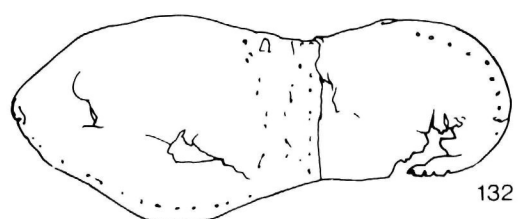
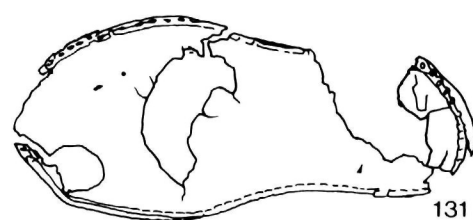
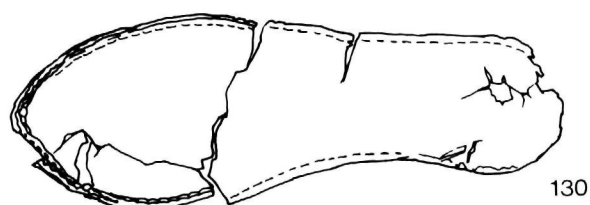
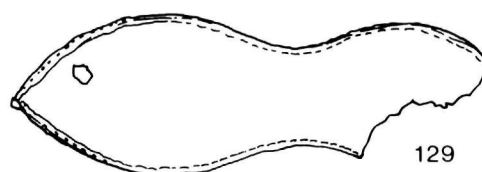
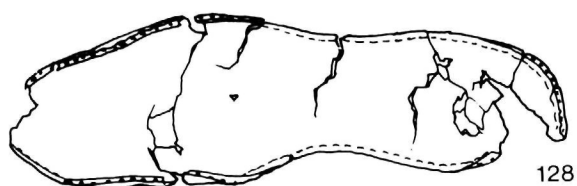
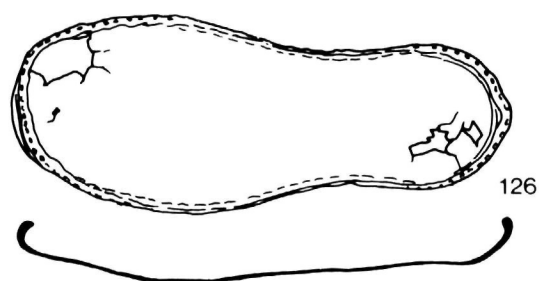
- 112 Fragmentary ? right sole. Frequent patching indicated by many stitch holes. 42 St Paul Street, Area F, Layer 70, Phase 3, (Small Find 797).
- 113 Very fragmented ? right sole. 42 St Paul Street, Area C, Layer 170, Phase 9, (Small Find 724).
- 114 Part sole. Severely worn at toe, worn and cut across seat. Queen Street Midden Area, Layer 3, Phase 2.
- 115 Very fragmented sole. Signs of patching to seat and forepart. 42 St Paul Street, Area A, unstratified.
- 116 Left sole delaminated to only 1 mm thickness. Much of seat eroded. Six fragments upper (not illustrated) from same layer probably belong to the same shoe. 42 St Paul Street, Area B, Layer 120, Phase 5.
- 117 Right sole, much worn on underside. Queen Street Midden Area, Layer 3, Phase 2.
- 118 Right sole, worn away at seat. 42 St Paul Street, Area A, Layer 261, Phase 8.
- 119 Fragmentary? right sole. 42 St Paul Street, Area C, Layer 194, Phase 8.
- 120 Right sole, delaminated at seat and cut across forepart. Also one large and several small pieces vamp (not illustrated) from the same layer, probably belonging to same shoe. 42 St Paul Street, Area A, Layer 261, Phase 8, (Small Find 796).
- 121 Right sole, worn at toe and seat. 42 St Paul Street, Area C, Layer 170, Phase 9.
- 122 Right sole, forepart and left side of seat eroded. 42 St Paul Street, Area C, Layer 277, Phase 3.
- 123 Left sole, worn and partly cut away at seat. 42 St Paul Street, Area A, unstratified.
- 124 ?Right sole. 42 St Paul Street, Area C, Layer 243, Phase 5.
- 125 Fragmentary sole. Found with upper 100 and probably part of the same shoe. 42 St Paul Street, unstratified.
- 126 Large left sole. Much worn at right toe and left heel. Both forepart and seat have been patched, originally with stitching only half-way through the sole, but stitches have torn right through in time. Queen Street Midden Area, Layer 3, Phase 2.
- 127 ?Left sole. Broken across forepart and very fragmented elsewhere. 42 St Paul Street, Area C, Layer 196, Phase 7.
- 128 Right sole, in pieces and worn. 42 St Paul Street, Area B, Layer 98, Phase 3, (Small Find 737).

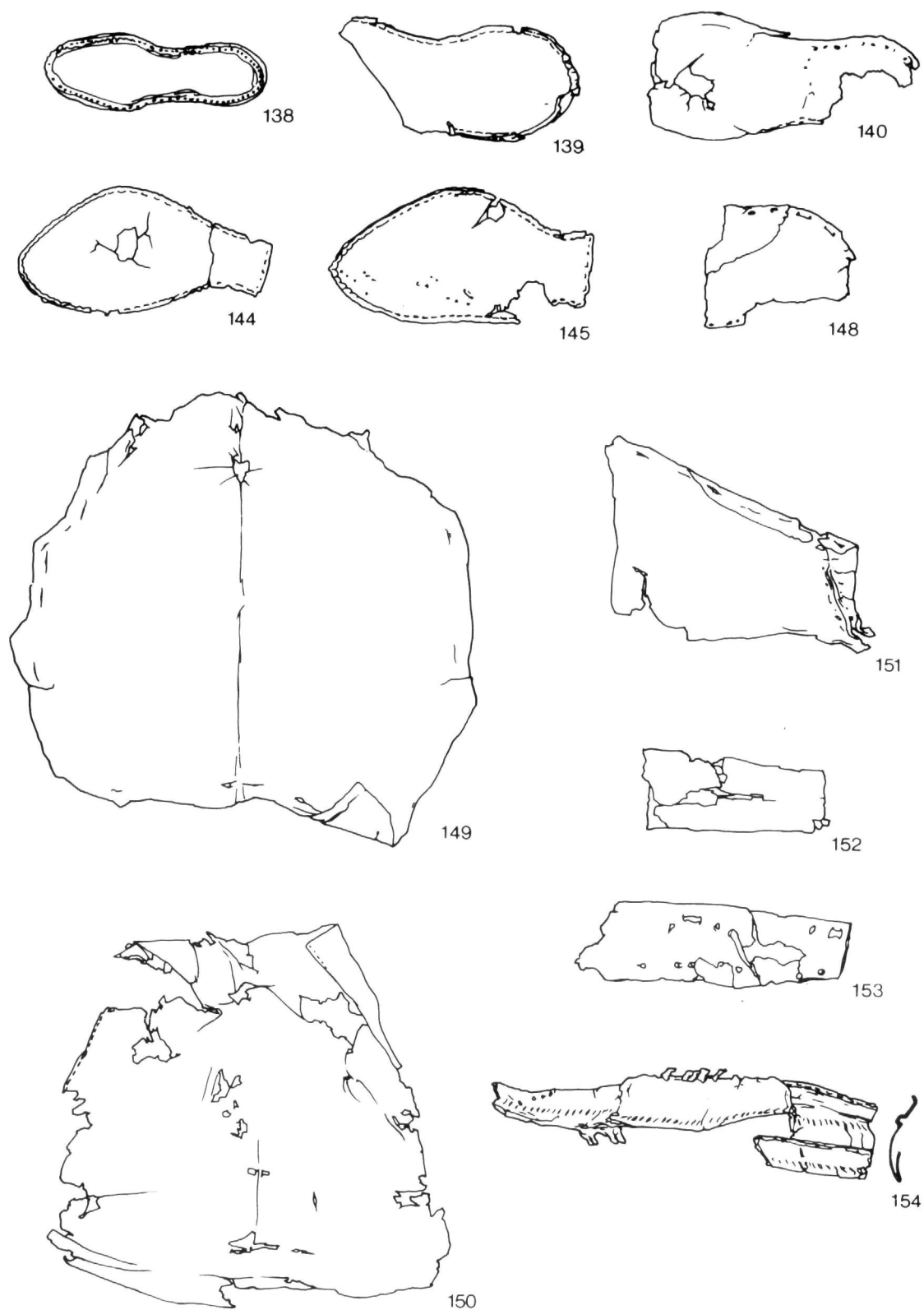
- 129 Left sole, worn away at left side of seat and right toe. 42 St Paul Street, Area A, Layer 222, Phase 3.
- 130 Right sole, in three parts, worn particularly at left toe and right seat. 42 St Paul Street, unstratified.
- 131 Right sole, worn away at right side of seat. Worn and cut, possibly for patching, at toe and waist, although little sign of patch stitching holes. 42 St Paul Street, Area A, Layer 270, Phase 4.
- 132 Right sole, worn at seat, waist and toe. Patch stitching holes on underside at waist and seat. 42 St Paul Street, Area F, Layer 36, Phase 8, (Small Find 791).
- 133 Left sole. Forepart and seat worn and split at waist. No evidence of patching. 42 St Paul Street, Area C, Layer 175, Phase 9.
- 134 Right sole, much worn at seat and forepart. 42 St Paul Street, Area A, Layer 222, Phase 3.
- 135 Greatly worn and fragmented sole. 42 St Paul Street, Area B, Layer 102, Phase 7.
- 136 ? Left sole, much fragmented. Worn at forepart and left side of seat. Cut at seat, probably for patching. A few possible stitch holes for patching on seat. 42 St Paul Street, Area C, Layer 133, Phase 9, (Small Find 727).
- 137 Waist and forepart of very large right sole. Seat worn away. Greatly eroded on underside. Queen Street Midden Area, Layer 2, Phase 2.
- 138 Sole of child's shoe, remarkably little worn. 42 St Paul Street, Area B, Layer 120, Phase 3, (Small Find 777).
- 139 Seat and waist of sole, forepart has been cut off. A substantial upper piece, (104), a binding strip, a possible heel stiffener and several small fragments (not illustrated), may belong to the same shoe. 42 St Paul Street, Trial Trench 1, unstratified.
- 140 Sole, heavily worn. All-through stitches for patching on seat. 42 St Paul Street, Area C, Layer 277, Phase 3.
- 141 Forepart and waist of left sole, with heel portion totally worn away. 190 mm long, 80 mm at widest part of forepart. Queen Street Midden Area, Layer 3, Phase 2. Not illustrated.
- 142 Very fragmentary sole c 260 mm long, 110 mm at widest point of forepart. Broken into three pieces. 42 St Paul Street, Area C, Layer 257, Phase 4. Not illustrated.
- 143 Seat and waist portions of sole. Forepart has been cut away. Worn at left side of seat. 150 mm long, 60 mm wide at waist, 750 mm wide at seat. 42 St Paul Street, Area A, Layer 183, Phase 7. Not illustrated.

TWO-PART SOLES (III 113)

A few of the Aberdeen soles are of this variety, presumably adopted to finish up small pieces of leather. Forepart and heel are joined by a seam which is usually at the waist, although it can occur further back towards the seat.

- 144 Forepart of two-part sole. Very narrow waist. 42 St Paul Street, Area A, Layer 74, Phase 9, (Small Find 710).
- 145 Forepart of two-part sole. Worn towards waist and evidence of patching on underside. 42 St Paul Street, Area B, Layer 84, Phase 8-11, (Small Find 726).
- 146 Very worn remains of forepart of two-part sole, stitching across waist. 60 mm wide at waist. 42 St Paul Street, Area A, unstratified. Not illustrated.
- 147 Heel portion of two-part sole, stitching across waist side of seat. 75 mm long, 75 mm wide at widest point. 42 St Paul Street, Area A, Layer 184, Phase 9. Not illustrated.





III 113 : Leather objects. Scale 1/4

REPAIR PIECES AND COBBLING SCRAP (Ill 113)

Almost without exception, the Aberdeen shoe-soles showed extremely heavy wear; in many cases parts of the sole were entirely worn away. There was some evidence of patching in the form of patch pieces themselves and stitch marks in worn soles. The majority of such stitches, although rough, were only half way through the sole, presumably to make the mend more watertight. A total of nine clump soles or patches, mostly for the seat area, but including a few forepart clumps, were recovered from the three sites which produced leather remains. One example is noted below. Repairs were probably done using both new and old leather. A number of soles appeared to have been cut up, presumably to patch others, but there were also a number of concave-sided triangular scraps of new leather. These may have been offcuts from repairs, but it seems likely that at least some of them were by-products of the shoe-making process itself.

- 148 Part of seat clump sole or patch. Stitching originally half way through thickness of leather. 42 St Paul Street, Area C, Layer 269, Phase 4.

NON-SHOE LEATHER (Ill 113)

- 149 Large piece of leather, ranging in thickness from c 2 mm towards top end to c 1 mm at bottom end. Irregular slits along all sides, except at top right and top left. At bottom left, the edge has probably been torn away along the line of the slits. Folded vertically across middle. Queen Street Midden Area, Layer 3, Phase 2.

- 150 Large sub-rectangular piece of very thin, delaminated leather. Many marks of folding on surface. Area of stitching on one edge, but no other distinctive features. 42 St Paul Street, Area C, Layer 159, Phase 8, (Small Find 723).
- 151 Sub-rectangular piece of leather, probably not shoe leather. Two edges have been folded over and have rough slits on either side of the folds. 42 St Paul Street, Area F, Layer 47, Phase 7.
- 152 Fragments of possible belt? No visible stitching. Possible slit(s) down centre, but decay and delamination make positive identification difficult. 42 St Paul Street, Area A, Layer 184, Phase 9?
- 153 Part of belt, simple construction. Originally one layer of leather, c 2 mm thick, now split into two layers. Fastened with leather thongs passed through punched holes c 7 mm apart. Appears to narrow towards the right hand side, as drawn, which is probably an original end. Three pieces of thong remain. 42 St Paul Street, Area C, Layer 164, Phase 9.
- 154 Belt or knife sheath. As this object is incomplete it is difficult to be certain which of these two possible functions it served. It tapers slightly towards one end, although it does not seem to have the pronounced shaping often found in knife sheaths. Three punched holes towards one end might have been a means of suspension from a belt if it was a sheath. It is a single flat piece of leather, folded inwards, grain side out, and butt-seamed at the join. Slits c 2 mm apart down both sides form a simple decoration. Queen Street Midden Area, Layer 2, Phase 2.

TEXTILES HELEN BENNETT

The Broad Street, Queen Street and 42 St Paul Street sites together yielded just seven woven fabrics; in addition, there were two finds of yarn or unspun wool. Although small in number, the finds exhibit an interesting diversity of quality and kind: the cloths range from an imported silk luxury fabric to a coarse and ill-made wool textile which may have been the local medieval equivalent of sacking. These may be compared with other medieval textiles found in Scotland, most notably the corpus of nearly four hundred, covering a period from pre 1150 to the later 14th century, excavated from the High Street site in Perth.

FIBRES

With the exception of the single piece of silk, all the finds are of wool. Samples were submitted to Dr M L Ryder for analysis and his findings are incorporated in the catalogue. One further sample, a fibre found in the blade of the weaving sword (9) from 42 St Paul Street, also proved to be wool: the fleece type was hairy medium, with slight natural pigmentation.

Eleven of the sixteen samples (including the fibre from the weaving sword) had slight natural pigmentation, indicating a light grey or roan wool. The predominant fleeces were hairy medium and generalised medium types. These Dr Ryder considers to be the products of hairy and woolly sheep of a type 'perhaps comparable with the surviving short-tailed

and vari-coloured Orkney/Shetland breeds. . . . This, he argues (1981), was the predominant sheep type in the Middle Ages. An interesting discovery was the true fine wool used in the 2/2 twill cloth (155) from the Queen Street site. Although unusual, Dr Ryder considers that this need not necessarily be regarded as an import because occasional fleeces as fine as this are found in the modern Orkney breed. Overall, the Aberdeen wools included more finer types than those from Perth High Street, although Dr Ryder cautions that the Aberdeen sample is small and may not be representative. Further technical details and comparisons with medieval wools from other sites in Britain may be found in Ryder 1981.

THE WOOL CLOTHS

Structure and parallels

The six wool cloths are all in basic weaves without woven or coloured patterning. There are four examples of 2/1 twill (also known as three-shaft twill), a weave which figures prominently in material from medieval sites. Of the 293 wool cloths from Perth High Street, for example, nearly 70% are three-shaft twills. One of the four from Aberdeen, 159, is a worsted: the yarn has been spun from fibres which have been prepared by combing, a process which removes the shorter fibres and aligns the remainder, resulting in a smooth, often hard, yarn. The fabric is firm to the touch, and the

weave is clearly visible. In this case similar Z spun yarn has been used for both systems, but one system, probably the warp, predominates and has a thread count nearly twice as high as the other. The Perth High Street site produced nearly fifty three-shaft, ZZ worsteds of light and medium weight. In most cases warp and weft are more or less balanced, but there is one piece (A09.0023b) similar to 159: this has a thread count of 18/8, and was taken from an early 14th-century deposit.

