

Non-ferrous metalworking in Iron Age Scotland c.700BC to AD 800

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Foreword

Appendix A reviews the context of discovery of the non-ferrous metalworking evidence, organised by region. As well as a brief background to the site and place where the objects were found, pertinent points are highlighted that help to understand the chronology, function and taphonomy of the site and therefore the objects and possible metalworking areas.

Appendices B & D provide a convenient checklist of moulds and crucibles from Scotland known to the author at the time of submission for examination. It is important to stress that many of the objects have either been published before (e.g Dunadd) or due for publication (e.g. Mote of Mark) by other individuals. Where appropriate, published information has been used and acknowledged in Volume 1.

Appendix C outlines the results of scientific analysis on some Iron Age crucibles obtained through non-destructive energy dispersive X-ray fluorescence (EDXRF). Results are written in order of decreasing signal strength i.e. the element that gave the strongest XRF signal comes first. Where an element is written within brackets it is only just detectable.

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Appendix A

Region	Provenance	NGR	Page No
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	Loch na Berigh	NB 1035	2
	Dun Bharabhat	NB 0935	3
	Coll	NB 4640	4
	Cnip 1	NB 0936	5
North Uist	Bac Mhic Connain	NF 7676	5
	Foshigarry	NF 74276	6
	Buaile Risary	NF 7672	7
	Sollas	NF 8075	7
	Garry Iochdrach	NF 7774	8
	Newton Ferry	NF 89 78	9
	Cnoc a Comhdalach	NF 77074	10
	Eilean Olabhat	NF 7575	10
	Clettraval	NF 7471	12
	A'Cheardach Mhor	NF 7541	13
South Uist	Tigh Talamhanta	NF 6722	14
Barra	Dun Cuier	NF 6603	15
	Alt Chrisal	NL 6497	16
Pabbay	Dunan Ruadh	NL 6497	17
Skye	Dun Beag	NG 3338	18
	Dun Ardtreck	NG 3335	20
Tiree	Dun Mor Vaul	NM 0409	21
Bute	Dunagoil	NS 0853	26
	St. Blanes	NS 0953	27
	Dun Cul Bhuirg	NM 2624	28
Iona	Reilig Odhrain	NM 2724	29
	Carpenter's Shed	NM 2724	30
	Infirmery	NM 2724	31
	Rockside	NR 2263	31
	St Columba's Cave	NR 7576	32
	Ellary Boulder Cave	NR 7376	32
	Ardifuar	NR 7896	33
	Balloch Hill	NR 6717	34
	Kildonan Bay	NR 7877	35
	Ugadale Point	NR 7828	36
Argyll	An Dunan, Alltschellach	NN 0559	37
	Loch Glashlan	NR9192	37
	Lochan Dughail	NR7958	38
	Dunadd	NR8393	39
	Bruach an Drumein	NR8297	42
	Dunollie	NM 8531	42
	Dun an Fheurain	NM 8226	44
	Achnanellan, Ardnamurchan	NM 7567	46
	Sheep Hill	NS4374	46
	Kildalton Cave	NR2446	46

Orkney	Gripps, Rousay	HY 4027	47
	Harray, Burrian broch	HY2918	48
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	Jarlshof	HU 3909	76
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	Nybster	ND 3763	94
	Ness	ND 3866	95
Sutherland	Dunphail	NC8118	95
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Stirlingshire	Fairyknowe	NS 5894	108
Perthshire	Moncrieffe	NO 1319	108
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Kirkcudbrightshire	Mote of Mark	NX 8454	118

Dumfries & Galloway	Whithorn	NX 4440	121
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	Dalmahoy Hill	NT 1366	130
	Arthur's Seat	NT 2773	130
Ayrshire	Trochrig	NS2018	131
	Buiston	NS4143	132
	Lochlee	NS4310	133
Strathclyde	Glenhead	NS2145	134
	Alt Clut	NS4750	134
Peebleshire	Castle O'er Eskdalemuir	NY 2492	136

Introduction

This appendix reviews the context of discovery of the non-ferrous metalworking evidence, organised by region. As well as a brief background to the site and place where the objects were found, pertinent points are highlighted that help to understand the chronology, function and taphonomy of the site and therefore the objects and possible metalworking areas.

This appendix should be read in conjunction with Appendices B, C & D which provide a checklist of metalworking evidence from the sites discussed in Appendix A. The checklist outlines the moulds and crucibles from Scotland known to the author at the time of submission. Appendix C outlines the results of scientific analysis on Iron Age crucibles obtained through non-destructive energy dispersive X-ray fluorescence (EDXRF). Results are written in order of decreasing signal strength i.e. the element that gave the strongest XRF signal comes first. Where an element is written within brackets it is only just detectable.

It should be noted that some objects and results have been or are due to be published by other individuals. Grateful thanks are given to those who have allowed me to incorporate their data into these Appendices.

Uig, Traigh na Berigh

Background

The mould was donated to the National Museums of Scotland (hereafter NMS) (Proc Soc Antiqs Scot donations 1972, 316-7) by M MacLeod, Berigh, Uig, Isle of Lewis, along with a bone comb and an antler whistle, apparently from a wheelhouse.

The metalworking context and date

There is no record of the find circumstances and dating is impossible.

Loch na Berigh

Background

Loch na Berigh Broch is situated on the Bhaltois Peninsula, a region of the Isle of Lewis in the Outer Hebrides of Scotland. Ongoing excavations since 1985 have confirmed the site as a multi-period Iron Age structure with use and re-use throughout the first millennium AD. External and internal features reveal classic traits of a broch or complex Atlantic Roundhouse (after Armit 1992). Coring outside the roundhouse suggested that the site was originally built on an island within a loch (Harding & Topping 1986, 10). As the loch level has risen over time the inhabitants who re-utilised the site progressively counteract this process by raising the interior floor level. To date, excavation has yet to reach primary broch levels, with successive phases of secondary occupation being revealed thus far. Four basic phases have been identified: *a primary broch level, a secondary roundhouse, a Cellular Phase, and a Pictish Phase*. Only the later two phases have been extensively excavated.

The metalworking context

The metalworking debris was discovered during excavation of contexts assigned to the 'Early Cellular Phase' (Phase 8), particularly in Cell 7 & 8. During this phase, the whole of the area enclosed by the inner broch wall appears to have been in use, though the walls of buildings in the southern half of the site were either obliterated by later phases of rebuilding, or were of

more ephemeral construction. Several hearths indicate activity, though it is impossible to ascertain whether they were of a domestic or more specialised industrial purpose.

Cell 7 was probably originally sub-rectangular in plan, and there is no clear certainty that it was ever roofed. Cell 8 constituted a cell to the right of the roundhouse entrance. Its distinct nature, and the fact that it joined the entrance pathway, makes the stratigraphy linking Cell 8 to the other areas of the site extremely difficult. While it is impossible to stratigraphically relate the metalworking deposits from Cell 7 and Cell 8, there does appear to be an association as fragments for the manufacture of the same object, doorknob spearbutts, were found in both.

Date

Radiocarbon dates have dated the cellular phase and the metalworking debris to the mid 3rd and very early 5th centuries AD.

Dun Bharabhat

Background

Excavation on land and underwater of an complex Atlantic Roundhouse took place in the 1980s (Harding & Dixon 2000). The site, previously thought of as a dun, consisted of a roundhouse and ancillary buildings, the latter largely now cover by the surrounding loch. Removal of surface rubble very rapidly established the existence of three principal galleries, and a fourth cell adjacent to the roundhouse entrance. The floor of the entrance was paved, providing a link between the internal stratigraphic sequence and the external paving of the annexe. The area exposed in the interior produced relatively few internal fittings or furnishings. The interior was clearly multi-phased and in some of the later occupation was dominated by a hearth of baked clay and additional stone settings (see Harding & Dixon 2000, 8-27).

Directly outwith the entrance to the roundhouses a trench down to the water's edge exposed additional structural evidence, termed an annexe. By the water margin, was recovered a hearth like feature defined by edge set stones, while stone facing in the edge of the trench suggested a concentration of structures in the Annexe (ibid., 54-67).

The metalworking context and date

Four vessels were recovered from the land excavations, classed by the excavators as 'miniature crucibles (ibid., 32-33, fig. 15). As the excavators note the purpose of these vessels is not certain.

None have any physical traces of being involved in non-ferrous metalworking. All were from secondary contexts (ibid., 32). Similar vessels were also recovered from the water underwater excavations. Again these vessels may have played no part in the metalworking process. Perhaps only one or two vessels from the underwater excavations can be classed as true crucibles. However, their contextual information is sadly lacking making it difficult to date the metalworking activity.

Three radiocarbon dates were obtained for the land-based excavations. Two dates from the secondary occupation, both from deposits associated with the post-collapse re-use of the building, do not extend later than the first century AD. That said, the material dated may be driftwood, placing this re-occupation earlier than actually was (M. Church pers. comm.). Primary or pre-dun occupation may date to between 820BC and 520BC. Two dates from the underwater structures suggest a date between 100BC and AD450 and AD250 and AD900 respectively (Harding & Dixon 2000, 26-7, table 1). In sum, the excavators suggest that, ‘... it would not seem unduly radical to assign the primary Atlantic roundhouse occupation to the second half of the first millennium BC, with an initial construction around the middle of the millennium’ (ibid., 27).

However, assigning the metalworking evidence within this period is extremely difficult. From the published accounts it is difficult to relate the finds to any meaningful context. Further, even if we could there is no stratigraphic link between the external structures and the roundhouse (ibid., 104). Radiocarbon dates suggest that the external structures were later re-used, perhaps in the Late Iron Age. In the absence of more radiocarbon dates and contextual relationships it is difficult to date the metalworking activity.

Coll

Background

Pottery and a piece of crucible, from a sand-dun midden at Coll, Isle of Lewis were donated by D.A. Stewart, Invergordon to the NMS (Proc Soc Antiqs Scot 1969, 295).

The metalworking context and date

There is no record of the find circumstances and dating is impossible.

Cnip 1

Background

Two wheelhouses and later cellular buildings were excavated at Cnip (Armit 1988; 1996, 137-142; forthcoming b). Phase 1 comprised two adjoining wheelhouses, one was never completed. The incomplete structure was used as an outbuilding or annexe to the occupied wheelhouse. Both structures were sand revetted, their upper parts packed with midden material. Only structure 1 was occupied as a domestic structure in this earliest wheelhouse phase. A large central hearth appears to have been the dominant feature.

The metalworking context

The mould was found in packing material of the wheelhouse and not directly from any wheelhouse occupation deposits (F. Hunter pers.comm.)

Date

Radiocarbon dating puts the wheelhouse between 300BC and AD200 (Armit pers. comm.). The high zinc peak in the mould suggests a date no earlier than the Roman Iron Age.

NORTH UIST

Bac Mhic Connain

Background

Bac Mhic Connain was excavated by Beveridge in 1919 and published after his death from his incomplete notes (Beveridge and Callander 1932). The site was clearly used over a considerable period. Few artefacts have stratigraphic associations and the site development is hard to decipher from the published records. However, Armit (1992, 54-57) has suggested a sequence. There are two circular chambers, one a wheelhouse (A & D) and two smaller quadrangular structures (B & C). The earliest surviving structure is wheelhouse D, although there is an earlier midden. This structure was clearly used over a long period. This re-use included building a 'furnace' in the centre of the, presumably abandoned, wheelhouse, perhaps suggesting that the structure was a sheltered hollow for a bronze-smith.

The metalworking context

Six crucibles were found, three from the 'furnace'. Another crucible was located in Chamber C. Chamber C, an oblong well with a drain. As well as the crucible, a hammerstone, pumice, four pieces of slag, an iron rivet, deer horn and pottery were also found (Beveridge & Callander 1931, 46). This chamber may represent progressive extension of the entrance of Chamber D. However, there is no suggestion of the chronological link between the two areas. There is no record of where any of the moulds were found.

Date

Artefacts recovered from the site indicate prolonged use probably between 200BC – 800AD.. A whalebone mirror handle from the site is almost identical to a bronze version from Lochlee crannog (MacGregor 1976, no. 272) and perhaps dates to the 1st or 2nd centuries AD. A piece of Roman Samian Ware indicates activity in a similar period. Later activity is suggested by the ogham-inscribed knife handle. That said, none of the artefacts has any secure connection with the construction or primary use of the wheelhouse and the metalworking evidence clearly represents a later use of the site. Armit (1992, 57) suggested a date around the 1st-2nd centuries AD. However, the traces of silver from one of the crucibles may suggest a slightly later date.

Foshigarry

Background

Excavations at Foshigarry produced evidence of prolonged use between 200BC – 800AD (Beveridge & Callander 1931; Hallén 1994). Unfortunately, few artefacts have stratigraphic associations and the stratigraphic sequences are hard to decipher from the published records (but see Armit 1992, 54 for a suggested sequence). Amongst the rich artefact assemblages, one vessel identified as a 'crucible' was found in a later cellular building. Like the Buaile Risary examples visual and scientific analysis indicated that the vessel played no part in the metalworking process.

Buaile Risary

Background

Buaile Risary was excavated by Beveridge (1911). As Armit (1992, 32) indicates the structures uncovered by Beveridge are very poorly understood, even by the standards of Beveridge. The site may be an Atlantic roundhouse. No plans exist and details of the internal structures are very vague.

Although two small objects are catalogued in the NMS archive as crucibles Beveridge did not believe the objects were crucibles stating that they were merely ‘... small vessels...formed by the insertion of a finger tip to nearly the full depth while the clay was soft’ (1911, 211), possibly ‘... a receptacle for some pigment’ (1911, 212 footnote).

This suggestion that they are not related to non-ferrous metalworking is supported by visual and scientific analysis. Neither of the vessels have functional characteristics of a crucible, nor are there signs of vitrification, visible metallic residues or, when examined by XRF, any metal detected. While it is possible that metallic traces may not have been detected during XRF analysis we still would expect to see some characteristics typical of the metalworking process on these objects. Taken together it is suggested that these objects played no part in the metalworking process. These vessels, and similar ones, are termed type 10 vessels throughout this study.

Sollas

Background

The site lies on the Machair plain, overlooking the Vallay Strand, and was excavated by numerous people, yet published by Campbell (1991b).

The main wheelhouse (Site B after Campbell (1991b)) was excavated by Beveridge and Atkinson, Campbell re-excavated this site and a southern one (Site A after Campbell (1991b)). There was also a midden nearby from where many finds were found. There is no stratigraphic link between the wheelhouse and the midden.

The metalworking context and date

Excavation produced two crucibles and a mould. A stone with vitrification, which may relate to metalworking, was also found. One complete crucible was found in a pit (4) in Cell 9 in the wheelhouse, during period B1. This is one of a number of pits that were dug into the floor of the wheelhouse and indicate a strong ritual element in the occupation of the wheelhouse.

These pits post-date the wheelhouse construction as the pits compliment the wheelhouses internal structures and pier divisions. Pit 4 was a 'tiny pit' which not only contained the crucible but also a bead on a layer of crushed white quartz. The crucible sat on this bed of quartz and could indicate some form of propitiation with metal-working (Campbell 1991b, 144). The associated bead belongs to Guido's (1978) Class 8, a type found widely in Hebridean brochs, forts and wheelhouses. A detailed examination of the contexts of these beads suggests that they are of 1st or 2nd century AD date, at least in Scotland (Campbell 1991b, 162; fiche 3:C14-D4).

The second crucible was also found in the wheelhouse, yet during period B2. This phase saw the Period B1 pits being covered by a number of layers, either of peat, clay or dirty trampled sand, which tended to be separated by thin layers of blown sand. It is, however, not clear if these represent discrete periods of occupation (Campbell 1991b, 132).

The mould was found in square 35 in midden deposits isolated from the main wheelhouse stratigraphically (Campbell 1991b, 164) and the relationship with the wheelhouse is uncertain (ibid., 135). It is possible that the midden material may either derive from structure A or another undiscovered site in the vicinity. That said, 'the distance from Site A would seem to preclude an origin there unless material was being transported and dumped to build up the mound prior to building the wheelhouse' (ibid.).

Construction of the wheelhouse (Period B1) appears to date to the 1st or 2nd century AD (Campbell 1991b, 117). Some of the midden material, in which the mould was found, may predate the wheelhouse. Period B2 is unlikely to have gone beyond the end of the second century AD. Radiocarbon dates suggest use of the wheelhouse (B1 to B2) in the late first to early third centuries AD (Armit 1996, 145). Thus, the crucibles date to between 0 – 300 AD.

Garry lochdrach

Background

The site lies on the west side of the Vallay Strand, 2.5 miles southeast of Foshigarry, and was excavated by Beveridge in 1912 and 1913. The main element is a substantial wheelhouse which may occupy a pre-existing Atlantic roundhouse (Armit 1992, 58). That there was numerous phasing is clear. There had been three hearths at successive periods. The lower was at floor level and the other two 17 inches and 2 feet above respectively. The latter had a thick deposit of ash up to 3 feet. The second hearth was much smaller than the others. A sink was also ‘... a secondary insertion and no doubt coeval with the middle hearth’ (Beveridge & Callander 1932, 35). A later building, perhaps a sheep pen, lies north of the wheelhouse. The quality of the excavation and recording makes it impossible to put forward a convincing structural sequence for the site. Little internal features within the wheelhouse were recorded except for a central hearth and no stratigraphic relationships recorded.

The metalworking context

The excavators noted that ‘... a small clay crucible containing traces of bronze was found in chamber e’ (ibid., 36). This must be GT 477 as this is the only crucible with metallic residue; the excavators note the other 2 ‘crucibles’ are later (ibid., 37). It is noteworthy that chamber e had been re-built, its floor level raised by one foot during secondary occupation (ibid., 34-5). It is, therefore, possible that the structural changes associated with chamber e suggest re-use of the wheelhouse after several feet of debris had accumulated in the interior.

Date

The finds, all unstratified, cover a long period. The Roman coin of Constantius shows occupation in the 4th century AD and the large polyhedral headed-pin suggests activity into the 11th and 12th centuries AD (Fanning 1983). It is therefore, only possible to date the metalworking evidence to sometime between the *circa* 200BC and AD1100. However, it may be of note that the intact crucible is almost identical to one found at nearby Sollas, and used in the same way. The Sollas crucible dates to between 0-AD300. The zinc content may suggest a date no earlier than the Roman Iron Age.

Newton Ferry

Background

A crucible from sandhills at Newton Ferry, North Uist were donated to the National Museums of Scotland by Mrs M. E. Parkinson (Proc Soc Antiq Scot 1966, 334).

The metalworking context and date

There is no record of the find circumstances and dating is impossible.

Cnoc a'Comhdalach

Background

Cnoc a'Comhdalach was excavated by Beveridge (1911, 200-6). The site was long-lived, and may have originally have been an existing Atlantic roundhouse, into which a wheelhouse was later built (Armit 1992, 32). There was further occupation involving a cellular complex outwith the wheelhouse, and an extensive kitchen midden (Beveridge 1911, 204). Beveridge talks of at least five successive periods of occupation, represented by 2 central hearths and 3 strata of ashes, all divided by layers of slowly accumulating soil, which represented '... long intervals of rest' (ibid.). Beveridge notes the several classes of relics obtained in fair quantity, including hammerstones, quernstones, pounders, flat pebbles, whorls, flint and pottery. However, the poor recording and excavation technique makes it impossible to relate any of the finds to the undoubted long series of occupations (ibid.).

The metalworking context

There is no record of where the mould was found.

Date

The mould is representative of a Pictish period brooch, argued to date to the 8th century AD. It is likely, on parallels with elsewhere, that this may be associated with the later cellular 'Pictish' buildings on the site.

Eilean Olabhat

Background

This multi-period site was excavated in the late 1980s (Armit 1996, 173-178; Armit & Dunwell 1993). An early building, a small, simple oval construction with a profusion of pits in its floors, may have been built in the last centuries BC (Campbell pers. comm.). The building was re-shaped to incorporate a substantial entrance passage. Unlike its predecessor this building had

no surviving hearth and very little indication of any debris associated with the occupation. After a period of abandonment the structure was again re-modelled although little survived due to later re-occupation. The next phase of rebuilding involved metalworking (Armit 1996, 175). Armit interprets the evidence as the remnants of an itinerant craftsman, or a specialist working away from the nearby settlement, who used the cellular building as a convenient shelter (ibid., 178).

The metalworking context

After the original settlement had long become ruinous the site was re-used as a workshop, probably around the 6th-7th centuries AD. This occupation consisted of a series of small cells, at least one of which was corbelled, set around the periphery of the earlier structures. The position of a gatepost at the entrance and the nature of the internal deposits suggest that the cells were all components of a single roofed building. The overall plan is similar to other contemporary cellular buildings, for example at Loch na Berigh (Harding & Gilmour 2000). This phase of activity produced substantial accumulations of debris, most of which were formed of hearth waste dumped in the cells. The largest cell was almost free of hearth waste prompting the suggestion that it may have been used as living accommodation during the use of the workshop. Despite the presence of metalworking debris there was no formal kiln and it appears that a simple hearth was sufficient. A cobble lined bowl hearth and a series of contemporary pits appear to relate to the metalworking activity (Armit 1996, 177).

The following information has been obtained from Dr. Ewan Campbell. The vast majority of crucible sherds came from phases 3 and 4. The two sherds from Phase 1b both came from context 297, which lies directly below phase 3 deposits. It is probable that these two sherds are intrusive from the overlying phase 3, particularly as context 297 also contains intrusive phase 3 pottery. The one sherd from phase 2 came from context 312, low down in the entrance passage sequence. This sequence contains very mixed deposits, most of which have been assigned to phase 4 dumping, and it is also likely to be contaminated. The character of the crucible sherds from the phase 1 and 2 contexts is identical to those from Phase 3. The phase 4 crucible sherds are also of the same character, and seem to be residual material from phase 3 deposits disturbed in the construction of structure 2, as there are several joins of mould fragments between these phases. The original metalworking activities, which the crucibles belong to were therefore confined to Phase 3. The largest concentrations of crucible fragments were in contexts 257 and 238 in the central area, and in context 19 in structure 3, contexts which also produced the most mould fragments.

Date

A series of radiocarbon dates were obtained from hazel and birch charcoal, all deriving from small twigs and branches used to fuel the metalworking process. These dates revealed that the wood had been recovered from a variety of residual sources, possibly from nearby peat or even perhaps the adjacent Neolithic site. The dates, therefore, gave a wide range which cannot be related to the metalworking activity except insofar as this activity must be later than the latest charcoal date, around 550-650 AD, and is thus consistent with the typological dates for the metalwork which would suggest a 6th to 7th century AD date.

Cletraval

Background

The wheelhouse lies amid a complex of other structures, which the excavator Scott (1948) believed were contemporary. Re-interpretation of the site by Armit (1992, 59) suggests otherwise. The site underwent four identifiable phases. *Phases 1* and *2* involved the use of the wheelhouse in its original form. In later *phases 3* and *4* surrounding farm buildings and a wall appear to represent the periodic re-use of the site and have no demonstrable chronological connection with the occupation of the wheelhouse in its original form.

The metalworking context

The crucible fragment was found '... south of the large hearth outside the entrance to the house' (Scott 1948, 55). Scott relates the hearth to the original wheelhouse and an adjacent building C: '... the position of this hearth seems to show that C was not closed to the south-west, but was an open shelter in which cooking and other domestic work was carried out. Life was no doubt lived outside the farmhouse more often than inside it during daylight hours' (Scott 1948, 55). Although there is no demonstrable stratigraphic relationship between the hearth and other structural features on the site, it may be suggested that the hearth, and possibly the crucible, dates to when the wheelhouse was in its initial stages of use.

Date

The pottery comprises forms of the later centuries BC. Initial construction may relate to a translucent green glass found under the floor of Bay 9. This type, rare in Scotland, is Guido's (1978) Class 7 dated to the Roman or early post Roman Period (but see discussion of bead

dating in Armit 1991). Thus, the original wheelhouse occupation may occur around the first two centuries AD. The crucible can not be dated any closer.

SOUTH UIST

A'Cheardach Mhor

Background

The site is situated on the Drimore machair of South Uist and was excavated in advance of a Ministry of Defence rocket range development (Young and Richardson 1960). The site is multi-phased with cellular structures re-occupying a wheelhouse structure. Phase 1 represented the primary occupation of the wheelhouse. These occupation deposits were subsequently sealed by a layer of clean sand, the site re-used when '... fresh arrivals found it useful quarry for building material' (ibid., 152). This subsequent occupation (phases 2, 3 and 4) involved the construction of smaller structures and appeared to extend into the 5th or 6th centuries AD. There were no recognisable structures in Phases 2 and 3 (mainly walling). Phase 4 involved the insertion of a small cell. There is also evidence of later occupation (phase 5) indicated by double-sided composite combs. Fragments of worked steatite were also found, which the excavators compared to Viking examples from Jarlshof, Shetland.

The metalworking context

The one identifiable crucible (GSA 251) was found during Phase 3 of the site, recovered from an otherwise sterile pit filled with peat ash dug through the Phase 1 levels (ibid., 156). This period shows little evidence of true structures, except for stretches of curving walls, seldom more than two course high (ibid., 154; fig 3 and 12). Associated with these walls were midden tips of peat ash interleaved with dirty sand containing pottery, iron slag, bone and shell refuse. No built hearth was traced only charcoal-filled hollows (ibid., 154). Young states that '... pottery comparable in type to the rough ware from these levels has been found in northern Irish sites and that this occupation may represent squatters, casual inhabitants and that this phase is characterised by temporary occupation, perhaps seasonal' (ibid., 154).

Date

A rotary quern below the floor level of the primary wheelhouse may date the excavated sequence to the period after the local quern transition (Armit 1991; 1992). Yellow glass beads, one found on the wheelhouse floor and the other unstratified, may date the primary occupation to around the late 1st century BC or 1st century AD (Guido 1978, 76) although the use of these beads for dating is problematic (see Armit 1991). The wheelhouse ceramic assemblage is characteristic of the later centuries BC (Armit 1992, 62).

Young and Richardson believed that the phase with the metalworking activity could date around the 5th or 7th centuries AD. This broad Early Christian dating is supported by the discovery of four nail headed pins, from phase 3 deposits. Young and Richardson believe the later phase 4 occupation may be associated with contact around the 6th century AD. East coast and Irish connections were shown by the bronze pin and the sherd of imported ware, to which a 7th or 8th century date may be assigned. The mound was used until the Medieval period, as shown by later medieval pottery dated to around AD 1600 (ibid., 158). Thus, it seems that the crucible can be dated to around AD400 – 700.

BARRA

Tigh Talamhanta

Background

The wheelhouse at Allasdale was initially excavated by Sir Lindsay Scott and completed by Alison Young after Scott's death. The site comprised a wheelhouse, a souterrain, an enclosure wall and less substantial structures, although there is no evidence to suggest that all were contemporary (Young 1953, 103). Only the souterrain leading from the wheelhouse is linked. A kilnhouse appears to be later due to it appearing to 'smash' through the original wheelhouse wall.

