

Proc Soc Antiq Scot, 125 (1995)

FICHE 3: CONTENTS

ANDREW DUNWELL & IAN RALSTON	Excavations at Inveravon on the Antonine Wall, 1991	A4-F12
DAVID REED	Excavation of a cemetery and putative chapel site at Newhall Point, Balblair, Ross & Cromarty, 1985	G1-7
JERRY O'SULLIVAN	Abbey, market and cemetery: topographical notes on Coupar Angus	G9-14

CONTENTS

Coarse pottery (Gordon Thomas)	A5-C3
Samian (Gordon Thomas)	C4
Mortaria (Katharine Hartley)	C5-6
Post-Roman pottery (Andrew Dunwell)	C7-10
Building materials (Andrew Dunwell & Tim Neighbour)	C11-D3
Glass artefacts and by-products (Andrew Dunwell)	D4-7
Coins (Andrew Dunwell)	D8-9
Copper alloy artefacts (Tim Neighbour)	D10-11
Lead artefact (Tim Neighbour)	D12-13
Iron objects (Tim Neighbour)	D14-E4
Iron slag (Tim Neighbour)	E5-8
Coarse stone objects (Ann Clarke)	E9-11
Gaming board (Andrew Dunwell)	E12-13
Ground stone axehead (Alison Sheridan)	E14-F1
Chipped stone artefacts (Bill Finlayson)	F2-5
Miscellaneous finds (Andrew Dunwell)	F6-7
Faunal remains: shell (Bill Finlayson); animal bone (Nicola Murray)	F8-9
Palaeoenvironmental report (Geraint Coles & Helen Crossley)	F10-12

COARSE POTTERY (Illus 19-22, Nos. 2-78)

Gordon Thomas, Department of Archaeology, University of Edinburgh.

Introduction

General - The assemblage from Inveravon comprises 1692 sherds from 3 main phases of Roman activity on the site, with a further c.300 fragments derived from sieving. The Samian ware and mortaria are discussed in separate sections (C2; C3-C4 respectively). For the purposes of discussion the pottery has been grouped under each of these phases, whereby it is hoped that trends and sequences will become more apparent. The nature of the deposition on the site, which involved substantial rebuilding and the reuse of earlier surfaces, indicates that in some instances, earlier material may have become incorporated within later deposits. It is, therefore, necessary to view the integrity of each phase assemblage with some caution. A summary of this report appears in the printed text (see Finds Summaries).

Examination procedures and limiting factors - All sherds have been examined using an 8x magnification hand-held lens with micro-optic calibration, to identify surface treatment and to measure the average range of grit size. Due to the very degraded nature of much of the material it was impossible to make firm identifications of some of the fabric types. In particular, the differences between Black Burnished Wares BB1 and BB2 and some of the Grey Wares are almost impossible to detect in the absence of microscopic examination. The identification of an increasing range of wares which have been locally made (Breeze 1986) is another factor which should be taken into account but which would, again, require more detailed examination. The discovery of kilns at Bar Hill (Keppie 1985) and possibly also at Croy Hill (Hanson 1979) and Duntocher (Gawthorpe 1980) as well as the presence of wares with a local mineralogical signature at Inveresk (Thomas 1988) and Bearsden (Collins 1986) indicate that more pottery was made in Scotland during the Antonine period than was previously considered probable. Although the occupants of Inveravon may not themselves have been manufacturing pottery, they would certainly have had access to material from neighbouring sites; in particular, the wide range of red/yellow-orange wares from Phase 3 could well fall into this category.

Sherd description - Grit sizes have been standardized for convenience into small (<0.5mm), medium (0.5mm-1.0mm) and large (>1.0mm). Thickness of sherd is given where the sherd may not be of a type that is common to the site or where both inner

and outer surface survive. In many cases it has not been possible to determine the original thickness of the sherd due to severe degradation of the surface or the fracturing of the sherd through its core. Munsell Soil Color Chart (1990 revised edition) references are given only where it is thought that the sherd had not undergone discolouration either through burning or through other processes. Colour was observed in a dry state under natural light, but each designation can only be used to indicate the general range of colour and should not be taken as being the exclusive colour within an individual vessel or group of sherds. The colour description convention used here indicates a tone or chroma variation with a slash; and a graduation or mottled effect between two colours with a hyphen. The numerical notation includes context numbers within square brackets; small finds numbers prefixed with SF; and the number of illustrated sherds within rounded brackets (eg no. 1). The catalogue is organised hierarchically: the primary organising element is the phase, but within this sherds are ordered by stratigraphic block [to allow cross-referencing to be made with the stratigraphic report produced in Armit and Dunwell 1992] and context. Stratigraphic blocks generally comprise an associated group of contexts, eg those associated with the Antonine Wall, southern fort rampart, etc. Comparative material is drawn mainly from Gillam (1968) and Thomas (1988) and is prefixed either by Gillam or Inv.

PHASE 1 POTTERY

Discussion

This small group of pottery comes from deposits which may have been disturbed and contaminated by later activity. Only the material from within the possible furnace [208] comes from a well sealed deposit which is associated with a possible furnace. The remainder comes from the trampled surface beneath the Phase 2 building within the southern range [216]. It is significant, however, that there is a much higher proportion of BB1 than elsewhere on site, despite bad preservation. This also ties in with the presence of a south Spanish amphora and a stamped Samian bowl (Dr 18/31 - 31 transitional) from Central Gaul dated 155 AD - 160 AD+ (see fiche C2) which suggests a mid-Antonine date for this assemblage. The material from deposits associated with the possible furnace has been badly damaged and burnt in cases, but this may result from its association with a hearth.

Catalogue

Block 7 [173]

Mound of material dumped over possible furnace.

4 sherds in a light brown fabric (7.5YR 6/4) with a few medium-large angular grits and a smoothed surface.

2 sherds in a smooth, cream/buff fabric with many tiny angular, clear grits and a few large irregular multi-coloured grits. From an everted rim jar (no.70) 5mm thick (cf. Gillam 115).

13 sherds, probably of Black Burnished Ware (BB), of which the surface has been badly damaged and eroded. The fabric is smooth grey/brown (7.5 YR 6/2) with a dark grey core. The flat base of one jar (no.72) is preserved.

[208]

Burnt material within possible furnace.

11 sherds, possibly of BB1, of which the surface is badly damaged with some obviously being burnt. Fragments of

the base and everted lip of a jar (no.2) are preserved (cf. Gillam 140).

[216] *Disturbed subsoil in southern part of fort.*

19 sherds of BB Ware, all heavily abraded with no surface preserved apart from 5 examples which have the lighter tone and soapy feel associated with BB2. The other sherds are thought to be BB1 including the base and everted rim of a jar (no.13) (cf. Gillam 116, Inv.1.139).

8 sherds of amphora in a reddish, yellow (7.5YR 6/8) fabric with medium-large multi-coloured angular grits and a slightly greyer core with a cream halo. A fragment of the handle and shoulder of an amphora in the same fabric is of the globular southern Spanish type (Peacock and Williams Class 25).

Block 10 [197] *Northward continuation of disturbed subsoil 216.*

1 sherd of the body of a BB2 vessel which is so heavily burnt as to change the colour of the fabric to creamy/red.

Block 13 [169] *Occupation waste associated with expansion.*

5 sherds in BB Ware, one of which is the rim of a jar with a plain upright rim. This latter sherd joins with no.42 in context 163 (Block 14, Phase 2) (cf. Gillam 222).

PHASE 2 POTTERY

Discussion

The sherds from this phase come from a stone building with associated cobbled surfaces (Block 6) and occupation dumps (Block 23), which lie in the southern part of the fort between the Military Way (Block 12) and the southern rampart (Block 8), and from successive episodes of dumped material and a surface lying immediately to the north of the Via Principalis (Block 14). A single sherd comes from the exterior road immediately outside the southern rampart (Block 8). A small number of sherds come from the Berm area (Block 17).

All the pottery from Block 6, apart from 1 sherd, is of BB Ware, with both jars and dishes being represented. The holemouth jar type (no.9) is unusual in this ware and may in fact represent a Grey Ware type. As with so much of the BB Ware/Grey Ware material from the site the surface of the pottery in these contexts is so badly damaged as to make firm identification difficult in the absence of microscopic examination. As Block 6 represents a building, the homogeneity of the assemblage is significant. There is a marked absence of the complete range of ordinary domestic vessels, with only those associated with cooking being present. The poor condition of the material may also reflect its deposition onto a cobbled surface and associated drains which would, presumably, have seen some considerable use.

The material from the deposits to the north of the Military Way in Block 14 is of a slightly different nature. The predominance of BB1 pottery in lenses of dumped occupation material, context [163], and the presence of 6 joining sherds of a BB2 jar in context [028] is anomalous. This may indicate the incorporation of earlier material in this mixture of deposits. It is noticeable that the sherds from these two contexts are in better condition than those from the rest of Block 14, which are more comparable to the worn and degraded state of the material from Block 6 to the south.

Apart from 3 sherds of amphora, the fragments of a jar in a smooth yellow/red fabric, and two fragments of possible colour coated ware, this entire assemblage comprises Black Burnished and Grey Wares. Preservation is poor suggesting that the material has been exposed to the weather for some time. There is no evidence of burning in any of this material.

Catalogue

Block 6 [134] *Pebble surface beside northern drain of cobble foundation in S range.*

23 sherds in BB Ware which has been so badly damaged that only small patches of the surface survive. Fragments of a flat based jar with an inturned hole mouth are preserved (nos.9 & 12).

[137] *Occupation material on southern part of surface of cobble foundation in S range.*

2 sherds in BB Ware including fragments of the rim and body of an everted rim jar possibly in BB2 (no.6, cf. Inv. 1.170) and a fragment of a second everted rim jar (no.33).

[200] *Part of cobble foundation material in S range.*

1 sherd in a grainy reddish (2.5YR 4/8) fabric with few grits and traces of a colour coat. The surface is badly damaged.

[207] *Fill of central drain within cobble foundation.*

6 sherds (3 joining) of the body of what may be a BB2 dish.

Block 9 [177] *Fill of construction trench running along southern edge of original Military Way.*

1 sherd in a fine, pinkish fabric (5YR 7/4) with medium rounded clear grits; probably from an amphora.

Block 8 [088] *Foundation material of road external to fort.*

1 sherd in a smooth, creamy fabric with many small, clear grits.

Block 14A [089]

Dump deposit in N range.

6 sherds in BB Ware, one of which is the flat base of a jar.

[162]

Patch of occupation material.

12 sherds, probably in BB Ware of which the surface has been badly damaged and removed. Fragments of a jar base survive (no.61).

2 sherds (joining) in a smooth yellow/red fabric (2.5YR 6/8) with medium rounded multi-coloured grits. They form part of the base of a flat bottomed jar (no.62).

[163]

Occupation material in hollow in N range.

3 sherds of an amphora in a smooth buff/orange fabric (5YR 6/6) with many small multi-coloured grits. 16mm thick.

30 sherds in BB Ware, mostly BB1 although the surface is generally badly preserved. These include three bowls with rolled rims; one (no.22, cf.Gillam 222) in BB1 and the other two (no.42, cf.Gillam 222) in BB2 as well as a plain rimmed holemouth jar (no.7, cf.Inv.1.195).

[168]

Uninterpretable deposit in N range.

4 sherds in BB Ware of which the surface has been destroyed.

- Block 14B** [028] *Gravel layer providing foundation to rough surface 036 in N range.*
- 6 sherds (joining) of the rim and shoulder of a BB2 jar with an everted rim. Some blackened encrustation is preserved on the external surface, particularly below the rim. (no.29; cf.Gillam 139/143, Inv.1.160).
- [036] *Rough surface running over expansion collapse in N range.*
- 1 sherd in BB Ware. surface badly damaged.
- Block 17** [114] *Spread of clay on Berm, possibly Phase 1.*
- 2 small sherds in BB2.
- [156] *Upper fill of northern gully on Berm, possibly Phase 3.*
- 1 sherd in Grey Ware of the everted rim of a jar (no.71, cf.Gillam 119).
- 2 sherds, smooth cream fabric with black/brown colour coat.
- [159] *Fill of southern gully on Berm, possibly Phase 3.*
- 4 sherds in BB Ware, one possibly in BB1.
- Block 23** [066] *Occupation dump beside southern rampart of fort, Phases 2/3.*
- 2 sherds in a light buff/brown fabric with small-medium angular quartzite grits. 5.5mm thick.
- 1 sherd in Grey Ware in a hard, mid grey/pink fabric with a grey core and a burnished exterior. The sherd comes from the shoulder of a jar with an everted rim. 57mm thick.

PHASE 3 POTTERY

Discussion

The difference between this assemblage and that of the previous phases is striking. This much larger assemblage (c.1500 sherds) includes a much wider range of wares and vessel types. Black Burnished Ware cooking vessels are still very much in evidence (especially in BB2 forms and fabric) but in addition to this other wares of bowls, jars, beakers, lids, amphorae and possibly some imitation wares are present. Finer wares, such as Castor Ware and rough cast beakers, are also present. Either the method of supply of pottery or the way in which it is being used and deposited on this part of the site has undergone a major change between Phases 2 and 3.

The Phase 3 assemblage comes from three distinct locations on site - an area of half-timbered buildings in the southern area of the fort (Block 5); an area immediately north of the above buildings and upon the reshaped Military Way (Block 9); and surfaces and dumped occupation material, possibly associated with a building, in the north of the fort (Block 11). The predominance of Block 11 in the pottery record is considerably skewed by the presence of 600-700 sherds of amphora from context [090], a linear spread of burnt clay which may lie in a slight hollow or drip trench. These sherds may in fact only represent one heavily smashed vessel which has fractured into a multitude of abnormally small sherds. This is indicated by the extent of the breakage and the splitting along the core of the sherds. A stratigraphically later context in this block [026] also contains an unusually high proportion of amphorae sherds, although in a different fabric from that of [090].

In Block 5 a substantial amount of the material comes from dumped/demolition deposits immediately to the east of the cobbled areas [045 & 075]. The nature of these deposits in particular warns that the possibility of the redeposition of earlier material must be borne in mind. Block 9, to the north of this, is a problematic area with various phases of activity including a building and demolition spreads. The main demolition deposit covering these remains, context [106], is quite widespread and contains pottery linkages over many metres of deposit. This and the general freshness and size of the sherds suggests that this material was both deliberately dumped in a spread of deposited rubbish and was not subsequently subjected to constant wear through trampling. This, however, contrasts with the Black Burnished Ware from the deposit which is in many cases heavily burnt and also contains a high

proportion of BB1 Ware. The possibility of contamination from earlier levels should be considered.

