

Scotland's First Settlers Project: metal, slag and glass

Andrew Heald & Fraser Hunter
(with contributions by Stuart Campbell)

INTRODUCTION

The material is catalogued by site with wider discussion at the end. Abbreviations used: L length, W width, T thickness, D diameter, H height, m mass. For non-ferrous metals, the alloy type was determined by non-destructive energy-dispersive X-ray fluorescence (XRF) analysis. The results are from surface analysis only, and thus are affected by corrosion. Stuart Campbell kindly commented on some of the medieval and later non-ferrous material; his comments are incorporated as noted below.

Ironwork identifications and measurements were supplemented from X-rays. A full catalogue of nails and slag is in the archive; here only basic details are noted. Square-sectioned rod fragments with no other distinguishing features were assumed to be nail fragments.

SAND

Copper alloy

Casting waste – irregular droplet, 5 x 3 x 3mm, m 0.1g. Leaded bronze. A2B.NE.6

Casting waste – irregular droplet, 9 x 7 x 5 mm, m 0.7g. Leaded bronze. A1B.SE.2.

Iron

Knife tip? Straight edge, shallow curving back. L 26mm, H 10mm, T 4mm.

A6B.NE.1

Nails: five fragments (A2B.3, A6B.SW.2, B1B.SW.4, B48.1, **N83 spit 1**)

Flake, 7.5 x 6 x 2mm. B24B.SW.6

Lump, undiagnostic. 19 x 11 x 7mm. B5B.NE.3

Fragment, undiagnostic. 11 x 7 x 4 mm. B21B.NE.1

Glass

Turquoise glass bead, globular, slightly flattened at one end. The surface shows that the bead was formed by winding a glass rod around a core. Its iridescent surface suggests a potash glass and a late medieval – early post-Medieval date (?15th-18th century). D 4.5 mm, H 4 mm, hole D 2 mm. B24A.SE.3.

Post-medieval vessel glass, olive green: 2 sherds from A5B.1, 1 from A6B.1, 3 from A6B.SE.2

Modern clear glass: 2 sherds from B1 turf N 30, 1 from B25B.1 N36

Slag: 494g, primarily unclassified ironworking (125g) and a plano-convex smithing hearth base (343g), plus a small quantity of hammerscale and slag spheres. The distribution focuses strongly on the squares around the junction of trenches A and B, with limited scatter beyond. This indicates a limited episode of blacksmithing; the presence of two melted copper alloy fragments in the same area suggests bronzeworking also occurred.

SFS 2 Crowlin 1

Non-ferrous

Irregular sub-square lead sheet, one edge broken. The slightly undulating surface suggests it may have been a patch shaped to fit an underlying object. L 33mm, W 33mm, T 3mm. Trench 1 spit 6, N10. The object is undiagnostic, although lead is uncommon before the medieval period.

Iron

Nails: a single shank fragment from Trench 1 spit 3 (N12)

SFS 4

Glass

Vessel glass, 1 sherd post-Medieval olive-green. N22

SFS 19 Toscaig 1

Iron

Nails: two fragments from context 1004 (midden), S1001.

SFS 20 Toscaig 2

Glass

Post-Medieval, neck of an olive-green bottle from trench 2 spit 2.

SFS 22 Crowlin 3

Non-ferrous

Lead shotgun pellet. Small broken sphere, D 5 mm. Trench 1 context 3002.

Lead pistol ball consistent with a smooth-bored and muzzle-loading weapon of the post-medieval period. The surface damage is a mixture of impact deformation and post-depositional damage and corrosion. D 13.5-14 mm, m 13 g. Trench 1 context 3003. (Stuart Campbell)

Iron

Circular button, flat, with separate loop. Details obscured by corrosion. Post-Medieval. D 18mm, T 5mm. Trench 1 context 3003.

Boat nails: three nails with roves, and a separate rove (L 17mm, W 17mm, T 4mm). The nails are 38, 41 and 46 mm L, with flat sub-square heads (11-13 mm) and square shanks (4.5-6 mm); lozenge-shaped roves and two parallelogram-shaped ones (17 x 17mm, 26 x 22mm, 26 x 15 mm, 42 x 30 mm). Trench 1 context 3003.