The wheelhouse occupation material was divided into an earlier and a later phase, with these phases separated by a thick layer of ash, interpreted as collapsed roofing material. Several piers and walls show signs of re-building. The interior was dominated by a large central hearth. The

byre housed an *in situ* hearth which had an iron ring and vitrified material (not identified, drawn or photographed) nearby. There was also a working place to the west of the farmhouse.

The metalworking context

Fragments of clay moulds were found in the central area of the wheelhouse. Excavation also recovered numerous broken crucibles. Unfortunately the crucibles were not drawn, recorded or given stratigraphic relationships. There is also no record of them in the NMS collections.

Date

Primary occupation probably dates to the late 1st century BC or 1st century AD based on the appearance of three small yellow beads (Guido 1978, 76). The pottery falls into two general groups: plain or decorated. The second group contains sherds stamped with ring-headed pins. This second group was mainly associated with the upper hearth area and the souterrain entrance. Young (1953, 104) suggests that the occupation ended around the 2nd century AD.

Of note is a brooch found at the base of Pier 4 of the wheelhouse. It was identified, incorrectly, as a possible Aesica type brooch (Young 1953, 100; F. Hunter pers comm). Analysis by Coghlan showed that the brooch had a high Cu, Sn and Pb readings ‘... with an appreciable inclusion of zinc’ (ibid.; Appendix B). Coghlan believed that ‘... if actually cast in the islands, that metal of continental origin was re-used for the manufacture of this find. Looking at the rather artless manner of the workmanship, it seems possible that valued scrap metal may have been re-fashioned by an island craftsman’ (Young 1953, 100). Again, this suggests that the site was used during the first few centuries AD.

Dun Cuier

Background

Dun Cuier was excavated by A. Young as an adjunct to the excavation of the above wheelhouse, Tigh Talamhanta (Young 1956). Young suggested that the site was a single-period construction that perhaps dated to the 7th century AD. However, re-interpretation of the site by Armit (1992, 34-38; 1996, 170-173; see MacKie 1989) has suggested that a roundhouse was re-occupied by the construction of a larger circular cell, possibly leading off to a smaller cell. The structures are similar to those found at other sites, such as Loch na Berigh, Lewis (Harding & Gilmour 2000). Thus the internal structures and much of the finds may relate to later

occupation in the mid to later first millennium AD. It is also possible that excavation did not progress to the primary deposits in all parts of the interior.

The metalworking context

The mould was found in '... the sand level at the foot of the bench' (ibid., 315). This bench was classed as a 'working bench', built to the south of a well built hearth. From the footings of this bench came a high-backed composite comb. The recovery of non-ferrous and ferrous metalworking led Young to suggest that part of the interior was '... used primarily for metal working' (ibid.).

Date

The bulk of the artefactual material probably dates to the second half of the 1st millennium AD. A high-backed comb, apparently associated with some of the metalworking debris, can be paralleled at the Later Iron Age Irish site of Lagore. Nail-headed pins, generally dated to the second half of the first millennium AD, were also found, possibly used as patterns for making clay moulds (Young 1956, 303). The pottery also may date to between the 5th and 7th centuries, although Lane (1983, 255) sees the assemblage as thoroughly mixed, incorporating Late Iron Age and earlier elements. There is also earlier material, for example a pot with ring-headed pin stamped decoration. Armit (1992, 38) sees these earlier elements as representing disturbance of primary layers.

Alt Chrisal

Background

A stone structure, possibly an Atlantic roundhouse, was built first on the site. The paucity of stonework recovered during excavation suggested that the masonry was dismantled and used in the construction of the later structure. Following the construction of the Atlantic roundhouse, a homogenous, organic silt was deposited across the site. An aisled roundhouse was subsequently built. The wheelhouse is smaller than many of the excavated sites in the Western Isles. Structural analysis has shown that freestanding structures, such as that at Alt Chrisal, tend to be smaller than the revetted structures found with the machair (Armit 1992, 107). On the exterior of the aisled roundhouses were found a series of temporary hearths. Following the abandonment of the aisled roundhouse, a number of stone structures were built. Discrete ash lenses found

throughout the upper levels of the site suggest that the site was re-used intermittently over a long period (see Foster & Pouncett 2000a).

The metalworking context

Rabbit burrowing and later occupation had heavily disturbed the upper levels of the site. The crucible was found in the spoil ejected from rabbit burrows and thus cannot be closely dated or associated with specific phases of activity.

Date

Although much of the material is of Iron Age date it is difficult to date the metalworking activity to this period. Fragments of Neolithic pottery were found, together with Middle and Late Iron Age pottery through to 14th / 16th century AD pottery.

PABBAY

Dunan Ruadh

Background

Prior to excavation the structure, a 'complex' Atlantic roundhouse, was in an advanced state of decay. Storm seas have accelerated the natural collapse of the structure, and only a short arc of walling survived. The wall survived up to seven courses and an accumulation of occupational deposits in excess of a metre was banked up against the inner face of the wall. Only a small proportion of the interior of the site was preserved *in situ*. The accumulation of occupational material, comprised of a series of sandy loam deposits, interpreted as floor levels, provided a basis for phasing the interior of the site and associated features. Five phases of occupation were suggested (see Foster & Pouncett 2000a).

During phase 3 a series of stone structures were constructed within the upper levels of the site. However, the interpretation of these features, neither surviving in its entirety, remains open to question. Two further arcs of drystone walling were subsequently constructed within the interior of the abandoned wall circuit, appearing to form part of a cellular building, the remainder of which had been destroyed. The cellular structure was subsequently modified to create a temporary shelter; the longevity of this shelter is uncertain. The upper levels of the site

had been disturbed by structural collapse; two discrete ash lenses were identified within this reworked deposit, suggesting intermittent re-use of the abandoned site.

The metalworking context

The crucible was recovered from the upper deposits. These levels had been disturbed by structural collapse and re-worked to form a loose sandy loam (context 8, from where the crucible was recovered). Two discrete ash lenses (contexts 9 and 49) were identified within this re-worked deposit, suggesting intermittent re-use of the abandoned site. It is therefore possible that the crucible may relate to metalworking activity after the cellular use of the site (eg. after the Middle Iron Age).

Date

The pottery assemblage shares many traits with middle Iron Age assemblages from elsewhere in the Hebrides, particularly Sollas, North Uist (Campbell 1991b), A'Cheardach Mhor, South Uist (Young and Richardson 1960) and Tigh Talamhanta, Barra (Young 1953). That said, dating the crucible is difficult. Although the pottery assemblage is a clear indication of middle Iron Age occupation on this island, that the crucible is from a later context, suggests it may date to a later period.

SKYE

Dun Beag

Background

Dun Beag in Skye was excavated by Countess Vincent Baillet de Latour between 1914 and 1920. The finds were presented to the National Museums of Scotland and published by the new Keeper of Archaeology, J.G. Callander the following year (Callander 1921). The report includes this account illustrating the scale and technique of the excavations (ibid., 110-1):

During the course of the operations... the inner court as well as two small cells, a staircase, and the greater part of a gallery, all within the thickness of the wall, were cleared out; also a section of the outer face of the wall on the southern arc, which was obscured by fallen

stones, was laid bare... About two hundred tons of stones and earth had to be removed, and, as all the soil was sifted through the fingers, extraordinary patience and perseverance were required to complete the work.

Callander (*ibid.*) argues for two periods of occupation. From the stratigraphy he noted that:

Many layers of red peat ash were found throughout the interior at various levels, with many fragments of rude, hand-made pottery, broken rotary querns, and food refuse in the shape of occasional animal bones and shells. A regular network of drains occurred at various levels, and the hollow parts of the floor were brought up to the level of the outcrop of rock by a slab pavement on the southern half of the court... The divisional wall and the drains seem to be of a very late date, as the greater bulk of the pottery and nearly all the relics were found at the lowest level, some being found under the paving.

In the course of clearing out the interior of the broch with the exception of a rudely built wall ‘... no other structure which could be planned was met with’ (Callander 1921, 117). All that remained was many layers of peat ash. However, by re-visiting older descriptions of the site by Pennant and Johnson during the 17th and 18th centuries it is clear that there were, at one time, cellular structures within the interior of the dun (*ibid.*, 117-9).

While accepting that secondary re-modelling of the original broch made it difficult to assign specific artefact groups to specific periods Callander did believe some patterns existed, based primarily on analogy with other sites and the stratigraphy recorded by the excavator, particularly for the lower levels. Foremost, he illustrated that there were a variety of objects that were recognisable as ‘broch relics’ and assigned to the early centuries of the first millennium AD. These included grooved pebbles, spindle whorls, a stone cup, crucibles and a glass armlet. A bronze buckle and ring were assigned to a ‘... race different from the original native broch dwellers, which appeared in Scotland in much later times’ with the gold ring indicative of Viking influence. The coins are indicative of later visits or occupations of the site between the 12th and 18th centuries (*ibid.*, 127). Callander found great difficulty in assigning dates to particular object groups, especially the pottery, and the bronze pins. He stated that only by ‘... correlating them with other contemporary objects of which the period is known’ (*ibid.*, 130) could any useful relationship be ascertained. The pottery has recently been assessed by MacSween (2002).

The metalworking context

There is no record of where the metalworking debris was found. Callander noted that though no built hearths were discovered, there were numerous deposits of red peat ash, and the presence of iron slag at various levels suggest the probability of non-ferrous metalworking and iron smelting within the broch, although there is no evidence to indicate the probable period (ibid., 128).

Date

The finds show activity on the site may have lasted until the Medieval period. Finding a start date is a little more difficult. On comparison with the Cnip pottery the Dun Beag material may date to between 100 BC and AD 200 (MacSween 2002). Four glass beads can be assigned to the Iron Age, probably around the Roman period. The glass armlet may date to around the latter half of the 1st century AD. At best the non-ferrous metalworking evidence can date, therefore to around the 100BC/100AD to AD1600, despite Callander classing the crucible within his 'broch relic' group.

Dun Ardtreck

Background

Dun Ardtreck is a galleried dun or semi-broch. Occupation was spasmodic, the primary occupation being very short; there were indications that it had ended in violence and destruction. A secondary occupation, its beginnings dated from Antonine sherds to about the middle of the 2nd century AD, involved minor alterations. The outer court showed signs of sporadic occupation in this period and the foundations of a possible hut were identified, but the main occupation was in the interior of the dun (see MacKie 2000b).

The metalworking context

Two vessels without any obvious signs of burning called crucible fragments were recovered from the occupation layer in Phase 2, context *Beta* (the first occupation and destruction of the site) (MacKie 2000b, fig, 21, nos 4 and 8). MacKie (2000b, 323) notes that '...most of the intact artefacts and all the broken pottery vessels probably date from before the destruction at the end of Phase 2'. A crucible or miniature pot was found in *Epsilon*, Phase 3 secondary occupation (ibid., illus 2, no 47). These have not been studied by the author and descriptions rely on the published account.

Date

The construction of Dun Ardtreck is dated directly by one radiocarbon measurement of $2005 \pm 105\text{BP}$, adjusted to between 114BC and AD120; indeed, '...it can be stated with reasonable confidence that Dun Ardtreck was built before about AD50 and quite possibly a century or even two before that' (MacKie 2000b, 355). Phase 2 is dated to around the late 1st or 2nd century AD with Phase 3 continuing for a century or so after that (MacKie 2000b, 348, illus 34).

TIREE

Dun Mor Vul

Background

Dun Mor Vul is the only broch to have been excavated in modern times in Argyll. From 1962 to 1964 E.W. MacKie excavated with the primary aims of clarifying the occupational sequence, dating and use of its successive phases. As many have commented on since (Armit 1991; Lane 1990) MacKie was also interested in using the excavations to investigate the impetus and development of brochs and associated cultures. Some believe this affected subsequent interpretations. Regardless, the excavations at Dun Mor Vul were seen as essential for complementing the excavations at such sites as Jarlshof, Clickhimin and Balevullin. Published in 1974, the site produced a deep stratigraphical sequence, large quantities of artefactual material and a series of radiocarbon dates from the various site phases; it is thus still a pivotal chronological base for many other sites (MacKie 1974).

Excavations concentrated on the broch, the outer wall and the outer court and five major phases of occupation were distinguished. While the internal stratigraphy of the broch occupation is undoubtedly complex, and has been a basis for criticism since publication, the main sequence seems reasonably secure. The earliest, pre-broch phases produced evidence for an isolated wooden building with wattle-and-daub construction, together with 'Vul' pottery, designated as native. Dating of this phase depends on two radiocarbon dates that date the initial prebroch occupation to $400\text{BC} \pm 110$ and $445\text{BC} \pm 90$. This phase seems likely to be early Iron Age, although few characteristic artefacts were found.

According to the excavator, the broch was constructed in the 1st century BC, although there is now no need to accept that newcomers from Southern England built it. While 2 radiocarbon dates were obtained, one was rejected and many have suggested that the date of the broch's construction is deduced more from MacKie's personal views than scientific means (Armit 1991; Lane 1990, 113-115; Harding 1997), a claim MacKie strongly refutes (MacKie 1997, 177). Again, this phase produced little datable material. After construction, the broch was used as a temporary refuge until it was changed to a more family oriented dwelling with a stone hearth. This phase onwards provided better dating with the presence of 2nd century Roman material which seemed to tie down this and later phases to the period between AD100 and 300. This seemed to be confirmed by the absence of late Iron Age material from the site. The broch is eventually purposefully demolished and the tower walls razed, into the remains of which is inserted a possible wheelhouse (MacKie 1974) with occupation ending around the 4th century.

Excavations also concentrated on the enclosed area outwith the broch walls. A large quantity of domestic debris was discovered, along with curved settings of stones, hearths and other ephemeral structural features. However, it was unclear to which phase of occupation these belonged.

Despite its apparent richness since its publication Dun Mor Vaul has attracted more criticism than constructive comment. The result has been a continuing debate on whether the report is difficult to interpret (for example Armit 1991) or not (MacKie 1997). However, concern has mainly been with the dating of the construction of the broch in Phase 2. As MacKie himself states this discussion of the precise beginnings of the broch do not effect at all the relative chronology of the site or the reasonably accurate absolute dating of Phase 3b to 5, or on the development of the pottery styles and other artefacts throughout the site's history (MacKie 1997, 179). That said, it is noteworthy that none of the phase 3 contexts (*Iota* and *Kappa*) have any radiocarbon dates. Thus, discussion relies on artefactual evidence.

The metalworking context

Inside the broch :primary broch occupation (phase 3a)

Context *Iota*, a thick occupation deposit that covered the whole of the central court (MacKie 1997, 148), and assigned to Phase 3a, represents the primary occupation of the broch (MacKie 1997, 154). This context overlay the primary peripheral paving of the broch. It varied in thickness from less than 6ins to almost 2ft but in most places was about 1 foot thick. MacKie states:

...the most likely explanation of the layer is that the lower part of it represents a large quantity of material deliberately brought into the broch immediately after it was built to even off the surface of the interior and form a more or less even floor. Since it covers the peripheral paving it is likely that this floor was added to several times during the primary use of the broch, perhaps as a simple cleaning the interior and levelling off of any inequalities...*Some of the material technically in the upper parts of the Iota layer may belong to the one above, the thin ash spread which was spread right across the interior (Context Kappa)...it was difficult to separate small objects in the ash spread from those immediately below* (my emphasis)

Two moulds (SF360.GZ which comprised 5 pieces and SF503.LO) were discovered. The five pieces comprising SF360.GZ were located in the SE quadrant near the top of the primary broch floor and SF503.LO at the top of the primary broch floor in the baulk between the NE and SE quadrants. Two fragments of zinc (SF 368.GS and SF 387.GS) , 2 fragments of sheet copper alloy (SF 499.LO, SF 468.JM), 4 pieces of copper alloy wire (SF 479.KV, SF482.KV, SF487.KV and SF488.LG) and 2 other miscellaneous copper alloy fragments (SF369.GS and SF466.JM) were also discovered. The context also contained 3 bronze finger rings, a pin shaft and the head of a ring headed pin. Also found were Roman pottery and glass. The context was relatively clean, despite much bone refuse; there was also a water tank and overflow drain in the central court, but no central hearth (ibid., 149).

Later occupation inside the broch (Phase 5?)

A dry rubble context which filled the entrance passage, the guard cell and the inner court was called Context *Chi*. Under this was a thick layer of sand extending over most of the court (Context *Phi*). As objects on and just above the pebble floor of the passage were assumed to be approximately contemporary with the latest occupation in the central court before substantial falls of masonry, it is obvious that the objects found in contexts *Chi* and *Phi* were late. One crucible was found in context *Phi* (no number, Bag EH). One was found in the entrance passage, *Chi*-2 (SF35.BA) and another in the rubble (no number Bag BQ). As the primary broch occupation (context *Iota*) is argued to date to around 2nd century AD the material in *Phi* and *Chi*-2 is likely to date to the post-Roman period.

Material in the outer court (Phase 4?)

Deposits in the outer court, defined as the space between the broch and the outer wall, were filled with an enormous quantity of grey homogeneous earth mixed with some large stones and

containing very large quantities of pottery and artefacts, which MacKie believed to have been accumulated by wind action (ibid., 60). This material was assigned to Phase 4 which saw the high broch hollow wall being largely dismantled, almost down to the lintels of the ground level gallery and the outer wall falling into disrepair. MacKie believed that it seemed highly improbable that this earth did not start to be deposited until the site had ceased to be a primarily fortified one. This earth therefore '... ought to belong to the post-fort peaceful stage of the site's history' (ibid., 75). Of note:

The great majority, if not all, of the earth deposits had obviously accumulated after the outer wall was built and there are some indications that they may not have begun to accumulate until a considerable time after the construction of the broch and its outer wall. In other words the whole mass of material gathered from the NE squares – except for that almost on the underlying rock – may belong to a fairly late stage in the history of the site...very little in the way of stone structures or stratification was found in the extensive earth deposits... and the exact nature of the activity that went on in the outer court is a mystery...the sherds and artefacts were distributed evenly from top to bottom of the earth deposit with few obvious concentrations in layers or groups of any sort (MacKie 1974, 58).

The finds from the earth deposit were divided into two separate groups. The material from the top 6 inches – the turf and topsoil – was isolated as representing the latest occupation of this part of the site and was treated as a group (Context *Tau*). Thereafter the material from the mass of earth below this and above the rock was termed context *Sigma*. Although the outer court was largely filled by immense quantities of homogeneous earth, a reasonably good paved, rectangular hearth in Square NE/4S survived, just in front of the rampart. Also, although little structural evidence remains, there was a arc of stones that may have been the foundation for a light screen of wood and skins or thatch.

One crucible was found in context *Tau* (no number Bag BC) as well as a lump of copper alloy (SF30.AY). An open mould for a bronze bar or ingot constructed in a fragment of the upper stone of a flat rotary quern was also found (SF217.DT). Two other miscellaneous copper alloy fragments were also found (SF218.DP and SF251.EM). Only the crucible and lump were analysed, both showing copper alloys with notable zinc levels.

A variety of non-ferrous metalworking objects were found in the general *Sigma* context, all in the NE quadrant. Three moulds (no numbers but found in bags EJ and FE) and 8 crucibles

(224.EJ; 243.ED; 342.EV; 440.JX; HV; EF; FE), two pieces of copper alloy sheet (411.ED and 429.HV), wire (397.HU) and 7 pieces of miscellaneous fragments (289.EF, 385.HU, 395.ED, 397.HU, 430.HO, 437.JQ and 411.ED). Reanalysis indicates that identification of a copper alloy object as a 'pair of crucible tongs' (346.HA) is incorrect and are not part of the general non-ferrous metalworking assemblage. Also found were one complete and two broken copper alloy finger rings, a fibula, 2 fragments of Roman glass. Two pieces of Roman Samian were also found, one of which is the fragment of a cup of type Dragendorf 33 of the Antonine period (AD140-180). It is important to appreciate that it is difficult, if not impossible, to relate the finds from the outer court deposits due to the lack of stratigraphic descriptions in the site publication.

This area is of interest as it can be argued that the number and type of finds and their association with a hearth and ephemeral stone structure may indicate some form of ephemeral bronzeworking area. In particular the small finds seem to fall into this general 'working' area. While the lack of stratigraphy make it impossible to ascertain whether it is *in situ* or not, the association does seem appealing. Analysis of the other finds and their location further support this. The broken copper alloy rings, and the nail with attached bronze all come from the same area and general bag numbers, suggesting a positive association. The remnants of fired clay and wattle and daub, large fragments of charcoal and the heat fractured stones may also be related to bronze working activity.

South West habitation site

The South West habitation site was an area just inside the outer wall, in squares SW/5F, SW/5F and SW/3F respectively¹. This was classified as a possible habitation site, indicated by a single row of stones which formed what looked like part of the wall foundation of a circular dwelling backing against the rampart. a gully and a wall of flat stones (MacKie 1974, 64). No absolute dating evidence is available for this area. Moulds (e.g. GH and EB) were found during excavation as well as four fragments of copper alloy sheeting (all SF 313.GH) and 5 miscellaneous copper alloy fragments (SF327.GF, SF329.GF, SF336.GY, SF337.GY, SF313.GH).

The Outer Wall (Phase 4 – 5?)

Midden material which had accumulated against the outside face of the outer enclosure wall was called context *Pi*. A secondary capping of earth and stones on the outer wall was assigned

¹ Confusingly, MacKie labels two of the moulds as coming from *Tau-2* in the catalogue (MacKie 1974, 153), but discusses them under context *SW* in the main text (ibid., 64).

context *Omicron*. Context *Pi* was an extensive midden which lay on a rocky terrace outside the wall and in a rock cleft below it which appeared to have accumulated after the outer face of the wall had become dilapidated. The midden could hardly have started accumulating until the outer wall had ceased to be needed as a defensive work but ‘... it is difficult to relate it to the stratigraphy inside the broch’ (MacKie 1974, 55). Two crucibles were found in this context (SF21.AX and no number Bag AI). Context *Omicron* represents a mass of rubble and earth which has been piled on top of the core of the outer wall; some of the objects found in these deposits seem to confirm that it accumulated at a very late stage in the history of the site. On the appearance of Cletraval Ware, MacKie believes that this context may date as late as the 4th or 5th centuries AD (ibid.). Two crucibles were found in this context (no numbers, Bags DZ and EL).

Date

Much of the material derived from activity outside the broch, possibly post-dating the primary broch occupation and associated with ephemeral but discrete working areas. There may also be two phases of metalworking activity in the broch, one of which post-dates the primary occupation. Dating of the broch occupation in general is suggested to be around 100BC to AD200. The recovery of spearbutt moulds may suggest a slightly later date (Heald 2001). It is possible that activity outside the broch may date to around the 2nd century AD. If the pottery analogy of MacKie is correct the 2 crucibles found in *Omicron* may date to as late as the 4th or 5th centuries AD. Although difficult to prove it is possible that there were more than one groups of metalworking, one perhaps centred around the first few centuries AD, another later.

BUTE

Dunagoil

Background

In 1915 Marshall and Mann reported on the finds discovered during excavations of a cave and vitrified fort at Dunagoil, Bute (Marshall 1915). Ten years later Mann published further results and discussed the total assemblage more fully (Mann 1925). Notwithstanding the inadequacies of the excavation technique a rich and varied corpus of material was discovered providing evidence for extensive occupation during the Iron Age.

The metalworking context

Although there is no stratigraphic or area relationships Mann none-the-less reported of ‘... many interesting sites discovered within the settlement of this fort’, one of which was ‘... a place where bronze implements, weapons and other ornaments were cast’ (Mann 1925, 58). The recovery of moulds, vessels classed as crucibles, bronze objects and various fragments of sheet bronze confirm that non-ferrous metalworking took place. All of the evidence was discovered during excavation of the fort - the ‘crucible’ discovered in the cave played no part in the metalworking process.

Date

Analysis of the artefactual material lead Mann to believe that Dunagoil was occupied from about 200BC to 100BC and that the fort was not occupied later than this date. Furthermore, Mann (1925, 57) believed that there was ‘... no trace of any influence whatever of Roman or later times’ concluding that:

Dunagoil fort is, therefore, entirely pre-Roman and the whole body of evidence offered by the assemblage of relics is positive in this manner. The story told by the structure of Dunagoil and its relics throws a flood of light on the ways of our ancestors in Scotland before the Roman legions came upon the scene (ibid.)

Research since on aspects of the artefactual (Stevenson 1956; Guido 1978) and structural record (Harding 1997) has however suggested that the history of Dunagoil may have been more complex and that there was activity, if not occupation, after the first century BC, particularly during the Roman period.

St. Blane's

Background

Excavations were first carried out in 1874 and 1896 (Anderson 1900). Recent excavations took place in 1997 (Laing, Laing & Longley 1998). In 1896 stabilization of the ruined church was undertaken. Trenches were dug to trace an enclosure and ‘...the remains of a series of foundations for early dwellings were discovered, extending over a considerable area south of the churchyard and inside the enclosing wall of the precinct’ (Anderson 1900, 308). The plans

make it clear that the excavations focussed on a group of buildings remnants south of the churchyard known as 'the Manse' and on adjacent areas of paving and walling. The areas of paving and walling could be interpreted as the remains of structures. At least one circular structure was apparent, but the remnants are likely to be multi-period. According to Laing, Laing & Longley (1998, 557) '... the overall character of the remains is in keeping with both early Christian period and later medieval industrial sites'. Most of the finds from the 1896 excavations were discussed by Anderson (1900). The majority of finds were indicative of industrial or artistic activity.

The metalworking context

Evidence for metalworking was found during the 19th century investigations of the lower churchyard and enclosure. There is precious little information regarding archaeology although Anderson (1900, 308) notes that within this lower churchyard area that '... the remains of a series of foundations of early dwellings were discovered, extending over a considerable area south of the churchyard and inside the enclosing wall of the precinct'.

Date

The site dates from around the 6th century AD and it is commonly held that the site was sacked by the Vikings and then restored during the period of Norse rule in the 11th century (Radford 1967, 116).

IONA

Dun Cul Bhuirg

Background

Excavations at the fort at Dun Cul Bhuirg were carried out by Thomas and Fowler between 1957 and 1959 and by Dr Reece in 1968. The findings were published by Ritchie & Lane (1980). The site is one of the few prehistoric sites on Iona and the pottery from the rubble of the fort belongs to the decorated Hebridean styles of the Iron Age, making the site one of the most southerly from which the wares have been found (Ritchie & Lane 1980, 209).

Excavations were conducted in four areas. *Site 1* was interpreted as an open camp site on the SW terrace, away from the main focus of activity, possibly taking advantage of the rock face as the wall for a lean-to-structure. *Site 2* concentrated on the wall debris of the fort and contained much Iron Age midden material within the core. *Site 3* investigated the remains of a hut on the east side of the forts interior. At the centre of the hearth was a well-built hearth and a possible oven (ibid., 212). *Site 4* investigated a platform on the north side of the fort. Bedrock was quickly encountered and no structural features were encountered.