Catalogue

Block 5 [006] *Disturbed fort demolition material at S end of S range.*

1 sherd of the shoulder of a jar (rim not preserved) in a smooth orange/buff fabric with a grey core and many small angular black/grey grits. The poorly preserved traces of a stroke burnish are still present on parts of the outer surface. 8mm thick.

[011] *Disturbed fort demolition material in centre of S range.*

2 sherds of the edge of a lid in a smooth, fine orange (5YR 6/6) fabric with many light coloured grits. The surface is badly preserved but traces of a possible grey/brown coloured slip survive. 6mm thick. SF 077, (no.59).

1 sherd similar in fabric to above but with a slightly more orange colour. SF 082.

4 sherds in a fine, smooth grey/black fabric with many small quartzite grits and a buff, brown-grey colour coat on the interior face. 3mm thick. SF 080, 092, 093, 094 .

[012] *Disturbed fort demolition material in centre of S range.*

15 sherds in a grainy, crumbly red/orange-buff/grey (5YR 6/8) fabric with many small grits. The surface has been very badly damaged although there are in places traces of a grey slip and possibly some burnishing. A possible fragment of an everted rim of a jar (no. 26), and a fragment of the carination at a flat base are preserved (cf. Gillam 145-148 for similar rim type). It may be that

these represent some very badly burnt BB Ware vessels.
3mm thick.

4 sherds in a fine light yellow/orange fabric with small-medium sized grits and no preserved surface treatment.
3mm thick. SF 083.

2 sherds (joining) in a smooth, fine red/orange fabric with a few small grits of the flat base of a vessel with a globular or everted shape. The surface is entirely destroyed.
(no.63).

1 sherd in a smooth grey, black fabric with a cream/pink slip (5YR 3/2) on the outer surface of a vessel with a raised cordon on the shoulder. 5.5mm thick (no.68), SF 088.

4 sherds in BB Ware, one the rim of an everted rim jar (no.28) burnt buff/brown. SF 101, (cf.Gillam 139,143-4).

[045]

Fort demolition material in S part of S range.

5 sherds (3 joining) of the base of a jar in a very fine, smooth fabric with medium, red grits. The fabric has been burnt red and the surface destroyed. 9mm thick (no.64).
These join sherds from examples in [075].

20 sherds in a very fine, soft, smooth fabric with quartzite grits. The fabric has been burnt red and the surface largely destroyed exposing the core although in places what may be a colour slip is preserved, again burnt red.
2.5mm thick.

1 sherd in a soft, smooth, salmon pink fabric with small dark grits and a cream colour coat.

3 sherds in a soft, smooth, buff/cream fabric with few small grits.

3 sherds in a fine, soft buff fabric with many small grits. 4mm thick.

30 sherds in BB Ware of which 4 are the everted rims of jars (no.16, cf. Gillam 141, Inv.1.132-133), (nos.19+30, cf. Gillam 115 but with a more rounded rim), (no.21, cf. Gillam 143, Inv.1.140), one a plain rimmed jar, (no.20, cf. Gillam 115), and 2 the rims of bowls/dishes with plain moulded rims (no.47, cf. Gillam 222 but with less everted sides). A fragment of a flat base also survives. Many of these sherds have been heavily burnt reddening them, and the surface so badly damaged as to expose the core.

1 sherd in Grey Ware. 6mm thick.

1 sherd of the rim of a cornice rim beaker in a dull orange (5YR 6/8) fabric with a black colour coat. (no.74, cf. Gillam 86/90).

[075] *Fort demolition material in centre of S range.*

1 sherd in a grainy, crumbly orange/red fabric with small and large rounded quartzite grits. Traces of a cream colour coat survive although the surface has largely been destroyed. 4mm thick. SF 102 .

2 sherds (joining) in a grainy dark grey/ black fabric with many small-medium rounded quartzite grits and an orange inner surface. 4.5mm thick.

2 sherds join to no.64 in context [045].

1 sherd in a soft, light pink/cream fabric with many small rounded black and white grits. The surface is not

3: B2

preserved although the possible traces of a cream colour coat survive.

1 sherd in a soft, grainy buff/brown (5YR 5/4) fabric with many small micaceous grits and a slightly orange core. No surface survives. This sherd appears to represent, although heavily damaged, a fragment of the base of a ring-footed bowl (no.67).

11 sherds in BB Ware some so heavily burnt as to be discoloured red and the surface destroyed. Fragments of the base and rims of everted rim jars (nos.11, 18, cf. Gillam 115/116) and the rim of a bowl with rolled rim (no.43, cf. Gillam 222) are represented.

Block 9 [013]

Disturbed demolition material in N part of S range and overlying Military Way.

7 sherds in an orange/brown-buff fabric with small multi-coloured grits. Although the surface is destroyed, the outer face is a grey/brown colour. The everted rim of a jar is represented (no.58) c.5-6mm thick. SF 141, 232, 261.

4 sherds in BB Ware of which 2 joining sherds are the rim of an everted rim jar (no.31, cf. Gillam 143-145, Inv.1.134-135) and one is the rim of a flat rimmed jar (no.15, cf. Gillam 28). The sherds are all heavily burnt.

[080]

Loose earth directly on surface of Military Way.

56 sherds in a hard dull orange (5YR 6/6) slightly grainy fabric with small-medium multi-coloured grits and a few larger angular red inclusions. The exterior surface has clear horizontal stroke burnishing while on the interior there are horizontal manufacture marks. 5mm thick. This fabric compares well with other wares thought to have been manufactured in Scotland, in particular, Inveresk Ware although only microscopic analysis can clarify this.

A fragment of an open bowl with an out-turned rim (no.55) and a tiny fragment of the out-turned rim of another vessel are represented (cf. Inv.1.230).

3 sherds in a soft orange with many tiny angular multi-coloured grits and a few larger ones. No surface survives.

1 sherd of an amphora in a smooth light buff/orange fabric with many small-large angular multi-coloured grits. 17mm thick. No surface survives.

15 sherds of amphora in a smooth buff.brown fabric with many medium-large angular clear grits. 15mm thick.

2 sherds of Rough Cast beaker in a fine, hard, white fabric with a black colour coat and rough cast surface. 3 mm thick.

125 sherds in BB Ware mostly in BB2 with the smooth silky greyer surface where preserved. Many surfaces have been badly damaged and in some cases the inner face of the sherd is red/orange in colour which is burnished black. The rim and carination of a plain rimmed bowl (no.52, cf. Gillam 327, which has more vertical walls and a lattice decoration, also cf. Inv.1.122); the fragments of 2 jars with inturned shoulders and everted rims (nos.25+32, cf. Gillam 143, Inv.1.130) and the fragments of 2 bowls with rolled rims (nos.36+40, cf. Gillam 225) are represented.

2 sherds of colour-coated beakers in a fine, white fabric with a black colour coat and rough sandy surface.

1 sherd of a colour-coated vessel in a fine, white fabric with a black colour coat and applied barbotine decoration showing the hindquarters of an animal running. From a Castor Ware hunt cup (no.77, cf. Gillam 84/85).

1 sherd in a fine, steely blue fabric with a smooth outer surface decorated with an applied raised dot pattern. Barbotine decorated jar (cf. Gillam 70, no.76).

[091] *Phase 3 surface of Military Way.*

1 sherd in a mid brown/reddish fabric with many grits. Heavily burnt.

1 sherd in BB Ware of part of the everted rim of a jar.

[101] *Clay spread in N part of S range abutting narrowed Military Way.*

2 sherds in a soft, orange fabric (5YR 6/8), with few grits and no preserved surface. 8mm thick.

1 sherd in a soft bright orange fabric with no grits. No surface preserved.

3 sherds in a dull orange fabric (5YR 5/6) with small angular multi-coloured grits and a stroke burnished surface. Similar fabric to no.55. The fragments of a jar with an everted rim are represented (no.69), 5mm thick.(cf. Inv.1.66).

5 sherds in a grainy, light brown fabric (5YR 6/6) with large-medium angular quartzite grits. 14mm thick.

9 sherds, possibly in BB 1, representing the rim and side of a bowl with a flat rim, (no.24), a fragment of the base of a BB1 bowl with the characteristic swirl pattern, a fragment of a bowl with a rolled rim (no.37), and a fragment of a jar with an everted rim (Gillam 222).

[102] *Redesignated context; precise stratigraphic position uncertain.*

2 sherds in a smooth brown fabric (5YR 6/4) with small angular multi-coloured grits, burnished on the exterior. A fragment of the everted rim of a jar is represented.

2 sherds in a rough, red fabric (10R 4/8) with medium rounded multi-coloured grits. No surface is preserved. 3mm thick.

[106] *Demolition spread in N part of S range abutting narrowed Military Way; sealed beneath 101.*

3 sherds in a smooth buff/brown fabric (5YR 6/8) with large irregular multi-coloured grits and traces of a colour coat. The sherds join with examples in context [101].

7 sherds in a fine smooth orange-brown fabric (5YR 5/3) with a few grits, mainly small. The sherds are rilled on the exterior. Two vessels are represented; the first with a flat, out-turned rim (no.56, cf. Inv.1.89/90) and the second, a jar with a plain flat base and a ledged rim (no.57, cf. Gillam 153).

7 sherds and many tiny fragments of amphora (SF 327) in a smooth light orange/brown fabric (7.5YR 6/6) with small-large angular multi-coloured grits and a lighter yellow core. Although no surface is preserved the extant thickness is 13mm. Some of the sherds have a darker inner surface which is also rilled from manufacture and may represent a second amphora.

8 sherds in a smooth, orange fabric (5YR 6/6) with red flecks and a thick outer surface applied in a browner fabric 10mm thick. The original thickness of the sherds is not preserved, although enough survives to indicate a thick-walled vessel.

2 sherds in a fine, hard, brown fabric (7.5YR 5/4) with no grits and a burnished orange exterior. 5mm thick.

1 sherd in a grainy, brown fabric (7.5YR 4/3) with orange patches and many medium-large angular grits. The sherd comes from the shoulder of a jar possibly with a plain rim (cf. Gillam 168).

4 sherds in a reddish brown fabric (5YR 5/4) with few small angular clear grits and traces of a slip. 6mm thick.

1 sherd in a light buff fabric (5YR 6.4) with no grits, from the flat base of a very small vessel.

123 sherds in BB Ware comprising a minimum of 12 vessels. BB1 types and fabric predominate and some of the sherds are burnt with a few being very badly discoloured. 4 flat-rimmed bowls in BB1 are represented (nos.23, 34, 35, 54) and another with a looped pattern on its base (no.53). Also in BB1 are two jars with everted rims (nos.4, 27). There are three bowls in BB2 (nos.38, 39, 41) as well as the bases of two other bowls (nos. 50, 51) which may also be in BB2. The fragment of the rim of a small bowl (no.3) is of indeterminate BB Ware (no.4, cf. Gillam 122, Inv.1.140; no.3, cf. Gillam 308 but with a slightly different rim; no.34, cf. Gillam 219/220; no.53, cf. Gillam 308; nos.23, 35, cf. Gillam 219/220, Inv.1.86; nos.38, 39, 41, cf. Gillam 222).

4 sherds in Grey Ware, in a smooth, grey fabric (10YR 5/1) with small-medium angular grits. 1 fragment has a cream slipped surface. The flat base of a jar (no.73) and a fragment of a lid (no.60) are represented (cf. Gillam 340).

1 sherd of a rough cast cornice rim beaker in a smooth, soft, light buff fabric with a dark brown to black colour coat. The exterior surface has also been rough cast up to

the rim. Possibly Castor Ware. 2mm thick. (no.75, cf.Gillam 86/90).

[175] *Sub-rectilinear patch of stones overlying 176 and 177.*

1 sherd in a fine, orange fabric (2.5YR 5/4) with a smooth surface and no apparent grits. The sherd comes from the everted rim of a jar (no.65). 8mm thick.

[178] *Heavily burnt lens within demolition spread 106.*

3 sherds in BB Ware; one the rolled rim of a dish, possibly in BB1 (no.45, cf.Gillam 222) and another coming from the everted rim of a jar.

[179] *Undefined layer in N. part of S. range.*

2 sherds in BB Ware in a brownish fabric with a grey core and a badly damaged surface. One sherd is the fragment of the rim and shoulder of a jar with a plain rim. (no.8, cf.Inv.1.195).

Block 11 [018] *Disturbed fort demolition material in N. range.*

30 sherds of amphora in a smooth, buff fabric with many small and some large multi-coloured grits ave. 15mm thick. SF 002.

10 sherds of amphora in a fine, sandy buff.brown fabric with many small light coloured grits. Some sherds have split through the core making determination of original thickness unreliable. SF 210.

4 sherds in a fine, black-red fabric with strong evidence of burning on the surface. 3mm thick. SF 192.

6 sherds in a pink/buff fabric with few small grits.

[019] *Fort demolition material in N. range.*

18 sherds of amphora in a fine, buff/brown fabric with many small multi-coloured grits. Max 17mm thick although most sherds are heavily fractured. SF 193.

2 sherds in a fine buff/brown fabric with many small grits. 3mm thick.

1 sherd in a very fine orange/buff fabric with very few grits and a smooth darker orange slip. 3mm thick.

4 sherds probably in BB Ware. No distinguishing characteristics.

[022] *Fill of post-hole cut through 019.*

1 sherd of amphora in a fine buff/brown fabric with many small grits. 12mm thick.

[026] *Part of same deposit as 018 above.*

1 sherd in a smooth, soft, orange fabric with no grits and no preserved surface. 6mm thick.

1 sherd in a fine, hard, orange/brown fabric with an orange outer surface. SF 224.

2 sherds in grainy, black/grey fabric with many small grits. The surface has been destroyed and in places the core exposed to show the coil built structure. 5 mm thick. SF 224.

2 sherds in a fine, hard, dark orange fabric with good stroke burnishing on the exterior. (cf. Inveresk Ware and similar local wares). One sherd forms part of the rounded plain rim edge of a lid (SF 264) and the other may

possibly represent the rim of a flagon. 6 mm thick. SF 244, (no.78, cf.Inv.1.2-1.9).

136 sherds of amphora in a fine buff/brown-dark brown fabric. Most of the sherds are heavily fractured and have no distinguishing features. SF 211, 230, 223, 228, 213, 250, 220, 225, 248, 221, 249, 214, 246, 222, 227, 251, 191, 183.