The remaining three 2/1 twills are woollens: the fabrics are softer and the weave less crisp in appearance. This is the result of using yarn in which the fibres have not been aligned before spinning, but worked into a light and aerated mass, probably by carding. All three fabrics have Z spun yarn in one system, probably the warp, and S spun yarn in the second. This combination was often used where the cloth was to be dressed, that is, after fulling to compact the fabric, the surface would be brushed to raise the nap and then sheared. This treatment obscured the weave and gave the cloth a smooth finish. None of the three, however, appears to have been dressed. Undressed fabrics of this type are plentiful among the Perth High Street finds, particularly from 13th and 14th-century levels.

The 2/1 twills are of undistinguished appearance, although it should be said that they are brittle and in poor condition. The fine, even 2/2 twill (also known as four-shaft twill) from Queen Street (155), by contrast, is of unmistakably high quality. Although fragmentary, the professional standard of spinning and weaving is clearly evident, and the dressing has been expertly carried out, leaving a smooth and velvet-like finish on both surfaces. There are a number of four-shaft twills from Perth High Street, but none has been napped or approaches this quality. Indeed there is no comparable cloth from elsewhere in Scotland. In the Queen Street example S spun yarn has been used in both systems, a feature which seems to be unusual in 13th and 14th-century material. The SS combination is found in two fabrics from Threave Castle (Bennett) and one from Kirk Close, Perth (Bennett a), but all three are 2/1 twills and from probable 15th-century contexts. Among published material, the nearest parallels to the Queen Street example are from Newcastle-upon-Tyne, where the Castle ditch yielded a group of napped four-shaft twills woven from S spun yarns, the earliest of which came from the first half of the 15th century (Walton 1981, 193-8). This suggests the possibility that the Queen Street piece should be placed slightly later than the 14th century.

The heaviest and least well made of the Aberdeen textiles is the tabby woven from 2 ply yarn (157). A fragment of similar structure, and probable medieval date, was found in a cist near Kelso Abbey, Roxburghshire, and is now recognised to be of wool rather than vegetable fibre as was originally thought. When discussed by Miss Henshall (1952, 17) the piece was without parallels. Since that time, however, excavations in Perth have produced plentiful materials of this type: of variable weight, they are marked by the use of coarse hairy fibres, a harsh texture and, frequently, an uneven appearance. Similar material has also been recovered from London, from 9th to 10th-century and 14th-century contexts (Pritchard 1982, fig 1), and from a number of sites on the Continent, notably in Scandinavia, Germany and Holland (Kjellberg 1982, 138; Vons Comis 1982, 155).

Use

All the pieces are reduced to rags and bear no indication of the use to which they have been put. The best that can be said is that the five examples of twill are of appropriate weights for clothing. The high quality 2/2 twill would have been eminently suitable for a woman's fashionable gown. 158a and 158b, found matted together, may represent the main fabric and lining of a garment, but their juxtaposition could equally well be fortuitous.

The tabby made from 2 ply yarn is too rough and inflexible for clothing purposes. In Lund, Sweden, fabric of this type was used for shrouds (Lindström 1982, 181) but the regularity with which it appears on habitation sites suggests that it was also in more general use. It is difficult to imagine a function other than matting for the coarsest of this material, but the more closely woven pieces, including the sample from Aberdeen, would have been suitable for sacking.

Discussion

As yet, our view of the Scottish medieval textile industry is indistinct and is hampered, in particular, by the paucity of documentary material. On the available evidence, it is generally held that during the medieval period Scotland was essentially an agricultural community, and one in which crafts were of relatively little importance, providing goods mainly for local consumption. Whereas in the late Middle Ages, England had a flourishing cloth industry, Scotland's commerce continued to rely on the export of raw materials, wool included, while the bulk of manufactured commodities were imported (eg Grant 1930, 111-2, 410). There are indications that dyed, fullled and sheared cloth was being made in the burghs in the 12th and 13th centuries, yet, it is clear from Andrew Halyburton's account book, for example, that two centuries later bolts of cloth were being sent from E Scotland to the Low Countries to be dyed, and, presumably, finished; this suggests that at the end of the 15th century textile skills in the area were poorly developed (Halyburton's Ledger, 209). Similarly, at the end of the 16th century Scottish cloth had a well-established reputation for coarseness and low quality (Gulvin 1973, 13-37). It is possible that the textile industry in Scotland was in a healthier state in the 13th century than it was at the end of the Middle Ages, following on the War of Independence and the later troubles. Yet, if so, this is not reflected in the large body of textiles of the 12th and 13th century from Perth, the general standard of which is moderate to poor.

In view of this, the fine 2/2 woollen fabric, a clothing material of high quality, might be expected to be an import, say from England or the extensive cloth industry of the Low Countries. Although Dr Ryder comments that the true fine wool used in its manufacture could have been produced in Scotland, the balance of probability is against the piece having been locally made. The three-shaft twills are a different matter. As has been seen, they compare well with the material from Perth High Street: fabrics of this type appear in such quantity in the Perth group that it seems reasonable to suppose that some at least were local products.

There are only a few indications of loom types in medieval Scotland. It has been suggested that the change from vertical to horizontal looms, and with it a change from domestic production by women to professional production by men, began about 1000 AD in W Europe (Hoffmann 1964, 258-65). As Hoffmann has shown, however, (1964, 51-2) the warp-weighted loom survived in domestic contexts and in outlying areas for a considerable period after this—in the Shetlands, Orkney, Iceland and the Faeroes as late as the 18th century. It is therefore quite feasible that the warp-weighted loom could have been in use in E Scotland in the 13th and 14th centuries, at least on a domestic basis. The finding of a weaving sword (9), pin beater (27) and a possible loom weight (39), all items used with the warp-weighted loom, at 42 St Paul Street, confirms this possibility for Aberdeen.

THE SILK

Only a tiny fragment of the silk (160) remains, but the diminutive decorative edging strongly suggests that it was part of a very narrow textile, probably a ribbon, rather than a

broader width of fabric (the use of picoted edgings to ornament ribbons has continued into this century). A number of medieval silks have been recovered from Scotland—from sites in Perth, and from the tomb of Robert the Bruce and those of two 16th-century bishops (Henshall et al 1956)—but all are from clothing silks. As yet, no parallel has been found elsewhere.

There is no doubt that the piece was an import as there was no silk industry in medieval Britain. The most likely source is Italy: in the 13th and 14th centuries that country not only manufactured silk textiles, but served as the entry point to Europe for high quality silks from the E Mediterranean and even further afield (Pounds 1973, 392-3).

CATALOGUE

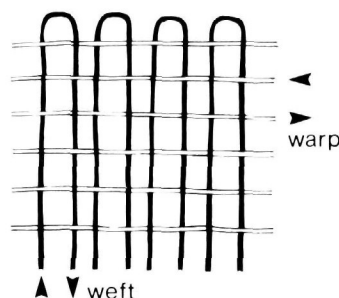
The direction of the spinning twist of the yarn is indicated by the letters Z (for anti-clockwise) and S (clockwise); all yarn is single ply unless otherwise stated. Except where the existence of a selvedge has allowed the warp and weft to be identified with certainty, the systems are simply designated 1 and 2; the likely warp, however, is given first. The sign + against the fleece type indicates the presence of slight natural pigmentation, that is up to 20% of pigmented fibres.

- 155 Fifteen fragments of rich mid-brown, fine, light weight woollen cloth, all probably part of the same fabric; about 400 sq cm in all. The weave is 2/2 twill and both spinning and weaving are exceptionally even and well executed. The fabric is soft and smooth to the touch, with the nap on both surfaces raised and sheared; the finish has been worn away in places. There are a number of cut edges but no indications of sewing. System 1, fine S spun yarn, 28-30 threads per 10 mm. System 2, the same. Fleece types: fine in system 1, generalised medium in system 2 (sample from Small Find 67). Queen Street Midden Area, FN57A, Phase 1, (Small Finds 39, 67 and 68). Illustrated below ($\times 2$ magnification).

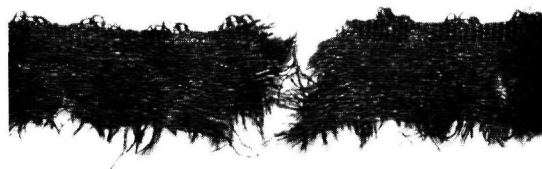


- 156 Four fragments of mid-brown, light-medium weight woollen cloth, soft to the touch; surface area about 14 sq cm. The weave is 2/1 twill. Although there are traces of felting, this appears to be the result of wear or burial rather than a finishing process. The quality is similar to 158a. System 1, Z spun yarn, about 10 threads per 10 mm. System 2, softer S spun yarn, 10-11 threads per 10 mm. Fleece type: generalised medium in both systems. Broad Street, Trench 1, Layer 2, Phase 4, (Small Find 45). Not illustrated.
- 157 Eight fragments of mid-brown, extremely coarse and heavy wool cloth, harsh to the touch; one piece has

75 mm of selvedge on one edge; surface area about 200 sq cm. Some of the pieces are in a poor state of preservation and although they appear similar it is not certain that all belong to the same fabric. The weave is tabby, and the selvedge is of the simplest kind, with no measures to strengthen the edge (illustration below). A 2 ply yarn has been used in both systems; there are considerable variations in the thickness of the yarn, the result of uneven spinning. System 1, warp, 2 ply yarn, weak S spun, and Z plyed, 3-4 threads per 10 mm. System 2, weft, the same. Fleece type: hairy + in both warp and weft. Broad Street, Trench 1, Layer 2, Phase 4, (Small Find 49).



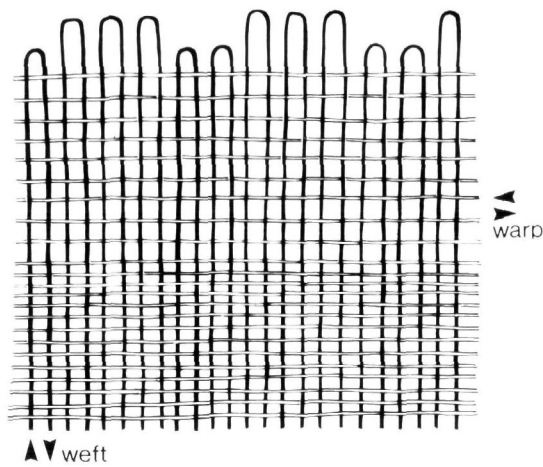
- 158 Two irregular fragments, caked together, of mid-brown woollen cloth, brittle and poorly preserved; about 75 mm \times 50 mm.
- a. light-medium weight 2/1 twill, soft to the touch but with no observable nap. System 1, Z spun yarn, 10-11 threads per 10 mm. System 2, similar S spun yarn, 10-11 threads per 10 mm. Fleece type: generalised medium + in both systems.
- b. medium weight 2/1 twill without nap, of uneven appearance. System 1, Z spun yarn, about 8 threads per 10 mm. System 2, slightly thicker and softer S spun yarn, about 6 threads per 10 mm. Fleece types: generalised medium + in system 1, fine/generalised medium + in system 2. 42 St Paul Street, Area B, Layer 108, Phase 7, (Small Find 812). Not illustrated.
- 159 One piece, roughly rectangular, of dark brown medium weight worsted cloth, hard to the touch; 175 mm \times 75 mm. The weave is 2/1 twill, evenly executed but with some weaving faults. System 1, firm, glossy Z spun yarn, 15 threads per 10 mm. System 2, similar, but less tightly spun, Z spun yarn, 8 threads per 10 mm. Fleece types: true medium in system 1, and true medium + in system 2. 42 St Paul Street, Area C, Layer 257, Phase 4, (Small Find 813). Not illustrated.
- 160 Fragment of woven silk, now a rich mid-brown, with a selvedge on one long edge; probably part of a ribbon; 75 mm \times 8 mm. The main weave is a warp-faced satin in which each warp runs alternately under one and over four weft threads. The outermost ten warps at the closed edge are woven in tabby (that is, 1/1 plain weave) to form a firm selvedge; at the closed edge three out of every five weft loops have been extended to provide a tiny decorative picoted edging (illustration below. Photograph $\times 2$ magnification).



System 1, warp, very weak (?) S spun yarn, about 120 threads per 10 mm (calculated from a count over the satin weave). System 2, no observable twist, 22-3 threads per 10 mm. Queen Street Midden Area, FN57A, Phase 1, (Small Find 39).

Small clump of unspun wool containing both dark brown and mid-brown fibres; the latter have a pink tinge which may be the result of dyeing. The fleece types are hairy medium + and generalised medium respectively. Broad Street, Trench 1, Layer 2, Phase 4. (Small Find 45). Not illustrated.

Strand of reddish-brown wool (?) yarn; 110 mm long and up to 8 mm in diameter. The fibres are loosely and irregularly twisted together in S direction but it is possible that this has occurred accidentally rather than as the result of spinning. Fleece type: hairy medium +. 42 St Paul Street, Area B, Layer 113. Not illustrated.



THE FLINT J B KENWORTHY

INTRODUCTION

The flintwork from these sites has been examined using normal conventions, with some modifications explained below. The material from each site has been divided into the following categories:

- 1 Mesolithic or of Mesolithic technology
- 2 Prehistoric, post-Mesolithic or not definitely Mesolithic
- 3 Undiagnostic pieces which cannot be attributed to any other group by material, technology or context; also 'natural' pieces from local drift or beach deposits
- 4 Chalk flint ballast (E Anglian?)
- 5 Other ballast flint

For flaked pieces in categories 2-5, the normal division into primary (100% cortex dorsally), secondary (partly cortical) and tertiary (no cortex dorsally) has been adopted. For the mesolithic material a division reflecting the lithic reduction sequence followed by the knappers has been used, analogous to that proposed by Jacobi (Jacobi et al 1978). Full details will be published elsewhere; for present purposes it is sufficient to give the main categories used: waste (small and large), cores, core preparation flakes, core trimming flakes, flakes, bladelets and fragments/segments of these, tool production waste, and tools. Pieces are described as if held with the proximal end (the struck end) towards the viewer and with the dorsal face upwards. A detailed catalogue including each piece has been prepared; publication in this detail for such small groups is not warranted, but it is available in archive. Summary statistics for some aspects are given here and only those pieces which merit description are listed. Where tool-types are given, these are conventional descriptions, supported by limited microscopic examination (at 20x-120x); pieces thought to be unmodified but utilized have also been checked microscopically in an attempt to distinguish natural damage (from trampling, soil movement etc) from genuine use-wear.

It is important to bear in mind that not all pieces have been checked microscopically and apparently undamaged pieces may have been utilized, and that the author cannot claim any expertise in the field of microwear analysis and all conclusions must remain provisional.

QUEEN STREET AND BROAD STREET (Ill 116, 117)

The material consists of 180 pieces, all of flint with the exception of one small split pebble of felsite; it may be categorized as follows:

Table 25 Queen Street and Broad Street. Flint by category.

Category	No of pieces	Percentage	
1 (a) Primary	101	56.11%	} 79.44%
(b) Derived	42	23.33%	
2	4	2.22%	
3	18	10.00%	
4	1	0.56%	
5	14	7.78%	

With the exception of category 1 (Mesolithic) where pieces in a primary (or nearly primary) context are treated separately, no attempt has been made to treat the material by phase.

1 Mesolithic

A total of 143 pieces belong to a characteristic later Mesolithic 'narrow blade' industry; 101 come from apparently primary contexts, 7 from Phase 2 contexts appear to be homogeneous with these and are included for the purpose of analysis, and 35 come from derived contexts. The main concentration was in 12-26 Broad Street as shown in Table 26.

Table 26 Queen Street and Broad Street. Flint by area.

	Primary	Derived
Queen St frontage	0	11 (5 unstratified)
Queen St Midden Area	15	10
12-26 Broad St	86	21 (11 unstratified)

The primary material is in the main fresh and unworn, only 3% being iron-stained, 2% slightly corticated and 4% slightly patinated. Of the derived pieces, 14% are iron-stained,

9% corticated and 11% patinated, the higher figures being due to the more chemically active nature of the medieval deposits. The raw material is nodular flint from beaches and rivers, with possibly a small amount derived from the Buchan inland deposits; the colours reflect those still to be found in such contexts in NE Scotland: 51.6% yellow-honey, 7.5% medium brown, 17.2% cream, 22.6% grey, 1.1% red-brown. Pieces affected by fire are relatively uncommon: only 2.8% are calcined, 5.6% burnt, and c 1% slightly heated (for the basis of these divisions see Masson 1981). This suggests that although there were fires in the area of the site, there were no long-term hearths.

There can be no certainty that the primary material

represents one episode of activity, but its homogeneity suggests that the period of time involved was not extensive. As noted above, the main concentration was in 12-26 Broad Street, where 79 pieces came from one group (Trench 8, Layer 6). The concentration of cores from Queen Street Midden Area, subsoil layer 5, is also noteworthy. In both areas, groups of material from the same nodule reinforce the idea of a short period of limited activity on the site. As Table 27 shows, all stages of working flint, as well as other activities, have been carried on in the area, though never intensively given the low numbers of flints recovered. In Table 27 both numbers of primary pieces (and percentage of total primary material) and overall numbers are given.