The metalworking context

The first mention of a mould (HHD 95) occurs in the notes provided by the Cumberland and Westmorland Antiquarian and Archaeological Society for their tour of the Hebrides in 1904 where it tells of a piece of pottery and ‘... a mould for celts’ being in the possession of the Reverend A. MacMillan (Ritchie & Lane 1980, 213). There is no record of where it was found on site and it is best regarded as a stray find. There is no record of where the other mould was from. As well as the moulds a scrap of bronze sheet was found in Site 3. This site, with its glass bead on the floor, may be contemporary with the fort (ibid., 220).

Date

A date between 100BC and AD300 is suggested for the construction and occupation of the fort (ibid., 209). The absolute dating evidence for comparable sites is not very secure. Young’s dating for everted-rim pottery is based principally on finds of yellow glass beads at A’Cheardach Mhor and Tigh Talamhanta (Young 1966, 55). Such beads may range in date from 300BC to AD200 (Guido 1978, 76). At Dun Mor Vaul, everted-rim potter is associated with Roman glass and pottery (MacKie 1974, 92-5).

Reilig Odhrain

Background

Three prehistoric ditches, obviously artificial, were excavated by Barber (1981). They may have been dug for drainage or as enclosures for fields or settlements.

The metalworking context

The metalworking evidence comes from disturbed areas. Both moulds were found in the backfill of a recent excavation trench.

'Carpenter's Shed'

Background

Excavations from 1965 to 1974 by Reece concentrated on the area in the immediate vicinity of the Abbey buildings and the Columban enclosure. In 1973 excavations concentrated on 'the Carpenter's Shed'. Very little structural evidence was found in the small trench although there were three datable finds, '....a unique record for any deposit of the early monastic phases' (Reece 1981, 19), imported pottery, a bell and a clay mould. In the western part of the trench '...levels of sand, gravel and burning suggested a yard or open space which was periodically the site of rubbish burning or working fires on which from time to time a fresh load of sand or gravel was spread to tidy the area up and to even up the surface' (ibid.). A cobbled surface in the same area resembled parts of the working area surface.

The metalworking context

Although there is no clear discussion of where the mould was found it was attributed to the general 'working area'. Reece (1981, 24) sees the common use of such studs on Irish metalwork of this period, together with their rarity outside Ireland, where they tend to occur as isolated examples (Meaney & Hawkes 1970, 48-9, pl. V), to suggest that they are a hallmark of the Irish metalworker of the period. As such, their discovery at Iona will occasion no surprise, although it is of the greatest interest in the context of the high degree of artistic achievement attributable to Iona at this date.

Date

Dating relies on art historical parallels. The pattern on the Iona moulds is different from many other studs (except that from Garryduff) in being curvilinear rather than rectilinear in design, although their close relationship is not in doubt and they may be considered together. The ornamental metalwork on which such simple glass studs are found has been variously illustrated and discussed (Hencken 1950, 1301; Mahr & Raftery, 1932, 41); it is generally agreed to be of 7th and 8th century date, although small studs continue to be used into the 9th century (Stevenson, 1974, 16-42 re-dates the Co. Westmeath brooch to the late 8th/9th century). The large mould/stud from Lagore is from Period Ib (as were six other smaller examples) which also produced E ware, as have the relevant contexts at both Garryduff and Iona. O'Kelly placed the occupation of the Garryduff ringfort within the century AD 650 - 750, but others extend the period to 800 (O'Kelly 1962, 119).

The occurrence of the moulds in E ware contexts, the dating of the metalwork on which related class studs are found, and the nature of the Iona interlace pattern, together indicate a mid-7th to 8th century date for the Iona moulds (and one that is perhaps later rather than earlier within this period).

Infirmary

Background

A small excavation within the 'infirmarium' at Iona produced evidence for metalworking and Roman pottery of late 1st to 2nd century AD date (McCormick 1992).

The metalworking context

The excavators interpret the non-ferrous metalworking evidence as indicative of a metalworking area during the Columban foundation. However, the small excavation trench makes this difficult to substantiate. The crucibles and pottery were also from disturbed garden soil (F3) and thus not in primary contexts,

Date

A Late Iron Age date for the Iona material is suggested by the recovery of a crucible lug (Cat 2), a common characteristic of this period. The association of the earlier Roman pottery is argued as a relic.

ARGYLL

Rockside, An Dun,

Background

Artefacts have been discovered on the site of a probable dun. The structure appears to have consisted of a rampart of earth and stone, rather than a stone wall (Piggott & Piggott 1946; Hodgkinson 1960; Cregeen & Hodgkinson 1961; RCAHMS 1984). Pottery sherds found on the

site may belong to the late Viking period and are preserved in the NMS. The finds are presently in storage in the NMS and were unavailable for study by the author. Identification of the object as a crucible relies on previous descriptions.

The metalworking context and date

There is no record of the find circumstances and dating is impossible.

St. Columba's Cave

Background

The cave has seen intermittent use for millennia, for many different purposes. Of particular interest is the suggestion that St Columba came to this site on the way to Dunadd and Iona. Christian associations at the site are certainly strong. The main cave has a shelf on which is built a drystone altar, above it a small cross has been carved. There are also other crosses in the cave. Beam-holes in the west wall suggest a lean-to roof to protect the altar. An oval rock-basin is in the floor of the shelf near the altar. During the 19th century two shallow graves, containing extended inhumations, lying east-west were found outside the cave, and against the foundation of a boulder wall. A stone coffin, containing an inhumation, was apparently found inside the main cave.

The metalworking context and date

Excavations carried out since 1959 discovered numerous occupation levels and evidence of use from the Mesolithic through to the post-Medieval period (see Tolan-Smith 2001 for summary). Campbell (quoted in Tolan-Smith 2001, 51) suggests that at least some of the metalworking evidence dates to the second half of the first millennium AD. There is no evidence of a particular metalworking area.

Ellary Boulder Cave

Background

Like St Columba's Cave this site saw intermittent use for many millennia (see Tolan-Smith 2001 for summary). There is no evidence of a particular metalworking area.

The metalworking context and date

There is no record of where the metalworking evidence was found and dating is impossible.

Ardifuar

Background

Work on the dun consisted mainly of clearing out debris from the interior. Some debris was also removed from the outside, but only on the western side (Christison & Anderson 1905). The site was probably multi-period, re-used after its original construction. A secondary circular structure of combined edge slabbing and dry stone walling was found in the interior (Christison & Anderson 1905, 267). At the entrance there was a sill between the rebates and a guard-chamber off the passage. Sills are not a usual architectural feature of these structures and may belong to the secondary structure. The extension of the paving into the interior would also make it secondary.

The metalworking context

None of the finds have any contextual information.

Date

Dating the use is difficult. Most artefacts are undiagnostic. The two Roman objects - a piece of Samian and a dish (Christison & Anderson 1905, 269; Curle 1932, 385) suggest activity in the early centuries AD. However, these need not date the site, it has been suggested that some of the finds are heirlooms (Alcock 1987). Thus, while it is possible that the site may have its origins in the 1st/2nd centuries AD (MacKie 1997, 142), the site, and therefore many of the objects, may date to a later period. This seems to be supported by analysis of the structures uncovered. The secondary cellular structures within the original roundhouse are similar to those found on other sites of the Later Iron Age (Harding 1997, 128). Harding has also suggested that the artefactual assemblage ‘...certainly includes material of indisputably early historic date’ (ibid.). In the absence of any stratigraphic relationships or independent date it is only possible to suggest that the find may date to around 100AD to AD700. That said, there is a high chance that the metalworking activity dates to the second half of the first millennium AD. This has been suggested before, due to the belief that metalworking evidence is comparable to the Dunadd assemblage, dated to the 7th century AD (Christison & Anderson 1905, 269).

Balloch Hill

Background

Excavation concentrated on the ramparts (1-3), the entrance and areas without surface features including the inter-rampart zones and the summit (which included pits, a midden, paved areas, hearths, gullies, stone walls, postholes and structures). Four phases were identified. The first was an early 3rd millennium BC settlement, followed by mid 2nd millennium BC cremation burials. A later 1st millennium BC enclosed settlement was then built followed by an open homestead. Phase 3 deals with the Early Iron Age sequence in the first millennium BC. The three ramparts may well belong to a single phase in the 1st millennium BC (see Peltenburg 1982). Radiocarbon dates and stratigraphic excavation revealed a long sequence of occupation covering four phases of development from the 6th to 1st centuries BC (Peltenburg 1982).

The metalworking context

All the moulds were found during excavation of the summit inside the ramparts in the north west area. One mould was found in Area F, Level 3. Other mould fragments were from Area B, Level 3. No specific function can be attributed to this layer due to waterlogging and leaching although there were numerous pits and gullies in the general area (ibid. 160-1). The crucible was found in an occupation layer in a pit (B17) in Area K, which was in the NW interior of the fort. That said, the pit in which the crucible was found cannot be assigned a specific function although it is clear that it was deposited in a pit outwith a structure, in an open area.

A vessel classified as a possible 'crucible' (CAT 237) during excavation (Peltenburg pers. comm.) was analysed by Slater and classified as a small, fragmentary pot (1983, 193). Although fired analytical study showed no evidence of it having any connection with the metalworking process (ibid.).

Date

The recurrent attention to which the hilltop was subjected makes it difficult to ascribe components which are not stratigraphically linked or dated by radiocarbon dates or associated with finds to a particular phase. The crude pottery belongs to the 'Dunagoil Ware', common on sites around the 5th to 2nd centuries BC. A knobbed brooch has been dated to the later 2nd century BC and the arrival of the Romans in the 1st century AD (Peltenburg 1982, 194). The

crucible has been assigned by Peltenburg to Phase 3, argued to date to between the 6th and 1st centuries BC.

Kildonan Bay

Background

Investigations of the dun at Kildonan Bay in 1939 revealed a complex site with at least four phases of occupation and re-occupation although basal levels were not reached in all areas of the site.

The metalworking context

Moulds, crucibles and possible clay patterns were assigned to period I, although there is difficulty in differentiating between Period I and II. During period I a pavement ran from the entrance to the central area of the fort. Around this pavement were ‘...half a dozen or so small huts...in at least were found two hearths...the huts were presumably small hovels (Fairhurst 1939, 203; fig 4, 102). Slag was also common. These finds led Fairhurst to conclude that ‘...from the presence of the slag and the moulds there seems no doubt that the inhabitants of Kildonan I were iron-workers (sic)’ (ibid., 212).

Date

The difficulty of distinguishing the objects from Period I and II led Fairhurst to consider both together (ibid., 219). He states that there were only 2 objects which can be dated with accuracy: the penannular brooch and Roman pottery which indicated that the fort ‘... was occupied until after the 7th century AD and may have been built before the 2nd century AD’ (ibid.). That said, Fairhurst believed that ‘...the general similarity of the other material to that obtained from Dunadd...is more striking than any vague resemblances to rubbish from early Iron Age sites where occupation ceased much earlier’ (ibid., 220). Fairhurst assumed that the Roman pottery had survived as an amulet for a long time and he suggests that Period I and II covered approximately the 7th and 8th centuries AD (ibid., 220). Later excavation of the site produced radiocarbon dates from an early hearth below one of Fairhurst's hearths which seemed to confirm a date around the 7th to 9th centuries AD (Appendix 4; Peltenburg, 1982, 207; Niekē, 1984, 122). Together, a date around the second half of the 1st millennium AD seems appropriate (Alcock 1987).

Moulds and crucibles

The original report talks of clay and moulds for casting metal objects. Sixteen fragments of baked reddish clay, with smooth shaped surfaces, forming parts of moulds, or the clay binding for the moulds, and several fragments of baked grey clay, one resembling a nail head (ibid., 211). It is possible that this represents the manufacture of moulds and their patterns. Seven fragments forming a cup or crucibles were found. It is unclear whether or not they are crucibles from the description and drawing (Fairhurst 1939, 211-3). These have not been located by the author and descriptions rely on Fairhurst's original descriptions. From the published drawings some of the crucibles appear to look like Type 10 crucibles.

Ugadale Point

Background

The dun at Ugadale Point was partially excavated in 1939, work confined to a strip along the top of the northern rampart and entrance (Fairhurst 1956). Against the northern rampart the stone foundations of a later, 16th century rectangular building was recovered. Working within the area between the entrance and this building was difficult and complicated by a '...small maze of rabbit holes' and '...no stratification was discernible' (ibid., 18). It was quite possible that the rampart on either side was already ruinous by the time of the late occupation and evidence for earlier phase activity was supplied only by rabbits who provided a 'window' to an earlier occupation (ibid.). Despite this at least two phases of occupation were interpreted. According to the excavator the earlier undisturbed material is comparable to the early phases at Kildonan dated perhaps to between the 7th to 8th centuries AD (Fairhurst, 1956, 20).

The metalworking context

Most of the excavation report is concerned with the later medieval activity and there is no description of the supposed earlier activity. All that is noted is that the crucibles, like the majority of finds from the site, were found between the rectangular building and the entrance. Two crucibles were found '... somewhat similar to that found in the Kildonan dun, period 1 (ibid., 19). The finds were not illustrated. Like the examples from Kildonan the possible metalworking evidence has not been located by the author and descriptions rely on Fairhurst's original descriptions.

Date

Dating relies on artefactual parallels. Fairhurst believed that the crucibles, needle and glass beads were comparable to Kildonan examples, and dated the occupation of the dun to around the 7th to 8th centuries AD. The later rectangular building dates to around the 16th or 17th centuries AD (Fairhurst, 1956, 20).

An Dunan, Alltshellach

Background

A mould was found before 1940 at a promontory fort, North Ballachulish by A. Paton (1928) along with a whetstone and an iron fragment. They were surface finds and donated to the National Museums of Scotland (Proc Soc Antiqs Scot, 102, 1969-70, 295).

The metalworking context and date

There is no record of the find circumstances and dating is impossible.

Loch Glashan

Background

Loch Glashan crannog was excavated by J.G. Scott in 1960 prior to flooding as part of a hydro-electric scheme. The site is in the process of being published (Crone forthcoming). Four sections were excavated, taken down to a depth at which water penetration rendered further work impractical (RCHAMS 1988, 207).

The substructure was recorded as consisting mainly of brushwood mixed with fern and bracken. In one area this was covered with a layer of logs and in the south-west part of the crannog a sub-floor formed of timbers stripped of their bark and roughly trimmed was identified as a rectangular building. A layer of sand and gravel with some paving lay over the timber. As well as structural information, patches of clay interpreted as hearths and other stone features were found (RCAMS 1988, 205-8). A considerable range of artefacts, particularly those made of wood, was found, the majority of which were found in the layers of brushwood, preserved by the waterlogged conditions.

The metalworking context

There is no specific location of the crucible known to the author.

Date

The majority of the material is dated to around the later 6th and 8th centuries AD, particularly the pottery, which included E-Ware, and a penannular brooch. While the problem of multi-phase occupation cannot be ignored the pottery from the foundation layers and surface of the crannog may place the occupation between the 6th and 8th centuries AD. The lidded form of the crucible is in keeping with a Late Iron Age date.

Lochan Dughail

Background

Excavations of the crannog revealed the wooden foundations of a circular dwelling on an artificial island (Munro 1893; 1889a, 334). The island consisted of timbers and brushwood, arranged in transverse layers to a depth of over 4 feet (1889, 416). The dwelling was a '...large, circular, tent-like structure, 32 feet in diameter, constructed of wood, and supported by one central and some twenty surrounding uprights' (1893, 221). The majority of the relics collected in the course of the investigation were found on the surface of the woodwork and included a cannel coal bracelet, flint scrapers, stone polishers, a jar of glazed earthenware and other wheel-made pottery, which appears to be medieval, and worked wood. Munro's belief that the crucible was used for smelting seems highly inappropriate.

The metalworking context

There is no record of where the crucible was found, save to note that it comes from the crannog.

Date

The material found covers a wide date range with the pottery in particular showing activity in the medieval period. Indeed it is likely that the crannog may have been used up until the 19th century (1893, 221). The crucible, therefore, cannot be closely dated.

Dunadd

Background

The nucleated fort at Dunadd, argued to be the capital of Dal Riáda, has been explored on numerous occasions. The history of research has been well rehearsed by Lane & Campbell (2000, 26-40). The following description borrows heavily from their account.

In 1905 Christison published a report of excavations on four of the forts on the Poltalloch estate including Dunadd (Christison & Anderson 1905). The site was excavated from May 1904 to January 1905 under the direction of Alexander MacKie. The excavation report was written by Christison, based on Mackie's notes and a weekly letter he sent to Edinburgh; on plans prepared by Thomas Ross, the eminent architectural historian; and on MacKie's photographs. Christison did not however visit the site during the excavation (Christison & Anderson 1905, 259). The excavation team consisted of four men who were at work at Dunadd for perhaps 14 weeks from October to January (Craw 1930, 12-3), but apart from the evidence of Ross's plan there is little clear evidence of the extent of the work undertaken on the site. It seems however that the work concentrated on following walls and clearing wall faces, and turning-over the interior to look for artefacts and traces of stone buildings.

Fort A: Christison's men seem to have dug out much if not all of the summit fort (A) digging through several feet of friable dark soil (Christison & Anderson 1905, 298). No stone buildings were encountered but a pear-shaped drystone enclosure was exposed (*ibid.*).

Fort B: The 'middle ridge' fort B was likewise dug revealing an oval enclosure most of whose outer wall faces had collapsed. This contained 4-5 feet (1.2-1.5 m) of black soil rich in artefacts, and again produced no evidence of internal structures apart from one short fragment of what was thought to be secondary walling running into the interior (*ibid.*, 298). By the south-east corner of this enclosure Christison's men uncovered a new carving, that of a boar.

Fort C: Christison also reported evidence for what he described as the lower ridge fort (C) but the traces of walling seem to have been slight except where they blocked the natural cleft between the two summits of the hill. No finds are recorded from this area and indeed there was probably very little soil in it (*ibid.*, 300). The lower part of the site (Christison's Plateau Fort) was enclosed by one major wall which butted against the two rocky summits of the hill (*ibid.*, 301-5). Christison suggested that it should be subdivided into three areas - D, E and F.

Fort D: Fort D cut off the southern end of the plateau with a partly traceable wall running from the bottom of fort B to a corner of the outer enclosure wall. This contained deep black soil deposits which were as abundant in artefacts as fort B. The only structure uncovered was a winding passage or chamber at the southern side of the site while a steep narrow passage . . cut into steps' led from beside this up to the entrance to fort A (ibid., 297).

Fort E: This lay in the north corner of the lower enclosure partly cut off by a low curving wall. Little soil was found in this area and few relics, the only structure being a cistern 6 feet deep (1.8m) (ibid., 304-5) and surrounded with edge-set radial stones.

Fort F: This is the remaining area outside of fort E and again little soil and few relics were encountered. Two structures were located, apparently fragments of rectangular buildings, but they were judged to be secondary as they were built on black soil (ibid., 305).

While the finds report contains much important information only a few of the more important finds are given specific provenances within the fort, though it is clear from passing references that the majority came from forts B and D. Anderson could only date a few of the objects independently, but, coupled with the historical documentation he was happy to attribute the site to the 'later period of the Iron Age, in post-Roman and Early Christian times' (Christison & Anderson 1905, 322).

The second major excavation was undertaken in 1929 under the direction of J.H. Craw. In all 24 days were spent on the site, the excavation being done by two local men (Craw 1930, 113). Craw's work was quite restricted and seems to have been aimed at examining a number of different areas.

Fort A: The triangular end of the summit fort (A) was excavated. Few relics apart from animal bones were found.

Fort B: A second area was dug just to the north-west of fort B. This was selected because dense nettle growth indicated that it probably contained a midden. The deposits consisted of turf and stone wall-debris (Craw 1930, 114-5).

Fort D: Finally Craw excavated a third area, in fort D, the middle enclosure. Again nettle growth, described as the strongest in the fort was the decisive factor in site selection. Craw observed that

this deposit had the most artefacts of any area but no sign of stratification was recognised (1930,115). Craw recovered a considerable assemblage of metal, glass, stone, clay and pottery artefacts including many more mould fragments and sherds of wheel made pottery. Unfortunately, because of the supposed lack of stratigraphy, Craw did not label any of the finds and therefore paradoxically we know even less about the provenances of the 1929 finds than those from 1904/5. We know only that fort D produced most of the moulds. Craw argued for occupation in the Early Iron Age, Roman period, and in the 6th to 9th centuries AD (1930, 125-6).

The final excavations were carried out by Lane & Campbell (2000). Although the 1929 excavator had concluded that the site as a whole has been badly disturbed in 1904-05, new excavations were undertaken on the site to try to discover whether any undisturbed deposits remained on the site, and to establish a chronology for the defences of the hill which were in reality still undated. Forts A, E, F & D were targeted. In addition to establishing a stratigraphic sequence for the defences based on radiocarbon dates and stratified artefacts these excavations also revealed a major undisturbed metalworking deposit, rich in moulds, crucibles, slag and associated artefacts.

Of particular relevance are the excavations on Fort D. Trenches were located to cut across the rampart where Craw's cutting was marked by small stone pillars. Excavations immediately indicated that finds-rich black soil deposits remained which had not been fully dug by Craw or Christison. Excavations produced many rich finds, at the end of 1981 there was clearly still important artefact rich deposits that remained.

The recent excavations allowed the site development of Dunadd to be traced for the first time, with possible late Neolithic and Early Bronze Age ritual activity followed by the construction of a small fort in the 4th and 3rd centuries BC. There was then further Iron Age activity dated to around the 1st centuries BC/AD. A summit dun was then built in the 4th/5th century AD and the building of other enclosure walls created a nuclear fort, perhaps sometime in the 6th or 7th centuries AD. In the 8th or 9th centuries AD the summit fort was extended, an outer enclosure wall as built and the enclosure D wall was demolished. There were then subsequent reuse of the site in the 10-12th centuries AD and others up to the 20th century.

The metalworking context and date

The overwhelming majority of the metalworking debris was found during excavation of Fort D. Excavations during 1980-1 dated the metalworking deposits to the 7th century AD. This is based on a suite of radiocarbon dates and typological comparisons. The lowest deposits consisted of

spreads and hollows of soil, ash, charcoal, and ore and may be small bowl furnaces. The higher dark soils and stones had vestigial stone structures and alignments and may represent temporary shelters associated with metalworking. All through these deposits were large quantities of tools, moulds and crucibles (Lane & Campbell 2000).

Bruach an Drumein

Background

The multi-phase settlement at Bruach an Drumein was excavated in 1960-2. The original settlement was probably Iron Age, represented by a double ditch, which arched across the terrace isolating a level promontory; probably contemporary, was a round house. A later phase is represented by another round house, probably of Late Iron Age date. A medieval settlement, with stone foundations, lay to the west, and there are indications that it expanded beyond the original enclosure. To the west of the timber buildings, excavation revealed a series of stone foundations, including those of a small round hut; its walls may have been constructed with outer and inner faces of stone and a core of earth and rubble. There was evidence of iron-working both inside and around the hut. Dating for this phase of activity is provided by the discovery of two glass beads belonging to the second half of the first millennium AD. When partially silted up, the ditches were lined with low walls and re-used. They appear to have been artificially filled and a probably medieval or post-medieval standing stone surrounded by cobbling overlies them. Other ditches, of unknown purpose, lie to the north.

The metalworking context and date

The precise context of the non-ferrous metalworking evidence is not known to the author. The silver content of the crucible suggests that the activity took place in the Late Iron Age.

Dunollie

Background

As part of a long-term programme of research on historically documented fortifications, a small excavation was carried out in 1978 on the earthwork at Dunollie Castle, the *Dun Ollaigh* of the early annals. In any survey of the early Historic fortifications of northern Britain Dunollie is a key site: the name occurs in no fewer than 5 of the entries in the Annals which

had been compiled at Iona, the largest number of mentions for any single fortified site. In the entries for 701 and 714 it is said to have been destroyed and rebuilt by Selbach, son of Ferchar Fota, a major contender for the kingship of Dal Riata in the late 7th and 8th centuries AD. It is thus, characteristic of a royal site (Alcock & Alcock 1987, 120). Excavation revealed at least five phases of which *Phase 1-3* are datable to the 7th to 9th/10th centuries AD. After a dereliction phase, *Phase 4* saw the building of a later rampart, perhaps in the 13th century. Most of the excavations concentrated on the ramparts (Alcock & Alcock 1987).

Phase 1: Before any defensive work was built around the perimeter of the stack, a bronze worker's hearth was established on its northern edge. Fragments of clay moulds, iron weapons and E ware pottery were found. The general implication of the dates is that this phase dates to between the 7th and 9th centuries AD.

Phase 2: Excavations of Rampart A illustrated that the earlier phase features were immediately overlain by a rubble bank revetted at the front with massive slabs. There is no direct dating evidence and is bracketed between the radiocarbon age estimates quoted above (7th to 9th centuries AD) and from the overlying layer (9th to 11th centuries AD).

Phase 3: Saw the abandonment and collapse of Rampart A. Before it collapsed rubbish that had accumulated on the back of the rampart during phase 2 spilled out over the collapsing stonework. These rubbish layers contain artefacts similar to those from Dunollie A and they allowed the excavators to suggest that Dunollie 1-3 was a 'homogeneous cultural phase' (ibid., 126).

Phase 4: Some centuries after its dereliction the ruins of Rampart A formed the basis for a second bank, Rampart B. This phase is dated to around the 12/13th century.

The metalworking context

The moulds were found in 2 separate trenches. Although some were found within the ramparts, moulds were found in contexts associated with the Phase 1 bronzeworking hearth. The four crucibles were also found in 2 separate trenches. Cat 80 and 83 were found in cutting 101; Cat 81 and 82 were found in cutting 301. Cat 80 was found in the extensive lenses of ash and charcoal associated with the bronze worker's hearth (Phase 1). Cat 83 was associated with the 'black wall' (Phase 3). Cat 82 was located in the bottom grey rubble of rampart A. Cat 81 was unstratified.

Despite the fact that the moulds and crucibles derive from different contexts ranging in date from phases 1-3 the excavators state that Dunollie 1-3 is a homogeneous cultural phase and thus the metalworking should be seen as a complete package. Alcock & Alcock (ibid., 123-4) interpret this information as implying that ‘... Dunollie was the seat of a person of importance, whether or royal or noble’.

Date

The crucible (Cat 80) found in the extensive lenses of ash and charcoal associated with the bronze worker's hearth (Phase 1) can be dated to the 7th to 9th centuries AD. The other 2 stratified examples date to around the 7th to 10th centuries AD. The moulds associated with the bronze worker's hearth (Phase 1) can be dated to the 7th to 9th centuries AD. The other examples date to around the 7th to 10th centuries AD.