Tacks: three small tacks (11-19 mm L) with sub-square or rectangular heads, from contexts TP1 3002 and 3003, and TP2 spit 2.

Nails: 44 fragments (C.3002 x 20, C.3003 x 24), all fragmentary but with a few larger examples (based on head and shank dimensions).

Fragment, undiagnostic. 11 x 5.5 x 5 mm. Trench 1 context 3002.

Fragment, undiagnostic. 19 x 19 x 6.5 mm. Trench 1 context 3003.

Flakes x 7. Trench 1 context 3003

Slag

9g unclassified ironworking slag (C.3002)

0.1g slag spheres (C.3003)

Glass

Post-Medieval: 2 sherds from Tr 1 C 3002 (1 green, 1 iridescent ?18th century); 5 sherds from Tr 1 C3003 (1 green, 2 iridescent, 2 iridescent & ?melted)

SFS 23 Crowlin 4

Copper alloy

Clasp. Copper alloy keyhole-shaped clasp. Waisted strip, expanding at one end into an oval with a trefoil-shaped hole to engage with a stud on another fitting. The waisted portion is clamped round an iron bar (W 14 mm, T 2 mm). Post-Medieval. Context 2311 (**not listed**). S1105. L 31mm, H 12mm, T 1mm. Alloy: brass

SFS 41 Toscaig 9

Iron

Plain annular ring. Circular cross section. Welded? (no evidence of butt join). Surface sheet of tin, soldered to iron (XRF detects trace lead). No wear to indicate function, but tinning of iron is a rarity before the Medieval period. **SF541**. Trench 1, spit 1. N32. D 31mm, T 6mm.

Mount. 34 small fragments from a flat ?rectangular sheet mount (one corner survives), the edges turned over and flattened to form a raised border 5 mm wide. Surviving corner has a rivet hole 2 mm D punched from the front (border) side. Rivets survive in two sheet fragments, both with sub-square heads c.4x4mm and short flat shanks; one joined two sheets together. Few fragments join, but the overall length of surviving border is 120 mm, typical T 1-1.5mm. Found in both spits 1 and 2 (S1011 and 1013) in trench 2. Its relatively good condition for its thickness suggests a post-Medieval date.

Sheet. 3 fragments of an unidentified flat sheet object with part of one straight edge. Max. 10 x 7.5 x 2 mm. Trench 1 spit 1, 212.

Tack with square head (12 x 12mm) and short shank (L 5 mm). L 21 mm. Trench 1 spit 2, S1012.

Nails: five fragments, all from TP 1 (spit 1 S1010 x 4, spit 3 S1015 x 1)

Fragment, unidentified, no original edges. 15 x 12.5 x 3mm. Trench 1 spit 2, S1012.

Glass

Post-medieval, 1 sherd clear iridescent glass; Trench 1 spit 1, S1010

SFS 57 Rubha a Ghair

Iron

Knife tip fragment with remains of organic scabbard (?leather). Convex curving back with concave upturned tip. Blade concave from resharpening. Early Historic or Medieval. **Context 572?** S1047. Trench 1. L 49mm, H 18mm, T 5mm.

SFS 58 Rubha Chuaig

Iron

Nails: two shank fragments (L 23 & 29 mm), one slightly bent from removal.

Undiagnostic fragment, 19 x 16 x 5 mm. TP7 SP3?