Table 27 Queen Street and Broad Street. Analysis of mesolithic flint

Type of flint	No of pieces and percentages in primary contexts	Overall totals
<i>Waste</i>	14 (13.0%)	18 (12.6%)
Angular	2 (1.9%)	3 (2.1%)
Cortical	2 (1.9%)	3 (2.1%)
Spalls	6 (5.6%)	7 (4.9%)
Chips	2 (1.9%)	2 (1.4%)
Split nodules	2 (1.9%)	3 (2.1%)
<i>Cores</i>	7 (6.5%)	9 (6.3%)
Complete	7 (6.5%)	8 (5.6%)
Fragment	0	1 (0.7%)
<i>Core preparation</i>	21 (19.4%)	23 (16.1%)
Initial flakes	3 (2.8%)	3 (2.1%)
Complete flakes	8 (7.4%)	10 (7.0%)
Fragments/Segments	21 (19.4%)	23 (16.1%)
<i>Core trimming</i>	26 (24.1%)	38 (26.6%)
Complete flakes	17 (15.7%)	26 (18.2%)
Fragment/Segments	9 (8.3%)	12 (8.4%)
<i>Flakes</i>	3 (2.8%)	7 (4.9%)
<i>Bladelets</i>	16 (14.8%)	17 (11.9%)
<i>Flake/Bladelet segments/fragments</i>	15 (13.9%)	20 (14.0%)
<i>Tool production waste</i>		
Microburins	2 (1.9%)	2 (1.4%)
<i>Tools and tool elements</i>	4 (3.7%)	9 (6.3%)
Microliths	1 (0.9%)	1 (0.7%)
Miscellaneous retouched	0	1 (0.7%)
Scrapers/small edge tools	2 (1.9%)	5 (3.5%)
Burins	1 (0.9%)	2 (1.4%)

The main categories for primary material are shown graphically in Ill 114, with information on breadth/length ratios and a dispersion diagram for these dimensions for complete flakes and bladelets (Ill 115). It is clear that the industry had as its aim the production of typically later Mesolithic bladelets. Apart from the modified pieces discussed below, 5 primary and 1 derived pieces show probable use-wear, and another 8 pieces (6 primary) have edge damage which is possibly due to use.

- 161 Microlith: Among the group of flints from Broad Street, Trench 8, Layer 6, is a scalene triangle microlith of medium brown flint made on the distal segment of a bladelet by steep direct retouch along the left edge. The date range for such typically later Mesolithic pieces is from the seventh to fourth millennia bc. Length: 15 mm, breadth: 3.5 mm, thickness: 2 mm. (Archive No 40).

- 162 Retouched piece: From derived context. The distal end of a (core-trimming?) flake or blade of medium brown flint with fine shallow direct microflaking along the left-hand edge and the tip. Use-wear consists of multiple microstep scarring and possible polish on the dorsal face along the right-hand edge. Length: 18 mm, breadth: 13 mm, thickness: 3.5 mm. (Archive No 138). Broad Street, Trench 3, Layer 1.

Microburins: Two proximal microburins, the waste from microlith production, come from the same context as the microlith.

- 163 Medium brown flint, from the same core as the microlith, with a right-hand punched notch. Length: 13 mm, breadth: 10 mm, thickness: 2.5 mm. (Archive No 41). Broad Street, Trench 8, Layer 6.

- 164 Yellow-brown flint with a slight retouched left-hand notch. There is fine abrupt direct retouch on the left

- hand edge. Length: 13.5 mm, breadth: 12 mm, thickness: 3 mm. (Archive No 42). Broad Street, Trench 8, Layer 6.
- 165 Notched piece: A greyish-cream (tertiary) flake with patination and slight cortication, from the same context as the microlith. The left-hand edge has a notch 8.5 mm wide and 2 mm deep formed by abrupt direct retouch, possibly later than the patination of the surface. There is abrupt direct retouch over 6 mm of the right-hand edge, with some inverse microflaking which may indicate use. Length: 26 mm, breadth: 17 mm, thickness: 4 mm. (Archive No 68). Broad Street, Trench 8, Layer 6.

Scrapers and edge tools: There are 5 of these tools, 2 from primary contexts.

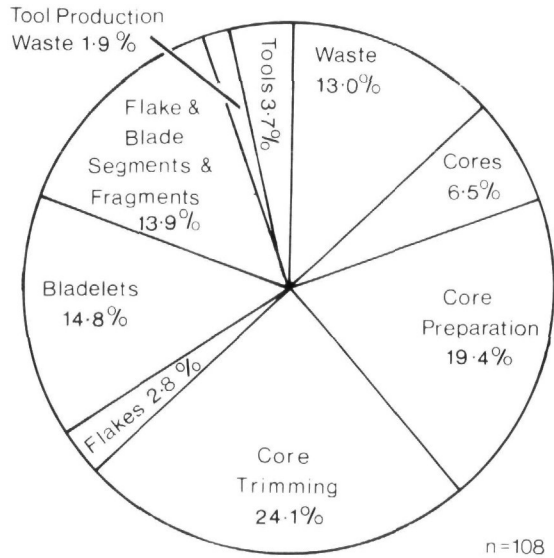
- 166 Derived context. Convex scraper on the edge of a large flake of red-brown flint. The tool edge is formed by invasive parallel shallow scalar retouch, and the edge angle is 81°. Use is indicated by direct multiple step microflaking of the entire working edge and a poorly-developed polish along the edge of the ventral face. Length: 30 mm, breadth: 28 mm, thickness: 14 mm. (Archive No 123). Queen Street Midden Area, FN26, Phase 3.
- 167 End 'scraper' on the snapped-off distal end of a large hinge flake of pale brownish-grey flint. The slightly convex working-edge is formed by steep direct multiple small scalar retouch, and the edge angle is 76°. Wear traces include direct microstep and scalar damage to the working-edge which has been partly snapped off at the right-hand side. There is slight polish on the dorsal arris and the distal ventral edge, and the latter area bears parallel oblique striations 0.1 to 0.05 mm apart, oblique to the edge. Length: 20 mm, breadth: 26 mm, thickness: 5 mm. (Archive No 139). Broad Street, unstratified.
- 168 Derived context. A fragmentary (side?) scraper of yellowish-cream cherty flint. The dorsal surface is of smooth iron-stained cortex. 13 mm of the working edge, formed by steep notched direct retouch, survives. The edge angle is 68°. Use is indicated by direct multiple microstep flaking of the edge. Length: 16.5 mm, breadth: 14.5 mm, thickness: 7.5 mm. (Archive No 128). Queen Street Midden Area, Midden, Phase 2.

- 169 From the same context as the microlith 161, and probably from the same core. A light-duty end scraper formed by oblique convex truncation of the distal end of a bladelet of medium brown flint. The edge angle is 72°. Use-wear is not confined to the working-edge. This bears some direct microstep damage, while the central part of the right-hand edge bears continuous inverse microscalar removals, and there are some scattered microflake scars on the proximal and distal parts of the same edge. This suggests that the tool may have been used for more than one purpose. Length: 32 mm, breadth: 11 mm, thickness: 4 mm. (Archive No 43). Broad Street, Trench 8, Layer 6.
- 170 Light-duty end scraper formed by oblique convex truncation of the proximal end of a bladelet of brownish cream flint. The edge angle is 71°. The left hand edge has been modified by continuous inverse small scalar retouch on the mesial and distal portions, to give an edge angle of 58°. Both edges bear slight damage on the dorsal surface; it is uncertain whether this is due to use. Length: 31 mm, breadth: 10 mm, thickness: 4 mm. (Archive No 44). Broad Street, Trench 8, Layer 6.

All of these pieces may be matched in later mesolithic contexts elsewhere, but they are not chronologically distinctive. Nos 169 and 170 cannot readily be paralleled in local contexts, but analogues come from Wawcott III, Berkshire (Froom 1976, 155, 158) where they are interpreted as light-duty scrapers, and it is noted that the truncations may be either proximal or distal.

Burins: Two of these tools used for cutting grooves in hard materials have been recovered, one from a derived context.

- 171 From a derived context. An angle burin made on the proximal end of a thick secondary flake. Of pale brownish flint, the piece bears slight cortication and iron-staining on all surfaces. The main dorsal arris has been crushed, and some transverse scalar flakes removed before cortication, from the left-hand edge, suggesting that there was re-use perhaps as an anvil during the employment of microburin technique. The burin edge has been formed by the removal of a single burin spall using the unmodified proximal end of the flake as a platform; this produced a facet 14.5 mm long and c 2 mm wide along the left-hand edge, making an angle of 86° with the 2.5 mm remaining of the flake platform and 80° with the ventral surface



Ill 114 : Flint. Queen Street and Broad Street. Primary mesolithic flints, percentages of types

of the flake. Use-wear is well-developed: the bit edge is markedly rounded when seen under magnification, as are the leading edges of the facet, especially the ventral edge, and there is a well-developed polish on these areas which is possibly the result of working antler (cf Keeley 1980); the proximal end of the facet bears parallel striations at right angles to the bit edge and extending for c 2 mm. Length: 43.5 mm, breadth: 17.5 mm, thickness: 10.0 mm. (Archive No 114). Queen Street frontage, Layer 3a.

- 172 From a primary context. An angle burin made on the proximal end of a thick hinge flake of yellow-brown flint. A hinged burin spall has removed the entire proximal end, leaving a facet 12 mm long and 4 mm wide which makes an angle of 52° with the left hand dorsal flake scar and 121° with the ventral surface. There is some miscellaneous small scalar damage to all edges and a scalar flake has been removed from the burin bit on the face opposite the facet. There appears to be some microscopic use-polish, but it is not as well-developed as on the first example. Length: 28.5 mm, breadth: 11.5 mm, thickness: 7 mm. (Archive No 16). Broad Street, Trench 1, Layer 30.
- 173- Cores: Eight complete cores were recovered, one
178 from a derived context, as was the fragmentary core. As well as cores, there are three split flint nodules, one (Archive No 126) possibly a core blank. The cores themselves range from worked-out examples which have been abandoned after considerable use to aborted cores which have been rejected soon after initiation. The distribution of cores on the sites is interesting: although more flints came from Broad Street, there are only two cores from primary contexts there; 5 of the 14 pieces from Queen Street Midden Area subsoil (Layer 5) are cores, however, suggesting a difference in activities between the two areas. The forms of the cores are typically mesolithic. Three are prismatic with one striking platform (173, 176, 178: Archive Nos 45, 4, 122), two are pyramidal with single platforms (Archive No 2 having been abandoned half-developed, and 175: Archive No 3, to which a trimming flake (Archive No 11) can be rejoined) and two are pyramidal with two opposed platforms (177: Archive No 21, and Archive No 5). In one case (Archive No 6) the first platform was unsuccessful, a second was tried with equal lack of success, and the core was abandoned.

Measurement of complete flake scars on the cores (Ill 115) shows that bladelets were the main products and therefore the most likely to have been removed from the site. These scars tend to be shorter than the flakes and blades from the site, but it should be remembered that as the core develops the flakes become shorter. In fact the mean height of the cores, c 30 mm, corresponds with the modal flake/blade length.

Several of the cores have their platform edges 'scrubbed' to remove projections. Such scrubbing has sometimes in the past led to the identification of 'core scrapers': in most cases these are not the result of use as a scraper.

Unmodified pieces: Little need be said about this material. The low percentage of small waste (chips and spalls) would normally suggest the virtual absence of primary flintworking, but the presence of cores, preparation and trimming debris shows this to be untrue. The reason for the absence is discussed below. The use of two-platform cores is attested by a few basal core-trimming 'tablets' (removed to form the second platform) and some inverse trimming flakes, but the debitage shows clearly that one-platform cores were the norm. Core initiation and preparation was by direct percussion, presumably with a hammerstone in most cases, but occasionally with a soft (wooden or antler) hammer. Core trimming was carried out equally often with a soft or a hard

hammer and rarely by indirect percussion with a punch. This last method was used for the production of bladelets, the main aim of the knapper.

In conclusion, then, this group of flints represents a few episodes of transitory occupation during which various activities concerned with the maintenance of equipment, rather than its production, took place. This occupation took place during the later mesolithic period.

2 Other prehistoric material

Three pieces from Queen Street, two of pale grey, one of yellowish-brown flint, have been deliberately flaked but seem not to belong to a mesolithic industry. They are a longitudinally split tertiary flake 39 mm long, iron stained and slightly patinated (Archive No 145, unstratified), a tertiary flake 13 mm long by 21 mm (Archive No 146, unstratified), and a thick tertiary flake 18 mm long by 23 mm (Archive No 147, Queen Street Midden Area, FN63, Phase 3). All are from previously flaked cores. Precise dating is impossible, and they may not be derived from the local subsoil. Archive Nos 145 and 147 bear some edge damage.

- 179 **Barbed-and-tanged arrowhead:** Of more interest than the above is an arrowhead of greyish white flint from Broad Street, early in the site's history. It may well have been brought to the site from elsewhere; although sufficient similar finds have been made within the area of modern Aberdeen to establish an Early Bronze Age presence, occupation on this site cannot be assumed. Length: 22 mm, (originally c 29 mm), breadth across barbs 21 mm, thickness: 4 mm. (Archive No 144). Broad Street, Trench 1, Layer 5.

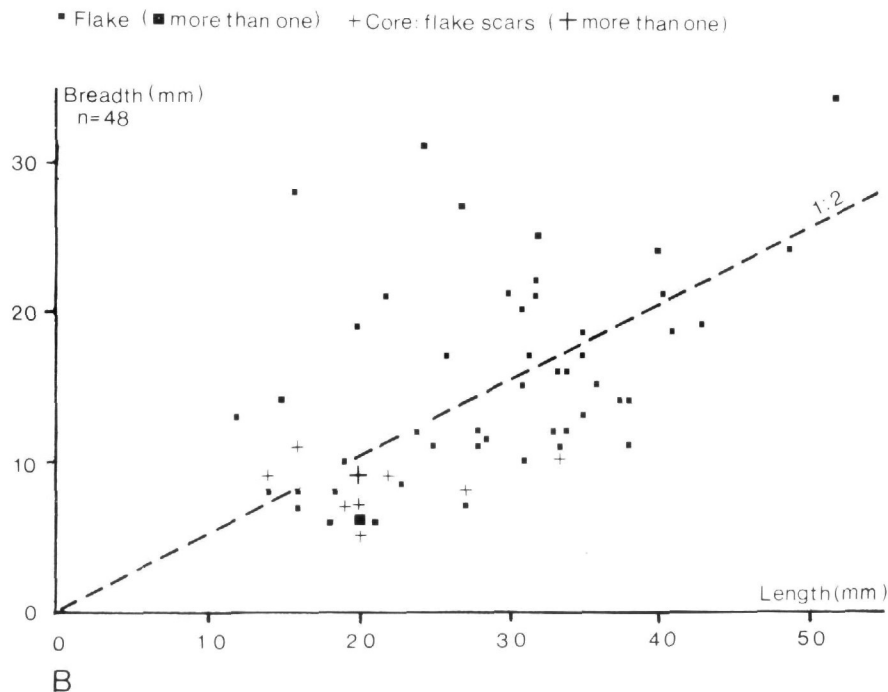
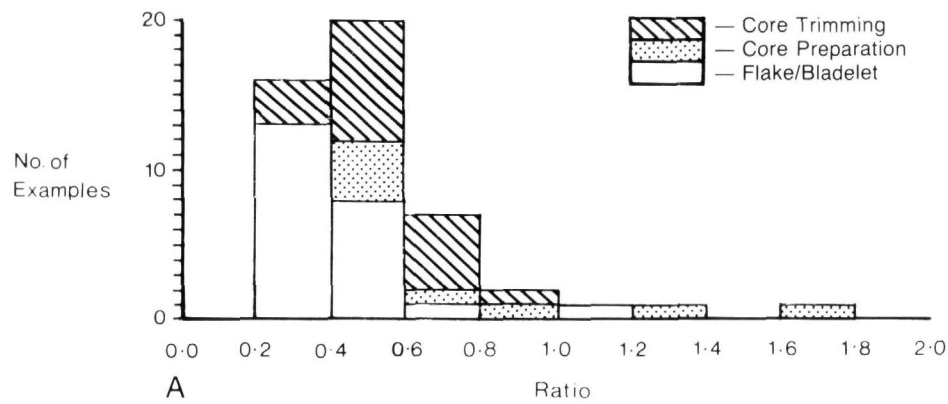
The reasons for the occurrence of flint arrowheads in medieval and later contexts has been discussed elsewhere (Kenworthy, forthcoming). The arrowhead has straight unserrated edges, unequal rounded barbs and a rounded tang. It is an 'everyday' form belonging to Green's (1980, 45-57) Sutton b category, its dimensions coinciding with those modal for the type. The associations of such arrowheads, probably the most common type in Scotland, are with Early Bronze Age ceramics, most particularly with Step 2-5 Beakers, indicating a date range of c 1900-1200 bc. There is a notable concentration of Beakers of these stages in NE Scotland. The white flint is unusual for the area, where red-brown and yellow-brown flint are more commonly used, but examples do occur sporadically throughout the NE.

3 Undiagnostic pieces

17 pieces (7 unstratified) lack any diagnostic features. Included are a vesicular flint nodule, a flaked nodule (Archive No 148: possibly an abandoned mesolithic piece), and a naturally split felsite pebble (Archive No 160). 11 are angular fragments devoid of features, and 2 are possibly (though not certainly) deliberately flaked; the distal end of a possible secondary flake of grey-brown flint (Archive No 154) and a large calcined secondary flake (Archive No 162). (Archive Nos 148-164).