Dun an Fheurain

Background

Excavations at Dun an Fheurain were conducted on several occasions, not within the actual dun itself, but in the midden deposit on the west side at the base of the stack on which the dun sits. The earliest excavation was undertaken by J Patten MacDougall of Gallanach, and the finds were described by Anderson (1895). A small assemblage of animal bones and a single whetstone were found on the site in 1904 and a small excavation was conducted by A J Murray: animal bones and bone pins were found. Two further excavations by the Lorn Archaeological Society in 1963 (DES 1963) complete the investigations. Nothing is known about the stratigraphy of the midden, although the original report records that it extended to a depth of between ‘... 15 and 20 ft from the upper surface of the talus’.

The metalworking context and date

The metalworking evidence was not associated with a specific metalworking area. Dating is equally difficult and can only be fitted into the suggested occupation span, based on analysis of the finds. Ritchie (1971, 102-6) divides the finds into two main groups, the first comprising objects which belong to the first few centuries AD and the second whose chronological span falls about the middle of the first millennium AD and later (Ritchie 1971, 106):

The chronological span of the Dun an Fheurain midden depends on the stress placed on the early objects from the site, namely the samian sherd, the ring

headed pin and finger ring. It seems most likely that these should be taken to represent the earliest phase of occupation of the site, probably including the building of the dun and dating to the later first or second centuries AD. The globular-headed pins, the pottery stamp and the comb fragment suggest subsequent periods of occupation continuing from about the middle of the first millennium AD.

However, Ritchie (1971, 102) also notes that:

A number of objects belong to types too familiar to require further discussion here, and, since the associations of all the objects are unknown, it is not proposed to attempt a detailed assessment of their chronological significance.

This may relate to the metalworking evidence, the quern re-used as a mould. Discussing the querns Anderson (1895, 279) noted that:

The... querns are not decisive of the period [Iron Age] further than that their presence prevents any higher antiquity being assigned than that already given, although they might go well enough with a much later time of the occupation, which is thus shown by the relics to have lasted from some time in the early centuries of the Christian era till some time in the Middle Ages.

The querns are not given a specific date by Ritchie and the association of an Iron Age date must remain dubious – the mould could be later. The object was described by Anderson (1895, 279):

The most remarkable feature of the stone, however, is that, after it was broken irregularly across, and thus rendered useless for grinding, the part of the flat grinding face was converted into a mould, for what at first site looked like a rather long and narrow flat axe-head of bronze. The cavity of the mould, however, does not conform to the shape a flat axe so closely as these founders' stone moulds usually do, and the probability is that it was a blacksmith's mould for fashioning a triangular crusie, by beating into it the red-hot plate of iron from which the shell of the crusie is formed

Achnanellan, Ardnamurchan

Background

During forest ploughing a small bloomery was found. From adjoining furrows came four sherds of pottery, several flint flakes, iron nails and part of a crucible with bronze slag adhering (Kirby 1983). The finds are presently in storage in the National Museums of Scotland and were unavailable for study by the author. Descriptions of the material are, therefore, from the original findings, and have not been verified.

The metalworking context and date

There is no record of the find circumstances and dating is impossible.

Sheep Hill

Background

Excavations at Sheep Hill, an isolated rock knoll, showed that it was of two periods, the earlier and smaller being the vitrified fort on the very summit of the knoll. This later fort also has a triangular, lower enclosure on the S with a gateway visible in its E wall. A short traverse protects this gate. Some midden material was found under the second rampart and gave gritty pottery and some clay mould fragments, probably the debris deposited by the occupants of the timber-framed fortlet. The later fort yielded many jet bracelets and a tiny blue glass bead and could thus date to the 1st centuries BC and AD (MacKie pers. comm.).

The metalworking context and date

The moulds have not been located by the author. If the objects are moulds, they may date to the Middle Iron Age.

Kildalton Cave, Islay

Background

A cave often called 'Uamh Phort Luinge Mhic-Ruaridh' was excavated about 1883 by W Stevenson. It is known to have been occasionally occupied by kelp burners and for hiding contraband whisky. The excavation revealed a dark layer of soil. The artefacts recovered were

donated to the National Museums of Scotland. These included a flint arrowhead, a polished stone axe, flints, and over two hundred fragments of pottery, of Bronze and Early Iron Age date. These were discussed by Stevenson (1944) building on a brief report two decades earlier. The collection included eight fragments that ‘... at first sight seem to belong to clay moulds’. (Stevenson 1944, 123). However, none of the objects are for casting flattish objects, nor are there pieces with tenons or mortises or other features usual to two-piece moulds. Further, they are unlike crucibles (ibid.). Fused material may also be ‘... the remains of a pot used as a crucible’ (ibid.).

The metalworking context and date

The objects from the site cover a long time period. One pot resembles ‘soapy ware’ from the caves and promontory fort at Ballintoy, Co. Antrim, which has been dated to the 8th or 9th century AD (ibid.). Other pottery, thin ware with fine grit temper, has an ‘Early Iron Age’ appearance. Stevenson notes that, ‘These, and with them probably the ‘mould’, the poor flints, and perhaps the pot lids and pounders and the animal bones... may be the remains of a ‘bucket-urn’ people, whose importance in Scottish prehistory is still obscure’ (Stevenson 1944, 123-4). The mould, according to Stevenson, may therefore date to the Late Bronze Age / Early Iron Age.

ORKNEY

Gripps, Rousay,

Background

An earth-house, discovered in 1937, consisted of a passage and a chamber, roofed with slabs. A collection of objects including a stone implement, a fragment of pottery and a possible mould were presented to the National Museums of Scotland (Proc Soc Antiqs Scot 1937-8, 9).

Background

Excavations in 1866 cleared out the roundhouse (Farrer 1867). Internal constructions were well-preserved, including a central hearth. Around this were a series of 5 tanks set into the floor, described as 'underground cupboards'. There was also a 'service area'. The outside was not thoroughly investigated but simply trenched round. This revealed a passage way round the broch. The finds are primarily without context although Farrer considered the bronze Lisnacrogher spearbutt and fragment of pottery to be primary. Most of the objects are now extant. A variety of bone and antler objects were located such as globular pinheads, large antler peg, polisher, bone needle, spindle whorl and blubber mattock. Metal objects comprised the spearbutt and an 'iron fragment'. Stone spindle whorls, vessels, lamps or sockets tones, hammerstones, pot lids and an axe shaped waterworn stone were also found. Native pottery was also found.

The metalworking context and date

There is no record of the find circumstances and dating is impossible. The apparent bar ingot mould found at the site has not been traced by the author.

Broch of Lingro, St Ola

Background

The exact period of Petrie's work on this site is obscure but the earliest date in newspaper reports and plans is 1870; work continued into 1871 at least. Owing to the death of Petrie no detailed account of the excavation was prepared; a report was being compiled by Hedges and Bell but was never completed. The site was clearly multi-phased; the broch tower had been subjected to alterations and there were some secondary buildings inside. The outbuildings around the southern arc are the most striking feature of the site; there are also indications that there may have been some in the north that now longer survive. Not all were excavated. The outbuildings contained orthostats, partitions, heaths and tanks. Whether it was surrounded with ditches and ramparts is unknown.

The metalworking context

There is no record of the find circumstances.

Date

Dating is difficult yet some indication of activity comes from the finds. There are a number of bone and antler objects including long-handled combs, pins, needles, a dagger guard, a sword pommel, polishing implements and dice. There are also pieces of bronze chains and sheet and a silver denarii (now lost). Stone objects include spindle whorls; strike a lights, rotary querns, pivot stones, pounders and grinders and lamps. Native pottery was also recovered. Bronze sheet was also found. In various parts of the outbuildings several Roman coins were recovered including denarii of Vespasian (AD 69-79), Hadrian (AD 117-138), Antonius Pius (AD 138-161)", two of Antonius Pius (J Anderson 1883) and two coins of Crispina (AD 180-83) (Proc Soc Antiqs Scot 1873).

Lavacroon, Orphir

Background

Fieldwalking during 1979 and 1980 on a mound called Lavacroon near the Earl's Bu at Orphir, Orkney found that a large number of substantial stones had been disturbed and the area was subsequently gridded to enable detailed collection of material. Only fieldwalking was undertaken – there was no excavation. The results strongly suggest an industrial site. Dating cannot be confirmed, but a Norse influence is indicated. An extension of the known Norse site of the Earl's Bu is suggested and the rare nature of this type of site at that period in the British Isles is noted (Batey & Freeman 1986).

The immediate context of Lavacroon is rich in archaeological sites. While there is pre-Norse activity (burnt mounds etc) it is in the Norse period of influence that Orphir is best known. While many stray finds have been found perhaps the most conclusive Norse evidence from the area is the possible Viking grave found c 1889 at Greenigoe. In the grave were found various textile fragments and a paste and an amber bead. Two of the textile fragments are paralleled at the Viking site of Birka, Sweden (Geijer 1938; Henshall 1952, 17).

The most prolific of all the finds was undoubtedly associated with industrial activity – mainly ironworking. Two fragments of crucibles and a mould were also found. The excavators have no doubt that at some stage in the development of the site there was considerable industrial activity. They believe that while the crucibles suggest copper alloy working the mould may be indicative of silver working; the steatite ingot-mould fragment, made from a reused vessel

sherd, is most likely to be of Norse date and Scandinavian parallels are most commonly associated with the working of silver.

Date

The excavators believed that (ibid., 298-9) the mould could be assigned a cultural or temporal label, although this is doubtful. Batey & Freeman have suggest that the industrial activity may be assigned to the Norse period although the present writer believes this may not be true. The majority of the remaining finds are unhelpful with most difficult to ascribe to any particular period. the glass beads may date to the 6th century while the crude pottery may be consistent with an 11th and 12th century AD date. That said, such simple forms could be later in date (ibid., 299; Batey 1986). Only excavation can resolve the problem. The cataloguing and analysis were by Batey & Freeman (1986) and Bayley (AML pers comm).

Midhowe, Rousay

Background

Excavations were conducted between 1930 and 1933 at the expense of Walter G Grant although the actual work was done almost single-handedly by James Yorston (Callander & Grant 1934). The site as it stands today sits on the edge of low cliffs and with a series of strong ditches and ramparts. The entrance through the outworks does not align with the broch entrance, and the chronological relationship of the broch and the outworks is not known. MacKie (1994, 132) suggests that the site is so similar to Gurness that they ‘...may even be built by the same architect’. Briefly, the site can be divided into 3 main structural phases (Callander & Grant 1934; Foster 1989a, 167-71; MacKie 1994).

Phase 1: In the primary period the broch was built and its outer defence: the latter was assumed to be contemporary with the tower but ‘...no direct evidence for or against this conclusion was noted’ (MacKie 1994).

Phase 2: Then a series of oval and linear outbuildings, (F-H) were constructed. This involved the cutting back of a part of the broch wall and the infilling of a part of the inner ditch over which some of these buildings over ran (Foster 1989a; MacKie 1994).

Phase 3: Saw the start of the sagging of the broch wall resulting in its need to be strengthened: the basal gallery was infilled, and buttressing was constructed around the NW exterior of the

broch. As a result of this reinforcing, the passage encircling the broch was blocked in part, and a new entrance had to be constructed to the outbuildings, in areas of the site now lost to the sea. At the same time, some of the internal divisions were added to the outbuildings. The Commission and Foster believe that the secondary constructions (compartments C and D) in the broch were being built at this time.

That said, Callander and Grant were unable to relate several features stratigraphically to their suggested phasing: at some stage the entrance through the outworks was narrowed; parts of the outer ditch were paved, and a new stretch was added to it; whilst there were also 'late' buildings to the S and SF of the tower, but these were so dilapidated that their form and purpose cannot be established.

As at Gurness, the specific site sequence has been recently disputed (Hedges 1987; Foster 1989a; MacKie 1994; Mackie 2002). Relating to the internal fittings both MacKie and Callander and Grant relate the internal changes (compartments C & D) to a phase when the superstructure of the broch had started to collapse. That there was at least one earlier floor level is obvious from the way in which the structures in compartment D can be seen to be established on a level substantially higher than the pathway which encircles its outer edge. Some of the internal features may also be secondary because they are secured to the interior wall by an additional casing wall. The majority of extant fittings are probably secondary, although they may be similar in certain respects to earlier ones (Foster 1989a). Hedges (1987, 115) believes they may be original.

MacKie suggests that the re-modelling of the interior (MacKie's Phase 3) evidently represents 'a much more drastic social change' when the court was divided into two halves or family units each with its own fireplace (MacKie 1994, 141).

An alternative relative chronology for the site has recently been suggested (Foster 1989a, 169-73):

1. In the earliest stages of the site the broch and outworks were constructed, although they are not necessarily strictly coeval. The exact nature of the interior of the broch is unknown, but there was a cistern or cellar. The lower gallery was open and almost completely encircled the interior. The stairs in the east may be original (they do not overlap the scarcement, but at present end about two feet below this level) and led to a doorway at scarcement level. From here access was gained to an intra-mural gallery, which in the N led down to a doorway at an

intermediate level, and from which access to the gallery may have been possible. The scarcement probably also supported a gallery. If the internal stairs were not original, then sole access to the upper levels may have been from the lower internal doorway. At this intermediate level an intra-mural passage led around much of the broch, with further ingress via a small raised entrance to the 5SF.

2. At an early stage in the brochs' development, if not from its inception, a series of outbuildings (F, F and G) were constructed around the NW quadrant of the broch. Their layout respected the outworks, the northern wall of G being a strong wall which followed the line of the ditch. Their masonry is little inferior to that of the broch (RCAHMS 1946 II, 198).

3. The outbuildings were extended by the addition of building H, which had a single entrance to the SW. That this building is later than building G can be seen from the masonry joint where the curving wall of H is added onto that of G (fig 43B). The construction of this room also entailed the removal of part of the inner face of the outer defensive wall, a part of the outer northern wall of the broch, and the infilling of a length of the inner ditch. It follows in plan the general radial disposition of the outbuildings with their entrance from a common passage which encircles the broch. A cellar was constructed in an area which was in the inner ditch.

4. It became necessary to dismantle parts of the broch superstructure as the upper storeys became unsafe. The extant ground plan may relate to a phase prior to this but it seems more probable that the majority of features belong to this period. The lower intra-mural gallery was carefully filled around much of its circumference with upright slabs, parts of the intermediate gallery were also filled up, and a cell was inserted into the entrance to the upper mural gallery, blocking all further access to it. The interior of the broch was changed (see above). Outside the broch, excess stones were stacked in parts of the encircling passage, acting as buttresses, as a result, the original doorways to the outbuildings were blocked up, and new entrances created in areas of the site which are no longer extant. An entrance was knocked into the SF side of building H. The broch entrance was probably extended at this time by guard cells, and the original doorway became redundant. Many of the internal walls in the outbuildings may also belong to this phase. The elaborate rearrangement and much of the present appearance is particularly difficult to explain satisfactorily.

Known finds from the site are numerous and cover a long time period. Bone and antler objects predominate and include combs, composite combs, pins, antler points, rubbing implements, handles, vessels, picks and handles. Metal objects include a bronze penannular brooch, a projecting ring headed pin, bronze 'ear-rings', bracelet, sheet bronze and Roman patera fragments. Stone objects were also numerous including spindle whorls, loomweights, polishers, vessels, lamps, rotary querns and hammerstones. Native pottery and a few pieces of Samian Ware were also found. Glass beads and slag were also recovered.

The metalworking context

Callander and Grant (1934, 508) noted that '...fragments of seven or eight small crucibles of hard well-baked clay for casting bronze' were found. None were drawn or described in the original report. The report gives no account of where the moulds were found, only the crucibles. The crucibles were found in an area some 13 feet west of the foot of the rock-hewn stair that led to the entrance passage. The area comprises of three broad steps cut into rock, each rising about 1 foot in height. Across the highest step is a curved wall of inferior masonry, from which an erect slab projects towards the steps. The crucibles were found along with small fragments of thin sheet bronze at the base of the eastern side of the slab, and a hollow stone basin lay on the rock in the north-east. Two more fragments of crucibles were found in the fallen material to the east of the steps (*ibid.*, 483-4).

While there is no clear stratigraphic relationship of this area to the broch or other secondary buildings, Callander and Grant are in little doubt that this area is secondary to the broch, and therefore cAD100. That said, past discussions and reinterpretation of the building sequence has not involved the area where the crucibles were found, thus there is no clue to if they relate to when the broch was built or to the secondary structures or to another period. Thus, it is impossible to assign a date to the material. However, it is possible that the area may have been a specific area set aside for metalworking activities.

Date

The main phases of activity at the site are dated by the presence of second century Roman pottery, and a patera in the secondary buildings (Robertson 1970, table II) and three penannular brooches with affinities with Fowler A derivatives, a form which was current in its various elaborations until perhaps as late as the fourth century AD (Fowler 1960; Hedges 1987 III, 25; Callander & Grant 1934, fig 44.4-5, fig 45). For example in the peat-like layer which covered the floor of *compartment C* were found 2 pieces of Samian ware below the entrance to the stair and a bronze pin 'immediately north-east of the small tank in the floor'

(Callander & Grant 1934, 462-3). In *compartment D* were found a 'Roman patera of bronze smashed to pieces by falling stones, outside the eastern end of the drain on the south; and a ring-headed pin of bronze a few feet farther west. All were lying near the floor, except the patera which was found 18 inches above the whorl of cetacean bone and the paddle bones of the whale' (ibid., 466). Thus, while there is confusion as to when these internal features were built, they do appear to have been built around the early centuries AD.

As noted, there is no stratigraphic relationship or dating from the area where the crucibles were found. If we accept Callander & Grants interpretation that all the buildings are secondary to the broch then a date in the early centuries AD seems likely. However, while most diagnostic objects are indicative of activity in the early centuries AD the composite bone comb illustrates later activity in the mid first millennium AD (Foster 1990, 172). All that can be said is that the crucibles date to around 200BC to cAD800.

Mine Howe

Background

This curious site was discovered when a school-teacher moved some stone and found an opening with steps leading down. This underground chamber was re-discovered in 1999 and excavation revealed that the mound, though natural, contained a chamber surrounded by a ditch.

The subterranean structure was built of drystone masonry, the latter lies beneath the centre of the mound and comprises two flights of stone steps, the upper of which leads down to a half-landing and the entrances to two subsidiary galleries, and the lower on down to a corbelled chamber at the bottom. The structure appears to have been constructed in a pit. This technique of drystone construction, the ladder-like steps and the various techniques for relieving the dead-weight of the structure, suggest an Iron Age date, and this is supported by evidence from the recent excavations (N. Card pers. comm.).

The area outside the chamber was also investigated. Excavation revealed that an extensive ditch had been deliberately in-filled with a series of midden and rubble fills that probably represent several phases. Finds from these fills include Roman glass, a fibula brooch and Middle to Late Iron Age pottery. Trench B was located over one of the main ditch terminals. This revealed a ditch up to 7m wide and 4m deep with a flat-bottomed U-shaped profile. The earlier phases of

the ditch were associated with at least three different phases of revetting of the terminal. The later phases of revetting included a widening of the entrance causeway and a partial infilling of the ditch with rubble. The upper ditch fills contained much more midden material. This contained a large element of metalworking debris which probably originated from some ephemeral structures at the NW end of this trench and those uncovered in Trench E. Latterly these midden deposits were partially paved over before the ditch was totally infilled.

Within, and probably contemporary with the ditch was a paved area, c 2m wide, which may have extended around the mound. This paving was set on a platform cut into the mound and had a revetting wall along the back of it against the mound. Once the ditch had been infilled the paving was extended to partially cover the ditch. A trench also extended to the opening of the underground chamber, to examine the relationship of the ditch to the chamber and to determine the presence of any structure on top of the mound. Another trench (E) has located over the apparent settlement area outside of the causeway across the main ditch. Under a series of rubble and midden spreads a lobate Late Iron Age structure was uncovered in association with some very ephemeral features. This structure overlay an earlier, larger structure, probably a roundhouse. These structures were separated from midden-enriched soils to the N by the remains of a field boundary stone dyke. Middens associated with these structures produced a large range of industrial waste including moulds, slag, furnace linings and evidence for bone and antler working. In the SE corner of the trench a section of bank was revealed composed of redeposited natural. This may be an external bank to the main ditch that surrounds the mound.

The metalworking context and date

Metalworking debris was found in two areas, which may be associated. First, the upper ditch fills, which probably originated from some ephemeral structures at the NW end of this trench and those uncovered in Trench E. Second, middens associated with the structure in Trench E also produced a large range of industrial waste including moulds, slag, furnace linings and evidence for bone and antler working. Radiocarbon dates are awaited though the assemblage suggests a date around the 3rd to 5th centuries AD.

Excavations at the site are on-going. The metalworking area has not been fully excavated, the debris obtained thus far largely from dumps. Study of the material by the author is not yet complete; the material was only obtained by the author in late 2002. Although an initial catalogue has been compiled it is not included here. However, the assemblage talks of the manufacture of doorknob spearbutts and a selection of pins, some of which are of 3rd or 4th

century date. The crucibles, indeed the whole assemblage, is closely comparable to the assemblage from nearby Gurness, Orkney.

Gurness

Background

The large mound at Gurness/ Aikerness was excavated between 1929 and 1939, but was only recently published recently (Hedges 1987). Despite the rudimentary knowledge of stratigraphy and the poor recording employed by the earlier excavators, Hedges has been able to present convincing structural development (Hedges 1987). The recognised structures break into three approximate horizons. a Middle Iron Age 'broch' or roundhouse outworks and nucleated village; a Late Iron Age of polycellular, cellular and sub-rectangular buildings; and a Norse horizon. The relationship of the outworks to the broch is not known, but as the later gatehouse is probably on the line of the original causeway through the defences, it can be noted how the broch entrance aligns with this, suggesting they were conceived of as an entity.

MIA – 'broch' and outworks

The broch: The extant internal structures of the broch belong to more than one phase. Hedges (1987) and Foster (1989a, 159) believe there is no reason to suspect that these were not a continuous succession. Problems arise in establishing the chronological relationship between observed, but not necessarily related, structural changes. MacKie (1994) sees the broch in its earliest stages as a massive stone tower enclosing a roundhouse, The visible scarcement level acted as the support for a wooden gallery or roof; this was supported towards the interior by a ring of post-holes. There is no evidence for these post-holes, but he believes that they would be discovered upon removal of the extant internal structures. The well and central hearth belong to this phase.

At some stage the broch superstructure started to become unsafe. A set of internal stairs was built in the W of the interior, which MacKie believes ignores the scarcement, which may still be in use. At the same time as the stairs were built, or so MacKie argues, the intra-mural gallery at the 1.8m level was filled in; the entrance to the W was converted into an aumbry, and a cell was created in the space at the foot of the intra-mural staircase to the south. He relates all extant internal features to this secondary phase, as well as the construction of the guard cells outside the broch entrance (MacKie 1994), and the erection of the broch village from the masonry derived from the dismantled broch structure.

Neither Hedges nor Foster disagree about the secondary nature of most of the broch internal fittings, but Foster challenges MacKie's interpretation on several fronts:

1. Nothing is known of the earliest broch period interior save that there was a well and a central hearth. In other respects the interior may have been similar in style to the present one (albeit a single rather than double unit). There is no reason to believe that the scarcement was not functioning in its original capacity as either a gallery- or roof-support.
2. The small structures which abut either side of the broch entrance are obviously later than the broch tower, but are not necessarily much later. Even if conceived of as a part of the original plan - no builder would have felt compelled to join these slight, low buildings to the towering mass of the broch. Indeed, this would have been an unnecessary inconvenience, and might possibly have weakened the broch superstructure. There is no evidence that the original broch entrance ceased to function after their erection, although a pivot stone indicates that there was now an outer entrance into the broch.
3. Alterations to the intra-mural gallery might relate to any stage in the history of the broch
4. The relationship of the 'guard chambers' to the broch is important because the layout of the surrounding outbuildings obviously respects these. The outbuildings need not have been built at the same time as the secondary internal constructions of the broch, nor need they have been built from the dismantled broch superstructure (part of which is stacked in the inner ditch: pers comm E MacKie),

Hedges acknowledges that there was an earlier floor level, if not two, in the broch, evidence for which consists of a central hearth, a well to which access could not have been gained in the later period, and a lower paved floor and occupation horizon 0.1-0.15m in depth (Hedges 1987, 35). Although most of the extant internal features are secondary, some may be common to both of the identified phases of broch use (ibid., 34). Craw, the original excavator, considered the extant fittings to be secondary to the broch, although still belonging to the broch period. This view was based on the fact that the fittings seemed architecturally dissimilar from the broch. But they were considered contemporary with the outbuildings with which they bore a resemblance (ibid., 15 for summary of Craw's scheme)

The outbuildings: The layout of the broch period 'village' (figure *) may be briefly described as comprising a gatehouse, a passage to and round the broch, this giving access to a number of radial conjoined outbuildings, their backs forming a curtain wall which lined the inner side of the 'Great Ditch'. Additional features are an area bare of buildings to the south west and a pair of compartments flanking the outside of the entrance to the broch tower. As restored, most of the remains survive to a height of 0.5m to 1mm, the pathways now gravelled and the interiors of the buildings grassed over (Hedges 1987, 37).

As within the broch, references to archaeological deposits in the outbuildings are sparse and do not give a comprehensive view of what any one floor was like. Peat ash is common on hearths and as dumps. The other major component of floor deposits seems to have been middens. Richardson in his guide booklet for the site says that this had 'accumulated in every hole and corner' and that it was a major source of finds (ibid., 44-5). It is clear that refloorings were common and structural features includes hearths, ovens, drains and radial partitions.

Hedges (1987, 45) argues that the outbuildings are similar to both the primary and secondary interiors of the broch, both of which are early. In the logical sequence of events the outbuildings were obviously built after the broch tower, but their layout with its encircling path and path leading up to the broch entrance, would suggest that the whole was conceived of as a unity. Their radial disposition, full use of space and ordered sequence of construction suggests a pre-conceived plan. The site as we see it now includes rebuilds and extensions of some the outbuildings into the inner ditch.

While Foster (1989a, 161) agrees with Hedges that '... there is no reason why they (the outbuildings) should not have started to develop during the earliest occupation of the broch' she none-the-less believes there are problems:

1. The earliest phases of use of the broch will remain an unknown element in this structural equation, unless further excavation takes place.

2. The lower levels of the radial outbuildings have not been thoroughly investigated, and the possibility that earlier, perhaps non-radial, outbuildings preceded them, cannot be discounted. When the floor of the outbuildings were lifted during the final stage of consolidation and excavation, drains were found under the outbuildings, but there is no mention of any other structures.

LIA activity – Cellular structures (post broch)

That there was later activity during the post-broch period is clear. However, as with the broch period, it is impossible to obtain stratigraphic relationships or object contextual information. That said, most of the occupation appears to have been Pictish with one or more buildings and features dating to the Viking period. Reoccupation is shown best by several phases of reflooring and rebuilding in the outbuilding area. These included extending some of the buildings into the area of the inner ditch, which suggests a long period of activity and the building of a shamrock and an annexe. Elements of other cellular structures were also found in the immediate vicinity of the shamrock and annexe giving the impression that such settlement in the area was more widespread (ibid., 67). A longhouse was found in the south east of the area and the passage through the outbuildings and broch tower were reused. In the north east quadrant was also a conglomeration of secondary buildings, including a cell with a tank. This is where the crucible was found.