17 sherds in BB Ware some of which have been burned in many cases, and the surface destroyed. Traces of the lattice pattern from the bodies of jars and bowls are preserved.

[090] *Fill of shallow gully or drip-trench beside putative building in N. range.*

c.600-700 sherds of amphora in a smooth, cream/buff-orange/pink fabric (7.5YR 7/4) with many small angular multi-coloured grits and a light grey core. Most of the sherds are small and heavily fractured to the extent that only one surface survives. Max 23 mm thick.

5 sherds in a smooth, fine, reddish/yellow fabric (5YR 6/8) with many small angular multi-coloured grits. Stroke burnish is preserved on the exterior surface giving it a more orange colour. 7mm thick.

190 sherds in BB Ware of which most sherds have been heavily damaged by fire with, in many cases, the outer surface missing. These appear to be mainly in BB2 although BB1 may also be represented. The base of a jar (no.14), the rim and shoulder of a jar with a carinated everted rim and flat base (no.5) as well as two bowls (no.48) all probably in BB2 are represented. The rims and shoulders of two cooking pots/jars with everted rims (nos.10, 17) are also present (no.5, cf. Gillam 170,

Inv.1.136 but smaller; no.48, cf. Gillam 222; no.10,
cf.Gillam 117/121, Inv.1.159; no.17, cf.Inv.1.273).

1 sherd in Grey Ware (5YR 6/1) with a smoothed exterior
surface. 7mm thick.

[164]

Foundation material for exterior surface in N. range.

1 sherd of amphora in a smooth, soft, buff/brown fabric
(5YR 7/6) with many medium-large multi-coloured grits.
The core is slightly greyer and the irregular surface
preserves the marks of its manufacture.

1 sherd in BB Ware, possibly BB1.

PHASE 4 POTTERY

Discussion

In terms of the Roman occupation of the site, both Phase 4 pottery and the material from the modern ploughsoil (Block 1) effectively represent an unstratified assemblage with sherds, potentially, from all three secure phases. Nothing can be ascertained from the presence of this material which is not already apparent in the more secure contexts.

Catalogue

- Block 3** [065] *Fill of southern post-medieval drainage ditch.*
- 1 sherd in a grainy, light orange fabric with small angular quartzite grits. Surface is crazed with burning. 11mm thick. SF115.
- [068] *Upper fill of central post-medieval drainage ditch.*
- 1 sherd in a soft, light buff/orange fabric with small-large angular coloured grits. Possibly amphora, but heavily eroded. 12mm thick. SF119.
- Block 4** [015] *Fill of previous excavation trench.*
- 1 sherd in a very light, fine, smooth, orange fabric with very few grits. Possible trace of burnishing on the exterior. 4mm thick.
- Block 24** [033] *Plough-damaged Rampart superstructure.*
- 1 sherd in a grainy orange/brown fabric with many small multi-coloured grits and a brown slip. 7mm thick. SF 004.

[035]

Rampart material collapsed over Berm.

4 sherds of amphora in a fine, orange fabric with many small grits, a slightly browner core and a brown slip. 15mm thick.

4 sherds in BB Ware, 2 of which are very black and thin (3.5mm thick) and 2 of which are greyer and thicker (6mm thick). None of the surfaces are preserved. The rim of a dish is represented in the latter fabric. (no.44, cf, Gillam 222).

[043]

Uppermost, ploughsoil, fill of Antonine Ditch.

2 sherds in a fine dark fabric with many small, dark grits. 11 mm thick. SF 005, 042.

1 sherd in a fine, smooth orange fabric with a distinct grey core, medium red grits and a brown slip. 5mm thick.

1 sherd in Grey Ware in a very fine, smooth grey fabric with no grits. The surface has been smoothed on the interior but the exterior surface has been destroyed.

Block 1

[001]

Modern ploughsoil

12 sherds of amphora in a soft, smooth buff/orange fabric with multi-coloured grits and a thin lighter coloured slip. The sherds are not heavily abraded but are slightly worn. c.12mm thick.

2 sherds in a grey soft, light orange fabric with few grits. Irregular in shape.

2 sherds in a medium hard orange/red fabric with few grits. The surface has been smoothed but not burnished. c.9mm thick.

3 sherds in a fine, dark orange fabric with a few small grits and a good stroke burnished surface. c.4.5mm thick.

2 sherds in a smooth, fine, fabric mottled orange/grey on the surface but with a medium grey core and some quartzite grits. c.4mm thick.

2 sherds in a very fine, smooth, grey fabric with no grits and an orange/buff outer surface, unburnished.

1 sherd in an orange fabric with a reddish tinge to the core and many small orange/brown grits. The surface is finished with a poorly burnished self-coloured slip. The sherd comes from a bowl with a plain, flat rim which may have been carried over the edge to form a cordon; however, the sherd has broken at the crucial point. 12mm thick.

2 sherds in BB Ware both burnt and discoloured. Two bowls with plain moulded rims and traces of a lattice pattern are represented (nos.46, 49).

CONCLUSIONS

General

The assemblage from Inveravon lies comfortably within an Antonine context. The predominance of BB1 in Phases 1 and 2 suggest an earlier Antonine date while the shift in emphasis to BB2 and the increased range of other wares and types, including probably some locally produced wares, in Phase 3 suggests a late Antonine date for that period of activity on the site. All the wares and vessel types recovered from the site suggest limited domestic activity throughout all phases with the storage, preparation, and consumption of foodstuffs being their primary functions. The almost exclusive nature of the Phase 1 and 2 pots, which are restricted largely to cooking pots, suggests very limited domestic activity on that part of the site. The presence of the one 'luxury' vessel from the entire assemblage the stamped Samian dish in a Phase 1 context is, from this point of view, anomalous. The range of pottery is quite limited, with a maximum of only 82 identifiable shapes being noted. Cooking pots, jars, bowls and dishes, some with lids, mainly in BB Ware, predominate. Amphorae, mortaria and some jars and bowls in other fabrics, possibly local, complete the repertoire. Few fine wares were recovered, the exception being the Samian dish and a handful of sherds representing some Castor Ware and barbotine or rough cast beakers.

Patterns of damage

No *in situ* floor deposits survive, the majority of the material deriving from midden/rubbish spreads either from levelling or demolition and from the accumulation of material over road surfaces. It may be possible, through further investigation, to use the pottery to identify those areas which had been open to general trampling and those areas which had remained protected either by some overlying structure or by rapidly accumulating deposits. This, however, would need to be prefaced with an understanding of the effect of the local soil conditions upon the pottery and a knowledge of the soil structure of individual deposits in order to understand the nature of their formation.

Much of the pottery from the site has been badly damaged; this is particularly evident in the Black Burnished Ware sherds where the extent of the damage can be assessed because the original surface treatment and sherd colour of this ware is known. In many cases it is evident that burning has been the cause, with much of the

pottery showing signs of discoloration and crazing which has led to the complete deterioration of the surface. However, to suggest that this is solely the result of soldiers' bad cooking practices is perhaps simplistic and ignores the probability that some of the other wares have also been subject to similar degradation.

It is evident, however, that there has been differential damage caused to the pottery between the various deposits. In Phase 1, as noted above, burning to some of the Black Burnished Ware can be linked to concentrations of charcoal and the presence of a possible furnace in the area. In Phase 2 pottery there is no clear evidence of burning although damage to the sherds has been recorded. The nature of the deposits which are associated with the Phase 2 building (Block 6) and with dumps of material to the north of the Military Way (Block 14) suggest the possible exposure of the sherds to agents of erosion other than fire. This may support an explanation of the deposits as open surfaces.

In Phase 3 much of the pottery has been damaged in some way with very clear evidence of burning, although not in all contexts. The demolition deposits in Block 5 contain large amounts of burnt Black Burnished Ware as well as vessels in other wares with erosion damage. An understanding of the type of building which once stood here could help explain these deposits and distinguish between floor deposits, midden material beneath raised timber floors, or deposits associated with the destruction of the building. This pattern of damage also appears in Block 9. However, in this area it is confined to two contexts, 013 and 080, which appear to overlie most of the other deposits in this area. The possibility that these deposits containing the eroded and damaged sherds can be linked with the timber building should be considered. A third context in this block, 106, exhibits a slightly different damage pattern where burning, erosion, and the fracturing of sherds into very small pieces indicate a more complex history of deposition. The nature of this deposit with its surface undulations, soil matrix and damage patterns suggests an open, exposed surface. Similarly, in Block 11 to the north of the Military Way, contexts 026 and 090 exhibit the same sort of damage and can possibly be interpreted as midden/occupation material lying in an exposed area. The association of all these deposits with the continued use of the Military Way suggests a possible reason for their condition.

Supply patterns

The supply of pottery to the site of Inveravon follows well established patterns observed from other Antonine sites. The south and east of England witnessed the growth of several great ceramic industries with markets over the entire province. The production centre of BB1 Wares in Dorset supplied military establishments from the first until the mid-second centuries AD but was later overshadowed by the BB2 industry in Kent and at Colchester (Williams 1977). This change may be reflected in the balance of these types between Phases 2 and 3 at Inveravon. The majority of fine wares represented also came from the south and south-east of England. Central Gaul, near Lezoux, produced the Samian bowl (Dickinson, this report; Oswald and Pryce 1920, 181-4, plates XLV-XLVII), while southern Spain produced the olive oil which was the principal content of the Class 25 globular amphora identified from Inveravon (Peacock and Williams 1986, 136-40). This is the most common type of amphora found on sites in Britain in this period. Several other amphora fabrics are also present on the site but no identification was possible. As far as the other wares and types identified it is to be expected that a large proportion of them may have been produced either locally or from one of several other sites known to have existed in Scotland. Their virtual absence during the first two phases at Inveravon requires explanation.

SAMIAN (illus 19, No. 1)

Gordon Thomas, Department of Archaeology, University of Edinburgh.

Three finds of Samian pottery were made:

- 01) One sherd of decorated samian in a soft, light orange fabric (10R 6/6-6/8) with a glossy red glaze (10R 4/8). The sherd is small (20mm max) and the surface is badly damaged, making identification of the motif impossible. *From a disturbed Phase 3 fort demolition deposit at the S end of the S range (006 - Block 5).*
- 02) One sherd of samian in a hard, light reddish/brown fabric (2.5YR 6/2) with a dull red glaze (2.5YR 4/8) and no visible inclusions. The sherd is small and has been fractured through the core. No decoration or shape is represented. *Unstratified.*
- 03) Two sherds (joining) of most of a form 18/31 dish with a diameter of 178mm and a height of 44mm (illus 19, no. 1). The vessel has low, outwardly oblique walls with a slight internal concavity and an abrupt apical cone shape at the base. A very slight ridge on the internal junction between the wall and the base is still preserved and there is a slight overhang of the rim. The internal height of the foot-ring is greater than the external height and where the foot-ring joins the base there is a sharp angle. These characteristics suggest a vessel which is transitional between the form 18 plate and the form 31 bowl.

The fabric is a smooth, very soft and powdery, light orange material (10R 6/8 but lighter) with a hard, glossy, red glaze (10R 5/8) which has, in places, a pitted appearance. Where the glaze has been chipped or eroded, as on the rim and base, the inner fabric has deteriorated to a powder.

The base of this vessel is stamped, details of which are given below. *From disturbed subsoil sealed beneath the Phase 2 cobble foundation in the S range (216 - Block 7).*

MORTARIA (Illus 23, Nos. 79-82)

Katharine Hartley, Shire Oak Road, Leeds.

Discussion

The 39 mortarium fragments are from eight contexts (013, 045, 073, 090, 106, 137, 145), and are from only four vessels. Nos. 81-83 all have sherds from Phase 2 contexts, whereas No. 84 derives exclusively from Phase 3 contexts. The mortaria are from four potteries, in Warwickshire, at Corbridge, in the Verulamium region and from the workshop of Mascellio in Scotland or less probably the Corbridge/Carlisle area. Together they illustrate the widely differing sources supplying mortaria to Scotland during the Antonine occupations. There is nothing exceptional in their presence except that No. 2, from the workshop of Bellicus at Corbridge, is of a later type than one would expect in a context dating to Phase 2. No. 3 fits well in such a context.

The real value of these pieces lies in the extent to which individual pots can be associated with a precise context and phase of the occupation. The many old finds from Scotland provide a good general picture of the mortaria used there but any further progress, for example, a break-down of the varying sources of supply at differing periods, depends on the adequate publication of precisely provenanced material.

Fabric descriptions

- 79) *From a deposit on surface of Phase 2 cobble foundation in S range (137 - Block 6).*

Internal diam \approx 20cm. Fabric: hard, fine-textured, creamy white fabric; self-coloured. Inclusions: sparse, quartz and rare brown material. Trituration grit: hard, blackish and dark brown material, believed to be re-used waste pottery.

- 80) *A bodysherd from the same deposit as No. 81 (137 - Block 6) joins a rimsherd present in Phase 3 road foundation material in S range (073 - Block 5); a worn base from the same vessel occurred in a Phase 3 demolition deposit at the S end of the S range (045 - Block 5).*

Diam 26cm. Fabric: slightly granular, cream fabric; self-coloured. Inclusions: some quartz (barely visible at x10 magnification), and rather larger orange-brown material. Trituration grit: abundant and tiny, mixed quartz and red-brown sandstone. Worn.

- 81) *Three sherds; a rim from occupation debris on the floor of the Phase 2 cobble foundation in the S range (145 - Block 6) is from the same vessel as two bodysherds redeposited in Phase 3 demolition contexts (090 - Block 11: N range & 075 - Block 5: S range), although they do not join it.*

Diam 28cm. Fabric: fine-textured, brownish cream fabric with thick brownish-pink core; self-coloured. Inclusions: moderate, small quartz; rare and larger, white and soft red-brown material. Trituration grit: mixed, flint, quartz, black and orange-brown material. The softness of the fabric is due to adverse soil conditions.

- 82) *From Phase 3 demolition deposits in S range (013, 106 - Block 9).*

Diam \approx 27cm. Fabric: fine-textured, orange-brown (Munsell 5YR 7/6); minute traces of cream slip. Inclusions: moderate, ill-sorted but small, quartz, rare, soft red-brown, and darker red-brown sandstone. Trituration grit: quartz, red-brown sandstone, paler brown and black material. The softish, powdery condition of the fabric is due to unfavourable soil conditions.