4 Chalk flint ballast

One piece, a broken projection from a nodule of medium brown-grey flint with characteristic rough chalky cortex, was found in Queen Street Midden Area, FN57B, Phase 1 (Archive No 165).

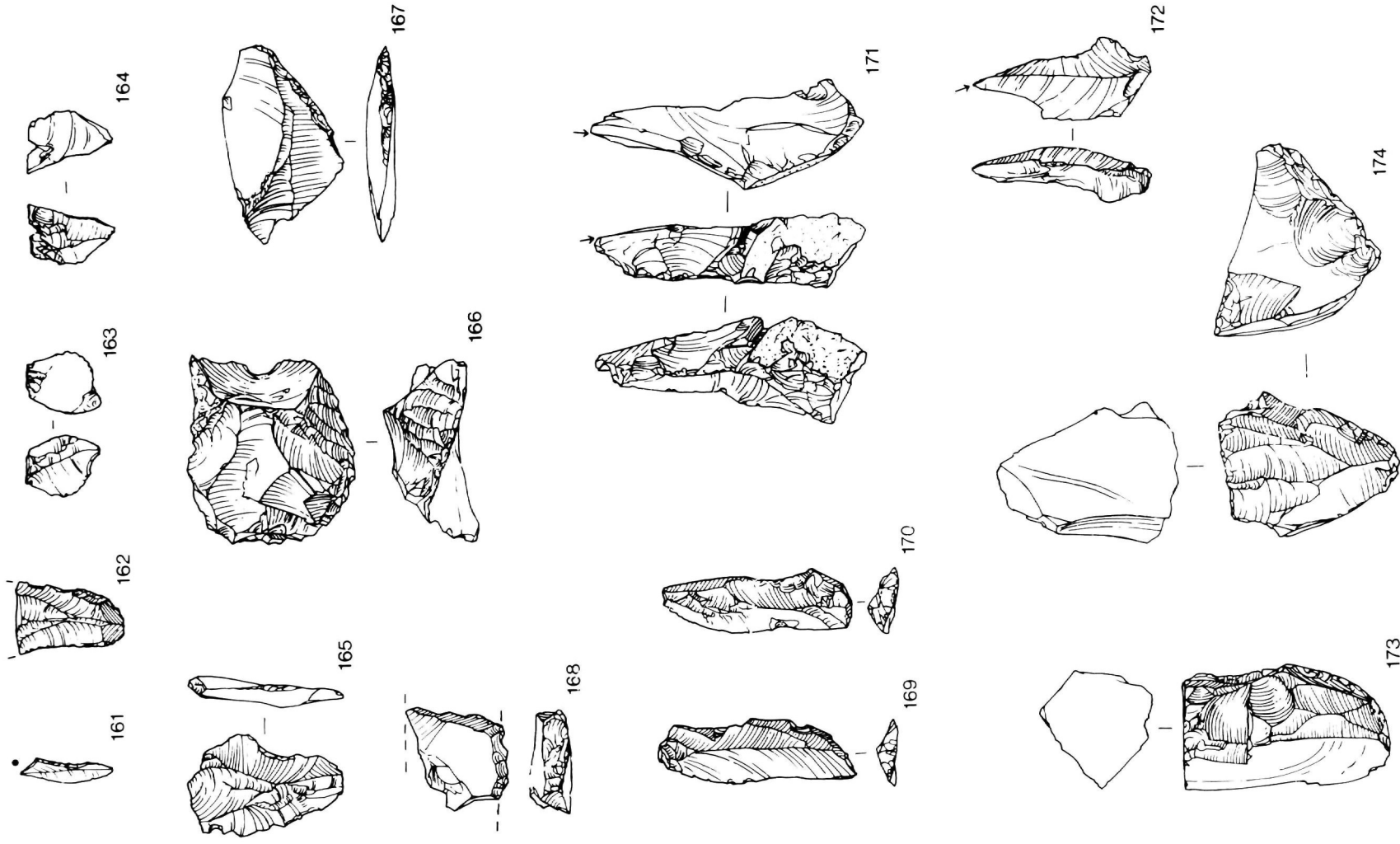


III 115 : Flint, Queen Street and Broad Street. a) Breadth: length ratios. b) Breadth: length dispersion diagram

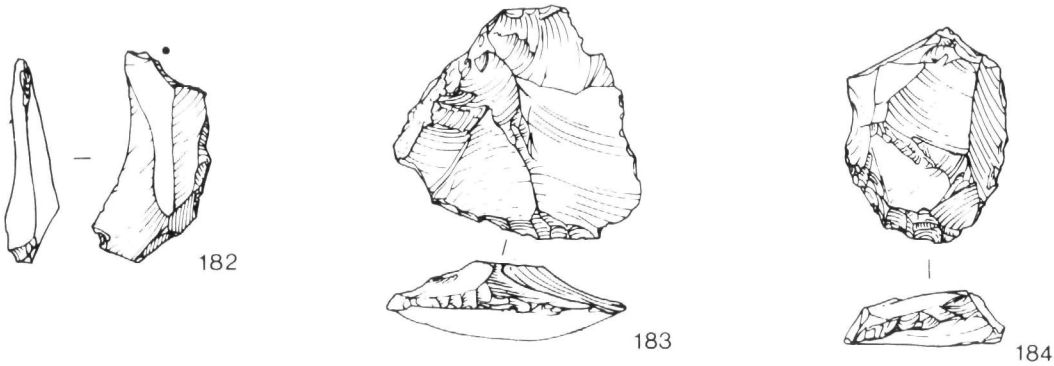
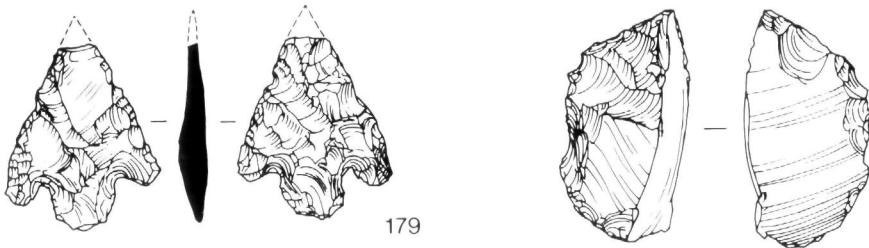
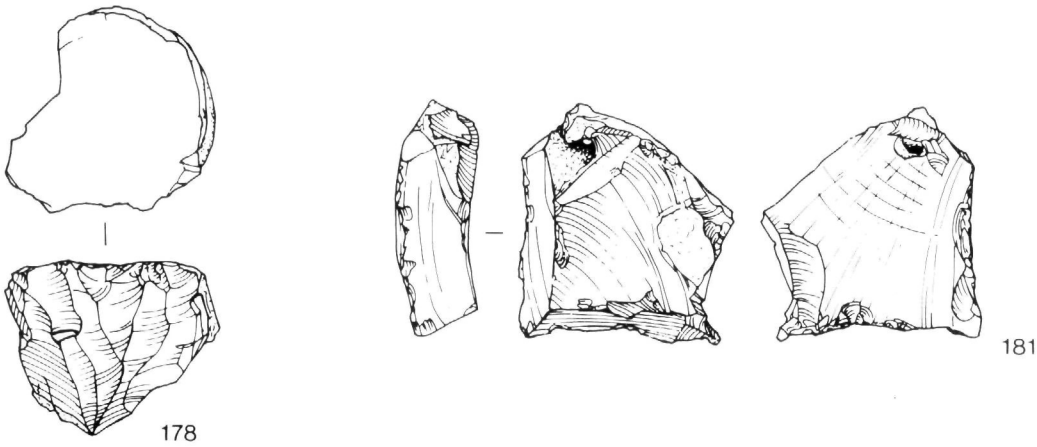
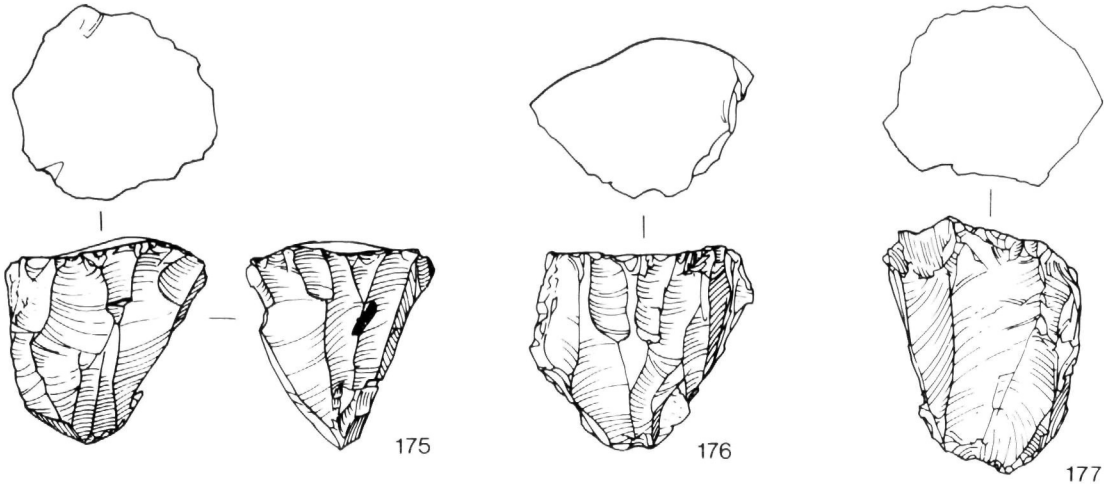
5 Other ballast flint

15 pieces were recovered, of which 7 are unstratified. 6 are from Queen Street frontage, 4 from Queen Street Midden Area, and 5 from Broad Street. They range in size from 72 × 33 × 59 mm to 4 × 4 × 3 mm, and are mainly variegated pale, medium or dark grey in colour. Most of the material

is from beach nodules. None of the broken surfaces shows any patination or cortication, but one has slight iron-staining. There are 2 split nodules, 6 cortical fragments, 5 cortical flakes, and 2 non-cortical fragments. 7 have been shattered naturally without pattern, the others show flaking by very heavy blows, in all cases probably through natural agencies. (Archive Nos 166-180).



III 116 : Worked flint. Scale 1/1



SHORE BRAE (Ill 117)

39 pieces were recovered from 14 contexts; they may be categorized as follows (contexts given in rough stratigraphic order):

Table 28 Shore Brae. Flint by category and context

Context/Layer	Category				
	1	2	3	4	5
Phase 1					
Harbour infill					
35			1		2
41			1		1
31				1	1
Harbour wall					
38					1
39			1		
25			1		
36		1			
Phase 2					
Nil					
Phase 3					
FN 10			4		9
13	1		1	1	4
12				1	1
10					1
Phase 4					
8			2		
5					1
4			1		1
Total	2	0	12	3	22

Two pieces, a hinge flake of pale flint from Layer 13 and an incomplete bladelet from Layer 36, are of mesolithic

technology and presumably derive from a site in the vicinity of the harbour. The material in category 3 is made up mainly of naturally occurring waterworn pieces from local beach deposits. Only one piece in this category, from FN10, may have been deliberately struck. Not surprisingly, the ballast flint brought in by ships is the largest category. There are three pieces of high quality chalk flint in category 4, and 22 of the pale to dark-grey cherty flint, mainly in the form of fragments of beach nodules, in category 5. There is a wider variety in category 5 than there is from other sites in Aberdeen, with one large piece of tabular flint and some fragments of the same being the most notable; these suggest that ballast from more than one source is included in category 5 on this site. Only one piece requires detailed mention. This is a probable strike-a-light from Layer 31 (180). It is a longitudinally-snapped hinge flake of category 4 high-quality dark grey-brown flint, 31 mm long, 15 mm broad and 7.5 mm thick, with marked edge crushing and flaking.

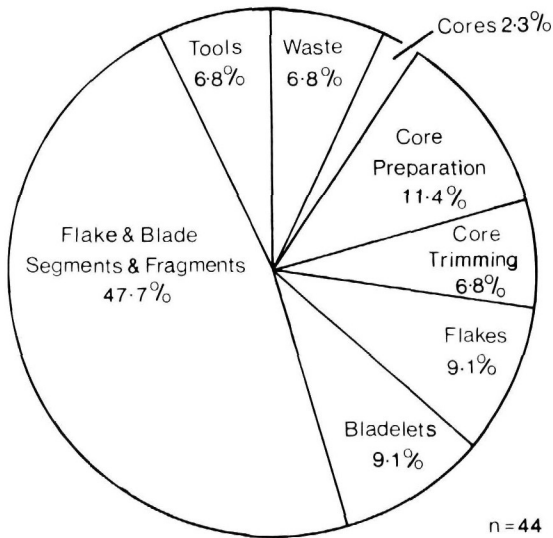
42 ST PAUL STREET (Ill 117, 120)

The main excavations and the 1974 trial excavation produced a total of 141 pieces of flint and 4 pieces of quartzite, categorized in Table 29.

Table 29 42 St Paul Street. Flint by category

Category	Number of Pieces	Percentage
1 (a) Primary (Phases 1-3)	48	33.10%
(b) Derived	49	33.79%
2	8	5.52%
3	15	10.34%
4	8	5.52%
5	17	11.72%

11 pieces cannot be attributed to a phase; the distribution of the other 130 is shown in Table 30.



Ill 118 : Flint. 42 St Paul Street. Primary mesolithic flints, percentages of types

Table 30 42 St Paul Street. Flint by category and phase

Phase	Category				
	1	2	3	4	5
1	35				
2	2				
3	7	1	1		1
4	1	2			2
5	2	1		1	1
6			1		
7	14		2	1	2
8	6	1	2	1	
9	8		2	1	3
10	5	1	4	1	
11	8	1	1		2
12				1	
13	1		1	2	1

The distribution of categories by area is discussed below. Excluding the quartzite and pieces from the trial trenches, it is shown in Table 31 (for category 1, the number of pieces in primary contexts is given in brackets following the total).

Table 31 42 St Paul Street. Flint by category by area

Category	Area					
	A	B	C	D	E	F
1	16(5)	53(35)	4(0)	3(0)	7(1)	5(0)
2	0	2	5	1	0	0
3	2	3	1	5	2	1
4	3	0	1	3	0	1
5	2	5	3	1	0	1

1. Mesolithic

A total of 93 pieces apparently belong to an industry of mesolithic technology, probably later Mesolithic; 44 came from Phases 1-3 and may be considered to be primary. Three deliberately flaked pieces of quartzite and one burnt piece of quartzite (?) are associated with the latter. The distribution shows a marked concentration in Areas A and B, especially the latter. 22 of the 35 primary pieces in Area B came from a limited area, little over 1m², near the N end. Despite the

small number of pieces, statistical consideration of the distribution pattern can give some useful information. Two questions which need to be answered are:

- (a) does the derived material originate from the site or was it brought in, for example with dumped soil?
- (b) does it support the division between derived category 1 pieces and those of categories 2 and 3, which might be questioned?

The derived mesolithic material is more widely distributed over the site than the primary pieces, but there is a high positive correlation ($r = 0.86$) between the distributions, suggesting that despite this difference, much of the derived material may originate on site. There is no correlation, on the other hand, between derived mesolithic and category 2-5 flints ($r = 0.05$) suggesting that their presence is due to different agencies. This is supported by the results of a chi-square test ($p = c 0.02$). There is no significant difference between the ballast (categories 4, 5) and the other non-mesolithic material (categories 2, 3); these show a weak positive correlation, but the pattern may well be random. We cannot be sure that none of the derived mesolithic material is extraneous, however, and for purposes of assemblage analysis it has been excluded. In answer to the second question, there is a weak negative correlation between derived mesolithic and category 2-3 material and a chi-square test shows a significant difference between the groups, giving a measure of support to the separation of category 2 and 3 material from derived category 1 pieces.

The primary material is fresh and unworn, with the exception of two slightly worn pieces, but 20% of the derived material shows some degree of abrasion. 16 of the primary pieces have slight patination and 2 are slightly corticated; of the derived material 8 are lightly patinated and 5 slightly corticated. The flint used is similar to that from the Queen Street and Broad Street sites but pieces affected by fire are more common: of the primary material one piece is heated, 7 are burnt and 12 calcined, making 45% of the total; of the derived material, 3 pieces are burnt and 7 calcined (20% of the total). Of the primary group in Area B already mentioned, 12 have been in a fire, suggesting that there was a hearth close by. The assemblage is too small to provide information for detailed comparative purposes, but represents all stages of flint-working, with flake and blade segments and fragments predominating.