SFS 66 Ard Clais Salacher 2

Glass

Post-Medieval, two sherds of olive-green glass from context 6611

SFS 68

Copper alloy

Buckle or brooch pin, broken at both ends and bent, rectangular in section and tapering along its length, with four V-shaped notches on one edge at the articulating end; this has solder on the reverse from fastening the return of the pin round a bar. Burnishing and filemarks on both faces. Medieval or post-Medieval, although it cannot be assigned to a more specific typological class. L 23mm, B 3.5mm, T 1mm. C6821 (test pit 2, turf). Alloy: leaded gunmetal (trace silver) (Stuart Campbell)

Circular link. Circular-sectioned fine rod bent into a circle, the ends slightly overlapping. Alloy: brass. D: 7mm; T: 1mm. Context 6823 (test pit 2, black silty sand and angular cobbles). S1066. It appears to have been tinned or silvered (this could not be confirmed analytically given the small areas involved), which points to a post-Iron Age date, but it is otherwise undiagnostic and can only be dated as Early Historic - post-medieval.

Iron

Knife fragment (2 pieces) with remains of wooden handle. Small knife with stepped tang (tang H 8.5 mm, W 4.5 mm); the blade tip and tang end are lost. Surviving blade L 20 mm, with a straight back; its height varies from 11.5 to 6 mm. The edge shape is unclear but the rapid taper suggests it is heavily resharpened. L 44mm. Trench 1 context 6812.

SFS 76 Camusteel 1

Iron

Rim and body fragment of a cast iron vessel with everted rim, originally c.210mm in diameter. Broken just above the shoulder. Context 7611. S1105. L 65mm, H: 34mm, T 4mm. Post-Medieval.

Glass

Modern, 9 clear glass sherds, some decorated. Late 19th-20th century. Context 7611, S1105

SFS 77 Camusteel 2

Copper alloy

Eyelets, two small lentoid-sectioned discs flanking organic remains; probably eyelets around a perforation in cloth or leather. Post-medieval or modern. D 6.5 mm, H 2.5 mm, washer T 0.5 mm, perf D 2 mm. Alloy: brass. Context 7711 S1098.

Iron

Staple? Thin bar, the ends bent back to touch its underside. 17 x 6 x 3.5 mm. Context 7711, S1098.

Nails: two small fragments from context 7711 (S1098 & 1099)

Glass

Modern, 15 clear glass sherds (including base), some decorated. Late 19th-20th century. Context 7711.

SFS 89 Coire Sgamhadail 1 (bag: 103 S1057)

Slag: 130.9g vitrified hearth/furnace lining with slag

SFS 90 Coire Sgamhadail 3-6

Copper alloy

Pin tip? Flat bar fragment, broken at one end, tapering to a point. Probably the tip of a Medieval or post-Medieval buckle or brooch pin. Alloy: leaded gunmetal. L 15mm, W 4.5mm, T 1.5 mm. Trench 2, S1073 **context?**

Stud, hollow dome fastened by rolled sheet rivet. The gap between the stud and the flattened end of the rivet is very small (c. 1 mm), implying it ornamented a thin organic medium such as leather. The type is not chronologically diagnostic, although the zinc levels indicate a post-Iron Age date. D 7mm, stud H 3.5mm, rivet L 4.5 mm. Stud alloy: high-zinc gunmetal (trace lead). Trench 2, S1073 **context?**

Unused rivet - rolled sheet rod. Its composition (predominantly copper) is typical for rivets owing to its softness. L 15 mm, D 2 mm. Alloy: copper (minor zinc and lead). Trench 2, S1073 **context?**

Iron

Collar – thin bar rolled into a small circle, the ends slightly overlapped. D 9mm, H 6.5mm. TP 2 S1073 **context?**

Knife? Heavily concreted and highly fragmented iron object. Firm identification impossible without conservation, but where the section is exposed it appears to be fragments of a small knife (blade H c.10mm). Trench 2, S1073

Other

Fired clay, sub-rectangular object with uneven surfaces, presumably an accidentally-fired piece of clay. 11.5 x 11.5 x 5 mm. TP2, S1073 **context?**

SFS 96 Meallabhan

Copper alloy

Stick pin, circular cross-section, lacking only the point of the tip. The sides of the head bear four zones of decoration, each with a ring-and-dot motif at the top and six or seven transverse incised lines below. The lowest lines are joined to form a circumferential border defining the decorated head (which is 7.5 mm long). The depth of the dots suggests they were once inlaid, but no trace of this now survives. The top of the head is rounded and plain. The pin tapers evenly to the point, and is slightly bent at its midpoint. L 72 mm, D 4 mm. Alloy: leaded gunmetal