Context 106 with one join in Context 013 (Phase 3): Joining fragments of rim and body sherds: sherd 03 (with stamp)/22 (with stamp)/05/28/17/13/16.

Marginal join between 17 & 34* in context 013;

Join between 29* & 34* in Context 013;

Other rim fragments: 04* (with stamp); 09*;12;21*;26*;40*.

Joining fragments of base: 14/18/19/20

Other fragments from base: 24?; 15; 02*

Joining fragments from near to base: 23/06/08/10

Other fragments from next to base: 11; 01*;

Other body fragments: 27*; 25; 30*.

(* indicates burnt sherds).

POST-ROMAN POTTERY

Andrew Dunwell, Centre for Field Archaeology, University of Edinburgh.

Acknowledgement

This report could not have been compiled without the identifications of fabric and date of vessels provided by Mr George Haggarty.

Summary report

The assemblage of post-Roman pottery from the site comprises 90 sherds. 44 of these sherds were recovered as stray finds or from the modern ploughsoil, 28 from attestably post-Roman features (drainage features, previous excavation trenches, and buried ploughsoils), and the rest as contaminants introduced by ploughing into the upper levels of Roman stratification. The assemblage dates from the 13th/14th century to the early 20th century. Over 50 sherds are of 19th/20th century origin, and 18-20 are 15th century and earlier. The late medieval and early post-medieval vessels (16th-17th century) are predominantly jugs with green glaze coating. Later material is more varied.

This assemblage probably results from the repeated spreading of domestic midden, in which the potsherds were initially discarded, on cultivated land. A system of three excavated drainage ditches can be linked to pre-improvement agricultural practice by its coherent assemblage of late medieval and early post-medieval sherds (05-08), combined with the absence of later material. Previous excavation trenches and the channels of drainage pipes predictably contain a range of 19th-20th century material (03-04; 09-13). A number of sherds of post-Roman pottery have been introduced by ploughing into the disturbed upper levels of Roman stratification (14-16; 19-20), and a range of medieval and post-medieval forms was recovered from the buried ploughsoil which formed the uppermost fill of the Antonine Ditch (21-23). In only two cases was the presence of post-Roman pottery less than straightforwardly explained (17, 18). The former may have been introduced by the cutting of a previous excavation trench immediately adjacent to its recovery position, and the latter may be the result of post-Roman disturbance which was not identified within the narrow excavation trench.

Catalogue

- 01) 33 sherds with a date range between 15th century and early 20th century, the majority Victorian or later. *From the topsoil* (001 - Block 1).
- 02) 2 sherds, both glazed. Victorian. *From a modern buried ploughsoil* (002 - Block 1).
- 03) 4 sherds, including one rim, all glazed. Late Victorian or later. *From the fill of the channel of a post-medieval drainage pipe* (039 - Block 2).
- 04) 2 sherds, both glazed, of Victorian date. *From the fill of the channel of a post-medieval drainage pipe* (041 - Block 2).
- 05) One 16th - 17th century sherd with degraded green glaze; from the shoulder of a large jug. *From the fill of a post-medieval drainage ditch* (025 - Block 3).
- 06) One bodysherd from a Medieval jug, possibly of 14th century origin. Not abraded. *From the fill of a post-medieval drainage ditch* (065 - Block 3).
- 07) Two bodysherds with degraded green glaze. Possibly 15th century in origin. *From the same context as 06* (065 - Block 3).
- 08) Two 14th - 16th century body sherds, one with traces of a degraded green glaze. Both appear to be of the same fabric, and are possibly from the same vessel. *From the fill of a post-medieval drainage ditch* (068 - Block 3).
- 09) Four sherds, all glazed, including one rim and one base. All are late Victorian or later. *From the backfill of a previous excavation trench* (009 - Block 4).
- 10) One patterned glazed rimsherd dating from around 1820 AD. *From the same context as 09* (009 - Block 4).
- 11) 2 glazed body sherds, Victorian or later. *From the backfill of a previous excavation trench* (015 - Block 4).
- 12) 2 sherds of 16th - 17th century vessels. *From the same context as 11* (015 - Block 4).

- 13) 2 sherds of unknown origin. *From the same context as 11 (015 - Block 4).*
- 14) One glazed rimsherd of Victorian or later origin. *From a disturbed Phase 3 demolition spread within the northern range of the fort (019 - Block 11).*
- 15) One glazed sherd of Victorian origin. *From the Phase 1 collapse material of the Rampart and/or expansion (031 - Block 13).*
- 16) 3 sherds of Post-Medieval origin (possibly 16th century). At least 2 vessels present, one with degraded green glaze. *From the same context as 15 (031 - Block 13).*
- 17) 5 body sherds of one vessel, possibly 13th - 14th century, with degraded glaze. The fabric is similar to jugs of this age. *From a Phase 2 dump deposit to the north of the Military Way (105 - Block 14a).*
- 18) One body sherd, possibly from a 13th - 14th century jug, with degraded glaze. *From a Phase 2/3 deposit between the southern range of buildings and the southern fort rampart (066 - Block 23).*
- 19) One glazed sherd of 20th century origin. *From a patch of clay within post-Roman collapse of the Rampart (033 - Block 24).*
- 20) One glazed sherd, Victorian or later. *From the post-Roman collapse of the Rampart (035 - Block 24).*
- 21) 2 brown glazed sherds, possibly 19th century. *From a buried ploughsoil forming the uppermost fill of the Antonine Ditch (043 - Block 24).*
- 22) One incised rim sherd of lead glazed jug with smooth sandy fabric, probably dating from 15th century. Possibly made at Stenhouse. *From the same context as 21 (043 - Block 24).*
- 23) 2 body sherds from possible 13th century and possible 14th century jugs. Both have a degraded green glaze. *From the same context as 21 (043 - Block 24).*
- 24) A rimsherd of a Medieval cooking pot, possibly 13th century. *Surface find.*

- 25) 2 sherds of possible 15th century vessels, one a handle with a degraded green glaze. *Surface finds.*
- 26) 2 body sherds with degraded green glaze of a 16th - 17th century vessel. *Surface finds.*
- 27) A ribbed neck sherd of a probable 17th century vessel, with a degraded green lead glaze. *Surface find.*
- 28) 7 Victorian or early 20th century sherds, one a fragment of a Blacking Bottle, dateable to 1875AD - 1925AD. *Surface finds.*
- 29) One large sherd, possibly from a storage jar, of unknown age. *Surface find.*

BUILDING MATERIALS

Andrew Dunwell and Tim Neighbour, Centre for Field Archaeology, University of Edinburgh.

Measurements refer to maximum length, breadth, and thickness respectively (unit = mm).

A. BRICK

Discussion

Eleven fragments of brick were recovered from these excavations at Inveravon. Two broad categories are present in the assemblage - a softer reddish-yellow fabric which occurs in stratified Roman levels and appears to be of Roman origin, and a harder, darker red fabric which may also be of Roman origin, although without stratified examples to support this interpretation. The low density of brick at Inveravon suggests that it did not form an important building material, at least in the vicinity of the excavation. None of the *in situ* structural remains contained any brickwork. The stratified assemblage came mostly from Phase 3 abandonment deposits, associated with the deliberate dismantling of the fort (05-08). One piece came from dump deposits beside the southern rampart (09). This lack of evidence for brick construction agrees with other artefactual evidence, which suggests that half-timbered buildings were predominant in Phase 3.

Catalogue

- 01) 1 x abraded amorphous fragment (48 x 34 x 18), red (Munsell 2.5YR 5/8); fine texture, no inclusions, no original surfaces visible. *Stray find.*
- 02) 1 x abraded irregular fragment (37 x 27 x 18), reddish yellow (Munsell 5YR 7/6); coarse texture, 2-3mm grit inclusions, no original surfaces present. *From the topsoil (001 - Block 1).*
- 03) 1 x regular fragment (30 x 12 x 8), reddish yellow (Munsell 5YR 6/8); fine fabric inc. quartz, parts of two adjacent original surfaces present. *From the fill of a channel for a post-medieval drainage pipe (039 - Block 2).*

- 04) 1 x angular irregular fragment (46 x 20 x 11), reddish yellow (Munsell 5YR 6/8); medium fabric inc. quartz, no original surfaces present. *From the fill of a previous excavation trench (009 - Block 4).*
- 05) 1 x abraded fragment (32 x 25 x 12), reddish yellow (Munsell 5YR 7/8); soft, medium fabric with 5% 2-3mm grit inclusions, small twig impression. *From a Phase 3 disturbed demolition deposit in the centre of the southern range (011 - Block 5).*
- 06) 1 x abraded irregular fragment (27 x 19 x 8), reddish yellow (Munsell 5YR 7/6); soft, medium fabric with 5% 2-3mm grit inclusions; no original surfaces present. *From a Phase 3 demolition deposit at the south end of the southern range (045 - Block 5).*
- 07) 1 x triangular fragment (43 x 33 x 16), red (Munsell 2.5YR 5/8); 2 edges sharp and fractured, third rounded and abraded; fine fabric, one original face. *From a Phase 3 demolition deposit within the northern range (026 - Block 11).*
- 08) 1 x abraded amorphous fragment (23 x 23 x 14), light red (Munsell 2.5YR 6/8); brittle, gritty, coarse fabric, one 4mm grit inclusion, one original surface. 1 x angular fragment (18 x 13 x 6), reddish yellow (Munsell 5YR 6/6); medium fabric with 1-2mm grit inclusions, one original surface. *From the upper fill of the northern 'defensive pit' on the Berm (156 - Block 17).*
- 09) 1 x amorphous fragment (38 x 34 x 15), reddish yellow (Munsell 5YR 6/8); soft fabric with 2-3mm grit inclusions, no original surfaces present. *From a Phase 2/3 deposit between the southern range of buildings and the southern fort rampart (066 - Block 23).*
- 10) 1 x abraded fragment (38 x 26 x 14), reddish yellow (Munsell 5YR 6/8); fine fabric inc. quartz but no grits, one original face. *From the post-Roman collapse of the Rampart (035 - Block 24).*

B. TILE

Discussion

The tile assemblage totals 24 pieces, encompassing a variety of forms, mostly post-Roman. Some of the artefacts are clearly recent or pre-recent in origin, including fragments of drainage pipe and 'plant-pot'. Of the remainder, only a flat piece from 001 can be assigned with any confidence as one side of a Roman flue tile. Many pieces are too fragmentary to be identified. The greater proportion of ploughsoil to stratified finds in the assemblage is in contrast to that noted for brick. All but two pieces came from within the modern ploughsoils or as surface finds. One stratified piece (06) lay at the interface with modern ploughsoils, in an area at risk of contamination. The absence of stratified Roman tile within Phase 3 demolition deposits, where structural components of timber buildings were recovered in bulk, suggests that tile was not an important component of the standing buildings at Inveravon. Roofing may have been of organic materials such as thatch, which would leave little visible archaeological trace (cf. Thomas 1988, 146, for Inveresk).

Catalogue

- 01) 1 x recent drainage pipe arc (130 x 90 x 20), light red. 1 x possible side of flue tile (190 x 130 x 20), red; flat surface, with smoothed outer and rough inner. 1 x recent tile fragment (20 x 20 x 12), red with reduced core. 1 x ?pre-recent earthenware vessel rim ('plant-pot'), 80 x 80 x 50; light red (Munsell 2.5YR 6/8). 1 x ?pre-recent earthenware vessel rim (25 x 13 x 10), red (Munsell 2.5YR 6/6); wheel thrown. *Surface finds.*
- 02) 2 x tile fragments of unknown origin, both light red (Munsell 2.5YR 6/6) and 20mm thick. 1 x stem of unknown ?pre-recent object with distinct triangular cross-section (54 x 10 x 10), light red (Munsell 2.5YR 6/8). 1 x stem or handle of unknown object with regular oval cross-section, gently convex length (25 x 6 x 4), red (Munsell 2.5YR 5/6). *Surface finds.*
- 03) 1 x roof-tile fragment (82 x 60 x 12), reddish yellow (Munsell 5YR 7/6); gently convex profile and regular smooth faces, coarse fabric inc. quartz and reduced core. Probably Roman. *From the topsoil* (001 - Block 1).

- 04) 11 x heavily abraded reddish-yellow (Munsell 5YR 6/6) tile fragments (82 x 41 x 16 > 17 x 15 x 6) with fine-medium fabric; most appear to be roofing tiles. *From the topsoil (001 - Block 1).*
- 05) 1 x thin regular tile fragment (15 x 12 x 2), reddish yellow (Munsell 5YR 6/8). *From a modern buried ploughsoil (002 - Block 1).*
- 06) 1 x angular fragment (40 x 28 x 6), reddish yellow (Munsell 5YR 6/6). Fine fabric, no inclusions, smooth outer face, rough inner, convex profile. Part of a drainage pipe. *From a Phase 3 demolition deposit in the northern range of the fort (018 - Block 11).*

C. DAUB

Discussion

The discrete spatial patterning of daub from Inveravon allows certain useful conclusions to be drawn. The total assemblage weight is 3234g, of which 88g (1.5%) was recovered from disturbed, post-Roman contexts (01-03). Of the stratified assemblage, c.85% by weight derived from Phase 3 demolition deposits associated with the southern range of buildings (05-12; 18-19), and a further c.5% from the area between this and the southern rampart of the fort (04, 22). Virtually none came from either Phase 3 deposits in the northern range, or from Phase 2 deposits. This abundance of daub and the presence of approximately 20 wattle impressions on lumps of daub suggests that timber-framed buildings with wattle-and-daub wall panelling were present in the southern range in Phase 3. The lack of daub from both Phase 2 deposits in the southern range and Phase 3 deposits in the northern range may reflect no more than the absence of demolition deposits, although the absence of timber structures in these areas has to be contemplated, especially given the presence of a stone wall in the southern range in Phase 2.

All the daub pieces contain a tempering agent. These include vegetable matter, sand, grit and pebbles. All contain frequent quartz flecks and up to 15% sand. Most of the daub has some vegetation within it; particularly clear examples are highlighted in the catalogue.

Catalogue

In the following catalogue, a total weight of daub (in grammes) is given for each catalogue entry (which equates to context). Weight by context is considered of greater interpretive significance than absolute numbers of pieces present, due to the large variation in size present among the pieces within the assemblage. Daub pieces are categorised as small, medium and large according to the following criteria:

Small - All dimensions less than 20mm. Medium - All dimensions less than 50mm; at least one greater than 20mm. Large - At least one dimension greater than 50mm.