Table 32 42 St Paul Street. Analysis of mesolithic flint

Type of flint	No of pieces and percentages in primary contexts	Overall totals
<i>Waste</i>	3 (6.8%)	7 (7.5%)
Angular	1 (2.3%)	1 (1.1%)
Cortical	0	1 (1.1%)
Spalls	0	1 (1.1%)
Chips	2 (4.5%)	2 (2.2%)
Split nodules	0	2 (2.2%)
<i>Cores</i>	1 (2.3%)	3 (3.2%)
<i>Core preparation</i>	5 (11.4%)	16 (17.2%)
Initial flakes	0	4 (4.3%)
Complete flakes	1 (2.3%)	5 (5.4%)
Fragments/segments	4 (9.1%)	7 (7.5%)
<i>Core trimming</i>	3 (6.8%)	14 (15.1%)
Complete flakes	2 (4.5%)	11 (11.8%)
Fragments/segments	1 (2.3%)	3 (3.2%)
<i>Flakes</i>	4 (9.1%)	11 (11.8%)

<i>Bladelets</i>	4 (9.1%)	7 (7.5%)
<i>Flake/bladelet fragments/segments</i>	21 (47.7%)	28 (30.1%)
<i>Tool production waste</i>	0	2 (2.2%)
Microburin	0	1 (1.1%)
Burin spall	0	1 (1.1%)
<i>Tools</i>	3 (6.8%)	5 (5.4%)
Scrapers/small edge tools	3 (6.8%)	4 (4.3%)
Wedge	0	1 (1.1%)

The main categories for primary material are shown graphically (Ill 118) together with statistical information for complete flakes and bladelets (Ill 119). The quartzite, all from the 'primary group' in Area B, consists of 1 flake, a broken flake, a flaked piece and a burnt piece. Use of material other than flint is common in parts of Scotland where the latter is rare, but is slightly surprising in NE Scotland.

- 182 Microburin: A bladelet of dark grey flint lacking the proximal end and with the remains of a notch (left-hand) formed by retouch. Length: 29 mm, breadth: 15 mm, thickness: 6.5 mm. From the 1974 trial trench. (Archive No 94).

Scrapers and edge tools: Four in all, one from a derived context.

- 183 Convex end scraper on the distal end of a core-trimming flake. Length: 32 mm, breadth: 33 mm, thickness: 10 mm. (Archive No 44). Area A, Layer 212, Phase 3.
- 184 On right hand part of distal end of the distal segment of a core-trimming flake of medium brown flint. Edge angle 77°. Length: 26 mm, breadth: 24 mm, thickness: 8 mm. (Archive No 70). Area C, Layer 169, Phase 8.
- 185 Light duty end scraper formed by oblique convex truncation of the distal end of a plunging bladelet of mottled olive flint. Edge angle 80°. Use-wear is present: microstep flaking of the working-edge and some polish and slight striation on the contact aspect. Length: 43 mm, breadth: 16 mm, thickness: 4 mm. (Archive No 2). Area B, Layer 117, Phase 1.
- 186 Light duty end scraper, on the distal end of a cortical (probably core-trimming) bladelet of pale to dark grey flint. Edge angle 83°. Use-wear is similar to that on 185. Length: 25 mm, breadth: 12 mm, thickness: 3.5 mm. (Archive No 46). Area B, Layer 98, Phase 3.

The comments on the scrapers from Queen Street apply to the above. The last two pieces are close to Archive Nos 43 and 44 from that site.

Wedge: A split nodule of pale yellow-brown flint from a Phase 8 context in Area B shows 'bipolar' flaking and slight edge crushing, consonant with use as a wedge. Similar pieces (often called *outils écaillés*) are found on many Scottish mesolithic sites. Length: 40 mm, breadth: 30.5 mm, thickness: 13 mm. (Archive No 69). Area B, Layer 92, Phase 8. Not illustrated.

Burin spall: No burins have come from the site, but a probable secondary burin spall from a Phase 9 context in Area A attests to the resharpening of at least one. (Archive No 74). Area A, Layer 95, Phase 9. Not illustrated.

Cores: Three cores were recovered, one from a probably primary context (Phase 3), one from Phase 7 and one from Phase 11. The first (Archive No 42) was aborted soon after initiation, the second (Archive No 60) was prismatic in form but was undeveloped, and the third (Archive No 88) was pyramidal and developed. They range from 25 mm to 42 mm in height.

Unmodified pieces: A few pieces bear slight edge damage or polish which is most likely due to natural agencies. Two pieces, however, bear more convincing use-wear.

- 188, 189 These are two bladelets from Phase 1 in Area B, one (Archive No 15. Layer 125) with cutting wear, the other (Archive No 14. Layer 122) with possible whittling wear.

The small number of pieces precludes useful analysis of the debitage, although the high proportion of flake and bladelet pieces may be noted. The techniques used conform to those reported for the Queen Street and Broad Street sites.

There was, then, only a slight and short-lived mesolithic presence on the site, centred in Area B, where there was a small hearth. Microliths were absent, and there is no close dating evidence.

2 Other prehistoric material

Eight pieces of prehistoric flintwork (Archive Nos 98-105) seem not to be mesolithic, but cannot be closely dated. They include two complete and two fragmentary tertiary flakes, two fragmentary secondary flakes, one primary flake and an angular fragment. Their disposition by phase and area has been given above, with the exception of one piece (Archive No 105) which comes from an unphased 13th-century context. All except one piece from Phase 3 come from clearly derived contexts and, as has been discussed above, show a distribution probably different from that of the mesolithic material. Two pieces require further comment:

- 187 Trapeze-shaped mesial segment of a primary flake of cream flint. One edge shows scalar and step microflaking, probably due to use. Length: 21 mm, breadth: 19.5 mm, thickness 2.5 mm. (Archive No 105). Area B, Layer 101, contaminated.
- 190 A calcined tertiary flake from a Phase 4 midden with invasive direct microflaking along the left hand edge, possibly due to use. Length: 39 mm, breadth: 37 mm, thickness: 12 mm. (Archive No 99). Area C, Layer 257, Phase 4.

3 Undiagnostic pieces

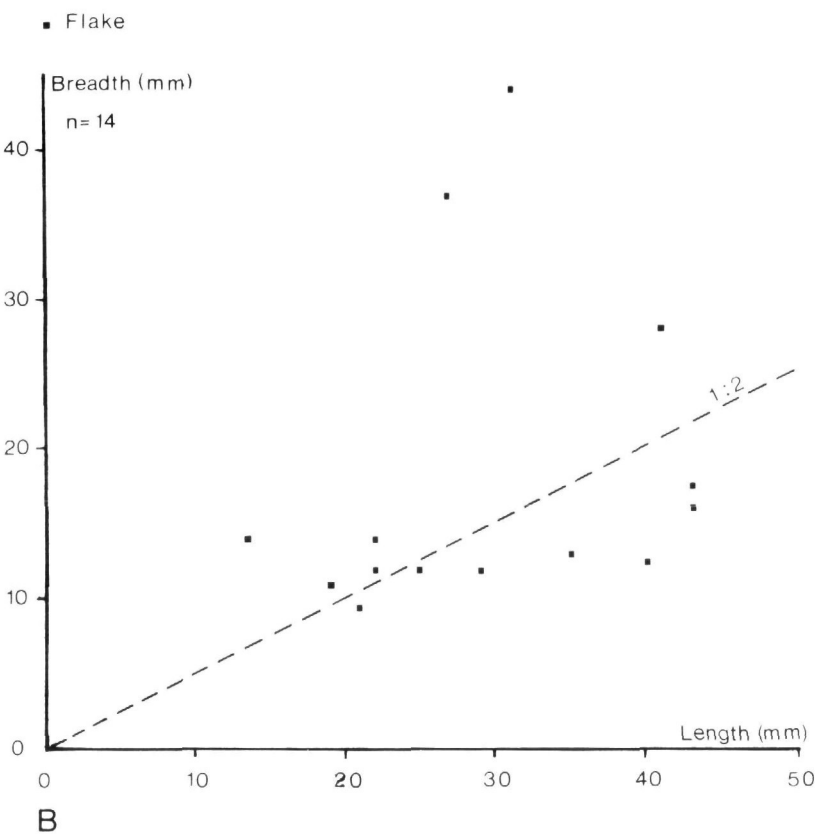
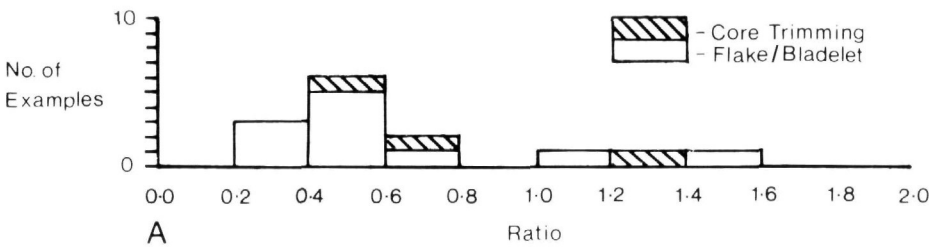
Fifteen pieces (Archive Nos 106-120) all from Phase 6 or later, except for one from Phase 3, and consisting of nodular and angular fragments, together with a few burnt pieces, cannot be allocated to any other group.

4 Chalk flint ballast

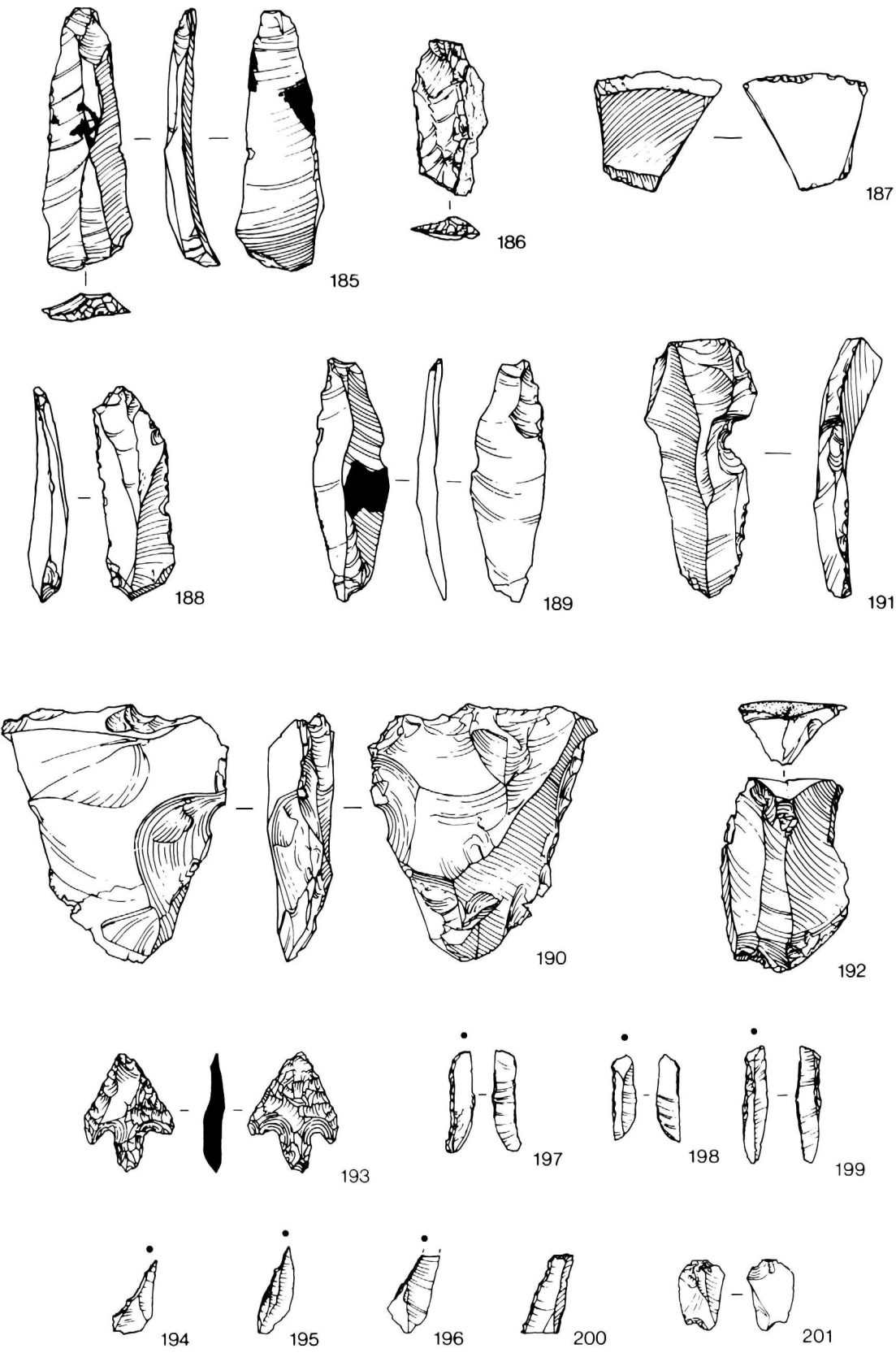
- Eight pieces (Archive Nos 121-128), ranging from Phase 5 to Phase 13, belong to this group of characteristic, usually medium to dark grey flint. Only one piece (Archive No 121) requires comment. It is a fragment of a large flake with crushing and flaking along two edges, probably the result of use as a strike-a-light. Area C, Layer 270, Phase 5.

5 Other ballast flint

Seventeen pieces (Archive Nos 129-145), five from unphased contexts, of variegated light to dark grey flint from beach or drift nodules. Two pieces may have had flakes removed deliberately, otherwise they have been broken by accident and sometimes bear chance edge damage.



Ill 119 : Flint. 42 St Paul Street. a) Breadth: length ratios. b) Breadth: length dispersion diagrams



III 120 : Worked flint. Scale 1/1

67-71 GREEN (Ill 120)

27 pieces were recovered, four from probably primary positions in Layers 37-8; five from Layer 19, one from Layer 22 and one from Layer 39 were fairly close to natural, while from later contexts, eleven pieces came from Layers 1-5, four from Layers 16b-d, and one was unstratified. The small size of this group makes detailed comment useless; there is no concentration of finds. Ballast flint is represented by one piece of category 4 flint and three of category 5, all from the later contexts. One of the category 5 pieces is of a tabular flint recorded otherwise only from Shore Brae. Six pieces, all from later contexts (with the exception of two from Layer 19) are undiagnostic. A primary flake from Layer 19, another from Layer 5e and a spall from Layer 39 are deliberately struck but probably not mesolithic in date.

- 193 **Barbed-and-tanged arrowhead:** From Layer 5e comes a small example of Green's Sutton b type of arrowhead (for discussion of these and the significance of the find see above No 179). It is of yellow-brown flint, with curved edges, asymmetrical barbs and a relatively long tapered and rounded tang. The tip has been slightly fractured. Length: 19 mm, breadth across barbs: 15 mm, thickness: 3 mm.

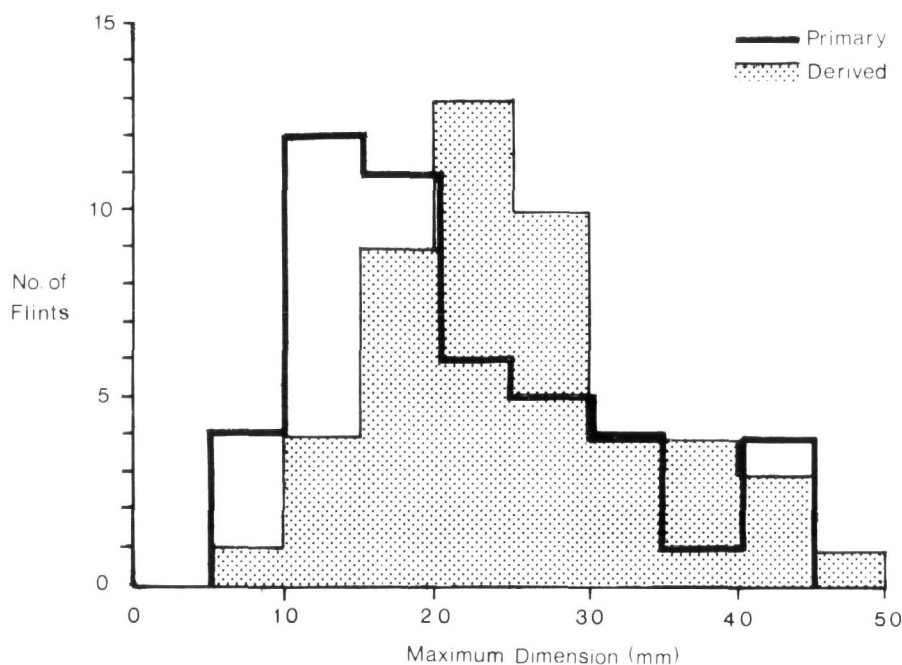
The remaining thirteen pieces are probably mesolithic, including the four from Layers 37-8, two from Layer 19, one from Layer 22, five from Layers 1-5 and one unstratified. The four primary pieces are of interest, all being of the same pale grey flint, a material apparently commoner at the start of the NE Scottish mesolithic sequence, which is the dating suggested by the size of two pieces, one a bladelet 60 mm long and 24 mm wide, the other a bladelet with the proximal end snapped off, but with a punched notch on the left hand side presumably in preparation for microlith production. It is 41 mm long and 18 mm broad (Ill 120: 191). It would have produced a microlith larger than those normal for the later

Mesolithic of the NE. The other two pieces with these are a possible aborted core and a core preparation flake. The derived material, on the other hand, fits well into the normal pattern. It consists of a worked-out uniplane core (Ill 120: 192), two core preparation flakes, four core trimming flakes, one regular flake and a bladelet lacking the proximal end. It is possible that this material originated off the site, though perhaps not far away.