The metalworking context and date

The moulds divide neatly into two groups on the basis of stratigraphy, the typology of the objects, and the form of the moulds. Seven of the moulds (cat 812 – 818) were found in the broch period (10) in various parts of the inner ditch around the broch. In the lower part of the ditch there was 'kitchen midden' up to a metre thick in places, exceptionally rich in artefacts and ecofacts. Three crucibles (804, 805 and 810) come from the outbuildings of the broch period. Unfortunately, there is no record of what outbuildings the objects were found and there is no longer any hope of closely following what must have been complex change and development over time.

The later group of moulds, 819-828 are all associated with the upper floor level of the annexe to the Pictish 'shamrock' house. This structural conglomeration was multiphase and complex and '...it is clear that it was removed without being fully understood' (Hedges 1987, 65). Walls can now be seen to have been of different builds and more than one floor is known to have existed. Three irregular areas were noted with floor-set tanks and charcoal. No further structural information is recorded. In sum, the first group of moulds are not *in situ*, instead found in the great ditch discarded from an unknown work area. The second group of objects were found in the annexe to a Pictish house, yet there must be doubt whether this area was a metalworking area or a dump deposit. There is also evidence of ferrous working at Gurness, with remains found in numerous outbuildings, the broch interior and the great ditch.

Crucible 809 is assigned to the Pictish Period, AD600-800, found during excavation of the north-eastern buildings. Over this north east area there was a conglomeration of secondary buildings. These appear to have been recessed into the earlier Broch Period rubble - their floors being at a depth of a metre or more, and intermittent superficial paving may indicate the contemporary ground level. The remaining crucibles (806, 807 and 808) are assigned to the 'Broch/Post broch period' and assigned to AD0-600. The remaining crucible (811) is unstratified.

Howe

Background

The multi-period site in was published by Ballin Smith (1994) and reviewed by MacKie (2002). Only the pertinent points are reviewed here.

Phase 6: Early Iron Age 'Broch I' and Phase 5/6: After the collapse of the Phase 5 roundhouse, another roundhouse or broch was built on the same alignment. This much more massive circular stone structure was known as 'Broch I'; this utilized the clay of the earlier rampart as the lower part of its wall core. No radiocarbon dates relate directly to this phase, but 'by extrapolation from the preceding and subsequent phases it is estimated to lie within the 2nd and 1st centuries BC (Smith 1994, 37).

MacKie has recently reviewed the date for 'Broch I' (2002). He believes that the interpretations of the Iron Age sequence presented in the report seem in part designed to stretch the occurrence of a 'broch' at the site back to well before the first century BC, into the early Iron Age stage of the evolving material culture. In this way the local development of these towers, so firmly asserted by Hedges and Armit as well as by others, would be vindicated by unassailable stratigraphical and dating evidence. By contrast MacKie believes that the dating evidence for any hollow-walled broch (either ground-galleried or solid-based) existing before the first century BC, and perhaps before the latter half of that century, is very weak and attempts to interpret the radiocarbon dates so that they show the contrary are misconceived.

As noted, 'Broch I' is assigned to the early Iron Age, and given a date within the first and second centuries BC on the basis of the well dated earlier and later phases, even though the available radiocarbon dates for the early Iron Age, both at this site and elsewhere, are somewhat older. The surviving artefacts largely undiagnostic but both rotary and non rotary

querns appear, naked six-row barley was cultivated. The rim sherds found included only two of the carinated vessels that have been recovered from other early Iron Age stone roundhouses on Orkney like Bu and Quanterness. Most of the illustrated rims are of barrel-shaped some with slightly out-turned lips, which are characteristic of Phase 7.

Unfortunately none of these artefacts, including the wire ring headed pin (7107), was actually linked with the remains of 'Broch I' itself. Most came from Phase 5/6 contexts; this included contexts 'not specifically attributable to either Phase 5 or 6 but to activities overlapping these two periods, in particular remnant buildings, assumed to date either to Phase 5 (the roundhouse) or to Phase 6 within the defences, and modifications to the ramparts' (Smith 1994, 35) including subsequent levelling.

Three radiocarbon dates were obtained for Phase 5/6 deposits, namely 2255 ± 95 bp, 1960 ± 60 bp and 1970 ± 120 bp; the three Phase 5 (unequivocally roundhouse) dates were somewhat earlier. In fact the three dates quoted above were on material associated with 'rebuilt of the Phase 5 rampart which were completed at or by the start of Phase 7'. Thus there is no direct dating evidence at all for the date and use of 'Broch I' and if the rebuilding of the Phase 5 rampart is contemporary with it, two of the three dates concerned indicate a date in the first centuries BC or AD. 'Broch I' could therefore be of this age and firmly within the middle stage of the Iron Age material cultural sequence. There is no shred of direct evidence that it is earlier and it cannot be taken as proof of the local evolution of the broch tower while a more plausible alternative hypothesis exists (p. 36 below).

The wire ring-headed pin was associated with context 1868, the levelling rubble layer. There appears to be confusion to what date this may be. On the one hand the rubble 'may have come from the collapse and demolition of Broch 1 at the *end* of Phase 6' (Smith 1994, 37); alternatively it may 'be connected with the demolition and construction at the *start* of Phase 6' (*ibid.*). Thus, it may date to as early as the 2nd century BC or as late as the 1st century BC.

Phase 7: Middle Iron Age 'Broch II': The next structure is that which was the most prominent when the site was excavated – the stump of what looked like a massive broch surrounded by a village of stone houses. The Phase 5/6 settlement was completely levelled and a layer of rubble sealed most of the site. Six new houses were then built and the broch tower was cleared out for rebuilding. The surrounding village was defended by the pre-existing rampart and ditch and appeared to be contemporary with the broch. Many details of the individual houses of this

settlement were recovered as was much information about the technology and economy of the inhabitants.

This was the period that yielded the vast majority of the artefacts recovered, and a later phase of which was securely dated by radiocarbon to the period to between about the first or second and the start of the fourth centuries AD. The broch's history was marred by a series of collapses due to the insecure foundations, as well as serious fires which destroyed the roof on at least one occasion.

Datable material from the start of Phase 7 was not recovered and the stratigraphically earliest samples, GU-1750 and 1788, are from contexts 'which formed after a considerable occupation of the Phase 7 settlement' (Ballin Smith 1994, 265). Both samples are of charcoal formed during major fires.

Two wire-projecting ring-headed pins were found in Phase 7. 5446 was associated with context 1271 which was associated with a wall. 2369 was associated with the earth ditch fill. Although the report does not make it clear it is likely that this 'fill' is the ditch W of the entrance which was filled with rubble, burnt stone and midden material. This was 'probably derived from one or more of the building levellings on the W side of the site, at a time when the ditch and rampart were no longer required' (Ballin Smith 1994, 42).

Phase 7/8: This phase concerns the broch tower with a continuation of its late Phase 7 floors, after a series of wall collapses. Access to the broch was gained from over the top of its walls as the entrances were blocked. It is uncertain whether these last two floors in the broch, which were concerned with iron and bone working, built up before or during the large S collapse of the tower. This phase dates to around the 4th century AD. The pin was found among the general rubble – thus may be actually earlier than the subsequent floors that were dated.

Phase 8: Late Iron Age settlement: A settlement of houses of an entirely different kind, one rectangular and one oval in shape, was built partly over the ruins of the Phase 7 village, and after 'Broch 2' had again collapsed and finally been abandoned in the fourth century AD. Both the material culture, which included double-sided composite bone combs, and the radiocarbon dates confirmed that this phase dated to between the fourth and seventh centuries AD, and possibly lasted as late as the ninth. In contrast to other sites where late Iron Age horizons have been identified, at Howe there appears to have been considerable continuity between the

middle and late phases, particularly in the pottery. Again much evidence for the economy and technology of the period was recovered.

Four samples were dated, of which the earliest stratigraphically is GU-1749 and has a calibrated date range of cal AD 428-549 which is significantly later than all except one of the Late Phase 7 samples. The phase may extend as far as the 9th century AD (Ballin Smith 1994, 265-6).

The metalworking context

The pear shaped crucible (CAT 7875) came from an ash deposit in the floor of the south building, early in Phase 7. This building formed the west side of the entrance passage into the village and was the smallest house in the settlement. It was built over levelling rubbles and it reused the Phase 5/6 foundations of the village entrance. The building had a hearth and an oven. Several alterations took place during the life of this building, including the repaving of the entrance passage and the construction of a new hearth. The excavated deposits show typical reuse of a cellular building and none of the described levels or features can be specifically related to metalworking, although the hollow in the ground, oven and hearth clearly indicate some connection with a pyrotechnic process.

The mould was found within the north-east building in early Phase 8. This phase is concerned with the late iron Age farmstead when the tower was used as a dump and iron-working shed. The focus of the settlement shifted to the *North East building*, where the mould was found, which formed the nucleus of a 'domestic' settlement with a cluster of yards, interpreted as a farmstead (Ballin Smith 1994, 91). Working in iron continued in this phase, antler working was still practised and composite hair combs, common on other Late Iron Age sites, were found. The North East building underwent 4 stages of use, which involved rebuilding hearths and internal arrangements and it is clear that much rebuilding and activity took place. Despite the recovery of the mould Smith (1994, 114) sees the north-east buildings as '... clearly domestic in function'. The North East building was not the only one occupied however. Part of the east building was re-used and had a hearth and tank, apparently not in use for very long (ibid.). Another structure was also built with a paved floor and hearth. Its use included ironworking and is '... best interpreted as a short-lived workshop' (ibid.). It is possible that this workshop formed part of a larger group of buildings that lay to the south of the rampart, but was not excavated (ibid.). The small thumb pot (CAT 4395) was also found early in Phase 8. This was found within one of the walls within the later Iron Age farmstead.

Date

The crucible from Early Phase 7 is within the best-dated phase of the site. This was the period that yielded the vast majority of the artefacts recovered, and the later phase 7 is radiocarbon dated to about the 1st or 2nd and the start of the 4th centuries AD. However, datable material from the Early Phase 7 was not recovered and the stratigraphically earliest samples, GU-1750 and 1788, are from contexts ‘... which formed after a considerable occupation of the Phase 7 settlement’ (Ballin Smith 1994, 265). That said the end of phase 6 may date to the 1st century AD (ibid.). Thus, the early phase 7 crucible find may date to around the first or second centuries AD.

Both the material culture and the radiocarbon dates suggest that the early Phase 8 dated to between the 4th and 7th centuries AD. Copper alloy objects represent a period of the mid-4th to 6th centuries AD (Ballin Smith 1994, 91). The second ‘crucible’ is also reasonably well dated. Both the material culture, which included double-sided composite bone combs, and the radiocarbon dates confirmed that this phase dated to between the fourth and seventh centuries AD, and possibly lasted as late as the ninth.

Stywick Bay, Sandy

In the National Museums of Scotland is a collection of objects which, since they were found about 5 feet under the surface on the site of an ancient structure, probably a broch, on the links of Staewick Bay on the farm of Skaill (PSAS 1913 Donations), may have come from this site. The collection is composed of deerhorn implements, a clay crucible, a perforated stone maul, coarse pottery sherds and bone objects including 2 cups, 2 weaving combs, 2 knife- handles with part of blades and a dice.

Background

The metalworking debris from Brough of Birsay is well known. Initial work at Brough of Birsay was carried out under the direction of Richardson and although his findings were never published records survive in the form of a diary kept by the foreman, Mr J Henderson. These earlier excavations were restricted to obvious standing remains and being only superficial, to the extent that lower archaeological horizons appear not to have been disturbed. After the War, more detailed work. The artefactual evidence from these earlier excavations has since been published (Curle 1982). Hunter has recently published recent work on sites VII-IX (Hunter 1986) Hunter (1986, 22) estimates that about a 10% sample of the site has been investigated, although mainly concentrated around the ecclesiastical focus.

Area 1: This area, around the 11th century church, was the first to be excavated. Earlier foundations were found under its south wall and were believed to have belonged to a structure which had been demolished or had fallen into decay before the eleventh century. Two layers of graves were also discovered, the lower set being on the same orientation as these foundations. The walls of an extensive, but incomplete enclosure were believed to be associated with these graves. This complex of features is commonly interpreted as a church, either of Celtic or early Norse date, with enclosed graveyard and possibly with associated buildings.

Area II: In 1936, Dr Richardson embarked on the excavation of the Norse dwellings in Area II.

The latest excavations were commenced in 1974 (Hunter 1986) and examined in detail nine areas of the settlement complex (Sites I to IX). The main volume (Hunter 1986) deals solely with sites VII, VIII and IX. These three sites were positioned with specific regard to the problems of coastal erosion and were located on the eastern face of the island. Full accounts are given in Hunter (1986) and only pertinent areas are discussed here.

The structures on sites VII to IX are unique in the Orcadian record, both in plan and construction. They are interpreted as the thoroughly robbed foundation trenches of major cellular structures which had internal orthostatic facings and thick turf walls (Hunter 1986, 37-45; fig 41.d, 1). Otherwise they are similar in form to the type of polycellular buildings seen at Buckquoy (Ritchie 1977) and elsewhere.

The metalworking context

Evidence of bronzeworking was largely confined to Area II. Despite the richness of finds, there was little actual discussion of the structures or features in the area. Much of the earlier work which would provide a detailed context for the metalworking assemblages has never been published fully. That there were Pictish structures, underlying the Norse ones now visible on the site, is not doubted, but their precise form is unclear (Graham-Campbell & Batey 1998, 12). The work undertaken by Richardson, and supervised by Curle, between 1936 and 1939 did reveal extensive Pictish material, but this was ‘...not related to any identifiable structures with the exception of one small well’. Work undertaken by Hunter and Morris in the same area, Room 5 of Area II, suggested that a number of Pictish phases could be distinguished. Of these phase 1a predates the metalworking and is followed by a further three structural phases (1b, 2a and 2b). Of these, Phase 1a was a substantial stone structure, robbed and levelled in Phase 1b. A flagged floor provided a new surface for a structure in Phase 2a and this collapsed in phase 2b. A radiocarbon date of 645 ± 55AD is recorded for this final stage.

The great concentration of bronze-working debris in Area II was preserved by later Norse levelling up. Most of the debris was found amongst piles of burnt stones; lesser amounts were scattered on the basal clay, particularly around a well, much of it preserved by paving and levelling up in the Norse period. The material was mostly shattered.

Area II – Pictish horizon. Zone ? This horizon followed the original natural ground surface sloping downwards from the E side of the cemetery to the cliff edge. The area was divided into 5 Zones; only zones 4 and 5 were where Pictish objects were recovered from more than some 20mm

above the natural clay. These levels are assigned to the Pictish period on the basis of the pins and mould types excavated. Although the finds included pins and combs, the main finds from this horizon consist of debris from 'what appears to have been an important bronze-working centre' (Curle 1982, 18). One bagged shaped crucible (CAT 392), 5 lugged crucibles (CAT 396-400) and a flat bottomed dished (CAT 417) were all found in this area and horizon. A small well was constructed at the west side of Zone 1 and is possibly the only known Pictish well. A short distance away there were two post holes. Between the post holes and the well there was a layer of ashes and loose earth which contained the broken moulds, crucibles and small fragments of coloured glass.

Moulds for penannular brooches (cat 296, 298, 305, 309b, 310); moulds for ornamental fragments (Cat 313, 314); moulds for rings (Cat 318, 319, 322); moulds for dress pins (Cat 327-331); moulds for incomplete objects (Cat 344, 351-354); moulds for larger objects (Cat 370, 373, 377- 380) and a miscellaneous mould fragment (Cat 386) were all found within this area.

Area II – Pictish horizon. Zone 2: A mould for a penannular brooch (cat 304); a mould for a dress pins (Cat 333) a mould for a ring (Cat 321) and moulds for incomplete objects (Cat 338, 419, 342, 349) were all found within this area.

Area II – Pictish horizon. Zone 4, Phase a: Moulds for a penannular brooch (Cat 294, 295, 303, 307, 308); moulds for ornamental fragments (Cat 311, 312); moulds for incomplete objects (Cat 337, 340, 348); moulds for small ornamental pins with single or double disc heads (Cat 365-367); moulds for larger objects (Cat 374) and over 500 other miscellaneous fragments from the general *Phase 4* layers were all found within this area.

Area II – Pictish horizon. Zone 4, Phase b: A moulds for a dress pin (Cat 332); a mould for an incomplete object (Cat 343); moulds for small ornamental pins with single or double disc heads (Cat 357-364) and a mould for a larger object (Cat 381) were all found within this area. Two flat-bottomed containers were also found in this area (CAT 410-11). Zones 4 relates to areas where extensive Norse building followed. The natural clay in this area was approximately 0.60m below the level of the lower Norse horizon paved passageway, with an intermediate level of rough paving between the two. Pictish finds occurred both below and above this paving. The earliest level is referred to as Phase a, and the level between the intermediate paving and the lower Norse horizon as Phase b.

Area II – Pictish horizon. Zones 4 & 5: 8 rounded bases, 7 pointed bases, 17 rim fragments, 11 lugs and 67 other pieces (all classed as CAT 401b) were found in this general area.

Area II – Pictish horizon, Zone 6: One mould for a ring (Cat 320) was all found within this area.

Area II – Middle Norse Horizon, Room 3: One triangular crucible (CAT 393a&b) was found in this area. The central groups of rooms (1-11) formed a solidly built complex. Although some of the internal walls were not shared, the dwellings were not intercommunicating; their main doorways lead outwards.

Area II – Lower Norse Horizon, Room V, Phase 4a: One miscellaneous crucible (CAT 401a) was found in this general area.

Area II – Lower Norse Horizon, Room V, Phase 4a: A mould for a penannular brooch (cat 299, 300) and one miscellaneous crucible (CAT 401a) was found in this general area.

Area II – Lower Norse Horizon, Room VII: A mould for an incomplete object (Cat 418) was found within this area.

Area II – Unstratified: A mould for a penannular brooch (cat 297, 301, 302, 306, 309a); moulds for ornamental fragments (Cat 315-317); moulds for rings (Cat 323-326), moulds for dress pins (Cat 334, 335, 336); moulds for incomplete objects (Cat 339, 341, 345, 346, 350, 355, 356); moulds for small ornamental pins with single or double disc heads (Cat 368, 369), moulds for larger objects (Cat 371, 372, 375, 376, 382, 383) and other miscellaneous mould fragments (cat 384, 385a, 385b, 387-390) were all found within this area. 9 crucibles also come from this unstratified in Area II (CAT 402-4, 407, 409, 413-416a&b) .

Area VII: Two moulds (Cat 1354 & 1391) were found during the recent excavations by Hunter (1986).

Area VIII, pre-Norse: One mould (Cat 5224) and one crucible (CAT 5220) was found during the recent excavations by Hunter (1986) in a pre-Norse context. The remains of the pre-Norse phase consisted almost entirely of features cut into natural clay, typically gullies, stake and post-holes and associated patches of burning. The evidence is taken to suggest that the house was domestic and that the crucible represented 'peripheral workings' (Hunter 1986, 54).

Area IX: One mould (Cat 5589) was found during the recent excavations by Hunter (1986).

Area III, Site L: Work in this area of the site was started in July 1938 and carried on during the season of 1939 under the direction of Richardson and Henderson, but was abruptly halted on the imminent outbreak of war when little more than a rough survey of the individual buildings and a superficial internal examination of each had been carried out. However, the recent work by Hunter and Morris has begun to untangle some of these problems. One triangular crucible was found (CAT 394). Site L was examined fully by Morris and found to be a dwelling, which has had one major rebuilding phase which reduced the length of the building by some 2m and added an entrance in the E wall. New finds were few, offering no clear dating evidence.

Area VIII, pre-Norse: This was the only crucible (CAT 5220) found during the recent excavations by Hunter (1986) in a pre-Norse context. The remains of the pre-Norse phase consisted almost entirely of features cut into natural clay, typically gullies, stake and post-holes and associated patches of burning. The evidence is taken to suggest that the house was domestic and that the crucible represented 'peripheral workings' (Hunter 1986, 54).

Unstratified: CAT 395, 408b and c were unstratified.

Date

There is no evidence for settlement pre-dating the mid-7th century AD (Hunter 1986, 61). Earlier occupation is possibly hinted at by a penannular brooch of Fowler class F (Curle 1982, 95; Fowler 1963, 103-7), which may date to the 4th or 5th centuries AD, but this may be scrap. By analogy with brooches from the St. Ninian's Isle hoard the bronzeworking phase should belong to the late 8th century AD.

Knowe of Taft, Greenay, Birsay

Background

References to a 'broch wall' or circular wall are not specific but the site is called a broch (Hedges 1987, 55). The site was partially excavated around 1868 by David Stephen; prior to that the site had been used as a quarry and this practice was resumed very shortly after. Vestiges were visible in 1882 but there is now no surface trace. Excavations were concentrated on the wall head and parts of the interior (RCAHMS 1946, 16, no15; Fraser 1925, 22; Watt 1882, 449-50). All the finds are without context and some are now lost. Portion of stone querns, hammerstones, a glass bangle or armlet, native pottery and two sherds of Samian Ware

were found. Also found was a piece of blue glass with white strips twisted in its substance resembling Venetian glass (Watt 1882, 450).

The metalworking context

There is no stratigraphic relationship of the find.

Date

There is no indication of date, although the Samian sherds indicate occupation at least in the first few centuries AD.

Bu

Background

Rescue excavations at Bu were carried out in 1978 (Hedges 1987). Several periods of use and abandonment were recognised. The interior of the broch was excavated; outbuildings and defences were sought by four radial ones. The results was entirely negative; Bu has neither outbuildings nor outer defences.

Phase IIa: saw the building of the roundhouse which was built on top of an earlier ploughsoil (*Phase Ib*), which at one point was found to overlie a previous occupation of 'some sort' (*Phase 1a*). Radiocarbon dates suggest occupation of the site at c600BC indicating that broch-type structures had a long tradition, at least in Orkney. This is corroborated by the finding of a similar roundhouse at, for example, Quanterness, Orkney datable to around 700BC (Renfrew 1979, 124).

Phase IIb: This period is concerned with the abandonment of the roundhouse and its initial disintegration. As far as can be determined, the roundhouse stood for some time after it was left, shown by a layer of grey silt (L17) containing rubble, up to 0.3m thick (Hedges 1987, 24). Virtually all the finds came from this silt. Hedges suggests that '...this silt was sterile and that the objects really belong to Phase IIa or IIIa, their having been covered by silt on the one hand or pressed into it on the other. Many of the larger objects were undoubtedly resting on the earlier floor while some of the IIb pottery was found to join that from secure IIa contexts' (ibid., 42). One crucible (Cat 170) was found in the silt. Radiocarbon date from a cow's skull found at the very bottom of the rubble fill of the broch (L2a) corresponds to a date bracket of 775-456BC at 68% confidence.

Phase IIIb: This phase is concerned with the early re-use of the site. After its abandonment the disintegrating broch was re-used and robbed internally; a subterranean complex was inserted into the entrance and the area outside it; and possibly, a further two subterranean buildings were inserted elsewhere. These are subsumed within *Phase IIIa* but there is no evidence that they are contemporary. In this phase the upper parts of the broch collapsed and the *Phase IIIa* structures collapsed filling the broch interior, the modified entrance, and the earth house with large rubble and soil (L2b, L29, L14). Prior to this sufficient time had elapsed for earth to accumulate in the *Phase IIIa* earthhouse.

Within the rubble fill of the earthhouse (L14) were two human skeletons. Analysis of bones from this general context indicates that the collapsing earthhouse had been used for 'the disposal of the dead in *Phase IIIb*' (ibid., 29).

The metalworking context

The two crucibles appear not to be associated with the primary roundhouse (c700BC), instead being associated with rubble infills of later date. Crucible 170 derives from *Phase IIb* silt deposits (L17) which accumulated in the roundhouse between its abandonment and re-use. Crucible 172 derives from *Phase IIIb* deposits within the rubble fill of the later earthhouse (L14). No radiocarbon date is attributable to this phase.

Date

None of the artefacts are diagnostic and the assemblages from the two main phases are indistinguishable. However, the radiocarbon dates show that the main structure was in occupation (*Phase IIa*) around 700BC. The one date from the earthhouse (*Phase IIIa*) is problematic, being earlier than that of the roundhouse. None of the finds associated with this phase are helpful for dating. At best the crucible from the *Phase IIb* deposits can date to 775-456BC at 68% confidence level. The other pear shaped crucible (cat 172) must be later, but when is not known.

Skaill

Background

Excavations at Skaill, Deerness, Orkney were carried out by Peter Gelling between 1963 and 1981. Five locations were investigated revealing a sequence of settlement from the Late Bronze

Age to the post- medieval period. Due to Gelling's death the findings were published by Buteux (1997).

The earliest evidence of occupation is provided by an extensive horizon of ard -marks cut into the subsoil, which relates mainly to Early-Middle Bronze Age cultivation. The earliest structural remains (Site 5) are dated to the Late Bronze Age (c. 1000-700 BC) and comprised two conjoined, sub-circular, stone-built structures forming a figure-of-eight plan. These may represent a house and byre combination, perhaps part of a larger settlement.

Iron Age occupation (Site 6) centred on a substantial roundhouse with adjoining structures. The date of the construction of the round house is uncertain, but it was certainly occupied in the earlier part of the Late Iron Age, between about AD 200 and AD 600., and underwent numerous alterations over a long period of use. There is some evidence for occupation in the Early Iron Age (c. 700-200 BC) preceding the construction of the roundhouse. Probably in the 6th century AD the round house was levelled and paved over. The paving was associated with a number of poorly preserved rectilinear rooms and other buildings. These architectural changes were accompanied by a marked refinement in pottery forms and fabrics, and are tentatively associated with social and political changes consequent upon the growing influence of the Pictish kingdom. Continuity of occupation into the 7th/8th centuries is suggested by a handful of diagnostic artefacts from both this site and the Late Bronze Age settlement (Site 5), where some reoccupation took place.

Settlement of the Norse period was found at a third location (Site 2). A sequence of five superimposed buildings was uncovered, roughly spanning the 8th/9th to 11th centuries, only the third of which conformed to the conventional hall-house type. The hall-house was associated with a distinctive Norse artefact assemblage, but the artefacts associated with the earlier buildings were largely 'native' types and the cultural attribution of these buildings is ambiguous. The last two buildings in sequence were simply huts, probably the outbuildings of a settlement whose focus lay to the south (Site 1). Limited excavation at Site 1 revealed the fragmentary remains of a Norse building dated to the 11th century. This may be part of the farmstead of Thorkel, foster father to Earl Thorfinn, whose residence was very probably at Skail. Another, better preserved building dated to this period was excavated nearby (Site 4), and is tentatively interpreted as a cook house.