- 01) 3 x medium and 1 x small reddish-yellow fragments, with few gritty inclusions. 1 x yellow fragment with wattle impression. Total weight: 52g. *From the topsoil* (001 - Block 1).
- 02) 1 x small yellow-brown fragment. Total weight: 4g. *From a modern buried ploughsoil* (002 - Block 1).
- 03) 1 x medium red-orange fragment. 1 x medium reddish-yellow fragment with a possible faint wattle impression. Total weight: 32g. *From the fill of a previous excavation trench* (009 - Block 4).
- 04) 1 x medium reddish-yellow fragment with red flecks. Total weight: 10g. *From the disturbed Roman deposit adjacent to the southern rampart* (003 - Block 5).
- 05) 1 x medium orange to yellow-brown fragment. Total weight: 20g. *From the disturbed Phase 3 demolition deposit at the south end of the southern range* (006 - Block 5).
- 06) 4 x small and 2 x medium reddish-yellow fragments, one with a wattle impression and a second with a dark grey core. Total weight: 89g. *From disturbed Phase 3 demolition material above secondary alley in southern range* (010 - Block 5).
- 07) 1 x grey-brown fading to very pale brown medium fragment. with some quartz grit. 1 x mottled orange to yellow brown medium fragment. 1 x red to yellow medium fragment with wattle marks: 12mm wide by 4mm deep. 1 x red fragment with possible keying marks for plaster and clear wattle impressions

(illustrated in Armit and Dunwell 1992, 267; Ill. 71). Total weight: 167g. *From disturbed Phase 3 demolition deposit at the centre of the southern range (011 - Block 5).*

- 08) 1 x red-orange medium fragment with wattle impression 5mm wide and 3mm deep. 1 x very pale brown medium fragment, with quartz flecks. 2 x large and 2 x small mostly light red gritty fragments, with quartz pebbles and flecks. 1 x medium and 1 x small red-yellow to dark grey, with some grit. 1 x red medium fragment. 10 x medium and 10 x small fragments, mostly light red with pebbles and quartz inclusions. 2 x light red medium pieces with 10mm wide, 3mm deep wattle marks. 1 x medium red fragment with quartz pebbles and fleck inclusions. Clear vegetation impressions and vague wattle impressions present. Total weight: 390g. *From disturbed Phase 3 demolition deposit towards centre of southern range (012 - Block 5).*
- 09) 1 x yellow-orange medium fragment, with a 20mm wide, 6mm deep wattle mark, 35mm long. 2 x medium and 3 x small red-orange to yellow-brown fragments, 1 x medium hard-baked piece of clay. 1 x medium orange fragment. 7 x medium pieces with probable wattle impressions. Over 50 red to yellow-red fragments, with grass/straw, pebble and grit inclusions. Total weight: 955g. *From a Phase 3 demolition deposit at the south end of the southern range (045 - Block 5).*
- 10) 2 x yellow-red daub fragments, one with some vegetable fragments, the second with a wattle impression. Total weight: 101g. *From upon pebbled surface of secondary alley in buildings of Phase 3 southern range (072 - Block 5).*
- 11) 1 x small red fragment. Total weight: 5g. *From foundation material of exterior surface to Phase 3 buildings in southern range (073 - Block 5).*
- 12) 1 x small red-orange fragment. Total weight: 5g. *From occupation deposit on surface of Phase 2 building south of Military Way (137 - Block 6).*
- 13) 2 x red to grey fragments, one with slight wattle impression. Total weight: 64g. *From uppermost dump of material associated with furnace (173 - Block 7).*

- 14) Several gritty coarse fragments ranging in colour from light yellow-brown to dark grey. Total weight: 38g. *From spread of burnt material within possible furnace (208 - Block 7).*
- 15) 3 x small red fragments. Total weight: 5g. *From subsoil surface to south of fort (079 - Block 8).*
- 16) 4 x small yellow-red fragment. Total weight: 6g. *From worm-sorted earth formed above Phase 3 surface of Military Way (080 - Block 9).*
- 17) 2 x medium and 6 x small red-orange fragments. 3 x medium light yellow fragments, with some off-white flecks. Total weight: 90g. *From Phase 3 clay demolition spread immediately south of narrowed Military Way (101 - Block 9).*
- 18) 2 x medium and 3 x small yellow-brown fragments. Light grey and red baked clay fragments damaged during excavation. Total weight: 652g (of which daub 40g). *From Phase 3 demolition deposit to south of Military Way (106 - Block 9).*
- 19) 1 x medium red-yellow fragment with grit and a thin incision. Total weight: 15g. *From Phase 3 occupation/demolition deposit within northern range (090 - Block 11).*
- 20) 6 x friable small red-orange fragments. Total weight: 8g. *From Phase 2 dump deposit to north of Military Way (105 - Block 14a).*
- 21) 1 x medium orange to red fragment. 5 x yellow-red fragments fading to grey, with grit and sand inclusions and some vegetation impressions. 1 x medium yellow-red fragment with a wattle impression. Total weight: 131g. *From a Phase 2/3 deposit between the southern range of buildings and the southern rampart of the fort (066 - Block 23).*
- 22) 1 x small and 2 x medium red fragment, one of latter with a faint wattle impression. 2 x medium yellow-red fragments. Approx. 25 x red brown to off-white fragments, 4 of which show wattle impressions. Total weight: 897g. *From Phase 3 demolition material in centre of southern range (075).*
- 23) 1 medium red-orange fragment. *Surface find.*

GLASS ARTEFACTS AND BY-PRODUCTS

Andrew Dunwell, Centre for Field Archaeology, University of Edinburgh.

Acknowledgement

The provisional identifications of date and vessel types stated in this report were made by Dr Philip Simpson, then of the Department of Archaeology, University of Edinburgh.

Discussion

Vessel glass - 98 shards of glass were recovered during this excavation. Of these 60 were in the modern ploughsoils, 17 derived from disturbed post-Roman contexts, and a further 13 were recovered as surface finds. Many of these shards are small fragments of fine pale green vessels. These are interpreted as pre-recent square-sided bottles, common in the 19th century. These could have been introduced by the spreading of household midden deposits across ploughed land to maintain the fertility of the soil. Mr. Simpson identified a small number of fabric types as possibly Roman, although the absence of these types from stratified Roman levels argues against this. The pre-recent assemblage included c.15 shards of dark green bottle glass, one the base of a milk bottle inscribed 'Border Maid 1877'.

Eight shards derived from stratified levels. One of these (13) is modern in origin, and was probably introduced as a contaminant through ploughing. The identifiable Roman forms comprise square-sided bottles, (18) being the best preserved, and a possible fragment of window glass (15). The stratified assemblage of glass derives exclusively from Phase 3 deposits.

Glass by-products - The four artefacts considered in this category were identified by Dr. Simpson as a recent product of 'secondary fusion' in the process of glass manufacture. The stratified example (27) lay towards its interface of the modern ploughsoil, and was probably introduced as a contaminant through ploughing.

Catalogue

Glass objects

- 01) 26 assorted recent and pre-recent shards of green, dark green and colourless bottle glass, mostly translucent. *From the topsoil (001 - Block 1).*
- 02) 17 shards of light green fine vessels, including 6 simple rounded rims; 10 shards transparent; from straight-sided vessels. *From the topsoil (001 - Block 1).*
- 03) 9 shards of possibly Roman origin, including 8 fine rims, both transparent and translucent pale green forms. *From the topsoil (001 - Block 1).*
- 04) 8 flat shards from fine, pale green, flat-sided vessels; both transparent and translucent shards; no rims; probably pre-recent. *From a modern buried ploughsoil (002 - Block 1).*
- 05) 1 x body shard, gently curved (18 x 12 x 1); almost colourless, translucent; recent. *From the fill of a channel for a post-medieval drainage pipe (039 - Block 2).*
- 06) 2 x pale green body shards (16 x 12 x 2, transparent; 17 x 15 x 2, translucent); flat profile. 1 x pale green translucent rim (12 x 12 x 2.5); vessel glass with possible Roman origin. 1 x pale green body shard (9 x 7 x 1); translucent. *From the same context as 05 (039 - Block 2).*
- 07) 1 x transparent pale green rim from straight edged vessel, with bubbly fabric; possible Roman vessel (23 x 15 x 2). *From the fill of a channel for a post-medieval drainage pipe (041 - Block 2).*
- 08) 1 x transparent, flat, pale green-blue slither (15 x 5 x 2). Modern. 1 x olive green transparent body shard (18 x 15 x 2), distinctly curving profile. Modern. *From the modern fill of a previous excavation trench (009 - Block 4).*
- 09) 1 x translucent, flat, pale green body shard (11 x 11 x 3); possible Roman. *From the same context as 08 (009 - Block 4).*

- 10) 1 x translucent pale green body shard (14 x 7 x 3); possibly Roman. *From the same context as 08* (009 - Block 4).
- 11) 1 x gently curving green-yellow body shard (22 x 19 x 1.5), with horizontal projecting rib (3mm wide); modern. *From the same context as 08* (009 - Block 4).
- 12) 1 x flat, transparent, body shard (10 x 10 x 1.5) - same fabric as 07). 1 x chip (6 x 6 x 1) of translucent green glass: unknown origin. *From the same context as 08* (009 - Block 4).
- 13) 1 x irregularly curved colourless body shard (28 x 20 x 2); very fresh and unabraded, and transparent; modern. *From Phase 3 demolition material on southern side of narrowed Military Way* (013 - Block 9).
- 14) 1 shard of light green, transparent, window glass (36 x 21 x 3), with bubbly profile; possible Roman. *From demolition material sealing Phase 3 northern range* (018 - Block 11).
- 15) 1 x flat shard of possible window glass (20 x 10 x 2.5); pale green, transparent; heavily abraded; origin uncertain. *From the same context as 14* (018 - Block 11).
- 16) 1 x flat, translucent, turquoise, shard (28 x 19 x 3); one face clear, other clouded (as if ground); Roman. *From demolition material sealing Phase 3 northern range* (026 - Block 11).
- 17) 1 x flat, pale green, body shard (18 x 13 x 2); similar to 15; origin uncertain. *From the same context as 16* (026 - Block 11).
- 18) 1 base fragment of square-sided Roman bottle (48 x 27 x 8), translucent and turquoise; base has arc of ribbed 6mm wide circle (160-200mm diameter estimated); part of side of vessel preserved meets base at right angle. *From Phase 3 occupation / demolition material in northern range* (090 - Block 11).
- 19) 2 x translucent, pale, turquoise flat body shards (16 x 11 x 2; 25 x 14 x 2); appear clouded ("ground") on one face; probably Roman. *From the southern clay cheek of the Rampart* (032 - Block 16).

- 20) 1 x rim of translucent turquoise vessel (26 x 25 x 6); rim has simple rounded profile, and side is squared; outer face is clear, inner clouded ("ground"). *From the fill of the southern gully on the Berm (159 - Block 17; illustrated in Armit and Dunwell 1992, 268; Ill. 72, no. 1).*
- 21) 1 x translucent dark green shard with curving profile (29 x 17 x 2.5); modern. *From the post-Roman collapse of the Rampart over the Berm (035 - Block 24).*
- 22) 1 x transparent, dark green bottle fragment with curving profile (48 x 33 x 3); modern. *From the same context as 21 (035 - Block 24).*
- 23) 1 x translucent, dark green, bottle base fragment (56 x 36 x 11); 19th century. 1 x fine, transparent, very pale green, shard (17 x 13 x 1); modern. *From a buried ploughsoil forming the uppermost fill of the Antonine Ditch (043 - Block 24).*
- 24) 3 pieces of dark green 19th century bottle glass, one inscribed "Border Maid 1877". *Surface finds.*
- 25) 10 shards of fine light green vessels, including 6 simple rounded rims and one neck with rim (25mm rim diameter, 15mm neck diameter with 11mm diameter opening), and including 1 colourless rim. *From straight sided vessels. All probably pre-recent in origin. Surface finds.*

Glass by-products

- 26) 3 lumps of glass slag - a product of secondary fusion. *Surface finds.*
- 27) 1 chip of glass slag - a product of secondary fusion. *From contaminated surface of Phase 1 collapse of Rampart and/or expansion (031 - Block 13).*

COINS

Andrew Dunwell, Centre for Field Archaeology, University of Edinburgh.

Acknowledgements

Conservation work was carried on coins 01 and 02 by Mr. Alex Quinn, of the National Museums of Scotland. Identification of the coins was carried out by Mr. Nick Holmes, also of the National Museums of Scotland.

Conservation

Coins 01 and 02 were cleaned manually, and stabilized by the application of a consolidant (Paraloid B72). The surfaces on coin 01 remain in a fragile condition.

Discussion

The excavations produced three coins:

- 01) This coin is a copper alloy Roman *As* of Antoninus Pius, datable to AD138 - AD161. It is sub-circular in shape with a diameter of 22mm and width of 2mm. The obverse side of the coin portrays the laureate bust of the emperor. A single letter 'P' is preserved around the periphery of the surface. The reverse side has traces of a standing figure with an outstretched arm. Many Antonine coins have such depictions, and the level of detail is not sufficient to allocate the coin to a specific issue. The surfaces of the coin are only partly preserved, the reverse being in worse condition than the obverse. The preserved parts of the surfaces show little wear, with the bust being sharply defined. This wear is compatible with both use and discard during the lifetime of Antoninus Pius.
This coin was stratified in the occupation deposit on the pebbled surface of the Phase 2 building to the south of the Military Way (137 - Block 6).
- 02) The origin of this coin is uncertain, though it is certainly not Roman, and most probably post-medieval in date. It is made of copper alloy and is sub-circular, with a diameter of 20mm and thickness of c.1mm. Cleaning revealed the unclear traces of a bust on the obverse side, although there was insufficient detail to permit identification. No details were revealed on the reverse side of the coin. *The coin was recovered as a stray find.*

03) This coin is certainly not Roman. It is probably a late 16th - 17th century issue, possibly a turner dedicated to James VI, Charles I or William III. No conservation work was carried out, as it is clear that no original surfaces are preserved. It is made of copper alloy and is sub-circular in shape, with a diameter of 20mm and thickness of less than 1mm. *This coin was recovered as a stray find.*

COPPER ALLOY ARTEFACTS

Tim Neighbour, Centre for Field Archaeology, University of Edinburgh.

Acknowledgement

The author is indebted to Mr. Peter Davidson, of the Geology Department of National Museums of Scotland, who identified the metallurgy of all artefacts by X-ray fluorescence analysis.