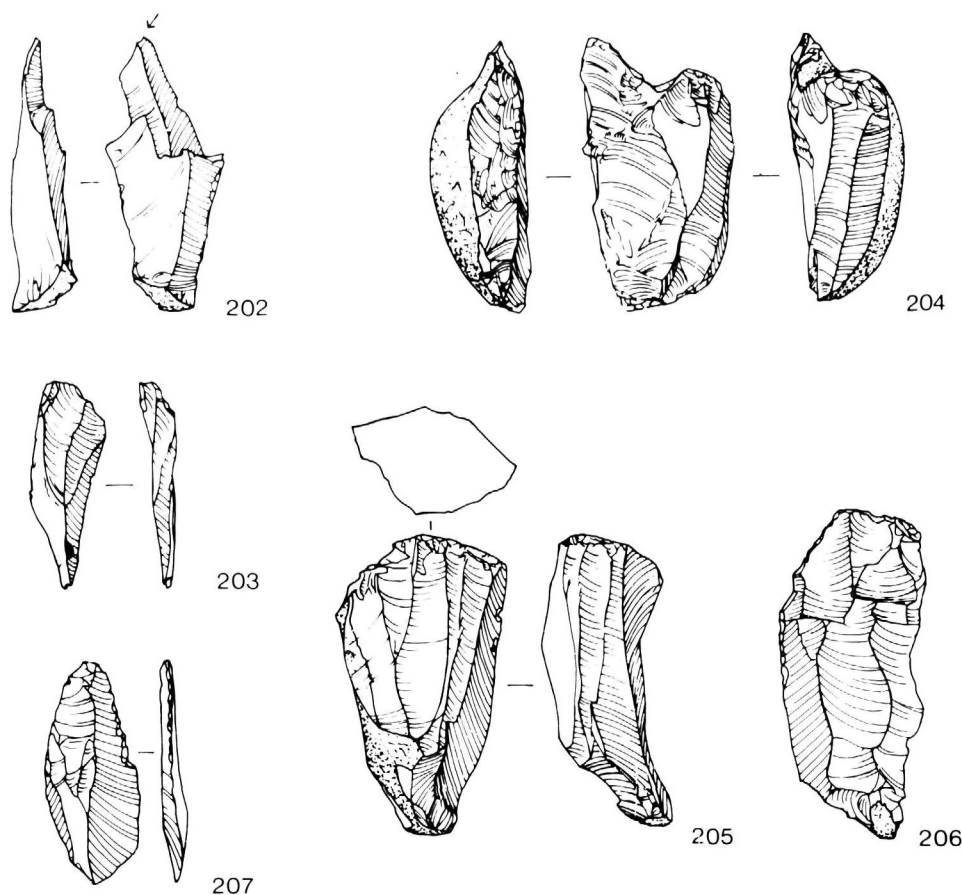
45-59 THE GREEN (Ill 120, 122)

1. Mesolithic

This is the most interesting of the flint assemblages so far recovered from Aberdeen. 297 pieces came from a limited area in Trench 2, apparently half of an approximately circular scatter 0.8 m across. This, then, is a unitary later mesolithic group with no likelihood of admixture of different periods of occupation. Details of the distribution of various categories of debitage are lacking, thus limiting the extent of interpretation possible. The employment of sieving to some extent has had one effect which must be mentioned. The low percentage of waste, especially fine waste, at the other sites has been noticed; in this case the percentage has doubled when compared with the Queen Street material. The other reason for this effect is that the concentrated nature of the finds will have led to closer watch being kept for flints by the excavators; this can be seen to some extent in the St Paul Street site: while the range of sizes of flints found in primary and derived contexts was roughly the same, the size distribution shows a statistically significant skewing toward larger pieces in derived contexts (which is, of course, no criticism of the excavation). In excavating the primary material, a careful watch would be kept for flints, and more of the smaller pieces found. This is shown graphically (Ill 121).



Ill 121 : Flint. Differentiation in size between flints from primary and derived contexts on 42 St Paul Street



Ill 122 : Worked flint. Scale 1/1

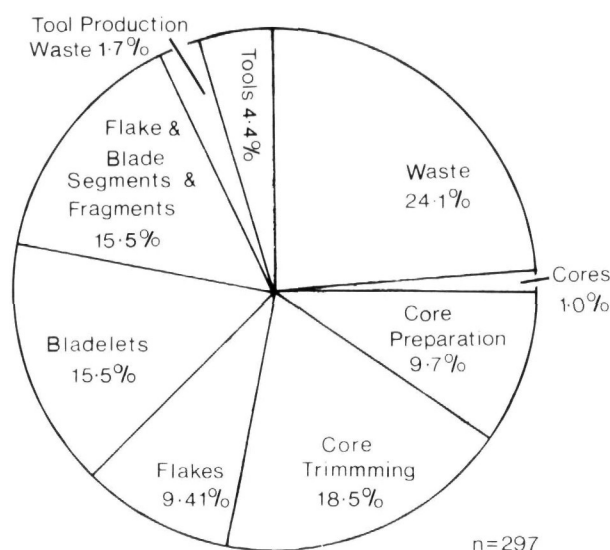
The flints are fresh, unstained and lack cortication or patination. The raw material is the same as that from the other sites, mainly beach and river nodules. Refitting pieces and a number of groups of distinctive material suggest that a limited number of nodules was flaked on site. In group terms the colour range represented is: 60.9% yellow-honey, 14.3% medium brown, 8.8% cream, 13.3% grey, 2.7% red-brown. Only two pieces have been burnt and one heated, showing that there is unlikely to have been a hearth in the immediate vicinity of the concentration. The analysis of the assemblage is in Table 33.

Table 33 45-59 Green. Analysis of mesolithic flint

Type of flint	No of pieces and percentages in primary contexts
Waste	72 (24.2%)
Angular	22 (7.4%)
Cortical	11 (3.7%)
Spalls	38 (11.7%)
Chips	0 (0.0%)
Bashed lump	1 (0.03%)
Cores	3 (1.0%)
Core preparation	29 (9.7%)
Initial flakes	6 (2.0%)
Complete flakes	17 (5.7%)
Fragments/segments	6 (2.0%)

Core trimming	55 (18.5%)
Complete flakes	49 (16.5%)
Fragments/segments	6 (2.0%)
Flakes	28 (9.4%)
Bladelets	46 (15.5%)
Flake/bladelet fragments/segments	46 (15.5%)
Tool production waste	5 (1.7%)
Microburins	4 (1.4%)
Burin Spall	1 (0.3%)
Tools and tool elements	13 (4.4%)
Microliths	7 (2.4%)
Scrapers/small edge tools	2 (0.7%)
Burins	2 (0.7%)
Awls	2 (0.7%)

This information is summarised in graphic form (Ill 123), together with breadth/length ratio information for complete flakes and bladelets (Ill 124). The production of bladelets and the modification of these into tool elements was the major aim of debitage. In addition to the modified pieces, 13 (4.4%) pieces show probable use-wear, and a further 25 (8.4%) bear edge damage which might be due to use but is equally likely to be non-cultural.



Ill 123 : Flint. 45-59 Green. Primary mesolithic flints, percentages of types

194-6 Microliths: Of the 7 recovered, 3 (Archive Nos 1-3; Ill 210: 194-196) are obliquely blunted distal segments of blades, probably akin to scalene triangles, 3 (Archive Nos 4-6; Ill 120: 197-199) are laterally blunted blade distal segments, again possibly to be categorised as 'scalene pieces', and the seventh (Archive No 7; Ill 120: 200) is atypical being the proximal end of a snapped bladelet with the bulb removed by retouch and the right-hand edge blunted. This and nos 2, 3, 4 and 6 all bear fine steep retouch, almost microscopic, along the edge opposite the blunting. This is idiosyncratic and may indicate manufacture by a single person. The absence of rod microliths, true scalene triangles and quadrilateral forms, all common in the NE Scottish later Mesolithic, may have chronological significance, or may merely reflect the variety of tool or weapon being made or repaired at this site. The microliths range in length from 11 to 19 mm and from 4-6 mm in breadth.

Microburins: Although 4 pieces are listed under this category, three (Archive Nos 8-10) are more correctly 'notched and split' and lack the characteristic oblique ventral facet, but the same purpose was served as with a microburin proper.

201 Two of these pieces are distal, and one mesial. The final piece (201: Archive No 11) is a right hand notched microburin on the proximal end of a bladelet.

202 Burins: A dihedral burin on the proximal end of a flake of pale grey-brown flint, the bulbar end of which has been removed by two step flakes and the burin facet (6 mm x 1 mm) formed by an oblique blow. The facet makes an angle of 58° with the opposing flake scar. Both edges show microflake damage. Length: 36.5 mm, breadth: 16 mm, thickness: 6.5 mm. (Archive No 14).

203 Possible burin on the distal end of a bladelet of yellow-brown flint. The facet is 14 mm long and 0.5 mm wide, removed from the left hand edge. Length: 27 mm, breadth: 9 mm, thickness: 3 mm. (Archive No 15). There is also a possible primary burin spall (Archive No 16).

204 Scrapers and edge tools: Two pieces fall into this group. The first (204: Archive No 12) appears to be

a worked-out core, one of whose long edges has been retouched for scraper use, giving an edge angle of 70°. Length: 36 mm, breadth: 23 mm, thickness: 15 mm.

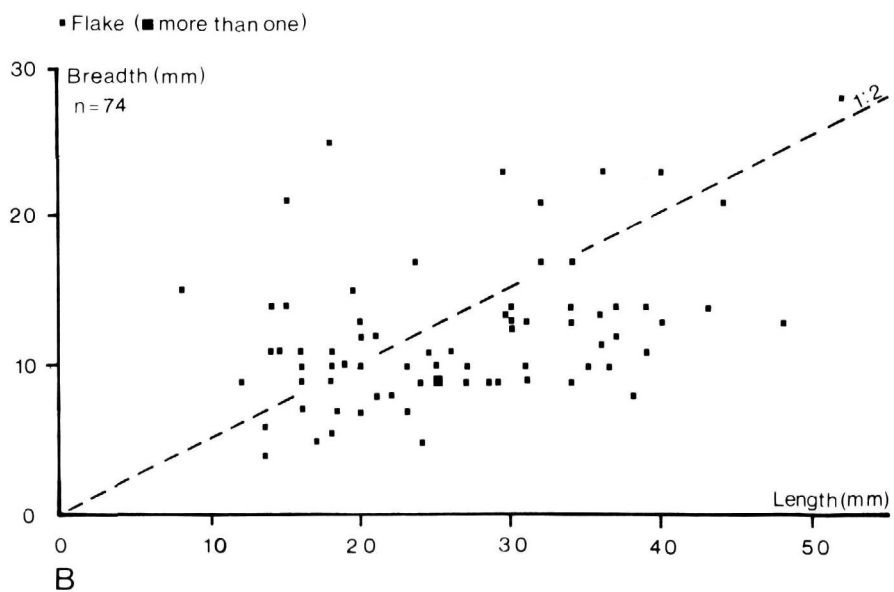
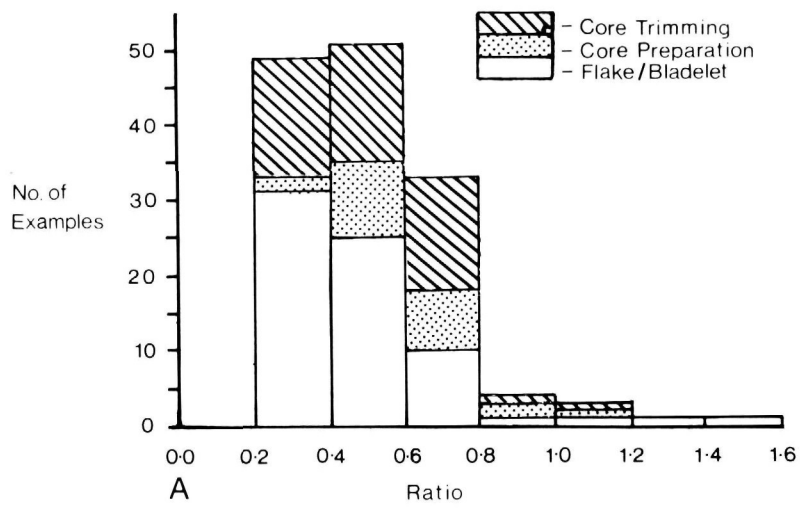
206 The second is a core-trimming flake with apparently deliberate retouch centrally to the right hand edge, giving an edge angle of 85°. Length: 44 mm, breadth: 21 mm, thickness: 5.5 mm. (206; Archive No 13).

Awls: Two pieces, not illustrated (Archives Nos 16, 17), a core-trimming flake and a blade, seem to have been used for boring or piercing holes.

205 Cores: Two complete and one possibly fragmentary core. An unsuccessfully trimmed pyramidal core (Archive No 18) can be connected with some of the debitage from the site. The worked out core (Archive No 12) reused as a scraper has already been mentioned. The piece listed as fragmentary (205: Archive No 19) may be in fact a core developed on a large flake, rather than the result of over-enthusiastic trimming. Technique of production corresponds with that from the other sites in Aberdeen and need not be detailed here. Basal core trimmings and inverse trimming flakes show that at least some of the cores used at the site were developed with two platforms. Preparation and trimming were carried out with hard or soft hammers, a punch sometimes being used for the trimming and always for the production of bladelets.

207 Unmodified pieces: An example of the possibly utilised pieces is illustrated (207: Archive No 20). It is not possible to infer the activities carried out on site without detailed microwear study, not carried out in this case. The rest of the assemblage requires no further comment.

In conclusion, it would appear that this assemblage of flints was produced by a single flintworker over a relatively short period of time. All phases of production are present and the work involved seems to have been the maintenance or replacement of (hunting?) equipment. Presumably the worker came from a short term camp situated nearby. The assemblage may be dated to the later Mesolithic, but in the absence of dated sequences for the area, it is not possible to attribute the probably diagnostic group of microliths more closely.



Ill 124 : Flint. 45-59 Green. a) Breadth: length ratios. b) Breadth: length dispersion diagram

The following report considers 278 clay pipe fragments recovered during recent excavations in Aberdeen. 266 of these came from seven sites and around sixty-two archaeological contexts. The other twelve were collected during observation of other sites in the town. The pipes have been recorded and studied according to the recently published *Guidelines for the Processing and Publication of Clay Pipes from Excavations* (Davey 1981). Complete site lists and record sketches of all bowls and decorated fragments are held in the excavation archive. Throughout the report letters in brackets refer to this archive material.

The report is divided into two parts. First, a summary of the evidence provided by the pipes for each site is given. Secondly, the evidence provided by the excavations for the nature of pipe production, importation and use in Aberdeen is assessed.

THE PIPES IN RELATION TO THE SITES

The Aberdeen pipes present a number of problems. The lack of detailed research into the Scottish industries and the absence of large, well-stratified groups from the area for comparative purposes make their interpretation problematic. The fact that the majority of the pipes are from sites which lacked good post-medieval stratigraphy and appear in groups of mixed date minimises their usefulness as chronological indicators. The very small numbers involved (Table 34), with only three sites producing even fifty fragments and the low context average of just over four sherds, indicate that any dating or socio-economic implications of the pipes should be treated with considerable caution. In addition to these difficulties which relate specifically to the nature of the Aberdeen finds, the widely recognised problems of residuality, pipe mould life and changes of rubbish disposal patterns should also be borne in mind. In spite of all this it remains possible to make some minimal statements about the pipes from each site.

Shore Brae

The nine contexts only produced twenty-seven fragments. With the exception of context AH, which is mainly of 19th-century types the other eight contain material dating from 1650-1720.

Queen Street

Half of the thirty-nine sherds were unstratified. Apart from a few probably residual 17th-century sherds from Queen Street frontage all the finds are of 19th-century date, probably from the period 1840-1900.

Broad Street

Nine contexts produced fifty-two pipe fragments ranging in date from 1620-1900. Two of the contexts (Trench 5, Layer 1, Phase 5 and Trench 1, Layer 27, Phase 3) included fragments of kiln furniture of 19th-century type, whilst Broad Street, Trench 4 had a number of decorated stems from the same mould, with casting seams untrimmed and apparently unsmoked. At least thirty of the forty-six pieces from this layer were of 19th-century date. This material would appear to derive from a production site in the town. (Ill 127: 240-241).

45-59 Green

The nine fragments from six contexts all appear to belong to the period 1620-1720.

6-8 Castle Terrace

The three trenches excavated produced a total of seventy-six fragments of clay tobacco pipe, including four recognisable bowls, seven decorated stems and one stamped heel. Trenches 1 and 2 account for sixty-eight of the pieces from fourteen contexts, which, exceptionally for Aberdeen, form part of a good stratified post-medieval sequence culminating in the construction of a small town house in around 1720. Trench 3, which produced the remaining eight fragments, was totally disturbed by service pipes and scarping. (Chapter 2:9).

Phase 2: There were no pipes from Phase 1 and only a single stem fragment from Phase 2 (Layer 90). The position of this layer in the matrix is not closely fixed. It is known to be earlier than Layer 80 (Phase 3) and later than Layer 83 (lower down Phase 2). The stem is probably of early to mid 17th-century date and in view of the burnishing, of Dutch origin. If this phase produced reasonable quantities of other artefacts of this date, it would be tempting to suggest that, given the paucity of pipes from it, it dates from before the first major pipe using phase in Aberdeen, which, from the evidence of other sites, appears to be 1620-40. It would be very dangerous, however, to date the whole of Phase 2 to this period on the basis of a single stem which is from a layer which is floating in the matrix and which may in any case be residual.

Phase 3: A decorated stem from Layer 80 (Archive AL) is of a Dutch type popular during the third and fourth quarter of the 17th century and is unlikely to pre-date 1660.