This is a Hiberno-Norse stick pin of ‘undifferentiated’ type (O’ Rahilly 1998, Class 7, 27-8), where the head is a continuous part of the shaft; the decoration is of her type A. There are close parallels from Garry Iochdrach, North Uist (Beveridge & Callander 1932, 41; NMS GT 489) and from Norse levels at Jarlshof, Shetland, the latter being

near identical (Curle 1936, 263-4, fig 11.6; NMS HSA 853). Examples from Dublin date from c. 1100 - 1225 (ibid., 28, 33).

Vessel fragment with iron handle rivet. Two fragmentary sheets of copper alloy held by a broken rivet. One sheet has two stab-marks, perhaps from an earlier patch (held by paper-clip rivets) removed when this second sheet was added. The rivet is domed and sub-square (head 19 D x 9 H) with a rectangular shank (7.5 x 6 mm), overall L 24 mm. As it is not clenched against the sheet it must originally have held the handle attachment, now lost. The edges of the sheet are curled and ragged, suggesting the fragment ripped out of the vessel in use. Sheet 39 x 25.5 x 0.2-0.3 mm. Alloy: gunmetal (primarily Cu with low levels Zn, Sn, Pb)

This comes from a copper alloy vessel, probably a small bowl or dish with iron suspension handles. The alloy composition (with its zinc content) indicates a Roman or later date, and such vessels are known from the Early Historic and Medieval periods (e.g. Hunter 1994, 57-62).

Iron – all surface

Thin strip or bar, one original straight edge surviving; punched hole, diameter 4mm. L 65mm; H 28mm; T 1mm. Condition implies post-Medieval date.

Bar/knife fragment, heavy corrosion obscuring details. 14.5 x 11 mm.

Button, circular with separate loop. Details obscured by corrosion. Post-Medieval. D 18mm, H 14mm.

Nails: 4, of which one is intact (L 64 mm) and two are among the largest from the SFS project, based on head size (21 mm).

Fragment. Disintegrated object, perhaps a nail. Max L 27mm.

Flake, undiagnostic. 25 x 16.5 x 8 mm.

Slag: 32g unclassified ironworking slag

SFS 99 Clachan Church

Glass

Post-Medieval, 2 sherds olive-green glass (1 a rim) and a clear modern sherd. Context 9911.

SFS 104 Fearnmore 1

Glass

Post-Medieval, olive-green sherd from trench 3 context 10431

Modern clear sherds (2) from trench 4 context 10461

SFS 114 Fergus's shelter

Iron

Rove, rectangular with tip of clenched nail surviving. L 26mm, W 23mm, T 5mm. Context 11411 (surface layer), S1077.

Bar, tapering, rectangular-sectioned; perhaps a tang. 24.5 x 5 x 3 mm. Context 11411 (surface layer) S1077.

Nails: five modern nails and a possible horseshoe nail from context 11411 (S1077).

Glass

Post-Medieval, olive-green sherd from context 11412, S1078.

SFS 2001 Sand 3

Strap buckle made by winding and hammering together a strip of sheet metal. The two ends have been joined at the pivot bar by 'key holing' one end into an aperture in the other and it is at this point that the buckle has broken. The pivot bar has iron staining from the pin. Similar decoration of three pairs of twin V-shaped indentations at 90° intervals is known in Scotland on both brooches and buckles; this example dates from the late medieval period. D 21-22mm, T 2-4mm. Alloy: brass (Stuart Campbell)