Substantial remains of a medieval building overlay the Norse remains on Site 1. This is interpreted as a first-floor hall of the 12th century, which continued in use, undergoing many

modifications, well into the post-medieval period. The hall would have been associated with an important 12th-century church, known from documentary evidence, which once stood nearby. The sequence of occupation revealed by excavation at Skaill is completed by a 17th-century barn with attached corn-drying kiln (Site 4).

The metalworking context

One crucible (CAT 141), from Site 5 is unstratified. Analysis suggests that this is not a crucible.

The other metalworking evidence is from site 6, two crucibles (CAT 34, 61), a mould for the production of a melon-headed pin and decorated rectangular object, and five stone moulds (186 187, 188, 189 and 199). Site 6, a roundhouse and associated annexes underwent many episodes of use, re-use and modification and unravelling a date and sequence is difficult. Thus, although it is assumed that ‘...the annexe was a workshop attached to the principal residence but there is no really good evidence for this’ (Buteux 1997, 44). Three radiocarbon dates from the roundhouse were obtained: AD 610-775; AD 550-670 and AD 600-700. This provides a *terminus ante quem* for the roundhouse occupation. At a very generalised level the pottery gives a range from the 1st to the 6th century AD. The only chronologically diagnostic non-ceramic artefact was a Fowler’s Type E brooch conventionally dated to the 4th and 5th centuries AD.

All of the moulds are recorded as coming from Level 1, as is one crucible (61). These relate to the post-roundhouse occupation (Buteux 1997, 47-51). The two ceramic moulds relate to later occupation of the roundhouse and are argued to be comparable to Pictish examples from Birsay (Buteux 1997, 50). Stratigraphy, radiocarbon dates and art historical comparisons, therefore, suggest the moulds are indicative of non-ferrous metalworking in the Late Iron Age, perhaps around the 6th or 7th centuries. Buteux (1997, 53) concludes that:

‘..various strands of evidence combine, therefore, to indicate that the roundhouse was occupied in the early centuries of the Christian era, and that its occupation came to an end sometime between AD 400 and AD 600. This is hardly a precise date, but the possibilities for the origins of the settlement are even more broad, with the different strands of evidence admitting anything from the first half of the first millennium BC to the 2nd century of the first millennium AD... A possible solution to the problem to the contradictory evidence may be provided by suggesting that the earliest occupation of the site was followed by several centuries of abandonment before the roundhouse was built... Pursuing this argument. the period that would be absent at Skaill is that of the earlier part of the Middle Iron Age or ‘broch period’, the last two centuries of the first

millennium BC... In comparison with the earlier periods the dating of the final period of occupation [from where the majority of metalworking evidence came from] of site 6, from the last modification of the roundhouse to the abandonment of the site is reasonably secure. Four radiocarbon dates from the northern part of the site indicate a possible span from the early 5th century AD to the late 8th century AD. These dates are supported by the few chronologically diagnostic small finds...from the latest levels were recovered... the clay mould for a melon-headed pin... likely to date to the 7th or 8th centuries AD'

The other crucible (34) comes from level 2 the main roundhouse occupation. This was found in a furnace in the SW corner of site 6 North. Dating of this phase is difficult, although appears to date between AD200 and AD600.

St Boniface Church, Papa Westray

Background

Survey suggested that an extensive settlement of Iron Age date (possibly including a broch) which continues into the Pictish period may be represented. Excavation (Lowe 1998) recovered evidence of occupation prior to the Iron Age. Iron Age occupation is shown by a complex sequence, including a Simple Atlantic Roundhouse, through to secondary enclosed settlements and later Iron Age deposits including Later medieval Ecclesiastical use.

The primary roundhouse (structure 2) is was constructed sometime between 1610 -1320 BC and 800-390 BC (Lowe 1998, 200). In later periods the site moved from enclosed to unenclosed settlement. Throughout this development the roundhouse was associated with a series of extral mural structures. It is a sequence that begins in the quarter of the first millennium BC and continued, seemingly unbroken, through to at least the the first quarter of the first millennium AD. In a secondary phase (6.1) the site became enclosed and 'signifies a radical change in the development of the site' ((Lowe 2000, 202). This is dated to to '..in or around the the last quarter of the first millennium BC or possibly slightly earlier' (ibid.). A series of buildings was constructed in the area between the enclosure and the roundhouse. In the words of the excavator, '... the settlement of Phase 6.1 was laid out in an organised plan' (ibid.).

The metalworking context and date

The mould was assigned to Phase 6.1 Dating is, however, ambiguous the phase dated to ‘..in or around the the last quarter of the first millennium BC or possibly slightly earlier’ (ibid.). The metalworking could, therefore, either be Early or Middle Iron Age.

SHETLAND

Clivocast, Uyeasound

Background

Two moulds, apparently stray finds, were donated to the National Museums of Scotland (Proc Soc Antiqs Scot, 1932, 18).

The metalworking context and date

There is no record of the find circumstances and are best regarded as stray finds. Dating is impossible.

Olnefirth, the Cumlins

Background

Excavation of a ‘...mound with internal structures was noted in the *Proceedings of the Society of Antiquaries of Scotland* (1936, 23). However, there is no discussion of the excavations and all that is published are a note of a few finds. The RCHAMS (1946) state that the site is a possible broch. Modern activities have uncovered burnt stone and ashes, a broken quern, stone implements, part of a cast-iron cannon-ball and pottery sherds including a cordoned rim closely comparable with those of the highly decorated vessels found in the Orkney brochs.

The metalworking context

There is no record of the find circumstances and are best regarded as stray finds.

Date

There is no record of the find circumstances and dating is impossible.

Jarlshof

Background

Excavations of the multi-phased site at Jarlshof, Shetland (Hamilton 1956) produced an Iron age stratigraphic sequence and a typological framework of broch, aisled roundhouse, wheelhouse.

The sequence has recently been reviewed by MacKie (2002, 62-75). It is important to note that prior to Hamilton's final synthesis the site had '... been variously plundered, dug and excavated over a period of fifty years...In particular, most of the fill of the broch interior and the courtyard outside it had been removed prior to its excavations' (Fojut 1998, 19). In consequence the published record was summary rather than detailed, concentrating on the work undertaken from 1950-2. Thus, most of the metalworking evidence is confined to Curle's earlier reports (1932' 1933; 1934). That said, outside the broch a '... sequence was revealed which admits of little doubt, all phases being clearly demonstrated by building joins and by stratigraphy' (Fojut 1998, 19; fig 1). As Fojut notes '... the important fact concerning the Jarlshof sequence is that every event after the broch is attested by published relationships of both horizontal and vertical stratigraphy' (ibid., 21). The pottery sequence, however, is a little less certain with relatively few sherds from occupation floors and most from midden deposits. MacKie's sequence (2002, 62-9) is followed here.

The pre-broch settlement

The pre-broch levels were excavated by Curle between 1931-5 and divided by Hamilton (1956) into two general groups: Village I (earlier) and II (later) (Hamilton 1956, 18-38; fig 10 for overview). Village I consists of Dwelling I, II, III, IVa (after Hamilton), associated middens and enclosure wall with numerous phases. Village II consisted of dwelling IVb, IVc, V, VI again with numerous phases. The dwellings were not occupied at the same time but successively over a long period of time (Hamilton 1956, 18). All were attributed to the late Bronze Age by Curle and Hamilton. However, it appears that the 'Later Bronze Age Village II' falls into the Early Iron Age (MacKie 2002, 63).

Village I: The largest fragment was found in LBA Midden A of boat shaped form (Curle 1933, 276, fig 43, 275). One was from the primary hearth of Dwelling IV (Curle's III). This is the period when most of the moulds were found. The only dating evidence for this particular settlement of is the series of broken moulds found in secondary occupation levels in one of the dwellings. These moulds were for LBA socketed axes and leaf shaped swords that could belong to the 8th or 7th centuries BC (MacKie 1978, 296). A recent find from Seafeld West was radiocarbon dated to 1100-900BC (T. Cowie pers comm). Hamilton interpreted this phase as evidence of small groups of pastoralists who settled on the promontory to graze their cattle and to cultivate small patches of cornland. Each oval stone house suggested family units. Trade was shown by the importation of steatite bowls. The peaceful self sufficiency of this small settlement ended with the arrival of a bronze smith trained in Irish traditions of the Late Bronze Age, who imported the tin he required (Hamilton 1956, 38-9). See MacKie (2002, 63-4) for full review.

Village II: Village I was succeeded by settlement of different type (MacKie 2002, 64-5 for full review). Although called Late Bronze Age II it is clear that the village dates to the Early Iron Age (MacKie 2002, 63). The new settlement consisted of three round stone huts two of which had underground cellars or souterrains attached and two of which their interiors at least partly divided up by radial stone piers, like a smaller version of the post-broch wheelhouses on the site. The LBA mould from one of these dwellings, IVb, is likely to be pulled up from underlying deposits and does not date this phase to the Late Bronze Age. The complete contrast between the material cultures of Villages I and II support this interpretation and also the belief that there was no continuity between the two settlements (MacKie 2002, 64). Dwelling IVb underwent various modifications and was interpreted as a workshop (Curle 1934, 236-7; Hamilton 1956, 32). At a later stage the same dwelling had a new circular hearth built in it as well as a kiln and furnace close to it (MacKie 2002, 64). Importantly, iron slag was found within the village, including the earthhouse 'h' which is attached to the same stone round hut or primitive wheelhouse (MacKie 2002, 65; see also Hamilton 1956, 33, 39).

Several crucibles were found during excavations of the Early Iron Age Village (Curle 1934, 276; Hamilton 1956, 38; MacKie 2000, 64-5) and included some from Dwelling IVb-c which may have been used as a workshop: one was found in the so-called furnace, from the secondary occupation (IVc); another from the side of the hearth of the second occupation (IVb); the earth house h (the same place as where the iron slag was found) and six were found while opening out dwelling V.

Hamilton (1956, 39) interpreted this as evidence of new immigrants during the Late Bronze Age who built new dwellings with radial divisions like a wheelhouse (IVb-c and V, VI) that disregarded the old designs, bringing with them distinctive pottery and iron slag. However, the discovery of a V-type bronze sword was taken to indicate continuation from the period and traditions before and that the hiatus between the two villages was of short duration.

The broch complex

Excavations by Hamilton were designed to examine the broch, the associated wheelhouses and the later Viking farms. This has been reviewed by MacKie (2002, 63-7). In summary, Hamilton's history of this sequence was as follows. The broch-complex, which included a courtyard wall, was built after an interval during which two superimposed older villages has been abandoned and silted up with sand.

After an uncertain period of time the broch evidently ceased to be needed as a stronghold and a stone roundhouse with attached byre was built in the courtyard. After a short interval the roundhouse was converted to an aisled wheelhouse by the insertion of radial stone piers. No non-ferrous metalworking was found in these buildings. It is likely that this roundhouse was built and occupied while the courtyard wall was intact and the broch still stood tall (MacKie 2002, 71):

The roundhouse and its byre could still have been built very quickly after the broch but it seems more likely that it was as a more commodious dwelling for the broch chief and his family... or for a son and his family, than for some of their clansmen' (ibid.).

This is supported by the fact that the roundhouse seems to be a direct copy of a broch interior – complete with scarcement platform – and therefore much more likely to be the dwelling of people accustomed to using the broch (MacKie 2002, 73). No trace of iron, iron-working, or non-ferrous metalworking was associated with this broch and roundhouse level.

The wheelhouse occupation

Eventually the construction of first one and then a second wheelhouse in the courtyard (after possibly two or three more had been built earlier in the vanished half of the enclosed space) caused the contraction of the aisled wheelhouse until less than half of it was habitable. This wheelhouse complex continued in occupation for a long time – several centuries – and various other secondary buildings were erected on the site including a wheelhouse structure actually inside the broch and, later, various passage houses and a field hut round about it. It is possible

that part of the broch was demolished during the construction and occupation of some of the wheelhouses (MacKie 2002, 71).

Wheelhouse 1: The archaeological material associated with this phase in the history of the post-broch sequence came from three principal areas: from the *secondary floors* within the contracted wheelhouse, from *earlier floors* within the larger wheelhouse and associated passage and from the *midden scatter* outside the settlement proper. Two clay mould gates were found in layer 2a of the midden. Also found within this general layer was a bronze wire projecting ring-headed pin.

Wheelhouse II: As noted, at a later date a second wheelhouse was added within the courtyard resulting in secondary development and expansion of the wheelhouse complex was also noted. The large sandstone block with mould cut for mirror-like object and a bar mould was found during this phase. It was found within windblown sand yet 'found resting against the face of the upright stone forming the inner face of the radial pier separating chambers iii and iv' (MacKie 2002, 69). This mould with slot and disc are similar to that found at Bac Mhic Connain, North Uist; Trochrigg, Ayrshire, Whithorn and Buston, Ayrshire. Another wheelhouse was built inside the broch, presumably after the demolition (MacKie 2002, 68-9).

This wheelhouse period was long lived and resulted in numerous 'wheelhouse' period developments resulting in expansion within the courtyard and the building of wheelhouses and storage areas. Importantly 'the working of metal also seems to have taken place on a more extensive scale with the exception of the brief phase in the Bronze Age settlement' (ibid.). The material culture at Jarlshof during this phase apparently contained many new elements including the rotary quern and a new improved instrument for harvesting. The most significant innovation occurs in the pottery. The pottery is of a hard well-fired ware with flat, roll-top or bead rims with an occasional narrow cordon below the rim. Hamilton (1956, 59) suggests that fresh arrivals in the 2nd or 3rd centuries AD were responsible for this new class of dwelling, the wheelhouse, and the material culture, although this is now not widely accepted (MacKie 2002, 72)..

Later Pictish structures

There were a number of stone dwellings – a 'passage house' and some round huts – which post-dated the wheelhouse complex and antedated the Norse occupation. A Pictish disc was found in the latest floor of Wheelhouse I which clearly implies that the wheelhouse complex was inhabited at least until the middle of the first millennium (MacKie 2002, 69). *The outbuildings, storage pits and byre:* At a late date in the wheelhouse complex a large circular building

was built. The building was constructed 'with little regard for the earlier structures in the area' (ibid., 75). Found within this structure was a steatite mould as well as a painted quartz pebble and a whetstone.

MacKie's eloquent review of the site suggests to him that the site 'housed a single, high status community which occupied it over several centuries, and which required more and more elegant stone roundhouses as it expanded in numbers. There seems to be no real objection to suggesting that the aisled wheelhouse was the first post-broch dwelling, that wheelhouses 1 and 2 were the latest, and that the destroyed buildings in the south-west half of the court provided the intermediate structural links between the two surviving stages' (MacKie 2002, 72). MacKie (2002, 73) goes on to suggest that, '... is it possible that we have at Jarlshof the fortified farmstead and court of a high chief or petty king of the Middle Iron Age – the paramount ruler of Shetland perhaps – the 'bailey' of whose castle-tower gradually filled with finely built houses suitable for his gradually increasing family and for housing client chiefs when they came to see him? It seems more than likely'.

The metalworking context

All of the Iron Age crucibles are associated with the Early Village II occupation, none appear to derive from the later Iron Age settlement, which began around the 1st century AD. One derives from the Viking period. Two crucibles came from Dwelling IVb-c (Curle's III) which may have been used as a workshop: one was found in the so-called furnace, from the secondary occupation (IVc). Another came from the side of the hearth of the second occupation (IVb). Two pieces came from the earth house h, along with iron slag, (associated with Hamilton's IV); Six were found while opening out dwelling V (Curle's IV).

Moulds derive from three distinct phases. The most numerous come from the Late Bronze Age village and are not discussed here. It is of note that there are no examples again until the post-broch period, only reappearing during the subsequent wheelhouse phases. Finally, Viking period moulds were also found.

Date

There is confusion of the date of the crucibles from Village II, which saw the erection of roundhouses different than those built in Village I. Hamilton (1956) suggests a date around the 6th century BC. MacKie (2002) believes that the village can be dated between the 7th century BC and 1st centuries AD. The Village is certainly older than the broch (what MacKie suggests could date to the 1st century AD) because a layer of drifted, sterile sand was found under the

tower-fort by J.R.C. Hamilton during his excavations on the site in the late 1940's (Hamilton 1956). This same sand layer was described by A.O. Curle in the 1930's as overlying the two earlier villages. Also, Village II is later than the LBA moulds dated to the 7th centuries BC. All of the moulds from the Iron Age period come from post-broch occupation associated with various phases of the wheelhouse complex. While moulds are found in different wheelhouses, only a general date range is available, from AD200 to AD700.

Scalloway

Background

The Iron Age settlement at Upper Scalloway spans a period of almost a millennium from about 100BC to AD850. The general sequence of activity fits in well with the evidence known from sites such as Jarlshof, Shetland and can be paralleled in other areas of Atlantic Scotland, such as Gurness, Orkney (Sharples 1998).

Phase 2: Passing over the isolated Bronze Age burial the site sequence begins with the construction of the broch in the 1st centuries BC/AD. The majority of material from the broch tower appears to belong to the end of the occupation being from a destruction layer which may have accumulated during the final year of occupation. Most of the artefacts appear to belong to the final phases of the Middle Iron Age (ibid., 205).

Early Phase 3: In this phase '... it is clear that the production and use of artefacts began to take on a much greater significance in the existence of the inhabitants and this coincides with a radical change in the architecture of the buildings being constructed' (ibid.). The broch tower continued to be occupied but was surrounded by a complex of at least seven buildings, of the characteristic cellular type which can be paralleled on other Late Iron Age sites.

Late phase 3: In three areas of the site a considerable depth of deposits had accumulated during the Late Iron Age and it was '... clear that a separate and quite distinct later phase of Late Iron Age activity could be defined'. Sharples argues that a major change in the economy of the site occurs during the Late Iron Age, between AD650 and 700, and results in a major re-organisation of the settlement. The identified number of buildings surrounding the broch decreases to two and a structure inside the broch was re-built. One house appeared to be a figure-of-eight building. The quantity of material associated with this phase increased greatly

although the evidence for metalworking decreased although the abraded remains of an 8th or 9th century brooch mould in the middens shows that non-ferrous metalworking continued.

Final Phase 3: The end of the Late Iron Age occupation is only imperfectly understood. It is likely that systematic robbing of the broch occurred during the Viking or Norse periods.

Referring to the metalworking, Sharples argues that during the Late Iron Age the production and use of artefacts becomes central to the definition of status, gender and ethnic identity (1998, 210). In the 5th to 6th centuries at Scalloway there is evidence for the production of personal ornaments made from base and precious metals.

The metalworking context

The handpin mould was associated with the broch destruction (phase 7.1) in a rubble layer. On site this event is represented by a layer of rubble which covers the interior of the broch and broch walls and formed between the 8th century AD when the broch was still occupied and the 14th century AD (Sharples 1998, 80). A large assemblage of material was found within this rubble context with the bulk being residual, largely relating to the final phase of activity on the site (*ibid.*, 83). The handpin mould, therefore, is not *in situ*.

The ingot mould (cat 4584) was discovered in House 1 (phase 6.4). Three crucibles were also found within this context (Cat 5387, 5405 & 5406). Again it is noteworthy that fragments 5387 and 5405 join the fragment in House 4 described above. The interior of this building had, unlike the other structures in this area, a floor level with a central hearth and other features. Like the other structures, however, very little occupation material had survived *in situ*. In the centre of the house was a hearth covered by a black charcoal (context 707) in which a crucible (CAT 5406) was found. Another crucible (CAT 5405) was found in post hole packing (context 700). Sealing the floor of this structure was a silty clay (668). Within this layer and lying just above the floor were several important finds, including the mould, a crucible (CAT 5387) and a steatite lamp. Sharples believes that this layer was deposited to deliberately infill this structure.

The remaining mould (1127), possibly for a brooch, was found in the middens on the southern slopes (Phase 9.2). To the south of the main area of excavation a number of small trenches were excavated to explore a midden. Radiocarbon dates suggest a date between AD886-991. Again, it is clear that the mould is not *in situ* and is unhelpful for furthering discussions of metalworking activity, save to note its occurrence. That said, the abraded remains of an 8th or 9th

century brooch mould in the middens to the south does indicate high status bronze objects were being produced somewhere on site.

Seven crucibles occur in *Early Phase 3* contexts. A crucible fragment (CAT 5407) and a heating tray (CAT 1232) were found in a backfilling layer in cellular building House 4. The structure was found in the north west corner of the trench and most of it lies outside the area excavated. No specific occupation levels were identified and the whole structure was filled with a layer of silty clay, 598. This layer rose to be level with the top of the house wall and within it there was no sign of any wall collapse. It would appear therefore that the house had been kept clean until it was abandoned when it was carefully demolished and deliberately infilled.

It is of particular interest that this fragment is but part of one crucible. The other fragments are found in different houses, 2 of which are from Late Phase 3 contexts.

Three crucible fragments were found in House 1 (Cat 5387, 5405 & 5406). Again it is noteworthy that fragments 5387 and 5405 join the fragment in House 4 described above. The interior of this building had, unlike the other structures in this area, a floor level with a central hearth and other features. Like the other structures, however, very little occupation material had survived *in situ*. In the centre of the house was a hearth covered by a black charcoal (context 707) in which a crucible (CAT 5406) was found. Another crucible (CAT 5405) was found in post hole packing (context 700). Sealing the floor of this structure was a silty clay (668). Within this layer and lying just above the floor were several important finds, including the final crucible (CAT 5387), a steatite lamp, and a steatite bar and disc mould. Sharples believes that this layer was deposited to deliberately infill this structure.

The remaining 2 crucibles (CAT 5012 and 5414) from this phase were found in House 7. However, this was largely a 'disorganised mass of stone lines and occupation layers'.

Two crucibles (CAT 1399 and 5413) were found in *Late phase 3* deposits, both within House 8. As noted, this activity is attributed to a 'a separate and quite distinct later phase of Late Iron Age activity could be defined'. The building of house 8 destroyed House 1m being built on top of it. This activity appears to be roughly the same date and contemporary with the final structural activity inside the broch (Sharples 1998, 63).

The evidence for metalworking has decreased but the very abraded remains of an 8th or 9th century brooch mould in the middens to the south does indicate high status bronze objects were being produced somewhere on site.

No very clear floor layer could be isolated in House 8 and it seems more likely that the buildings were deliberately dismantled and the area infilled. There is great difficulty of associating finds with the occupation, the construction and the infilling of the structure

This difficulty may explain the confusing fact that crucible fragments found in this later phase join other fragments from the earlier Phase 3 deposits (see above). It is possible that the crucible sherds from either phase may relate to the same phase of metalworking activity despite being found in supposed two distinct phases. This view is supported by Campbell, 'these three vessels [1-3] are so distinctive that they must belong to the same phase of metalworking (Campbell 1998, 161). Thus, we have to explain why they were found in two distinct phases (Early and Late). One possibility is that, as Sharples admits, that it was difficult to differentiate between the deposits in house 8 (Later) and house 1 (earlier) and that the crucibles may have come from only one phase. Another possibility is that the crucibles were one distinct episode of metalworking and were dumped and then reworked at a later date. Alternatively, the metalworking may occur between the cusp of the Early and Late phase (e.g. around AD 650).

Date

The ingot mould from House 1 dates to the early phase and can be dated to around AD500 to 650. The handpin mould is also likely to date from this period with the possible brooch mould of around AD700-900 in date. The crucibles in the Early Phase 3 deposits date to around AD500 to 650. The Late Phase 3 is dated to around AD650 to 900. However, as noted, there are perhaps problems with the contexts of these crucibles.

Clickhimin

Background

Clickhimin was excavated by Hamilton over several seasons in the 1950s and early 1960s (Hamilton 1968). Clickhimin had been dug and investigated in the 1860's and further altered by conservation in the 1920's but in no case had primary floor levels been reached, so in effect

Hamilton's excavations were taking place on a fresh site. Metalworking evidence came from the fort, the broch and wheelhouse phases.

The published report is often difficult to interpret, Hamilton's account making it difficult to separate fact from theory (MacKie 2002, 89). The information consists of two distinct stratigraphical sequences with hardly any connection between them. This makes linking them, and producing a plausible site history, a difficult task which can produce more than one interpretation (compare Hamilton 1968; Fojut 1998; MacKie 2002). The general sequence laid out by Hamilton, and largely agreed with by MacKie (2002), is as follows:

1. Late Bronze Age farmstead
2. Early Iron Age roundhouse (7th to 6th centuries BC)
3. Early Iron Age fort consisting of a ring wall, gatehouse and possibly timber buildings (5th century BC?)
4. A contracted ring-fort (unfinished). Ringwork abandoned half built on the arrival of further new elements who erect temporary huts in the western part of the area in which to live while supervising the construction of the broch.
5. Middle Iron Age based broch (1st century BC – 1st century AD).
6. A wheelhouse inside the partly demolished broch (1st–3rd century AD).
7. Late structures around the broch including small huts dug down into middens around fort perimeter and causeway.

Fojut (1998) has suggested an alternative sequence. Although not altering the contexts from where any of the objects were found the new sequence proposed by Fojut is believed to 'adequately explain all of the published sections and the artefactual evidence of the excavation report' (1998, 40).

Fojut (1998) states that there is no good evidence for the pre-broch roundhouse and there is no overwhelming evidence that the outer defences and the blockhouse (i.e. the fort) predate the broch. Thus, Fojut proposes an alternative sequence

- Early Iron Age domestic settlement
- Construction of ringwall and apron ready for broch
- Construction of broch followed by (?) blockhouse
- Temporary abandonment for conversion to wheelhouse. Huts built.
- Wheelhouse occupation
- 'Squatting' in less substantial structures, perhaps with the wheelhouse still in use.

Fojuts' reanalysis has three important affects:

1. Hamilton subdivides the pre-broch (fort etc) and broch phases Fojut amalgamates them.
2. The association with the beach deposits and the fort phase is not certain although it is still likely to be broch period.
3. The temporary huts which Hamilton assigns to the pre or early broch period is assigned to the pre or early wheelhouse period by Fojut (op cit., 33-4). This movement of the huts from pre-broch to pre-wheelhouse date would account for the late date of the metal bracelet found there. In fact, the only evidence produced for a pre-broch date for these huts is the neck-band pottery (Type C) which was assumed to belong to the broch builders on the grounds of a single unstratified sherd from Jarlshof.

That said, the sequence does not alter any of the object associations nor the dating (Fojut 1998), which is vague to say the least. The most intriguing factor is that the temporary huts and hearths where crucibles and bronze waste was found may be pre-wheelhouse (post broch) and *not* pre-broch as Hamilton suggested.

The metalworking context and date

Crucibles were found in 3 main deposits: the Early Iron Age fort midden; the ?Middle Iron Age broch construction phase and the Middle Iron Age wheelhouse.

The Early Iron Age fort midden (Phase 3)

Many Iron Age finds were recovered from the beach deposits outside the fort wall, from the main living quarters and the floors of buildings. One 'pipe bowl' crucible was found in the beach deposits outside the ring wall. This is equivalent to Hamilton's and MacKie's Iron Age fort phase and Fojut's general broch phase. Also found was a bronze chain-link, a bronze finger-ring, a bronze ring-headed pin and a bronze rivet or nail.