Phase 4: Most of the pipes from the site, fifty-six fragments, come from this phase. All are consistent in terms of bowl form, stem decoration and stem-bore measurements. The two bowls (Ill 125:214. Archive AG, AK), are of a type current in Holland during the last thirty years of the 17th century and probably date from 1665-1695. All five decorated stems are of similar date. The stem-bore determination of 1683 ± 15 for the phase, though based on a small number of measurements, agrees well with this.

A feature of a number of stems in this group is that they have been re-fired in conditions well in excess of their original firing temperature. In one case soil in the stem bore has been completely vitrified with the stem itself. This probably provides a close link with the iron working on the site.

Phase 5: The two stems from Layer 22 cannot be distinguished in date from either Phase 4 or Phase 6 material, but are not inconsistent with either.

Phase 6: The five fragments from Layers 24 and 47 are inseparable from both Phase 5 and Phase 7 pipes.

Phases 7 and 8: The stem bore results are indistinguishable from the previous phases. Unfortunately the Scottish three-lettered heel stamp (Ill 125:219. Archive AB) is of a type which cannot yet be accurately dated, though is very unlikely to post-date 1720.

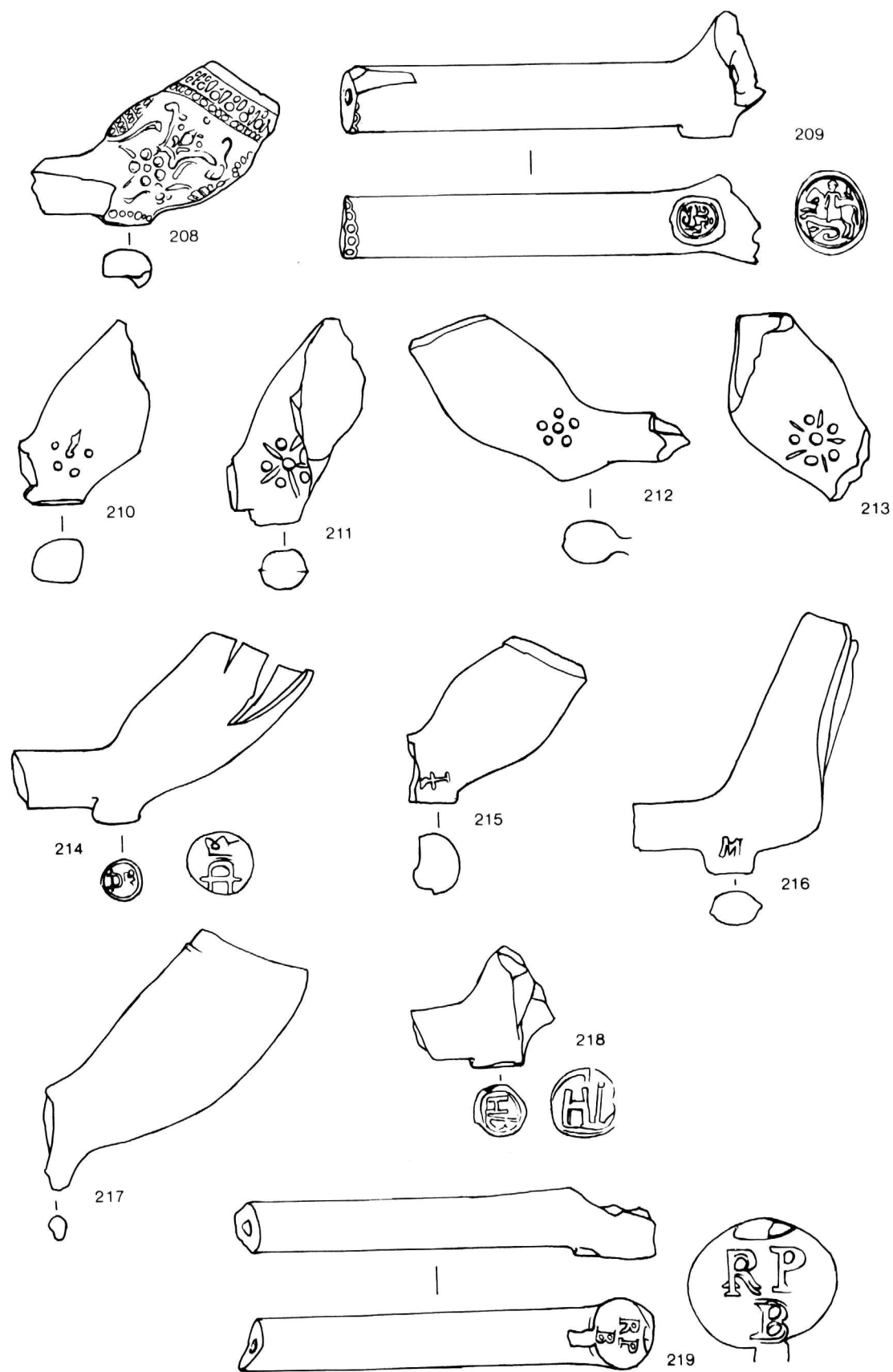
Trench 3: Seven of the eight fragments from this trench are of middle to late 17th-century date and must reflect much the same activity as Trenches 1 and 2. A single stem in Layer 40 is probably of 19th-century date.

67-71 Green

The fifty fragments from ten contexts are, again, far too few to allow for confident chronological discrimination between them. The range of bowl types covering the period 1620-1740, together with a bore date of 1695 ± 15 imply a largely 17th-century activity in Layers 5 and 16 (Phase 2a).

42 St Paul Street

All thirteen fragments appear to be of 19th-century date.



III 125 : Clay pipes. Scale 1/1

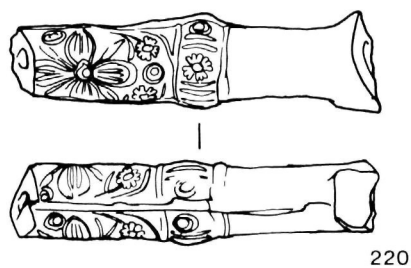
CATALOGUE OF ILLUSTRATED PIPES

Although the pipe evidence may not be very helpful for site interpretation in the majority of cases quoted above, the collection of this number of examples from Aberdeen does provide a first look at the patterns of pipe use, loss and importation in an area at present little understood.

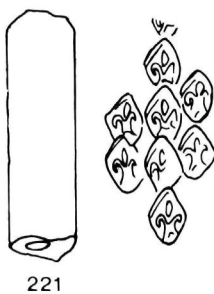
The actual data from the excavations has been presented in Table 34. The illustrations (Ill 125-127) attempt to present all bowl forms and stamping and decorative variations present.

The illustrated pipes are described in the following order: Publication number; brief description; stem bore diameter in 7/64", where measurable; site and context code; followed, in brackets, by archive sketch reference (AA-GC) and archive page number (A1-A9); comparisons, where available; followed (in brackets) by the date or date range ascribed by the authority concerned; further comments; illustration number.

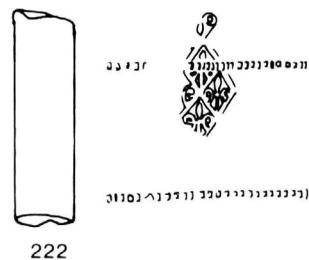
- 208 Dutch moulded bowl, 8/64"; 45-59 Green, Trench 1, Layer 18; (GC-A9); Friederich 1975, 104: 3 and 4 (1620 and 1625 respectively); Duco 1981, 235: 156a (1630-1650); probably made in Amsterdam, 1630-1650. Ill 125.
- 209 Dutch bowl and heel fragment, with 'ring of pearls' stem decoration and a horse and rider heel stamp; 7/64"; Shore Brae, Trench 1, Layer 10; (CD-A6); stem decoration cf Duco 1981, 246: 46 (c 1670); heel stamp cf Duco 1981, 247: 81—the Aberdeen example is from a different, though very similar die; probably made in Amsterdam, 1660-1680. Ill 215.
- 210 Dutch 'moulded rose' bowl; 6/64"; 67-71 Green, Layer 5b; (BK-A4); Friederich 1975, afb 34: 6 (1625); Duco 1981, 244: 33 (1630-1650); probably made in the W Netherlands, 1630-1650. Ill 215.
- 211 Bowl as 210; 6/64"; 67-71 Green, Layer 5c; (BD-A3); Friederich 1975, afb 35: 3 (1635); Duco 1981, 244: 37 (1625-1645); W Netherlands. Ill 215.
- 212 Bowl as 210; 6/64"; Shore Brae AE; (CF-A6); Friederich 1975, afb 33: 1 (1630); Duco 1981, 244: 31 (1650-1670); W Netherlands. Ill 215.
- 213 Bowl as 210; 7/64"; 57-71 Green, Layer 5; (BA-A3); comparisons as 219. Ill 215.
- 214 Dutch bowl with stirrup or civic purse heel stamp; 7/64"; 6-8 Castle Terrace, Layer 68, Phase 4; (AG-A2); Friederich 1975, 98: 7 (1660-1715); Duco 1978, 120-46: 391 (the mark is first registered with Jan Vertoren in Gouda in 1725), but on the basis of form should belong to the period 1680-1710 (cf Duco 1981, 224, 359 and 296-7); probably made in Gouda, 1680-1710. Ill 215.
- 215 Bowl, with a moulded crossed I or J on the side; 6/64"; 6-8 Castle Terrace, Trench 3, Layer 25; (AC-A1); Lawson 1980, 177, fig 8: D-G (1640-1660); probably Scottish and from the Edinburgh area. Ill 215.
- 216 Bowl, with a moulded M on the side; 5/64"; 45-59 Green; (GA-A9); probably British, early 18th century. Ill 125.
- 217 Spurred bowl; 6/64"; 45-59 Green; (GB-A9); Brown and Gallagher 1980, 23-6, fig 4:24 (1680-1710); probably made in the Gateshead area. Ill 125.
- 218 Heel fragment, stamped HB; 7/64"; unstratified; (FD-A9); origin unknown, probably Dutch, 1650-1680. Ill 125.
- 219 Heel, with three-letter stamp; 6/64"; 6-8 Castle Terrace, Layer 24, Phase 6; (AD-A1); Oswald 1975, 85, fig 14:1; A typically Scottish mark, 1650-1700. Ill 125.
- 220 Moulded Dutch stem; 7/64"; Broad Street, Trench 4; (EB-A7); from a pipe similar to 208; probably made in Amsterdam, 1630-1650. Ill 126.
- 221 Dutch stem, with nine individually applied *fleur-de-lys* stamps; 8/64"; 67-71 Green, Layer 16b; (BO-A5); Duco 1981, 249: 122 (1625-1650); the stamps were applied from top to bottom. Ill 126.
- 222 Dutch stem with four-part *fleur-de-lys* stamp; 7/64"; Queen Street, unstratified; (EU-A8); Duco 1981, 249: 118 (1645-1665); possibly early Gouda; the milling has been applied after the stamp. Ill 126.
- 223 Stem as 222, but stamped using a different die; 7/64"; Queen Street, unstratified; (EV-A8). Ill 126.
- 224 Dutch roller-stamped stem; 6/64"; 67-71 Green, Layer 5c; (BG-A4); Friederich 1975, 66 (mainly 1635-1655); Duco 1981, 246: 46 (c 1670); unburnished and badly damaged in a number of places. Ill 126.
- 225 Stem as 224; 6/64"; 67-71 Green, Layer 5c; (BF-A4); burnished and polished. Ill 126.
- 226 Stem as 224; 7/64"; 6-8 Castle Terrace, Layer 46, Phase 4; (AF-A2); unburnished. Ill 126.
- 227 Dutch roller-stamped stem; 6/64"; Broad Street, Trench 4; (EK-A7); Friederich 1975, 66 (1640-1750); Duco 1981, 246: 44 (1670-1680); burnished; probably made in Gouda, 1670-1700. Ill 126.
- 228 Dutch roller-stamped stem; 5/64"; 67-71 Green, Layer 5b; (BL-A5); Friederich 1975, 66 (1650-1725); Duco 1981, 250: 130 (c 1700); the stamp was applied four times, the fourth overlapping the third; probably made in the W Netherlands. Ill 126.
- 229 Stem, with oval stamp containing the initials EC; 6/64"; unstratified; (FJ-A9); Oswald 1975, 76-7, fig 13:6 (Edward Crages of Gateshead, 1707-1717). Ill 126.
- 230 Stem as 229 oval stamp with initials HR; 6/64"; 67-71 Green, Layer 16; (BH-A4); no other examples known but for a similar HR stamp in a lozenge frame cf Brown and Gallagher 1980, 21-22, fig. 2:2; probably made in the Gateshead area, 1690-1720. Ill 126.
- 231 Roller-stamped stem bearing the name PATERSON (N retrograde); 8/64"; Shore Brae, Trench 1, Layer 5; (CB-A5); a very unusual stamp on a low fired, coarse fabric with numerous inclusions and a wide bore; possibly a product of John Pattison (sic) of Gateshead, 1669-1675 (cf Oswald 1975, 169). Ill 126.
- 232 Bowl, plain on the right side and with moulded gauntlet, dirk and date 1888 on the left; 4/64"; Queen Street, unstratified; (ER-A8); presumably Scottish—there is a further fragment from the same mould from Broad Street, Trench 4 (EJ-A7); 19th century. Ill 127.
- 233 Bowl, a moulded anchor on the left side and crossed thistles on the left; 5/64"; Queen Street, unstratified; (ES-A8); presumably Scottish; 19th century. Ill 127.
- 234 Bowl fragment, with a partial stamp on the front; 67-71 Green, Layer 16; (BI-A4); date and source uncertain. Ill 127.
- 235 Bowl fragment, with a moulded star and ? altar on the left side; Broad Street, Trench 4; (EH-A7); probably made for a local masonic lodge; 19th century. Ill 127.
- 236 Bowl fragment, with a moulded 8-point star with dots on the points, on the left side; unstratified; (FA-A9); probably local; 19th century. Ill 127.
- 237 Bowl fragment, with random moulded dots; Queen Street, unstratified; (ET-A8); there is a further fragment from Broad Street, Trench 4; (EI-A7); probably made locally; 19th century. Ill 127.
- 238 Bowl fragment, with a moulded St Andrew's cross on the right side; Queen Street frontage, FN24; (EN-A8); presumably Scottish; 19th century. Ill 127.
- 239 Fragment of fired pipe clay; Broad Street, Trench 5, Layer 1; (EA-A7); probably from a 19th-century kiln site. Ill 127.



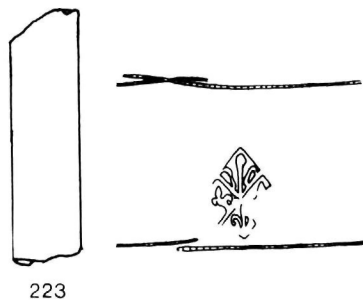
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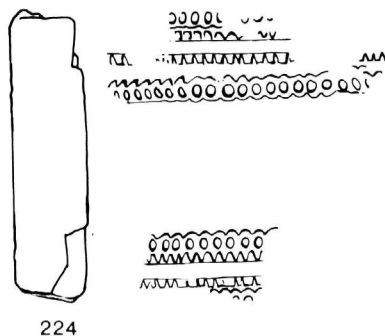
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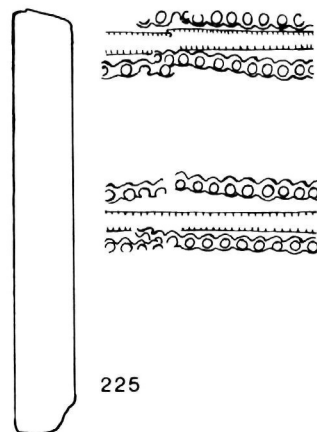
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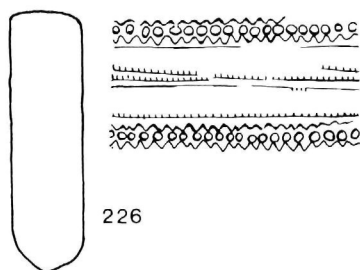
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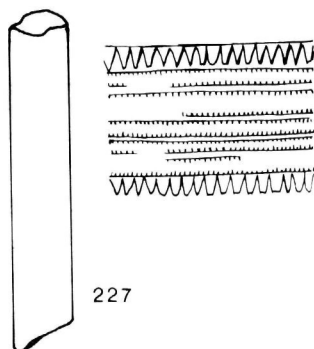
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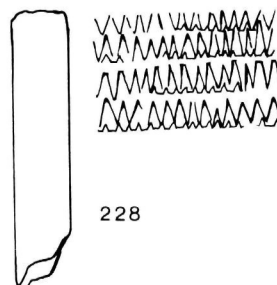
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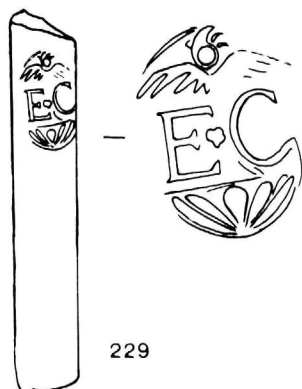
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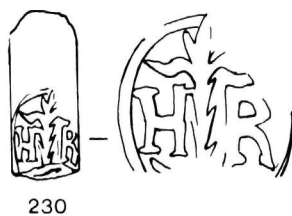
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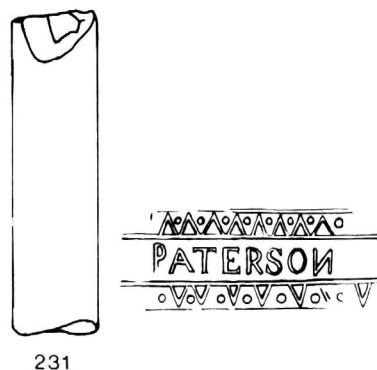
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229