Discussion

A total of five objects are considered, only three of which derive from stratified Roman deposits. Four of the objects are of brass, large quantities of which were being used by the Roman period in Europe (Tylecote 1987, 144), and the fifth is of bronze.

The bronze find was a ring found in a dump of occupation waste mounded against the interior face of the southern fort rampart (04). It was preserved in a very fragile condition. This suggests that bronzework may be under-represented in the assemblage from the site through decay. The ring was photographed *in situ*, but fragmented on excavation. X-ray fluorescence indicated that the alloy was mainly copper-tin. Lead formed c.30% of the alloy, a relatively high proportion, and may have been deliberately introduced for increased malleability during manufacture. A fragment of the stem of a brass pin with a distinctive rectangular cross-section was recovered in close proximity to the ring (03). A second robust brass stem fragment was recovered (02). It has a distinctive flat side opposing a rounded side, and steadily increases in width along its length. This artefact cannot be ascribed to a particular category with certainty.

Two brass studs are recorded, one as a stray find (01), the other from a buried ploughsoil forming the uppermost fill of the Antonine Ditch (05). Both are from insecure contexts and are probably pre-recent in origin. Their robustness argues strongly against a Roman origin.

Catalogue

Measurements given in brackets are maxima (units = mm).

- 01) Brass stud (14 diameter x 3), probably Post-Roman. *Stray find.*
- 02) Stem fragment of object of unknown type, sub-rectangular cross-section (30 x 7 x 4). Brass. Roman. *From a Phase 3 demolition deposit c.0.5m south of the narrowed Military Way (106 - Block 9).*
- 03) Possible fragment of brass pin-stem, with rectangular cross-section (12 x 3 x 2). Roman. *From a Phase 2/3 occupation dump mounded against inside face of southern rampart of fort (066 - Block 23).*
- 04) Fragments of bronze ring, with rectangular cross-section (4x3). (Sn 25%, Fe 6%, Cu 35%, Pb 30%, all proportions approximate). Roman. *From same deposit as 03 (066 - Block 23).*
- 05) Circular brass stud / pin-head - robust (15 diameter x 5), probably Post-Roman. *From a buried ploughsoil forming the uppermost fill of the Antonine Ditch (043 - Block 24).*

LEAD ARTEFACTS (Illus 24, Nos. 1-5)

Tim Neighbour, Centre for Field Archaeology, University of Edinburgh.

Discussion

The nine lead artefacts were preserved in a fairly robust condition, and there is no reason to believe that lead is under-represented in the site assemblage. All the lead objects but one (02-09) were found in Phase 3 deposits beside and upon the narrowed Military Way, and can be associated with the final demolition and abandonment of the installation. The context of recovery of the other object (01) was the surface of the external road, which was badly truncated by post-Roman activity. This artefact cannot necessarily therefore be considered to be *in situ*.

The function of the nine lead artefacts is not clear. They comprise deliberately folded and irregularly contorted strip and sheet fragments, and amorphous scraps, similar in nature to those recorded from Gadebridge Park villa (Neal 1974, 188). Of the objects folded or creased, 07 and 08 may represent whole objects. Folded lead sheets recovered at Porchester Castle are recorded as net weights (Webster 1975, 232-233). However, the much smaller size of the Inveravon examples makes this interpretation unlikely. It is possible that the strip fragments (01-03; 09) are associated with the superstructure of Phase 3 timber-framed buildings, possibly as sealant strips around the edges of a window pane, which were discarded on the demolition of those buildings contemporary with the abandonment of the fort. Daub and nails were recorded in bulk from the same, and also adjacent, Phase 3 demolition deposits. The lead artefacts were not however found in association with window glass.

Catalogue

Measurements in brackets refer to maximum length, breadth and thickness (in mm).

- 01) Two joining fragments of lead strip (17 x 7 x 1; 8 x 8 x 1), one with rounded end displaying a fresh break. *From the surface of the road external to the fort* (086 - Block 8).

- 02) Strip fragment, with rounded end (32 x 9 x 1). *From worm-sorted earth lying on the Phase 3 surface of the narrowed Military Way (080 - Block 9; Illus 25, No. 3).*
- 03) Strip fragment, folded over three times (22 x 7 x 6). *From same context as 02 (080 - Block 9; Illus 25, No. 2).*
- 04) Irregularly creased sheet fragment (26 x 15 x 7). *From same deposit as 02 (080 - Block 9; Illus 25, No. 1).*
- 05) Irregularly creased scrap (10 x 5 x 4). *From same deposit as 02 (080 - Block 9).*
- 06) Irregularly creased scrap (10 x 8 x 6). *From same deposit as 02 (080 - Block 9).*
- 07) Folded sheet, possibly of disc-shaped object; possibly whole (23 x 22 x 5). *From a Phase 3 demolition deposit to the south of the narrowed Military Way (106 - Block 9; Illus 25, No. 4).*
- 08) Irregularly folded sheet; possibly whole (25 x 18 x 8). *From same deposit as 07 (106 - Block 9; Illus 25, No. 5).*
- 09) Strip fragment, with rounded end (15 x 10 x 2). *From a Phase 3 surface immediately south of the narrowed Military Way (175 - Block 9).*

IRON OBJECTS

Tim Neighbour, Centre for Field Archaeology, University of Edinburgh.

Discussion

The catalogue of iron objects has two parts. Firstly, a summary quantification table is presented by context of all the iron finds. A basic twofold division can be made within the assemblage between nails and other objects. The former group appears to account for all but 34 of the iron objects recovered during excavations at Inveravon: further details are provided in Armit and Dunwell (1992, 166-78).

A catalogue of all the nails and hobnails is presented in Armit and Dunwell (1992, 166-78). A catalogue of the stratified objects which are not obviously nails or hobnails follows the summary quantification. These items include a number of probable bolts, a possible spearhead, a hook and a possible knife. These artefacts are detailed individually in the catalogue. The high degree of corrosion present on all artefacts, coupled with the fragility of many of the objects, makes accurate identification difficult. Given the extreme corrosion of many of the objects, measurements are approximate. The standard unit of measurement is the millimetre. Quantifications have been revised from the interim statement in Armit and Dunwell (1992).

Table 2: summary quantification of iron artefacts

The contexts are grouped together by stratigraphic block, and run numerically from Block 1 to Block 24. Where no entry is present in the provenance column, the origin is that last stated above.

context	hobnails	nails	other	provenance
001	0	0	10	topsoil
039	0	0	1	post-medieval drain
041	0	0	1	
015	0	0	1	previous exc. trench
059	1	0	0	
010	1	1	0	disturbed Phase 3 demolition
011	1	0	0	
012	2	0	1	
045	3	2	7	Phase 3 demolition (S)
073	0	1	0	Phase 3 (S)
075	1	4	1	Phase 3 demolition (S)
134	0	4	4	
137	0	0	4	Phase 2 (S)
147	0	0	1	
200	1	2	2	
173	0	0	4	Phase 1/2 furnace
208	0	0	2	
216	0	0	1	disturbed subsoil
013	2	2	0	disturbed Phase 3 demolition
080	c.110	28	31	Military Way Phase 3
081	3	1	0	
091	7	3	1	
101	1	1	0	Phase 3 demolition (S)
106	39	17	2	
175	11	0	0	Phase 3 (S)
177	2	0	1	
178	1	2	0	
179	2	3	2	
251	0	1	0	
018	5	5	1	Phase 3 demolition (N)
019	0	5	1	
021	1	0	0	Phase 3 (N)
026	3	8	2	Phase 3 demolition (N)
090	60	50	8	Phase 3 (N)
092	2	0	0	Military Way
028	1	0	0	Phase 2 (N)
166	0	0	4	
168	0	2	0	
114	2	0	0	Berm
159	1	0	0	
066	5	13	6	Phase 2/3 (S)
043	0	2	0	Phase 4 (Ditch)

Catalogue

- 01) Bolt or large nail, probably recent (60 x 16 dia). *From the fill of the channel for a post-medieval drainage pipe (039 - Block 2).*
- 02) Nail or bolt, very corroded and probably of no great age (95 x 30 dia). *From the fill of the channel for a post-medieval drainage pipe (041 - Block 2).*
- 03) Heavy lump of uncertain purpose, with maybe some Pb (40 x 40 x 30). *From the modern backfill of a previous excavation trench (015 - Block 4).*
- 04) "Spearhead" shaped lump (60 x 25 x 18). *From a disturbed Phase 3 demolition deposit in the centre of the southern range (012 - Block 5).*
- 05) Bent metal strip, tapering to point at one end and broken off at thick end (30 x 19 x 9). *From a Phase 3 demolition deposit in the south of the southern range (045 - Block 5).*
- 06) 4 x unidentifiable lumps: largest 50 x 35 x 20, smallest 25 x 15 x 10. *From same context as 05 (045 - Block 5).*
- 07) Nail, with flat head (45 x 18 dia). *From a Phase 3 demolition deposit towards the centre of the southern range (075 - Block 5).*
- 08) Nail, 78 x 19 dia, in two sections - diameter of original object apparently 6-8mm. *From the same context as 07 (075 - Block 5).*
- 09) Nail head (13 x 14 dia). *From the same context as 07 (075 - Block 5).*
- 10) Sub-rectangular fragment of iron plate, with projecting nodule on one side (28 x 24 x 8). *From the same context as 07 (075 - Block 5).*
- 11) Probable spearhead (155 x 45 dia). *From the occupation material on the floor of the Phase 2 building in the southern range (137 - Block 6).*
- 12) Long, thin bolt, nail, or weapon (eg spearhead, javelin). It was originally suggested that it was a possible spearhead (170 x 30 dia). *From a lense of burnt clay within 11 (147 - Block 6).*

- 13) Similar object to 12, but in six fragments; objects tapers to a point from a broad head (c.250-300 x 33-18 dia). *From the uppermost dump of material associated with the Phase 1/2 furnace (173 - Block 7).*
- 14) Broken heads of three unidentified objects, each with hollow rectangular cross-section. *From same context as 11 (137 - Block 6).*
- 15) Irregular lump of unknown purpose (40 x 20 x 23). *From disturbed subsoil sealed beneath the Phase 2 building in the southern range (216 - Block 7).*
- 16) Part of object with oblong cross-section (35 x 35 x 30). *From earth above the Phase 3 surface of the Military Way (080 - Block 9).*
- 17) Lump of unknown purpose (40 x 25 x 30). *From the same context as 16 (080 - Block 9).*
- 18) Possible nail (55 x 30 x 17). *From the same context as 16 (080 - Block 9).*
- 19) Large nail, bolt or spearhead (80 x 40 x 40). *From a Phase 3 demolition deposit to the south of the narrowed Military Way (106 - Block 9).*
- 20) Several irregular pieces and fragments, all adjoining. From an object with an oblong cross-section, 45 x 10. *From the fill of Phase 2 construction trench running beside the southern edge of the Military Way (177 - Block 9).*
- 21) Object, comprising a roughly triangular sheet with points projecting from each face (30 x 21 dia). *From a Phase 3 layer to the south of the Military Way (179 - Block 9).*
- 22) Lump of unknown purpose (40 x 40 x 30). *From a disturbed Phase 3 demolition deposit within the northern range (018 - Block 11).*
- 23) Large nail (140 x 20 - 5 dia). *From a Phase 3 demolition deposit within the northern range (019 - Block 11).*
- 24) Possible wedge, robust and heavy (105 long 20 x 20 - 5 x 5 in x-sec). Has a square cross-section, and narrows noticeably to form a point. *From a Phase 3 disturbed demolition deposit within the northern range (026 - Block 11).*

- 25) Lump, of unknown purpose (30 x 30 x 25). The circular cross-section of an object (10 dia) is visible within the lump. *From a Phase 3 occupation deposit within the northern range (090 - Block 11).*
- 26) Nail with large head (45 x 40 x 30). *From the same context as 25 (090 - Block 11).*
- 27) Knife-blade shaped lump (120 x 40 x 20). *From a Phase 2/3 occupation dump beside the southern fort rampart (066 - Block 23).*
- 28) Flat lump, of unknown purpose (30 x 18 x 5). *From the same context as 27 (066 - Block 23).*
- 29) Flat lump, of unknown purpose (50 x 27 x 11). *From the same context as 27 (066 - Block 23).*
- 30) Two lumps of unknown purpose (55 x 25 x 12; 35 x 15 x 10). *From a spread of burnt material within the possible furnace (208 - Block 7).*
- 31) Large nail or bolt (85 x 25 x 25). *From same context as 27 (066 - Block 23).*
- 32) Unidentifiable, heavily corroded object (90 x 45 x 25). *From the same context as 05 (045 - Block 5).*
- 33) Curving and tapering object, possibly a lifting hook; has unbroken pointed end (c.110 x up to 15 x 15). *From the same context as 025 (090 - Block 11).*
- 34) Chunky object with flattish, sub-rectangular head and slightly tapering, probably snapped shaft; probably a rivet (40 x 35 x 20). *From the same context as 025 (090 - Block 11).*
- 35) Large irregular, unidentifiable and heavily corroded object, in three pieces (130 x 50 x 40). Possibly two objects fused together by rust. *From the same context as 025 (090 - Block 11).*

IRON SLAG

Tim Neighbour, Centre for Field Archaeology, University of Edinburgh.

Acknowledgement

The author is indebted to Mr. Peter Davidson, of the Geology Department of the National Museums of Scotland, who carried out X-ray fluorescence analysis of a representative sample of the assemblage and provided many useful comments upon the results, which are presented in the following section.

Scientific Analysis

Methodology - The assemblage of metal-working waste totals 36 pieces. This was separated into visibly similar groups (A-E), and was then taken for X-ray fluorescence (XRF) analysis by Mr. Peter Davidson. This analytical technique can be used to detect elements with atomic numbers between sodium (Na) and uranium (U). Within these constraints the technique indicated the elemental composition of each example, and allowed an identification of method of production.

Results - All the tested samples proved to be of iron slag resulting from the smelting of ores. Group A (17 pieces) was identified to have near 100% iron content. Testing of group B (5 pieces) showed an iron content of greater than 80%. These objects are a product or by-product of iron smelting. They form a part of the same process as A.

Group C (12 pieces) proved to be a weathered iron slag. An encrustation on one side of the slag was identified as 'limonite', a hydrated iron oxide comprising a mixture of iron oxides and hydroxides. This weathering product is formed by the reaction of acidic ground water combined with periodic drying. These encrustations can take 50 - 75 years to form. The slightly curving profile of a number of these pieces suggests that they may have solidified around the edge of the furnace.