In the absence of radiocarbon, dating relies on the artefacts. On the one hand objects such as glass beads suggest a date no earlier than the 2nd century BC and certainly other objects found in the midden would fit into a Middle Iron Age date. However, Early Iron Age pottery was found indicative of a pre-2nd century BC date. However, the issue is unresolved, '... this uncertainty about dating... is probably the most important of the various problems left by the

report on the most recent excavations at Clickhimin' (MacKie 2002, 111). However, MacKie (2002, 112) does suggest that this phase should date to the Early Iron Age:

Thus, after many tribulations, I would be inclined to go back to Hamilton's original scenario, with all its implications, and accept that at this unique site an early form of the middle Iron Age material culture arrived on the site, with the first fortification, probably as early as the 5th or even the 6th century BC – far earlier than anywhere else. Forts 1 and 2 would thus have been inhabited for perhaps four or five centuries before the broch was built, and fort 1 was still in use when yellow ring-beads arrived on the site, probably in the 2nd century BC at the earliest. The absence of rotary querns from the excavated parts of the fort deposits seems strongly to support this view.

The broch and associated outbuildings (Phase 5)?

Most of the finds assigned to this phase came from the extensive peat ash and midden layer outside the tower to the west and the north-west. Thus, their stratigraphical connection with the broch, though highly probable, cannot be proved. If some major episode of occupation intervened between the dilapidation of the first ring wall and the building of the broch then the finds might, in theory, belong there (MacKie 2002, 104). A crucible was associated with a temporary hearth area, along with a wire projecting ring headed pin and a spiral finger ring (Hamilton 1968, 116), believed to be associated with the broch building period.

Along with the other finds, there is debate as to the date of the non-ferrous metalworking activity. Hamilton believes they are immediate pre-broch. According to Hamilton (1968, 97) the outbuildings were associated with the building of the broch: '... before the inhabitants of the fort could complete the inner ringwork in the adaptation of their stronghold to the adverse conditions brought about by flooding they were joined by newcomers to the site. The latter apparently assumed control, and abandoning this project, organized the building of a tower'. These temporary huts were erected to provide shelter during the initial period of construction, one of which may have been occupied by the master builder. Hamilton interprets the finds (which include various distinct types of pottery) as evidence of the broch been built not by alien invaders but by native labour under the direction of local fort builders (ibid., 98).

Fojut disagrees and assigns the hearths to post-broch and pre-wheelhouse phases. He notes that wheelhouse period wall rubble lies on one of the temporary hearths (2) with nothing intervening between the rubble and the spread of ash. Fojut goes on to suggest that '... therefore the hearth, and presumably the hut, must have been open at the time this wall was

built. If the wall is wheelhouse-period, then the hut must have been in use immediately prior to that time, and is not, therefore, immediately pre-broch' (ibid., 34).

The wheelhouse period (phase 6)

Fojut's suggestions are relevant as two crucibles were assigned to phase 6 of the site, found in a midden in the western sector of the courtyard. During this phase a massive wheelhouse was constructed within the broch tower. A number of outhouses and huts were erected at different times in the mounding refuse within the courtyard. Again, the most numerous finds came from the upper courtyard middens to the west of the broch and from the uppermost deposits of the beach middens outside the outer wall. The Roman material, a fragment of a penannular brooch and a silver finger ring indicates that the site was being used during the 2nd and 3rd centuries AD. According to Hamilton the economy of the wheelhouse inhabitants showed little change from that of the earlier periods (ibid., 132).

Mavis Grind

Background

The area of Mavis Grind probably originally had 3 buildings. Prior to excavation one possible building had been completely destroyed and another was buried under 3 metres of quarry overburden. In 1978/9 the remaining single stone oval house was excavated producing four phases of use (Cracknell 1980; Cracknell & Smith 1983; 1985). In summary:

Phase II saw the initial building and occupation of a building, following on from a pre-building episode (*Phase I*). Only a portion of the phase II structure survived; during much of the rebuilding that followed, much of the building was destroyed with only the west arc remaining (Cracknell & Smith 1985, 89). Inside the building was a mixed, mainly dark grey sandy silt loam which contained occasional thin lenses of peat ash and some small rubble. This 'occupation layer' could not be separated from primary phase III deposits (1983, 15). Beside a hearth was a deep rounded depression lined with orange peat ash which may have been some kind of specialised hearth (1983, 16).

Phase III represents the re-building and re-occupation of the house. This involved replacement of the old entrance, rebuilding of the northern wall, and partitioning of the interior into seven bays, a central area and an entrance area. In one sense, the structure is comparable to the earlier

wheelhouse structures at Jarlshof. As noted, the occupation deposits within the Mavis Grind structure could not be distinguished between the earlier phase II deposits. This was taken to indicate that ‘... the use of the building was only briefly interrupted during the rebuilding’ (1983, 19). At the very end of the occupation of the house two hollows were cut into the midden outside the entrance.

There were two major features outside the main building that could relate to any phase. A midden and a stone cladding wall, which was perhaps a later buttress.

Phase IV represents the abandonment and destruction of the house, and subsequent developments on the site. The dominant features of the abandonment of the houses were the widespread dumps of peat ash and sporadic rubble. The dumping of peat-ash directly on top of the reduced walls, and the features cut into this deposits ‘show that there was later occupation’ (1983, 27).

The metalworking context

One crucible was found on site, ‘... within the settlement area’ (1985, 93). No other contextual information has been published and it is impossible to assign the find to any phase. Cracknell and Smith state that this find is ‘... best interpreted as the only trace of the visit of an itinerant craftsman’ (1983, 35) and ‘... small scale industrial activity’ (1985, 93).

Date

The artefacts from Mavis Grind were predominantly pottery and stone and as a whole may date to any time from the later Bronze Age through to the Iron Age and are not specifically diagnostic of one period or another (1983, 33; 1985, 94). The pottery showed remarkable uniformity throughout all phases. The excavators suggest that the occupation of the site lasted no more than 200 years. However, the radiocarbon dates are ambiguous. The dates obtained were widely separated and apparently stratigraphically inconsistent: the phase III date of 730BC falls between the pre-building dates of 1730BC and 1325BC and the phase II date of AD100. The excavators attempt to reconcile this by ‘...making the reasonable assumption that the phase III date is actually that of the formation of older deposits which were dug up to block the phase II entrance. Thus the occupation of the site is dated solely by the *in situ* deposits of the phase II hearth – at AD100±65’ (1983, 33). That said, this leads to a paradox, as the excavators acknowledge: ‘... either the carbon date must be rejected or the chronology of northern Scottish pottery totally revised. Caution suggests the former course. We believe the site dates to

the Bronze Age / Iron Age transition' (ibid.). That said, the iron nail in the abandonment period peat-ash, assuming that it was not intrusive, must push the terminal date for the settlement into the Iron Age (1983, 33).

Form and function

The finds are in the Shetland County Museum in Lerwick. No description has been obtained.

Scatness

Background

Excavations at Old Scatness commenced in 1995. Excavation has revealed that the site has been inhabited for over three thousand years. At its centre is an Iron Age broch or Complex Atlantic Roundhouse, with a surrounding village and external settlements (see Dockrill 1998, 2002; Driscoll et al 1995; Dockrill, Turner & Bond 2002).

Excavation of the broch is not yet completed. However work to date has shown that, as with many sites of this type, later structures were built inside the broch. The reddish-brown ash and midden layers visible around the broch appear to have accumulated after the broch 'village' surrounding the tower went out of use, since they fill the buildings and cover the rubble tumbled from their walls and roofs.

Excavations outside the broch have revealed an extensive post-broch settlement, probably in use, in various forms, from around AD 200 to 800 (Dockrill 1998, 6). These include a wheelhouse, a large roundhouse and various satellite settlements built onto the side of the large roundhouse. Excavations have revealed a wealth of information relating to the economy and lifestyle of the inhabitants. In particular, during the Late Iron Age a multi-cellular building was used as a smiddy. This structure is also significant as it contained artefacts which are diagnostic of the Early Norse period, suggesting that the site contains an unbroken sequence of settlement crossing the Pictish / Norse 'interface' (Dockrill 1998, 73). The presence of many potsherds from native-style pottery in the same deposit suggests a mix of cultures on the site at this point.

The metalworking context and date

Excavations recovered evidence of non-ferrous metalworking. This is presently being studied by Julie Milns at Bradford University as part of a doctoral thesis. The smith at Scatness appeared to be making handpins, a penannular brooch of 4th to 5th century date and ingots (Milns pers comm). The metalworking evidence, therefore, dates to the Late Iron Age.

CAITHNESS

Reay

Background

The find is recorded in the donations to the National Museums of Scotland (Proc Soc Antiqs Scot, 1927, 109-110), noted as coming from the ‘...the sands at Reay, Caithness’. Archaeological activity is well attested in the area ranging from cist burials, to hut circles through to Viking burials.

The metalworking context and date

There is no record of the find circumstances and is best regarded as a stray find.

Crosskirk

Background

This site is the most fully recorded broch in Caithness. On excavation the site proved to be more complex than anticipated. Major elements of the occupational sequence, including the substantial remains of the defences of a pre-broch fort, and an external settlement related to the broch were uncovered. Fairhurst (1984) divided the occupation into five periods.

Period 1 saw the construction of the promontory fort, presumed to pre-date the broch. This activity is supported by other indicators of pre-broch activity on the site: a C-14 date which calibrates at the 2 sigma level to 1260-795 BC, a possible Bronze Age sherd, and about one

hundred sherds from the area of the outbuildings, similar to the pre-Iron Age pottery at Clickhimin (ibid., 57, 59, 108-10).

Period 2: Then, in about 200 BC, if not earlier, a solid based broch was built. Lacking both a gallery and a scarcement it is argued to be early. The interior of the broch was divided by orthostats into two main compartments, each of which was further sub-divided by radial divisions..

Although the broch apparently originally stood alone, shortly afterwards a number of outbuildings were built which went through several stages of modifications. These buildings were a variety of shapes, including circular, sub-circular and sub-rectangular. Enclosure IV, constructed against the broch wall ‘... came into being very quickly indeed after the broch itself was built. Another enclosure, VII, seems also to be early...the settlement is definitely not a late development of ‘Romano-British times’ (ibid., 73). Apart from these two structures it is difficult to recognise the general layout of the early settlement owing to the subsequent replacement of walling. No planned layout was apparent and Fairhurst believes that these earlier structures ‘... came into being... in a haphazard manner’ (ibid.).

Period 3: The construction of the broch was followed by a period which may have lasted for as long as two centuries (ibid., 167). Domestic occupation is clearly involved, but whether continuous or intermittent, is hard to say. This period is concerned with subsequent occupation of the broch (phase 2) and the growth of the external settlement. During this period considerable changes took place in the interior of the broch and the external settlement. However, amid the multiplicity of structural changes which took place ‘... no radical alteration to the basic culture of the inhabitants could be recognised’ (ibid., 66). From the occupation debris of came some of the most characteristic artefacts of the broch period generally, including a spiral finger ring, a ringheaded pin of bronze, a painted pebble, spindle whorls and long-handled weaving combs’ (ibid.). A radiocarbon date of 100BC $\pm$ 50 was obtained from occupation material in the extreme north of the interior.

Period Four: Around AD 200 the now partly ruinous broch was re-organised again. This latest phase produced two sherds of Samian, a fragment of Roman glass and a nail-headed bronze pin which the excavator took to indicate a date in the region of AD200. This final phase may have arisen after a break in occupation (Fairhurst 1984, 66-7). The major feature was a wide passage which ran all the way from the broch entrance out through the gateway in the already ancient rampart. Fairhurst argues that during this period the broch interior was used for a non-

domestic purpose, possibly to keep livestock in (ibid., 168). This however is not in keeping with the discovery of Roman objects.

It is not known how long this phase of activity lasted - a group of C-14 dates suggests it need not have been later than about the second century AD, although Roman Castor ware suggests activity in the fourth century AD. Certainly there is no evidence to suggest that the site was anything more than a grassed-over mound when long-cist burials were inserted into it, probably in about the 7th century.

The metalworking context and date

Two fragments of crucibles were reported from the site. That said, there may be more as Fairhurst only discussed the ones that '...merit publication' (ibid., 119). Cat 566 was associated with the late pavement in Enclosure I. Enclosure I was an addition to the settlement late in Period Three. Primary floor deposits suggest a date around 120BC $\pm$ 50 although the enclosure might be '... as much as a century later than the two radiocarbon samples' (ibid., 90). There was also activity within the area during later periods. Indeed, the enclosure may have been built when the broch itself was already out of use (ibid.). The crucible was found in the late pavement. However, there is no description of this feature in the general discussion of the enclosure (ibid., 84-88) and it is not clear what this 'late pavement' is related to structurally or chronologically.

Cat 707 was found in walling in Area V / VI in square F9. This area is in the south-eastern area of the external settlement and is typified by vague traces of walling that, again, supposedly dated to Period three. A dry-stone revetment was located along with a hearth within a general open space. The layout is confused and incomplete with Fairhurst concluding that 'further details of the excavations become pointless as the evidence ceases to be meaningful as a result of much subsequent disturbance' (ibid., 77). The general area was dated by the excavator to period three, perhaps to 100BC to AD200. However, a single, metal, nail-headed pin suggests that use of the site may continue into later centuries.

In summary, it is difficult to relate the crucibles to any meaningful context. Both clearly were deposited in the external settlement which corresponds to the use of the broch and growth of the external settlement, probably during the Middle Iron Age.

Keiss Harbour

Background

Keiss Harbour is one of a group of brochs excavated by Tress Barry in the 1890s and described by Joseph Anderson. Built on the shore the site is clearly multi-phased. As well as the broch, there are remains of outbuildings on both sides. That said, the documentation of the site is very poor with only a brief report (Anderson 1901, 122).

The metalworking context and date

The poor excavation techniques, recording and publishing make it impossible to place the metalworking within any meaningful context or date. The fragments of Roman pottery suggest a date between the 1st and 3rd / 4th centuries AD (Robertson 1970) as does the high zinc peak in the crucible.

Keiss Road

Background

Keiss Road is one of a group of brochs excavated by Tress Barry in the 1890s and described by Joseph Anderson. The site is clearly multi-phased. As well as the broch, there are remains of extensive outbuildings on both sides. That said, the documentation of the site is very poor with only a brief report (Anderson 1901, 122).

The metalworking context and date

The poor excavation techniques, recording and publishing make it impossible to place the metalworking within any meaningful context or date. The two fragments of Samian are of 2nd century date (Robertson 1970).

Nybster

Background

Excavated by Tress Barry in the 1890s the site is clearly multi-phased. As well as the broch, there are remains of outbuildings on both sides. That said, the documentation of the site is very poor with only a brief report (Anderson 1901, 139).

The metalworking context and date

The poor excavation techniques, recording and publishing make it impossible to place the non-ferrous metalworking material within any meaningful context or date. The Roman pottery from the site indicates activity around the first few centuries AD (Robertson 1970).

Ness

Background

Excavated by Tress Barry in the 1890s the site is clearly multi-phased. As well as the broch, there are remains of extensive outbuildings. That said, the documentation of the site is very poor with only a brief report (Anderson 1901, 143).

The metalworking context and date

The poor excavation techniques, recording and publishing make it difficult to place the crucible within any meaningful context. However, the scant records do record the recovery of two copper alloy ingots, ingot moulds, a cast projecting ringheaded pin, bronze ring and a piece of chain from the guard cell.

SUTHERLAND

Dunphail, Kildonan

Background

Although the crucible was a stray find it was apparently found on '...at the broch site' near Helmsdale. It was donated along with an iron bloom (Proc Soc Antiqs Scot, 1960, 253).

The metalworking context and date

There is no record of the find circumstances and is best regarded as a stray find, dating is impossible.

Cinn Trolla, Kintradell

Background

The broch of Kintradwell, or Cinn Trolla, was excavated by Rev. Dr. J.M. Joass (1890). As well as a broch, on the outside of the tower were foundations of irregularly built constructions, with passages and doorways leading up to the main entrance of the tower. These outbuildings were chiefly clustered about the entrances of the tower. That the site was multi-phased is without doubt, the excavator noting that ‘...at various levels till the bottom was reached, traces of occupancy were found in strata of ashes and hardened earth, never extending over the entire area until near the true floor, and generally fenced in a rude arrangement of stones’ (Joass 1890, 99). The relics found included a variety of manufactured objects in stone and bone and iron including much shale working.

The metalworking context and date

The poor excavation techniques, recording and publishing make it impossible to place the crucible within any meaningful context. Three fragments of crucibles ‘...with adhering portions of the melted metal’ (Anderson 1901, 221) were found.

Carn Liath, Golspie

Background

The site was first excavated by the Third Duke of Sutherland in 1868, the finds and structures uncovered without stratigraphical context. Unauthorised clearance of the broch’s interior by a school party in 1971 aroused fears that any surviving archaeological levels might have been penetrated. In response, the broch’s interior was given a ‘clean up’ in 1972 by the late J X W P Corcoran (unpublished). Subsequent excavations in 1984 and 1986-7 were undertaken to ascertain the degree, if any, of stratigraphical preservation on site (Love 1989). This work largely examined outworks, the entrance passage and guard cell.

The Third Duke of Sutherland's excavations

The excavations by the Third Duke were reported by Joass (1890). The interior of the broch contain many feet of deposits with the wall seemingly much affected by fire. According to Joass (ibid., 104) there were few traces of secondary occupation in the interior of the tower. Subsequent work suggests that the Third Duke also investigated the outer buildings.

Finds were numerous and included many stone and bone objects. The most impressive finds were of metal including two bronze plates clearly marked with lines created by a hammer. Joass suggests that this was perhaps one of the forms in which bronze was imported for manufacture. One silver fibular of Roman type was also found, in the outbuildings (ibid., 106). Its design is influenced by the Roman tradition, although the saltire decorating the arm may connect it with some of the silver found at Norrie's Law, Fife dated to the 7th century AD (Curle 1932).

Love's excavations

The most recent excavations recovered Bronze Age activity and a severely truncated structure which pre-dated the broch (Love 1989). Later Iron Age activity (post-broch) included the division into outbuildings of the area between the broch and the outer wall by the addition of cross walls. Circuit walls and a midden were also identified. Downslope from the broch and investigated structures was a stretch of coursed drystone walling. This was overlain and abutted by a considerable midden deposit which included a high proportion of shell and bone. Not enough of this wall was exposed to gain an idea of what the wall was, although Love suggests that it was a circuit wall (ibid., 168). Finds were few and disturbance on the site meant that few were securely stratified and should only '...be regarded as representative of activities on site...rather than as useful chronological indicators tied into stratigraphy' (ibid., 169).

The metalworking context and date

The crucible was found during Love's excavations although it is not clear where. It is also impossible to date the crucible. Finds from the site suggest use at least into the Roman period (?4th century), and possibly later.

Golspie

Background

In 1956 two cists were discovered and excavated at Golspie, Sutherland (Woodham 1957) The first of the cists was unusual as it was built of five or six courses of small flat stones. Roughly pear-shaped it contained a contracted skeleton. No artefacts were found. The second cist was different, constructed from edge set slabs. The contents comprised, in addition to an unburnt contracted skeleton, a deposit in one corner, of charcoal mixed with burnt bone, some of which is at least of animal origin, and in the centre of the cist, a pumice pendant and fragments of clay moulds. No pieces of unburnt animal bone were also found.

Date

Assigning a date to the burial is difficult. Pendants of stone are found in Bronze Age contexts at Loanhead of Daviot, Aberdeenshire, yet they are also known from Iron Age contexts. When the site was published Woodham (1957, 236) noted that the only previously reported specimen made of pumice was found in the chambered cairn of Taiverso Tuack, Rousay. The style of grave is also not that helpful, examples known from Bronze Age and Iron Age contexts (ibid.). Stevenson suggested that the bronze object cast in the mould may be similar to a bronze object found at Dunadd, termed a coupling by Craw (1930, 116). That said, less elaborate doubly perforated bone plates of similar size are known from Bronze Age urn burials in Argyll and Perthshire and a bronze one accompanied the Glentrool hoard associated with a flanged axe (ibid.).

Despite this, Woodham (1957, 237) concluded that ‘... it seems more reasonable to postulate a late date than an early one. The pendant could certainly be as late as, if not later than, the broch examples quoted, and the advanced design of the mould does not encourage a pre-broch dating. Iron Age or even later then must be the tentative estimate date of the two Golspie cists on the basis of the evidence at present available’.

ROSS & CROMARTY

Portmahomack

Background

Ongoing excavations at the site of St Colman's Church, or Tarbat Old Church, just outside Portmahomack on Tarbat Ness, Easter Ross has revealed a vivid picture of Late Iron Age life. Previous excavations have produced 9th century sculpture. In 1984 aerial photography revealed

a ditch encircling the church and enclosing surrounding area. In 1991 this ditch was excavated, its primary fill radiocarbon dated to the 2nd-6th century AD (Harden 1991). A major evaluation followed from 1994-6 which resulted in the large areas of the enclosure being stripped, mapped and reburied without damage. The result of the evaluation was to show that the site contained buildings, including a 'bag-shaped' building and a souterrain, and evidence for early industry.

The excavation programme began in 1997 with excavation inside St Colman's Church and outside within the enclosure. Excavation outside the church revealed numerous features including buildings, pits, gullies and the like. Importantly for this discussion a metalworking dump, and probable associated structure, was recovered. This metalworking phase composed of numerous hearths and related features. The site is now believed to a focus for an 8th-century settlement which had a cemetery (under the present church), with a large number of stone memorials featuring a variety of Pictish sculpture, and a group of workshops flanking a road in which bronze and precious metals, glass, wood, fine leather (and perhaps even vellum) were worked. Numerous finds associated with the workshops suggest that these flourish with the sculpture in the 8th century. The identification of the settlement as a monastery is based on the plan of the vallum, the character of the sculpture, and the fact that the first phase of burials were mainly those of middle-aged men. Links with both Iona and Jarrow are strongly signalled by the finds (M. Carver pers. comm.; C. Spall pers. comm.).

The metalworking context and date

Excavations at the site are on-going. The metalworking area has not been fully excavated, the debris obtained thus far largely from dumps. Study of the material by the author is not yet complete; the material was obtained by the author in 2002. Although an initial mould catalogue has been compiled it is not included here. Initial analysis, however, shows that the smiths made ingots, rings, ornate studs comparable to those made at Iona, and mounts. In the time before submission precedence was given to study of the large corpus of crucibles, and their scientific analysis. These results are included in this study. They demonstrate that the smith used both base and precious metals.

The results show that the Tarbat assemblage, in numerical terms and typology, is comparable to the extremely important sites of Dunadd, Argyll and Birsay, Orkney. Despite analysis not yet being completed, the assemblage is extremely important for our understandings of non-ferrous metalworking in 8th century Late Iron Age Scotland.

INVERNESS-SHIRE

Craig Phadrig

Background

Excavation at the vitrified fort produced evidence of multi-period use (Small & Cottam 1972). In brief, Phase 1 represents the construction of a timber laced dry stone rampart that encircled part of the hill, sometime in the 4th century BC. Phase 2 represents the construction of an outer rampart, perhaps around the 2nd century BC. The fort was also occupied in a later period, Phase 3, during the Pictish period.

The metalworking context

The mould was associated with the 'upper occupation layer'. During this phase a hut was sited above the ruins of an older one close to the inner rampart. Several hearths were recorded in this horizon although there is no positive evidence that they related to the hut structures. This is assigned to the Pictish or Late Iron Age period, although the relationship of the mould to the structures or hearths, and in turn the structures to the ramparts is unknown. Only a small internal area was excavated, and it is possible that the metalworking area was not excavated. Stevenson (1972, 51) believes that though an isolated find, the mould suggests a workshop comparable to those in the strongholds at Dunadd, Argyll, and, slightly later, at Mote of Mark, Kirkcudbrightshire.

Date

Finds included a bronze pin, three pieces of E-Ware pottery, a spindle whorl and the mould. Importantly, the mould was found in association with the E-Ware pottery (Small & Cottam 1972., 43).

Radiocarbon dates from the 'upper occupation layer' gave a date of AD370. This is too early for the conventional dates for E-Ware and hanging bowls. Stevenson suggests a date around AD600 for the mould (Stevenson 1972, 51).

Cullykhan

Background

Cullykhan lies on a steep-sided peninsula linked with the mainland only by a small strip of land, making it an admirably defensive site. Excavations carried out in the 1960's illustrated that the site was the focus for activity from the Late Bronze Age to the 19th century, although not necessarily continuously. The site has never been fully published, although interim accounts have appeared (Greig 1971; 1972).

Phase 1: Dates to the 5th or 6th centuries BC at which time an elaborate timber and stone entrance with associated gateway tower was constructed. One of the stumps has been dated to 397 ± 59 BC calibrated to around 475BC (Greig 1972, 228). A palisade may also be related to this timber entrance thus giving all round protection to the central settlement. A large house structure with living quarters was also found. The absence of stone footings or any signs of internal or external walling, plus a complex series of postholes, suggest that the house was of timber construction. The whole area was cobbled and a considerable occupation level, up to a foot in places, covered the floors (ibid., 229). Attached to the house was an industrial area (see below)

Phase 2 saw a massive re-construction taking place, the original gateway and tower become obsolete either through decay, or due to settlement reorganisation. Post holes were deliberately filled in. Within the domestic area post holes were re-sited and new hearths laid on top of earlier deposits.

Phase 3 saw the building of a timber laced rampart directly on the Phase 2 occupation horizons. Radiocarbon dating suggests that this took place about the 1st century AD to 2nd century BC.

Phase 4: The site was deserted until '... the arrival of new settlers about the 4th/5th century AD' (ibid., 230) who constructed what may be an early trading post. Unfortunately most of this horizon has been destroyed by the medieval castle builders.

The metalworking context

Attached to the rectangular phase 1 house was an industrial area with bowls containing charcoal and slag. The surrounding occupation level produced quantities of industrial bronze and iron waste; crucible fragments and a late Bronze Age tanged chisel. Within the same area was a bronze worker's hearth, a complete crucible lying beside it.

Date

Greig (1972, 230) interprets this evidence as proving that both iron and bronze were being worked within the same archaeological layer by the 5th century BC.

MORAY

Birnie

Background

Ongoing excavations at Birnie have revealed the remains an extensive cluster of timber roundhouses, within an unenclosed settlement. Many have well-preserved surviving floor deposits. At present, the precise nature of the site is unclear. The houses may represent a single farm which moved around over time, creating a palimpsest, or alternatively a small village. The most noticeable finds have been the recovery of a range of Roman Iron Age metalwork, including brooches, and two Roman coin hoards. These suggest that the site was of some status (Hunter 1999; 2000).

The metalworking context

The crucible was found in a hollow, apparently associated with a timber roundhouse.

Date

Although the site has evidence for use in the Roman Iron Age and Medieval period, the association with the roundhouse suggests that the crucible is likely to date to the first few centuries AD.