230



231

- 240 Stem with moulded floral decoration; Queen Street, unstratified; (EQ-A8); this design was commonly used to disguise the moulded seams, but here is on the sides of the stem; there are five further fragments of very similar or identical moulds from Broad Street, Trench 4 (EC/ED-A7), thus very likely to be a local product; 19th century. See too no 241 below. Ill 127.
- 241 Spur and stem fragment; 5/64"; Broad Street, Trench 4; (EF-A7); probably from the same mould as 240 above. Ill 127.
- 242 Stem with maker's name moulded on either side. EVERIDGE/ABERDE . . . ; 4/64"; Unstratified; (FF-A9); a product of William Beveridge of Aberdeen; 1882-1913. Ill 127.
- 243 Stem as 217, W.BEVE . . . / . . . RDEEN; 4/64"; 42 St Paul Street, Area C, Layer 1; (DB-A6); William Beveridge, as above but a different mould. Ill 127.
- 244 Stem, stamped W.BEVERIDGE (D retrograde) on the left side and ABERDEEN on the right; 4/64"; Unstratified; (FG-A9); the stem is oval in section and the stamp has been placed on the narrow side—there is a similar stem, unstratified (FE-A9); William Beveridge, as above. Ill 127.
- 245 Stem stamped BATCHELOR/DUNDEE; Broad Street, Trench 4; (EE-A7); a Dundee maker recorded in Directories 1860-1886 (Oswald 1975, 205 and pers comm). Ill 127.
- 246 Stem stamped THOMSON & PORTEO . . / EDINBU . . . ; 4/64"; Unstratified; (FI-E9); probably made during the second half of the 19th century. Ill 127.
- 247 Stem stamped MACDONAL./ALLOA; 5/64"; Unstratified; (FH-E9); Oswald (pers comm) notes a further example in the Hammond Collection; 19th century. Ill 127.
- 248 Bowl fragment, stamped SWINYARD MAKER LO . . . , in a circular frame on the front; Broad Street, Trench 4; (EP-A8); either Thomas or James Swinyard of Westminster 1828-1854 and 1836-1853 respectively (Oswald 1975, 145-6). Ill 127.
- 249 Bowl fragment stamped SWINYARD in an oval frame on the front; Unstratified; (FB-A9); as above. Ill 127.
- 250 Bowl fragment stamped SW . . . in an oval frame on the front; Queen Street, unstratified; (EO-A8); very probably Swinyard as 249 but a different die. Ill 127.
- 251 Bowl fragment stamped BALME MILE END on the front; 4/64"; Unstratified; (FC-A9); either Thomas Balme (1805-1845), William Balme (1856-1861) or George Balme (1867-1876) all recorded in Directories as in Mile End Road, or Paul Balme (1832-1866) listed at Mile End Wharf (Oswald 1975, 131-3). Oswald (pers comm) suggests George as the most likely as a number of examples occur in the London area with G/B on the spur. (Bow excavations; Le Cheminant Collection and New Fresh Wharf Excavations). Ill 127.
- 252 Bowl fragment stamped BAL . . LONDON; 4/64"; Broad Street, Trench 4; (EG-A7); Oswald (pers comm) suggests Paul as the stamp occurs in London on bowls with P/B on the spur. (Bow excavations; Le Cheminant Collection). Ill 127.

DISCUSSION

The Aberdeen pipes fall into two major chronological groups. The first, from around 1620-1720, accounts for a majority of the finds. The second, from around 1840-1900, comprises almost all the rest. This polarisation of the material must partly be accounted for by the nature of the sites themselves. Whilst Queen Street and 42 St Paul Street produced almost exclusively 19th-century material, the finds from 45-59 Green,

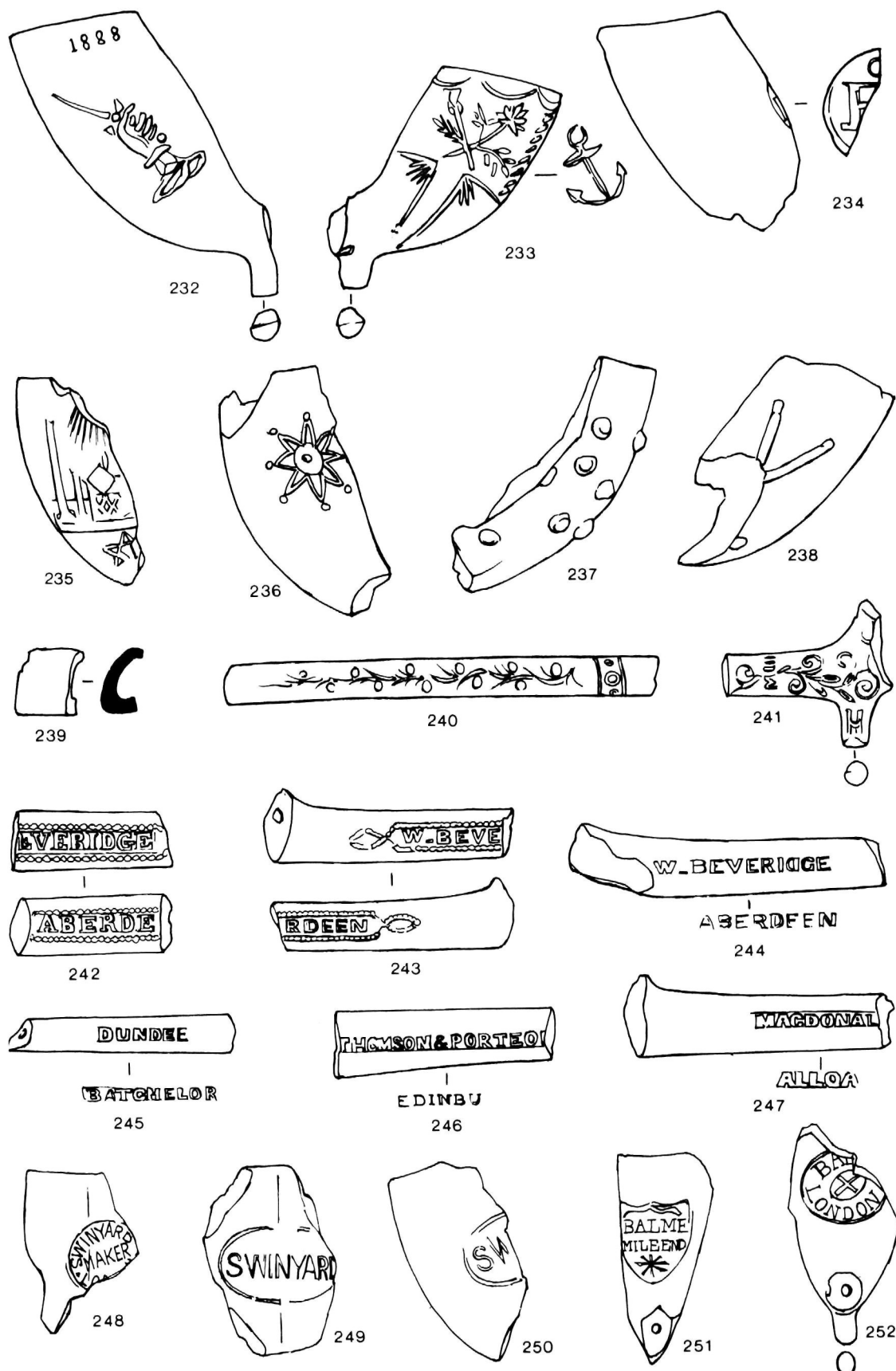
6-8 Castle Terrace and 67-71 Green belonged almost equally exclusively to the 17th century. Shore Brae and Broad Street were the only sites to show a possible continuous range of finds from the 17th to 19th centuries and, even so, no distinctively 18th-century bowls or marks were recovered. This lack of pipe finds from around 1720 to 1840 inevitably restricts the scope of any general remarks about pipe use in Aberdeen.

1620-1720

The first pipes appear around 1620, but do not become common until after 1640. There are none of the early London products of late 16th-century date which are a feature of many centres. There are also no Aberdeen finds which can be attributed to a 17th-century production centre in or near the town. The nearest source is probably the Edinburgh area, represented by a single bowl (AC, Ill 125: 215). This dates to the period 1640-1660 and can be compared with the finds from St Mary's Street, Edinburgh, recently published (Lawson 1980). A larger group of pipes appears to derive from NE England and in particular from the Gateshead area. This consists of a single bowl (GB, Ill 125: 217) and probably three marked stems (FJ, BH and CB, Ill 126:229-231) all of which fall into the date range 1670-1720. Apart from two bowl fragments whose origins are unknown, all the rest of the identifiable bowls and marked stems are of Dutch origin.

The importance of the Dutch material can be estimated in a number of ways. Given that Scottish products of this date do not appear to have been burnished and those from N England only occasionally and crudely so, over one third of all the pipes in this date range must be Dutch. As half of the recognisable Dutch pipes found in Aberdeen are not burnished or finely finished at least half of the whole collection can probably be assigned to that source. If all the bowl fragments and all the decorated stems are considered, 35 out of 43 pipes are of Dutch origin (81%). This compares with 2 Scottish (5%) and 4 NE English products (9%). Two of the pipes remain unidentified (GA and FD, Ill 125:216, 218). An examination of the fabrics would appear to confirm this impression. Although detailed identification is not possible using a hand lens alone, some 75% to 90% of all the pipes seem to be Dutch.

This picture of pipe importation and use in the 17th and the early part of the 18th century can be compared with three other recently published groups from NE Britain, those from St Mary's Street, Edinburgh (Lawson 1980), Stirling Castle (Davey 1980) and Hartlepool (Brown and Gallagher 1980). The thirteen bowls from St Mary's Street, Edinburgh, were all of Scottish type, dating to 1620-1660, and were probably made in the Edinburgh area itself. There were no English or Dutch imports. By contrast the eleven bowls from Stirling Castle, dated to 1640-1660, included five Dutch products and fabric analysis suggested that 34% of the whole sample (80 fragments in all) derived from that source. The Hartlepool study is of a much larger group (746 pieces), from a 'night soil' deposit of slightly later date, 1680-1720. Of ninety identifiable bowls or stem stamps, sixty-nine were from Gateshead or NE England (77%), thirteen (14%) from Yorkshire or further S in England, five (6%) were Dutch and three (3%) Scottish. Thus in three sites which span the range of the Aberdeen finds there are marked variations in the numbers of pipes being supplied from the same sources. In the cases of Edinburgh and Hartlepool once indigenous production had begun this effectively squeezed out Dutch competition. At Stirling Castle and Aberdeen, however, where there is no evidence for local 17th-century production, the Dutch products remained predominant until at least well into the 18th century.



	9	8	7	6	5	4	S	B	M	W	U	T ¹	T ²	T ³	Binford	Bowl-Form	Ill Nos	Comments
Shore Brae		4(3)	7	9(3)	5	2	26	1				6	27	27		1650-1720	209, 212, 231	
Queen Street		1	3	9	13	10	33	3			3		36	39		1620-1900	222, 223, 232, 233, 237, 238, 240, 250	Mainly 19th cent.
Broad Street		3	8(1)	6(3)	8	15	34	3	3	6	6	4	40	52		1620-1900	220, 227, 235, 239, 241, 245, 248, 252	Mixed
45-59 Green		1	4(1)	2	2		6	3				1	9	9		1620-1720	208, 216, 217	Mostly 17th cent.
6-8 Castle Terrace																		
Trench 1/2																		
Phase 2			1(1)				1					1	1	1				
Phase 3			1(1)				1					1	1	1				
Phase 4			27(8)	26(9)			51	2			3(2)	19	53	56	1683±15	1670-1710	214, 226	
Phase 5				1	1(1)		2					1	2	2				
Phase 6			3(1)	2			5					1	5	5		1650-1700	219	
Phase 7			1(1)	1(1)			2					2	2	2				
Phase 8			1				1						1	1				
Trench 3			5	2(1)		1	6	2				1	8	8		1640-1710	215	
Sub-total			39(12)	32(11)	1(1)	1	69	4			3(2)	26	73	76	1685±15			All consistent
67-71 Green		3(1)	14(2)	19(7)	10(1)		41	5			4(1)	12	46	50		1620-1900	210, 211, 213, 221, 224, 225, 228, 230, 234	Mostly late 17th cent.
42 St Paul Street				1	6	2	6	2	1	1	3		9	13		1800-1900	243	All 19th cent.
Unstratified			3(1)	1	2	5	8	3			1	1	11	12			218, 229, 236, 242, 244, 246, 247, 249, 251	
TOTAL		12(4)	78(17)	79(24)	47(2)	35	223	24	4	7	20(3)	50	251	278				

KEY: 9-4 Stem bore measurements in $\frac{1}{64}$ "

() Number of burnished examples

S Number of stems measured

B Number of bowls measured

M Number of mouthpieces measured

W Number of wasters or pieces of kiln debris

U Unmeasurable fragments

T¹ Total number of burnished fragments

T² Total number of measured bores

T³ Total number of clay pipe fragments

Binford Bore date (cf Oswald 1975, 92-95; Davey 1981, 5.22)

Bowl-Form Date range (cf Davey 1981, 5.21)

Ill Nos refer to publication Ill 125-127

Comments Consistency or dating of whole group

Table 34. Clay pipe. Details of all excavated pipes.

1840-1900

The 19th-century finds provide a marked contrast. There are no Dutch products, a few imports from England in the form of five maker marked London pipes by Swinyard (3) and Balme (2), who were working during the middle years of the century (Ill 127:248-252) and three marked stems from other Scottish centres, namely Alloa (Macdonald), Dundee (Batchelor) and Edinburgh (Thomson and Porteous) (Ill 127:245-247). The major difference lies, however, in the evidence for local production. There are three stems marked Beveridge/Aberdeen (Ill 127:242-244) and a probable kiln group from Broad Street which includes kiln furniture together with untrimmed and unsmoked pipes. This implies at least one or two production sites in the town and probably accounts for much of the remaining 19th-century material recovered from excavations in the town. This assessment of the 19th-century material is provisional, based on the archaeological evidence; no full search of the documentary evidence has yet been possible.

William Beveridge

A summary of his life is provided by *In Memoriam*, (1908, 15). He was born in Edinburgh in 1845, educated at Dunfermline and went as a young man to work for the Dundee pipemaker P MacLean (cf Oswald 1975, 205), for whom he ultimately travelled. He went to Forres in 1869 and set up his own pipemaking business there. Thirteen years later in 1882 he moved to Aberdeen and transferred the firm there.

He retired early in 1908 and died, aged 63, on November 22 of that year. This account is confirmed by entries in the *Aberdeen City Directory*, which also gives details of what happened to the business after his death. There is no reference to Beveridge in the 1881/2 *Directory*, but a continuous series from 1882/3 to 1907/8. The business address is given as Cotton Street from 1882/3 to 1885/6, as 30 Cotton Street from 1886/7 to 1887/8 and 30 and 32 Cotton Street from 1888/9 onwards. John Simpson is listed under Beveridge as his successor until 1912/13. In the latter entry Simpson's address is given as 164 Constitution Street, where he is

listed under his own name as a pipemaker until 1919/20. In 1921/22 John Auld is listed for tobacconist and hardware at 4 Exchange Street and in 1930/31 this entry is changed to '4 Exchange Street, 12 Hadden Street and 24 Bridge Street, Clay Pipe Factory 164 Constitution Street.' This form of words last appears in 1932/33. Thus Beveridge's site in Cotton Street appears to have been worked by him from 1882 until 1908 and by John Simpson from 1908 until 1912. John Simpson then appears to have moved the business to 164 Constitution Street where it was apparently taken over by John Auld, probably in 1920. He seems to have continued the factory there until 1932. The situation is further complicated by the presence in the Aberdeen Art Gallery Collections of Swinyard moulds, apparently used by Beveridge, together with a group of Beveridge pipes. As the Swinyards cease to be recorded in the London Directories by 1854 (Oswald 1975, 145-146) and Beveridge did not start up in Forres until 1869, it seems likely that he bought in the Swinyard moulds after they had finished trading altogether. In that case it seems surprising that Beveridge continued to apply the Swinyard stamps to otherwise plain pipes. This evidence suggests that the majority of the 19th-century finds were actually made in Aberdeen.

SUMMARY

The Aberdeen pipes provide important evidence for pipe importation and production during the 17th and later 19th century in an area which is, so far, poorly understood. A great deal still requires investigation. The dating of the first Aberdeen production, the reasons for the Dutch influence and the chronology and mechanisms of its decline, the establishment of criteria for the detailed socio-economic interpretation of the pipe evidence and the study of marketing patterns all demand much further work. A programme of documentary research, both into pipe makers and port and trade records, together with excavations designed to elucidate specifically post-medieval problems will be necessary before much further progress can be made.