The single piece within group D was an iron slag with a medium iron content. This content and its low density sets it apart from artefacts in group A. The stray piece forming group E has a 'modern' elemental composition for iron slag, with a low iron content, but high in calcium, and with potassium, silicon and strontium present. This piece may have derived from Jinkabout Mill, a now-destroyed iron foundry c.500m to the west of the excavated area.

Stratigraphic Interpretation

The assemblage of iron slag has a very discrete spatial pattern. Of the 34 stratified pieces, all but two (14, 15) derive from deposits in the southern internal range of the fort, where they occur in vertically adjacent contexts. This evidence indicates a good deal of mixing between deposits. The iron slag appears initially to have been deposited in contexts associated with the putative furnace (06-13). Subsequent rebuildings in this area, and the final demolition of the fort, disturbed these deposits and caused redeposition of iron slag in stratigraphically later contexts (01-05; 16-17).

Catalogue

- 01) 3 x lumps of iron slag, outer face vitrified and bubbly, inner face of limonite - light (60 x 45 x 30; 55 x 40 x 30; 45 x 35 x 20). Group C. *From Phase 3 demolition deposit at south end of southern range (045 - Block 5).*
- 02) 6 x lumps of iron slag: varying density (60 x 45 x 40; 40 x 40 x 20; 40 x 35 x 20; 35 x 12dia; 30 x 20 x 12; 25 x 12dia). XRF sample. Group A. *From same context as 01 (045 - Block 5).*
- 03) 2 x tabular lumps of iron slag, partly vitrified; larger has regular smooth, impressed rectangular and adjacent arcing areas on one face (70 x 45 x 15; 45 x 25 x 15). XRF sample. Group A. *From same context as 01 (045 - Block 5).*
- 04) 1 x lump of iron slag (60 x 50 x 30): partially vitrified on one face, limonite on other. Group C. *From Phase 3 demolition deposit towards the centre of the southern range (075 - Block 5).*
- 05) 5 x pieces of fairly light, partly vitrified and bubbly iron slag (40 x 23 x 17; 26 x 19 x 16; 35 x 24 x 24; 34 x 30 x 30; 31 x 25 x 11). XRF sample. Group B. *From occupation material on floor of Phase 2 building in southern range (137 - Block 6).*
- 06) 1 x iron slag (25 x 15 x 15). Group A. *From upper dump associated with furnace (173 - Block 7).*

- 07) 1 x iron slag (28 x 22 x 12). Group A. *From same context as 06 (173 - Block 7).*
- 08) 1 x iron slag (23 x 17 x 17). Group A. *From same context as 06 (173 - Block 7).*
- 09) 1 x iron slag (24 x 21 x 14). Group A. *From same context as 06 (173 - Block 7).*
- 10) 1 x iron slag (26 x 14 dia). Group A. *From same context as 06 (173 - Block 7).*
- 11) 3 x iron slag (35 x 14 dia; 50 x 45 x 21; 28 x 21 x 12). Group A. *From same context as 06 (173 - Block 7).*
- 12) 1 x iron slag - bowl-shaped fragment with limonite on one side (60 x 50 x 25). Group C. *From burnt spread within furnace (208 - Block 7).*
- 13) 4 x limonite fragments (45 x 30 x 20; 25 x 25 x 20; 15 x 16 x 12; 10 x 8 x 6). Group C. *From same context as 12 (208 - Block 7).*
- 14) 1 x iron slag - bubbly, moulded around sandstone (27 x 21 x 12). Group A. *From Phase 3 demolition spread to south of narrowed Military Way (106 - Block 9).*
- 15) 1 x small lump of iron slag, many vesicles, light (15x15x10). XRF sample. Group D. *From Phase 3 occupation deposit within northern range (090 - Block 11).*
- 16) 1 x iron slag with limonite on one side (25 x 25 x 12). Group C. *From Phase 2/3 occupation material between southern range of buildings and southern rampart of fort (066 - Block 23).*
- 17) 1 x lump of iron slag, with slightly rounded profile, in two joining fragments (108 x 93 x 24). One side with vitrified and honeycombed appearance; inner side of limonite. XRF sample. Group C. *From same context as 16 (066 - Block 23).*

- 18) 1 x large lump of iron slag (70 x 70 x 50): partly vitrified outer, limonite interior with square-sided impression. Group C. *No context.*
- 19) 1 x partly highly vitreous iron slag with vesicles: lightweight (27 x 22 x 15). XRF sample. Group E. *Stray find.*

Addendum - retrieved through wet sieving

c.10 fragments from 045 (Block 5), 1 fragment from 137 (Block 6), 6 fragments from 145 (Block 6) and one fragment from 106 (Block 9).

COARSE STONE OBJECTS (ILLUS 25, Nos. 1-3)

Ann Clarke, Rockville, North Berwick, East Lothian.

Discussion

There are thirteen objects of coarse stone from the site including stone discs and different types of sharpening stones. The rectangular-sectioned whetstones (01, 03), the hone (02) and the sharpening stone (05) are objects associated with the maintenance of metal tools. They were recovered from contexts of Phases 2 and 3. The roughly chipped stone discs are a common form (06, 10, 11). One small flat pebble (09) was collected in a context adjacent to the gaming board (07). This is a natural object although very regular in shape and it may have been collected for use as a gaming counter. The gaming board (07) and stone axehead (012) are discussed in separate sections.

Catalogue

- 01) Whetstone: medium-grained sandstone. abraded. Rectangular in plan and cross-section. Both faces are heavily worn and sinuous in profile. L 110mm; W 32mm; Th 21mm. *From disturbed Phase 3 demolition spread in centre of south range (012 - Block 5; Illus 26, No. 3).*
- 02) Hone. Metamorphic or fine-grained sandstone. Square in section. The faces are worn flat and smooth. L 150mm; W 46mm; Th 42mm. *From demolition deposit in centre of south range (075 - Block 5; Illus 26, No. 1).*
- 03) Whetstone. Fine-grained sandstone. Rectangular in plan and cross-section. One face is more heavily worn than the other and is concave in section. L 165mm; W 30mm; Th 22mm. *From occupation deposit on floor of southern part of Phase 2 building south of Military Way (137 - Block 6; Illus 26, No. 2).*
- 04) Cobble tool. Fragment of quartz cobble with some heavy wear around the edges which has most probably caused the breakage. No measurements. *From disturbed subsoil to north of furnace, and beneath Phase 2 building south of Military Way (216 - Block 7).*

- 05) Sharpening stone. Flat sandstone boulder, fragment. Several narrow, unilateral, V-shaped grooves of varying depths have been incised on one face. Broken. L 280mm; Broken W 140mm; Th 60mm. *Incorporated within a rough pathway towards the narrowed southern edge of the Military Way (037 - Block 9; illustrated in Armit and Dunwell 1992, 272; Ill. 75, no. 2).*
- 06) Small stone disc. Laminated sandstone. Roughly chipped to shape. L 51mm; W 49mm; Th 10mm. *From worm-sorted earth lying above the surface of the Military Way (080 - Block 9).*
- 07) Gaming board. See E10-E11 for full description (091 - Block 9).
- 08) Pivot stone. Large sandstone block, fragment. A small, circular hollow has been worn into one face by its use as a pivot stone. Broken. L 310mm; W 200mm; Th 95mm; Hollow diameter 50mm; depth 9mm. *From Phase 3 demolition deposit immediately to south of narrowed Military Way (106 - Block 9; illustrated in Armit and Dunwell 1992, 271; Ill. 75, no. 1).*
- 09) Small, flat pebble of micaceous sandstone. Unworked, slightly oval in plan. Possibly selected for use as a gaming counter. L 17mm; W 15mm; Th 4mm. *From same deposit as 07, c. 1m south of kerb of narrowed Military Way (106 - Block 9; illustrated in Armit and Dunwell 1992, 273; Ill. 77).*
- 10) Stone disc. Laminated sandstone. Roughly chipped around edges to form a sub-circular outline. L 140mm; W 130mm; Th 10mm. *From fill of southern gully on the Berm (159 - Block 17).*
- 11) Fragment of stone disc. Sandstone. Roughly chipped to shape. Estimated diameter c. 160mm; Th 17mm. *From same context as 10 (159 - Block 17).*
- 12) Ground stone axehead. See E12-E13 for a full description. *Surface find.*
- 13) Two stones, one of which is a cobble and the other a fragment, both of which are unworn but have fragments of iron adhering to the surface. *From fill of southern gully on the Berm (159 - Block 17).*

Addenda (by Andrew Dunwell)

- 14) Two lumps and several fragments, possibly of lava quern. *From a Phase 3 demolition deposit within the southern range (075 - Block 5).*
- 15) Several lumps and fragments, possibly of lava quern. *From a Phase 3 demolition deposit to south of narrowed Military Way (106 - Block 9).*

GAMING BOARD (illus 26)

Andrew Dunwell, Centre for Field Archaeology, University of Edinburgh.

Description - Approximately 20 fragments of a two-sided gaming board were recovered from a pathway and refitted. One side of the object is inscribed with a regular pattern of compass-drawn circles, and the other with an irregular and coarse pattern of squared markings. The 17 refitted fragments have maximal dimensions of 360mm by 220mm by 30mm thick. Parts of two of the original sides of the tablet, including one corner, appear to be present.

Material - The gaming board was manufactured from a slab of laminated micaceous sandstone. The fragments are very friable and split easily along bedding planes.

Context of deposition - The fragmented remains of the stone gaming board were recovered from a Phase 3 surface running along the southern side of the narrowed Military Way (091, Block 9). The board appears originally to have been deposited as a single tablet, which was subsequently trampled into the underlying surface, causing its fragmentation. It was noted during excavation that, not unreasonably, the pattern on the side facing upwards showed greater wear.

Patterns - One side of the gaming board has a regular pattern of 7 compass-drawn circles. A regular grid pattern of such circles can be extrapolated from the refitted evidence, although the original number of circles cannot be estimated, since the missing proportion of the gaming board is unknown. A small depression in the centre of each circle indicates where one leg of the compass was fixed while the other leg incised the circle. Two attempts appear to have been made at engraving one of the circles (bottom right on illus 27); two central compass points with overlapping and concentric arcs can be seen.

The opposite side of the gaming board is engraved with a very irregular and coarse pattern of squared markings. The grid had at least 16 by 13 squares. At least two edges of the pattern appear to be present. The lines were incised free-hand, probably with a sharp metal object, resulting in great variation in the size of squares. *Playing a game on this irregular board would have been difficult. A similar pattern, incised on a red sandstone flooring slab and measuring at least 15 squares by 11, was recovered at Birrens (Robertson 1975, 100; fig. 26).*

The relative regularity of the incised circles suggests that this side of the tablet may have been inscribed first, with the squared pattern added by a less skilled hand at a later date.

Discussion - Consultation of the available literature concerning Roman board games provides little clue as to the nature of the games represented by this artefact. Four board games have been identified in Roman sources; *latrunculi*, *duodecim scripta*, *tabula* or *alea* and *terni lapilli*. These literary descriptions are in some cases too vague to connect games with gaming boards found in archaeological contexts (e.g. Austin 1934, 1935; Turner, in Potter 1979. 76-77).

Most is known from literary accounts of the game *latrunculi*. Austin argued that the game was played on a board of squared markings, and believed that an 8 by 8 grid was most appropriate for the game (1934, 26-7). However, the variation noted in archaeological finds of such boards makes such a fixed size seem unlikely. Despite the large size of the incised grid on the Inveravon example, it is possible that this was a *latrunculi* board. The possibility of this squared board being used for unrecorded games cannot be discounted.

The circle design cannot be attributed to any of the four historically documented games. It cannot be stated with certainty therefore that the design was the basis for a board game, although there is an absence of other suitable explanations.

GROUND STONE AXEHEAD (Illus 25, No. 4)

Alison Sheridan, Department of Archaeology, National Museums of Scotland

Context

Unstratified

Form

L 85.5 mm; W 63.5 mm; Th 28 mm; Wt 211.61 g.

Fragmentary, broken in antiquity; between a third and a half of the lower part missing. Butt originally probably rounded, fairly broad, and thin; damaged in antiquity. Sides taper slightly; in cross-section, asymmetrical lentoid shape. All surfaces scratched and eroded; large flake missing from one surface.

Material

Baked siltstone, with sandstone inclusion along part of one edge (macroscopic identification by Mr. R. Reekie, NMS Geology Department). Greenish-grey with a narrow band of reddish-brown iron staining, and whitish striations (see below); soft, and greasy to the touch. Probably a local erratic cobble from beach or drift deposits; ultimate origin likely to be around Glasgow or Ayrshire.

It appears that the original form of the cobble was only slightly modified by the axehead maker, by flaking and/or grinding; its basic asymmetry was retained.

Breakage, discard and post-depositional alteration

The shape and position of the break line, located around or just above half-way up the body, suggests that the axehead suffered a bending/compressive fracture, due to a mis-hit, during use (Olausson 1983). No attempt has been made to re-shape or otherwise re-use it; it was simply discarded. A noticeable degree of surface erosion has occurred since deposition, and the whitish striations which cover its surfaces (including the flake scars) could well be due to the activities of shoreline creatures.

Date

Although the exact stratigraphic relationship between the axehead and the dated area of the Inveravon shell midden is unknown (MacKie 1972), there is every reason to suspect that the axehead was used during the period of the midden's accumulation. A Mesolithic date is unlikely, on the grounds that no stone axehead of unequivocal pre-Neolithic date has yet been found in Scotland. Ground stone axeheads are known to have been used here from the fourth to the second millennia BC; unfortunately, this specimen has no diagnostic features which might aid its closer dating.

CHIPPED STONE ARTEFACTS

Bill Finlayson, Centre for Field Archaeology, University of Edinburgh.

Methodology

It is normal in current analyses of chipped stone materials to investigate patterns of technology and typology as revealed through large assemblages. The individual characterisation of individual pieces of chipped stone is conducted with that aim in mind and not to produce catalogues of individual artefacts. However, where only very small numbers of artefacts are concerned that ideal approach is not possible and recourse has to be made to the more traditional description of each item, relying on the presence of diagnostic types to supply chronological and cultural information.