Ashaig

Slag: 15.9 g unclassified ironworking

DISCUSSION

Table 1 provides a summary of the small find assemblages from the sites sampled. The material would support short-term, transitory occupation: there are no tools apart from knives, a couple of portable vessels, a number of personal ornaments (mainly buttons) which are probably casual losses, and an absence of large fittings or mounts. The main iron find is nails. Apart from modern examples from SFS 114, all are undiagnostic hand-forged types which were prevalent from the Iron Age until the post-Medieval, and were much more common from the Medieval period onwards. There is only one intact example (along with four tacks and three boat nails), but a plot of head width versus shank width shows a broad correlation, and these can be used as proxy measures of nail size. It seems that there were few large nails: head size varies from 5-23 mm with a concentration at 8-12, and shank range is 3-8 mm (especially 3-5). About a third of the nails were bent from removal; few were clenched, suggesting that the nails were largely from dismantled wooden items rather than from objects burnt on fires. Few had wood traces, although this may be because of soil conditions. Their size would be consistent with small-scale joinery for furniture, cladding and so on, with little evidence for major structural work.

There is limited evidence of metalworking. A total of 681.7g of vitrified material was examined, with only four sites produced evidence of ironworking; where it could be characterised this was blacksmithing. The quantities from Ashaig, Crowlin 3 and Meallabhan were minimal, indicating ironworking somewhere in the vicinity. Coire Sgamhadail produced the remnants of hearth or furnace lining, perhaps associated with ironworking. Only Sand produced significant slag remains, including a hearth bottom. The small quantities and distribution here suggest a single short-lived episode, while melted copper alloy droplets in the same squares suggest this may have involved limited bronzeworking as well.

The unused rivet from Coire Sgamhadail 3-6 also points to craft activity on the site, perhaps non-ferrous sheet metalworking although the stud from the same site might

suggest production or repair of ornamental leatherwork. Again the quantity implies a small-scale activity, and repair rather than production.

Dating

There are no certain pre-Medieval finds, although the pin from Meallabhan is Hiberno-Norse and the vessel fragment from there may be a similar date; the stepped-tang knives from SFS 57 Rubha a Ghair and SFS 68 are Early Historic or Medieval, and the buckle from Sand 3 is late Medieval. The datable finds are primarily post-Medieval; the evidence is summarised in table 1. The nails cannot be dated but the balance of probability is that they are late or post-Medieval.

Site	Ornament	Knife	Nail	Tack	Boat nail	Fitting &c	Fe frags	Vessel	Glass	Metal-working	Other	n	Datable objects
96	2		4			2	2	1		32g		11	Hib-Norse; PM
Sand	1	1	5				3		9	495g; +Cu		19	PM
2			1			1						2	M→
4									1			1	PM
19			2									2	
20									1			1	PM
22	1		44	3	4		3		7	9.1g	2 Pb shot	64	PM
23						1						1	PM
41			5	1		3	1		1			11	PM
57		1										1	EH-M
58			2				1					3	
66									2				PM
68	2	1										3	EH-M M-PM
76								1				1	PM
77			2			2			15			19	Mod
90	2	1				2				131g		5	
99									3			3	PM
104									3			3	PM-Mod
114			6		1	1			1			9	PM-Mod
Sand 3	1											1	Late M
Ashaig										16g			
TOTAL	9	4	71	4	5	12	10	2	43		2		

Table 1. Summary of small find assemblages from SFS sites. Note that the ornament category includes different materials; slag fragments are not included in site totals. Abbreviations: EH Early Historic; M Medieval, PM post-Medieval, Mod modern.

Bibliography

Beveridge, E & Callander, J G 'Earth-houses at Garry Iochdrach and Bac Mhic Connain, in North Uist', *Proc Soc Antiq Scot* 66 (1931-2), 32-66

- Curle, A O 1936 'An account of the excavation of further buildings of the Viking period (Viking house no. II), at "Jarlshof", Sumburgh, Shetland, carried out on behalf of H.M. Office of Works', *Proc Soc Antiq Scot* 70 (1935-6), 251-270
- Hunter, F 1994 'Dowalton Loch reconsidered', *Trans Dumfriesshire Galloway Nat Hist Antiq Soc* 69, 53-71
- O'Rahilly, C O 1998 'A classification of bronze stick-pins from the Dublin excavations 1962-72', in C Manning (ed) *Dublin and Beyond the Pale*, 23-33. Dublin: Wordwell