Discussion

The assemblage from Inveravon consists of 14 assorted pieces, two of which are not flint and are almost certainly not worked. The material includes no diagnostic type artefacts. The neighbouring shell midden might be seen as a source for prehistoric artefacts on this site, although such a small number of artefacts might almost equally be seen as part of the ubiquitous background scatter of chipped stone located randomly across the countryside. The presence of two possible "strike-a-lights" amongst the material reinforces this impression, as such pieces would not be interpreted as part of any earlier prehistoric assemblage. The stray surface finds include a gunflint, further emphasising this point.

Catalogue

All measurements are in millimetres, length x breadth x thickness, length defined by axis of flaking.

- 01) Secondary irregular flake. Fine grained homogenous black flint, in fresh condition with soft chalky cortex, suggesting a nodular origin for the material. Crushing of the platform, fissures and the loss of the bulbar scar all suggest a hard hammer technique. 23 x 21 x 7. *From the topsoil* (001 - Block 1).

- 02) Inner irregular flake, siret fracture. Fine grained grey mottled flint, in fresh condition. Siret fracture suggests hard hammer technique, although this is not supported by other features. 22 x 10 x 7. *From the topsoil (001 - Block 1).*
- 03) Inner irregular flake. Honey brown flint, weathered and slightly abraded. Crudely retouched producing shallow notches, the piece has conceivably been used as a "strike-a-light", an interpretation which might be resolved by microscopic analysis. 20 x 16 x 8. *From the topsoil (001 - Block 1).*
- 04) Secondary irregular flake. Honey brown flint, in fresh condition. Cortex is hard and battered, indicating a beach pebble origin for the material. Prominent ripples, large bulb of percussion and an apparent siret split suggest a hard hammer technique. Previous flakes removed from cortical edge indicate either previous attempts to 'open' the pebble, or possibly mark a previous platform and therefore would show that this flake has been removed as part of a platform rejuvenation process. 30 x 20 x 9. *From a modern buried ploughsoil (002 - Block 1).*
- 05) Inner irregular flake. Mottled brown material, in medium fresh condition. Edges all damaged, probably by post depositional forces (ie ploughing or trampling). 19 x 10 x 7. *From buried ploughsoil forming uppermost fill of Antonine Ditch (043 - Block 24).*
- 06) Inner irregular flake. Honey brown material, heavily rolled and partially patinated. Edges are retouched at various points, as a scraper, including the proximal end. This retouch appears to cut through a previous weathered surface, but has been rolled itself. It is hard to interpret the various elements of the piece in its present condition and it may have originally been either a scraper or a "strike-a-light". It is possibly a prehistoric piece that has been subsequently re-used. 20 x 15 x 7. *From the same context as 05 (043 - Block 24).*
- 07) Apparently an inner irregular flake. Pale brown unidentified material. The material appears to have fine laminations and may be a consolidated mudstone, with the flake morphology being purely fortuitous. 25 x 18 x 7. *From the southern clay cheek of the Rampart (032 - Block 16).*

- 08) Irregular chunk of material, burnt as indicated by light weight and crazing. Not flint and no evidence that any attempt has ever been made to work the material, which may be similar in origin to 10. *From Phase 3 demolition deposit c.0.5m south of narrowed Military Way (106 - Block 9).*
- 09) Inner regular flake fragment. Fine pale grey material in fairly fresh condition. Distal section has been snapped off. Has a proportionally large plain platform, with some traces of light preparation. 11 x 12 x 3. *From Phase 1/2 earthen deposit lying above collapsed Rampart and/or expansion material (154 - Block 14b).*
- 10) Inner regular flake. Brown, mottled material, partially patinated. One end, possibly the proximal end, has been steeply backed along a previous steep edge, producing a backed edge opposite the sharp, possibly ventral, end. The descriptions of dorsal and ventral may not be appropriate here as the flake has some features suggesting that it may be a thermally induced 'pot-lid' flake, although the retouch prevents certainty as it may have removed a platform area. 10 x 17 x 3. *From lense within Phase 3 demolition deposit to south of narrowed Military Way (178 - Block 9).*
- 11) Worked pebble. This rounded pebble, almost certainly from a beach, has been worked with several flakes removed from two opposed platforms. Flakes have been removed from both faces at both ends, with one end more significantly worked than the other, both in the number and size of flakes removed and in the development of a crushed ridge. This is typical of bipolar working of small pebbles. The scarring has all been partially rounded and weathered. Both these last two points suggest a prehistoric date for the working. 41 x 48 x 27. *Surface find.*
- 12) This small rounded pebble has conceivably had a few flakes removed from one end, however if this is the case the piece has then been heavily rolled again. 25 x 23 x 22. *Surface find.*
- 13) Flint nodule. This nodule has a soft and chalky cortex and the classic knobbly appearance of fresh chalk flint. Several flakes have been removed and the nodule split open. The exposed surfaces, sharp scar edges and ridges all suggest that this flaking is recent. Given the context of the piece as a surface find it seems probable that this flaking is the result of plough damage. The

origin of the nodule is problematic, and the possibility that it has arrived recently as ballast should be considered. *Surface find.*

- 14) Gunflint. This flake appears to have been retouched into a typical rectangular, steeply retouched gunflint. The shape is not immediately recognisable as one of the classic Brandon pieces, nor is the quality of flint as good as that normally derived from those workshops. Little work has been conducted on the other gunflint production centres to allow the identification of workshop. *Surface find.*

MISCELLANEOUS FINDS

Andrew Dunwell, Centre for Field Archaeology, University of Edinburgh.

Clay pipe

Only three lengths of clay pipe stem are recorded. Two of these were found in the topsoil (01, 02). The third was found within a stratified, plough-disturbed Roman horizon, at its interface with the modern ploughsoil (03). It is therefore likely to be a contaminant introduced by ploughing. All were most probably introduced, along with pre-recent pottery and glass, within household midden deposits, spread to maintain soil fertility.

- 01) Length of stem - 18mm x 7mm diameter. Central hole, 1.5mm diameter. *From the topsoil (001 - Block 1).*
- 02) Length of stem, broken off at edge of bowl. Stem 34mm length x 6.5mm diameter. Off-centre hole 1.5mm diameter. Partly burnt exterior surface. *From the topsoil (001 - Block 1).*
- 03) Length of stem - 24mm x 8mm diameter. Central hole, 2mm diameter. Exterior surface badly chipped. *From disturbed Phase 2.3 deposit between southern rampart of fort and southern range (003 - Block 5).*

Furniture mount

- 04) A furniture mount was recovered from the surface of the field by Mr Geoff Bailey, of Falkirk Museum. It has been identified by Mr George Haggarty as a mount from a poor quality piece of Empire-style furniture dated to the early 20th century. The mount is oval (45mm by 34mm), with a head, probably of Medusa, in relief set within a serrated border. *Stray find.*

Coal

- 05) Lumps of coal. *From the Phase 3 fill of the southern gully on the Berm (159 - Block 17).*

Charcoal

- 06) Fragments of charcoal. *From a disturbed Phase 3 demolition deposit sealing the northern range (026 - Block 11).*
- 07) Lumps of charcoal and coal. *From a Phase 2/3 occupation deposit adjacent to the southern rampart of the fort (066 - Block 23).*
- 08) Fragments and lumps of charcoal. *From a Phase 3 demolition deposit within the southern range (075 - Block 5).*
- 09) 1 lump of charcoal. *From a Phase 3 occupation demolition deposit in the northern range (090 - Block 11).*
- 10) Lumps and fragments of charcoal. *From a Phase 3 demolition deposit to the south of the narrowed Military Way (106 - Block 9).*

FAUNAL REMAINS

Shell

Bill Finlayson, Centre for Field Archaeology, University of Edinburgh.

Three pieces of shell were recovered. Two are identified as fragments of oyster shells. These were recovered from the modern ploughsoil (01), and the fill of the channel for a post-medieval drainage pipe (02). Given the presence up-slope of a large shell midden, apparently made up almost entirely of oyster shells, and the spreading of this midden material around the field by processes which have presumably continued since the midden was in use, it seems likely that both shell fragments derive from that site. A single mollusc was retrieved from a buried ploughsoil forming the uppermost fill of the Antonine Ditch (03). It was identified by Ms Nancy Russell of the Department of Archaeology, University of Edinburgh, as an edible periwinkle (*Littorina littorea*), a typical rocky shore dweller. Such an isolated ecofact is of no value as an environmental indicator.

- 01) Oyster - slightly abraded - *from topsoil* (001 - Block 1).
- 02) Oyster - abraded - *from the fill of the channel for a post-medieval drainage pipe* (039 - Block 2).
- 03) Edible periwinkle - slightly abraded - *from buried ploughsoil forming upper fill of Antonine Ditch* (043 - Block 24).

Animal Bone

Nicola Murray, Department of Archaeology, University of Edinburgh.

The faunal remains from Inveravon constitute a small collection of 45 bone fragments. The material is all burned and has a white calcined appearance. Almost all of these pieces are too fragmented to identify, only one piece being identifiable to element. This piece, a fragment of the diaphysis of a left radius, is probably that of a sheep, but the absence of the epiphysial ends makes identification uncertain.

- 01) 1 fragment of burnt bone - unidentifiable - *from disturbed Phase 3 demolition deposit in southern range* (012 - Block 5).

- 02) 2 fragments of burnt bone - unidentifiable. Also fragment of diaphysis of left radius, possibly sheep - *from disturbed Phase 3 demolition deposit to south of narrowed Military Way (013 - Block 9).*
- 03) 4 fragments of burnt bone - unidentifiable - *from Phase 3 demolition deposit within southern range (045 - Block 5).*
- 04) 3 fragments of burnt bone - unidentifiable - *from same deposit as 03 (045 - Block 5).*
- 05) 2 fragments of burnt bone - unidentifiable - *from same deposit as 03 (045 - Block 5).*
- 06) 6 fragments of burnt bone - unidentifiable - *from Phase 3 demolition deposit in southern range (075 - Block 5).*
- 07) 4 fragments of burnt bone - unidentifiable - *from Phase 3 demolition deposit to south of narrowed Military Way (106 - Block 9).*
- 08) 7 fragments of burnt bone - unidentifiable - *from cobble foundation of Phase 2 building south of Military Way (199 - Block 6).*
- 09) 7 fragments of burnt bone - unidentifiable - *from cobble foundation of Phase 2 building south of Military Way (201 - Block 6).*
- 10) 6 fragments of burnt bone - unidentifiable - *from disturbed subsoil sealed beneath Phase 2 building south of Military Way (216 - Block 7).*

PALAEOENVIRONMENTAL REPORT

Dr. Geraint Coles and Helen Crossley, Department of Archaeology, University of Edinburgh

Introduction

This report presents the results of an assessment of the environmental evidence from Inveravon. The aim of the assessment was to establish the nature and quality of the evidence for the environment and subsistence economy of the site, and to suggest future appropriate avenues of research.

Location

The site lies on an alluvial fan of the River Avon. This fan overlies coarse clays and peats of early Holocene age.

Laboratory methods

All sediment samples were described, attention being paid to apparent particle size, structure, colour, and chemical constituents. A number of 4kg bulk-weight sub-samples from contexts selected on archaeological grounds were then wet sieved. Samples were disaggregated by immersion in water for 12 hours using Hydrogen Peroxide as a disaggregating agent. After repeated stirring the floating organic residue was removed by skimming and the dense residue sieved through nested 4 and 2mm mesh sieves. The residues were then hand sorted under a x10 magnification binocular microscope. The residues were sorted into six general categories; plant macrofossils, charcoal fragments, insect remains, bone fragments, artifacts and lithic debitage.

In addition a number of trial samples for palynological analysis were taken in an attempt to establish the nature of the vegetation surrounding the site. The samples, of 10 ml volume, were processed by standard techniques (cf. Moore and Webb, 1978) and strew mounted in silicone oil. Material collected in the 150µm sieve during processing was examined for plant macrofossils. No macrofossils were found in any of the samples. Exploratory counts of around 100 determinable grains were made to assess the likely value of further work.

Results

The results of this preliminary examination are discussed here; the detailed results of palynological analysis are given in Table 1 (see print). In the following discussion where context descriptions are given they are those of the excavator.

Antonine Ditch Section

A field examination was made of the exposed section of the Antonine Ditch. As only the upper part of the Ditch profile was available for inspection, a series of bore holes were drilled along the profile of the Ditch to obtain some idea of the structure of the unexcavated fills. This exercise demonstrated that the Ditch was cut into early Holocene coarse clays and silts, and was flat bottomed with a maximum depth of not more than 1.5 m below the base of the excavated section. It was impossible using small diameter bore holes to adequately distinguish what might have been *in situ* ditch fill from slumped blocks of coarse clays and peats and hence to unravel the resultant complex stratigraphy. No further work on the Ditch profile was undertaken or indeed was possible given these continuing stratigraphic uncertainties. This is unfortunate since the Ditch would have provided valuable information on the environment of the area around the site during its occupation and subsequent abandonment.

Environment of sediment deposition

None of the examined samples demonstrated any clear evidence for their environment of deposition. The majority of sediments appeared to be reworked alluvial silts and clays - the presence of numerous small angular stones ("grit") suggests anthropogenic activity with trampling and industrial activities being the most probable mechanisms. It is possible that chemical analysis would reveal further information, but the disturbed nature of many of the contexts suggests that again the information return would be limited.

Subsistence Economy

None of the samples examined showed any clear evidence of economic activity. Full details of the results of the wet sieving programme are presented in Armit and Dunwell (1992, 195-6). The following details are produced by way of summary.

Charcoal was recovered by wet sieving from all the occupation and demolition deposits submitted for analysis. Unfortunately, none of the samples contained more than c.3 grams of dispersed fragmentary wood charcoal, which were mostly too small to be determinate as to species. The majority of this charcoal probably reflects domestic activity although given the biologically active nature of the soil (earthworms and soil fauna were common) some may have been derived by infiltration from the later burning of surface vegetation. No plant macrofossils of either crop or weed plants were recorded. It is concluded that little information on the past subsistence economy of the site will be forthcoming from these sources.

No macroscopic organic remains were recovered by wet sieving from the samples of the Phase 2 drain fills. This suggests that the drain fill sediments have been sufficiently biologically active to degrade and destroy any evidence that may have been deposited there. The absence of insect remains is particularly disappointing.

Local Vegetation and Environment

See print (Environmental evidence).

Conclusion

The environmental and economic information recovered by wet sieving is very poor, and although the palynological analysis did produce results, these are also of limited value because of the taphonomic and preservational doubts surrounding the composition of the assemblages.