ABERDEENSHIRE

Dorzel, Alford

Background

A site called 'Jenny Andro' or 'The Pict's Houses', which had remains of oval structures, probably hut circles, was initially trenched around 1850. Each was found to be floored of rough flattish stones laid close together, and choked with wood ashes. A small stone cup with a short perforated handle was found, and also several thick flat stones carefully cut as moulds and a number of rude quern stones. A few hundred yards down the hill to the west an 'Adderstone' was found. This is a small perforated bead of blue glass with a white vein encircling it (Gillan 1862).

The metalworking context

No find circumstances were recorded, the objects found '... on the premises' (ibid., 383).

Date

There is no indication of date.

ANGUS

West Mains of Ethie

Background

Excavations at the fort carried out by the Abertay Historical Society between 1962 and 1971 confirmed the triple defences and indicated the existence of a post-hole hut complex with associated paving in the centre (Wilson 1980). The site was evidently that of a small settlement, yet one with an elaborate system of defences. Small finds suggested a 2nd century AD occupation. A secondary structure overlay the entrance causeway and the remains of an apparently intrusive long cist were found at the outer end of the entrance.

Occupation in the interior appears to have been confined to the part of the promontory nearest to the ramparts as excavation in the area nearest the point of the peninsula showed no signs of occupation. The occupied area was mainly shown by stone and clay scatters, the exception a

circular area which had a clay floor and is presumed to be a hut circle. Two hearths were found against the rampart on the south side of the entrance. Neither was inside a hut but post-holes near one may indicate a roofed structure (Wilson 1980, 117).

The metalworking context and date

The crucible sherd was found between the paving stones in one of the huts in the north of the entrance. In a depression in the paving was also found a 2nd century bronze fibula. This association suggests that the metalworking activity dates to around the early centuries AD.

Finavon

Background

Excavations of the vitrified fort were carried out by Childe (Childe 1935b). Excavations concentrated mainly on the ramparts and associated layers, and a well. No structures were detected in section B, despite its wealth in relics. However section C produced undoubted architectural remains (Childe 1935b, 63; fig. 8). A hexagonal hearth with an associated oven was found. The least ambiguous features were two hearths. Childe imagined a vibrant community where pot making, spinning and metalworking were carried out within the confines of the rampart. No conclusive dating evidence was forthcoming from the relics, although Childe suggested an Iron Age date the site ‘... erected by an early band of Celtic colonists from the continent’ (ibid., 78).

In 1966 MacKie re-excavated part of the site and obtained dating material from the occupation layers under the rampart rubble (the same area where the possible crucibles were found):

The mass of wall debris rested directly on a dense, black, sticky occupation layer which ran the whole length of the 13ft trench and which itself lay directly on the brownish-pink, gravelly subsoil. The date of 390BC came from charcoal from this occupation layer...At the southern end of this trench a number of large, rectangular masses of charcoal appeared – evidently the remains of substantial planks or beams – which rested directly on the subsoil and were under the occupation layer...The date of 665BC came from one of these planks (MacKie 1969, 18).

The metalworking context

Vessels classed as crucibles were recovered from section B, which was the excavated area of the southern rampart and associated 'occupation layers'. No other contextual information was published. There is no record of where the mould was found. However, the 'crucibles' show no signs of ever being involved in the non-ferrous metalworking process, and are termed type 10. Indeed, Childe (1935b, 72) remarked how similar they were to examples from Dunagoil, which also show no signs of ever being used in the metalworking process. Therefore, only the mould is truly evidence that non-ferrous metalworking took place on the site.

Date

The re-excavation by MacKie led him to conclude that '...there can be no doubt that the Finavon timber-laced hillfort was founded in the 7th century BC and was used until at least the late 5th or early 4th centuries before being destroyed' (ibid.). Thus, the metalworking evidence may date to around the 7th to 5th centuries BC.

Hurly Hawkin

Background

Excavations by Jervise (1866) and Taylor (1982) revealed a broch with an inner courtyard and a thick surrounding wall. Investigation of a possible ditch revealed a souterrain which succeeded the broch. A possible timber walled hut of pre-broch period was also found (Taylor 1982).

Jervise's excavations

The first published investigation was carried out by Jervise (1866) yet the site had been investigated in a previous time (ibid., 211). Excavations were carried out over 2 days and concentrated on the broch interior. Although Jervise produced a plan his description of the excavation was brief in the extreme and there is no record of the finds.

Taylor's excavations

Taylor's excavations concentrated on the broch, the souterrain and an earlier promontory fort.

The broch: In view of the known severe disturbance of the broch interior in the 19th century, and the probability of disturbance in antiquity, the excavator saw little point in distinguishing between the two general levels found: the broch floor and the broch fill.

Broch floor: The notable finds were a wire ring-headed pin; a bronze ribbed bracelet; a fragment of bronze chain; a piece of glass bangle; and most remarkable of all a bronze snake armlet. Bronze harness mount was also found along with numerous bronze rings and a handle of a Roman patera. Numerous iron and stone objects were also found.

Broch fill: The finds from the broch fill repeat to a considerable extent the list from the broch floor (Taylor 1982, 247). Among the bronze personal ornaments and horse gear there is a wire ring-headed pin; a harness mount; a ring; a fragment of a Roman strainer or small pan (fragments of a larger Roman pan were found during the earlier excavations). A spiral finger ring and a piece of a three-link bit were also found. The outstanding item though is a glass ball with spiral inlay. In the filling of the broch wall were 2 sherds of Samian pottery.

If all the objects from the broch are taken together Taylor saw 3 groups of material (*ibid.*, 247). Eight pieces can be classed as Roman: the lead weight, the fragments of patera, the harness mount and the 3 samian sherds. Other items are strictly 'Romano-British': the second harness mount, ribbed bracelet, bronze studs and toggle. Others can be regarded as essentially native: the bridle bit, the wire ring-headed pins, spiral finger rings, the snake armlet, the glass bangle and ball.

The metalworking context

The crucible was recorded as coming from the floor of the 'earthhouse' (souterrain). However, there is also record of bronze droplets being found in the broch. As the souterrain cut the broch and used midden material in its construction it is possible that the crucible may derive from the broch activity.

Date

Taylor (1982, 248) suggests that the earliest item is a Late Bronze Age pin which has 'no connection with the rest of the collection...and possibly should be associated with the pre-broch structures'. Three items can be regarded as belonging to the late 1st century AD: the harness mount, the samian sherd and the patera. The glass fragments may also belong to this century. The glass bangle may also belong to the 1st or 2nd centuries AD while the snake armlet can be placed 'fairly confidently in the first half of the 2nd century' (*ibid.*). Taylor goes on to suggest that the ring-headed pins, the ribbed bracelet and the spiral finger ring may be 'earlier or later' than the 1st or 2nd centuries AD (*ibid.*).

Despite the problems Taylor has little doubt that Hurly Hawkin was built and occupied towards the end of the first century AD (ibid.) with the bulk of the objects falling in the later 1st and the 2nd century AD (ibid., 250). The metalworking evidence can perhaps be seen within this date.

Carlungie I

Background

A souterrain (Carlungie I) with associated settlement was excavated by Wainwright in the summers of 1950 and 1951 (Wainwright 1963). The souterrain, one of the longest known, had four separate entrances. A contemporary settlement consisted of at least 8 huts. Seven were built of boulders and opened onto a well-paved courtyard partly. The 8th hut appeared to be timber built. Evidence suggests that the souterrain had been deliberately and carefully dismantled and filled up as soon as it went out of use, with no break in time nor any change of inhabitants.

The metalworking context

The mould was found in the fill of the souterrain ‘... some 2ft 2inches above paving’ (Wainwright 1963, 242). Wainwright notes that this find and others from the higher levels in the filling of the souterrain should be ‘... associated with the huts and occupation levels on the surface’ (ibid., 86). That said, none of the finds from the souterrain ‘... can be tied specifically to any one structure’ (ibid., 92). While Wainwright discusses the internal layout of the 8 huts there is nothing specifically that indicates a metalworking area, except for the recognition of hearths.

Date

The only dateable find was a Roman amphora, lying in fragments on the paved floor of one of the earlier huts, but the accumulated evidence suggests that the occupation fell between 50 AD and 450 AD and that the souterrain was demolished a little later than 200 AD but before 250 AD. A small wall-sherd of plain Samian ware collected as a surface find from Carlungie souterrain is now in Dundee Museum (Acc No 1987-186).

STIRLINGSHIRE

Fairyknowe, Buchlyvie

Background

Excavations revealed evidence of a timber Iron Age round-house. The occupation of the broch was associated with Roman artefacts, including bronze coins, pottery and glass. Radiocarbon dates suggest that the roundhouse was built sometime between 400BC and AD250 and the artefactual evidence indicates that the broch was probably occupied and destroyed in the pre-Antonine period (Main 1998). Importantly, there was no evidence for reoccupation of the site after its destruction.

The metalworking context and date

All of the non-ferrous metalworking evidence was assigned to *Phase 3* the destruction horizon around the 1st century AD.

As Main notes (*ibid.*, 310) there is a question as to how the artefacts came to be in their discovered positions. They may have fallen from above as upper floors collapsed in the fire or placed before the fire occurred. However, the crucibles and moulds are not accompanied by any evidence of *in-situ* metalworking and we cannot demonstrate whether this activity took place within the broch's walls (Hunter 1998, 398). Hunter (1998, 394-5) believes that the crucibles and moulds illustrate that high status metalwork was being produced on the site and that, along with other prestigious items, indicates that the site was the abode of people of some status.

PERTSHIRE

Moncrieffe

Background

During excavation of a henge and stone circle a metalworking area of ferrous and non-ferrous metalworking was recovered. The findings were published by the late MEC Stewart in PSAS (1985).

The metalworking context

The metalworking area was assigned to the latest use of the site (Phase 4). A pile of turves around two of the stones of the stone circle and numerous other stones may have been '... part of a shelter belt' for metalworkers (Stewart 1985, 137). A stone lined hearth and then a 'bowl furnace' were found in the central area together with pieces of molten bronze and iron slag; stakeholes may also have afforded some form of protection (ibid., fig 10, 138-9). The hearth gave an impression of '... a makeshift structure which had probably not seen much use' (ibid., 139). Adjacent to the hearth was a second pit lined with clay. Cut into the pit were six small stakeholes interpreted by the excavators to support tuyeres. Nearby were found several pieces of clay crucible and a broken bronze chisel, of late Bronze Age date.

The excavators believed the metalworking to be an 'indignity' (ibid., 142) stating:

That a group of commercial craftsmen should have selected what they must have recognised as a site of sacred antiquity and turned it over to such mundane activities as smelting and casting is a commentary on a way of life culturally devoid of imagination., These people destroyed and desecrated and seemed to have taken a particular pleasure in smashing burial urns and obliterating a memory.

Date

The association of the metalworking evidence with the chisel has usually led discussions of the date of the metalworking activity. Small tanged chisels with stops in Britain are characteristic of late Bronze Age hoards, and have also been found on settlement sites where they may date to the 7th or 6th centuries BC. They have been listed more recently by Roth (1974) and discussed by Burgess, Coombs and Davies (1972, 217-8). Other known Scottish examples are Adabrock hoard, Lewis (Coles 1960, 127), Traprain Law (Burley 1956, 146), Glenluce Sands and Cullykhan (Greig 1972, 231).

An alternative has been suggested by McKerrell (quoted in Stewart 1985, 148). He believes that a reasonable one-period conclusion would fit all the metallurgic evidence: small scale Iron Age / Roman iron smelting and bronze casting. Later period objects were also found including medieval pottery (12th / 13th century) a gun flint, and a musket lead shot.

Background

Dundurn was one of the first historically-documented fortifications of Scotland to be recognised on the ground and to be systematically surveyed. It was a key site in Stevenson's (1949) determination of 'nuclear forts', identifiable as 'Dark Age capitals'. As part of the long-term programme of research on historically documented fortifications, excavations were carried out in 1976-77, principally on the defences. A complicated sequence spanning the 6th to 9th centuries AD, was revealed in the citadel and encircling terrace rampart (Alcock, Alcock & Driscoll 1989).

Three main phases were recognised during excavation with two major horizon events.

Phase 1: Saw the upper terrace defended with a stout timber stockade, dated to around 578-623AD. Midden material was also associated with it.

Horizon Event 1: Demolition the palisade and laying of wattle floor between AD410 and 760.

Phase 2a and b: Building of the citadel and activity on the terrace. Dated to AD600-910AD.

Horizon Event 2: Destruction of the citadel (AD 580-780)

Phase 3a and b: Building of terrace wall, rebuilding of citadel defence; reinforcement of terrace wall (AD590-900).

The metalworking context

All of the crucibles were found within cutting 400, the upper terrace and terrace wall. The stick pin mould was found in grey gritty soil which contained much charcoal flecking and some burnt bone. Alcock suggests that this is the remnants of hearth sweeping (Alcock, Alcock & Driscoll 1989 microfiche). Other evidence came from the 'vegetable layer' (DN 426), a mixed layer of compact dark brown peaty material with masses of well preserved reeds, rushes and wood. All are clearly in secondary deposits. As excavation concentrated mainly on the ramparts further information concerning structures during either periods would require further excavation.

Date

All of the moulds were assigned to Phase 2a. The stick pin mould is dated by Alcock to AD600-700 and the motif piece to AD625-650. Crucible Cat 38 (DN 414) comes from the Destruction Horizon event (2) dated to AD580-780. The remaining two from the damp midden (phase 2a) can be dated to AD600-910. This fits with other finds from the site which included E Ware, a 9th century Carolingian ware, and two glass sherds.

Shanzie, Perthshire

Background

Excavations of the souterrain at Shanzie revealed evidence of non-ferrous metalworking. A summary of the excavations have recently appeared (Coleman & Hunter 2002).

The metalworking context and date

The mould was found in one of the top fills of the souterrain. The sequence has been dated to the Middle Iron Age.

Oakbank

Background

Numerous seasons of work have taken place at Oakbank crannog, although the site has only been discussed in interim statements (Dixon 1981; 1982; 1984). In 1980 excavations uncovered an array of soft and hardwood piles embedded in a matrix of bracken, moss, twigs and other organic matter between 1.5m and 2m deep; two of the piles (possibly from the last phase of use) were radiocarbon-dated to 410 +/- 60 BC (GU-1463) and 455 +/- 60 BC (GU-1464).

Fragments of iron slag were found within basket-and hurdle-work, as well as numerous small wooden artifacts (including a peg, a whistle and a spindle-whorl), whetstones and other worked stones and vegetable debris which included cereal remains and cultivation weeds (see Dixon 1981; 1982; 1984; Dixon & Cavers 2001; Miller 2002).

The metalworking context

Two crucible sherds are noted as being found, one apparently associated with the slag. Interim accounts suggest that these were found during the excavations of the crannog.

Date

Dating the activity is difficult, although given the radiocarbon dates, it is not unreasonable to suggest a date in the 1st millennium BC.

FIFE

Clatchard Craig

Background

Trenches across the multi-vallate defences at Clatchard Craig were opened by Ritchie in 1953-4 and further rescue excavations undertaken by Hope-Simpson in 1959 and 1960 which form the basis for the report by Close-Brooks (1986). Since then the site has been totally quarried away. Excavation showed multi-period use of the site: Neolithic and Iron Age pottery was found, but no structures. The multiple ramparts were all of Late Iron Age date. Ramparts 1 and 3 were timber-laced and had been burnt. Radiocarbon dates suggest that these two ramparts were constructed in the 6th and 7th century AD. Ramparts 3a to 6 probably represent further phases of fortification. The latest Late Iron Age defence, Rampart 2, followed a different line and incorporated mortared Roman stones. Late Iron Age finds from the site included a small metal disc decorated in hanging bowl style, two sherds of E-ware, a silver ingot, and a group of clay moulds for casting penannular brooches of 8th century type.

The metalworking context

Almost all of the metalworking evidence was recovered from an area with a hearth and floor within the interior of the upper enclosure (Area F), yet formed no coherent layers. Some were found under the hearth, others in and under the floor: ‘... the pattern of mould debris can best be explained if the metalworking pre-dates the hearth and floor. Some moulds may have been scattered when a level area was made on which to build’ (Close-Brooks 1986, 145). Fragments

of other moulds were found at the top of the hill in adjoining trenches. Close-Brooks (1986, 146) suggests that ‘...there is no reason to believe that these moulds are anything other than contemporary; indeed they may represent only a few weeks’ work’. As no actual metalworking hearths or furnaces were found either the main focus of metalworking lay outside the excavated area, or evidence had been removed by later activity.

Date

While the ramparts have been dated to the second half of the first millennium AD, there is no relationship with the occupation interior. However, a similar date is suggested by the brooch moulds, being of probable 8th century AD date.

East Lomond Hill

Background

The hill fort has never been excavated. However, there are two considerable scarps, almost certainly the remains of ramparts. Abutting the outer edge of the heavy bank and ditch are traces of two enclosures and a possible hut circle. Within the fort, on the summit, there are the turf-covered remains of a large cairn. The remains may represent those of two structural periods, but the actual summit area is so small that they may as well all belong together.

The metalworking context

The mould was found within stone rubble during inspection of the site.

Date

During survey and inspection of the site a spindle whorl, two hollow glass beads and a mould for casting small metal ingots were found (RCHAMS 1933). A stone slab (NMS X.IB 205), bearing the incised figure of a bull, was also found within the fort in 1920 and is now in the National Museum of Scotland. Although the site appears to be of standard Early Iron Age construction, the small finds suggest that it was occupied to some extent at a very much later date than this. Thus, the mould may date to anytime during the first millennium BC / AD.

RENFREWSHIRE

Craigmarloch Wood

Background

Craigmarloch Wood was excavated by Helen Nisbet (DES 1963, 42; 1964,47; 1965,34; 1966,39) and discussed by MacKie (1969). The site was occupied first by a wooden palisaded enclosure and superseded by an oblong timber-laced fort. Charcoal, presumably a fragment of timber wall core, gave a date of 95BC (MacKie 1969, 18). No artefacts could be associated with the stone-walled fort but the occupation layer of the palisaded enclosure – which ran under the wall – was dated to around 665BC. Early Iron Age pottery, hammers and shale rings were found (DES 1963, 42). Associated with this were fragments of crucibles, discussed by MacKie (1969), who states they were not triangular.

The metalworking context

There is no record of the stratigraphic relationship of the crucible or moulds. The crucible, now in Paisley Museum and Art Galleries” (DES 1965, 34), has not been studied by the author. The cast of the mould is in NMS. HH 793 is a cast of the mould, HH 794 is a cast of the object that would have been cast in the mould.

Date

The occupation layer of the palisaded enclosure dated to c665BC and the later timber-laced fort was dated to 95BC. As noted, the crucible was associated with the palisade occupation layer and early iron age pottery. Thus, the crucible and mould dates to between 665BC and 95BC.

LANARKSHIRE

Hyndford Crannog

Background

The method of excavation at Hyndford crannog was very crude, clearing off the entire 3 feet of debris down to the original flooring of the dwelling. Underneath this was a layer of much

decayed brushwood. A circle of piles was exposed in the interior, perhaps forming part of a wooden house. Towards the centre there were three fireplaces, each of which contained several superimposed hearths one above each other (Munro 1899b, 417-8).

A large quantity of ashes, charcoal and animal bones were found throughout the debris, especially on the south side, where there was an accumulation of debris, suggestive of a kitchen midden, occupying a space partly inside and outside the circle of piles. The objects were not localised in any way ‘...but scattered throughout the whole ruins’ (ibid., 418). Finds included bronze spiral finger rings, melon beads, Samian ware, glass bracelet and various stone objects.

The metalworking context

There is no contextual information recorded.

Date

Dates from other Scottish crannogs suggest that the complex as a whole could date from c500BC into the Early Historic or Medieval period (Barber and Crone 1993).

Lochend

Background

Operations carried out in 1931-2 to increase the depth of Lochend Loch revealed the presence of a crannog. Removal of the peat mud from its landward side exposed the stumps of more than eighty wooden piles disposed at the outer edge of an artificial platform, built of layers of timbers laid transversely to one another and consolidated by stones and an infilling of brushwood and clay. Within the very limited area that was examined in the centre of the mound, evidence was found to show that the foundation had supported two successive floors, the earlier consisting of carefully-laid timbers, some of which had been trimmed to shape, laid across large tree-trunks.

Close to the outer edge of the later floor on the SW a wooden sole-plate was discovered; it was recessed in the centre for an upright and securely held in position by a substantial peg at each end. Immediately behind the sole-plate there was an area of stone paving, which yielded most of the relics recovered from the site. Lack of time prevented further investigation, but the presence of two distinct floor levels indicated that the foundation had carried a house, probably circular on plan, with its wall supported by a framework of wooden posts. The roof may have been

thatched with heather, and the house had evidently been destroyed by fire on more than one occasion (Monteith & Robb 1937).

Metalworking context and date

There is no record of where the metalworking evidence was found, not any indication of date. Monteith & Robb (1937) record that a crannog was found in 1898 at Bishop Loch. Artefacts included pottery, a crucible and an iron socketed axe head, perhaps suggesting occupation in the Early Iron Age. However, no description of the crannog has been found during recording, and the authorities differ as to its exact site. Is this the same site?

WIGTOWNSHIRE

Airieolland

Background

This crannog site was examined in 1884, the greater part cleared out in 3 days. Further excavation uncovered a fireplace near the east end of the enclosure. The chief objects found were a beaded necklace, shale rings, jet ornaments, a bronze button and 3 crucibles (see Munro 1885).

The metalworking context

There is no contextual information recorded of the find spot, nor any relevant structural features.

Date

Dates from other Scottish crannogs suggest that the complex as a whole could date from c500BC into the Early Historic or Medieval period (Barber & Crone 1993).

Background

Dowalton Loch has a key position in Scottish archaeology, since it was one of the first crannog sites to be systematically investigated (Munro 1885, 76-77; Hunter 1994). The loch was drained in 1863 and in the summer of that year Lord Lovaine investigated a number of crannogs.

Further excavations were conducted in 1884 by a group which included Robert Munro and Sir Herbert Maxwell (Munro 1885). The lowering of the water in 1863 revealed some 5 crannogs and 6 smaller stone heaps surrounded by piles. Of these, four crannogs and some of the piled structures were excavated to an unknown extent. Artefacts were recovered both from excavation of the crannogs and as loose finds on the loch bed.

Finds from the site are numerous with the Roman finds reviewed by Hunter (1994). As well as Iron Age / Romano-British material, including glass beads and armlets and a copper alloy triskele mount, there was a limited quantity of Roman goods including Samian pottery, a melon bead and a Roman skillet from the loch bed. Current interpretations would see the Dowalton Loch as high status settlements during the Roman Iron Age, since it seems that access to Roman goods was restricted to only a segment of the indigenous population (Hanson and Macinnes 1991, 89-90; Hunter 2001). It is likely that the goods functioned as exotic prestige goods in Iron Age society, being used to display the owner's status (Hunter 1994, 53.). Hunter has shown that votive offerings occurred at Dowalton Loch for over 2000 years. The finds from Dowalton also indicate that the occupants were people of some status who attempted to control the ritual site or indicate their status by placing their settlements there (ibid., 64-5).

The metalworking context

There is no record of where the possible metalworking evidence was recovered.

Date

Dates from other Scottish crannogs suggest that the complex as a whole could date from c500BC into the Early Historic or Medieval period (Barber & Crone 1993).

KIRKCUDBRIGHTSHIRE

Mote of Mark

Background

The Mote of Mark is a fort situated on a rocky outcrop on the Urr estuary at Rockcliffe, Dalbeattie. It was first excavated by Curle (1914) and re-excavated by Laing in 1973. Several interim discussions of the site and the artefacts have appeared (Laing 1973; 1975a; 1975b; Graham-Campbell 1976; Close-Brooks 1976; Longley 2001) and the final publication is forthcoming (Laing & Longley forthcoming). The metalworking has recently been commented on (Swindells and Laing 1980; Longley 2001).

Curle excavated in the southern part of the central hollow, the rampart in at least nine locations and carried out restricted examination of localised areas north and west of the western summit area and on rock ledges on the southern face. The southern half was rich in animal bone fragments, flint flakes, portions of moulds of baked clay, fragments of glass, pieces of crucibles, objects of iron, of bone, and of bronze, and sherds of domestic pottery. In addition, a number of localised and exploratory trenches were opened.

Curle concluded that two phases of rampart construction were represented. A first, massive, stone wall belonging to a brief occupation in the early centuries AD, on the evidence of two unassociated sherds of apparently Roman pottery. This was succeeded by a second partially vitrified, rampart. This second rampart represented the main period of occupation which Curle took to be around the 9th century AD on his stylistic assessment of the decorated clay moulds.

Excavations in the 1970s were designed to resolve three specific problems generated by the earlier investigations. Firstly, how many phases of activity are represented in the structural history of the defences. Secondly, how many phases of activity are represented by the evidence for metalworking and occupation. Thirdly, how does the evidence of occupation within the defences relate to the structural history of the defences. In each case evidence was sought for the establishment of a chronology for the site - either objectively by radiocarbon dating or in the stratigraphical association of artefacts.

Excavation discerned four main phases of activity:

Phase 1: Activity on the Hill predating the Construction of the Rampart. The single instances of B amphora and D mortarium sherds allow the possibility that some activity took place on the rock during the early to mid 6th century. The presence of glass, broadly datable to the 6th / 7th centuries and an E ware sherd of the later 6 century in stratified contexts earlier than the construction of the rampart, takes this phase of activity into the second half of the 6th century.

Phase 2. The Hillfort defences. No earthfast timbers were recorded from the northern rampart in the admittedly limited 1973 and 1979 sections although localised spreads of charcoal were recognised at the level of the subsoil. The remains of a lateral beam were recorded beyond the front revetment, partly overlying tumbled rampart material and partly overlain by it. A considerable amount of vitrification occurred at the interface of the front revetment wall and the core of the rampart. The rampart on the south side of the central hollow barely survives above the present ground surface. Timbers were laid horizontally, both longitudinally and transversely on the ground surface and on the bedrock. This horizon was characterised by considerable evidence of burning. The core of the rampart comprised a concentration of large blocks immediately behind the front face and, behind and overlying these, deposits of smaller material, decayed fire-cracked and burnt red through the action of heat. Lengths of burnt timber were recorded, cracked and distorted through the weight of collapsed core material. The rampart was capped by large beach boulders in similar fashion to the rampart on the north side.

Phase 3: Occupation within the defences. The excavations investigated an area inside the north rampart and revisited an area previously explored by Curle, behind the south rampart. The southern part of the central hollow is of relevance. Curle's excavations within the defences concentrated on the area in the south part of the central hollow. Here, Curle identified structural features including a 'clay floor' and adjacent stone platform and a three-sided dry-stone structure. The distribution of metalworking debris clearly points to the southern half of the summit hollow as the focus of non-ferrous metalworking on the site. In addition to quantities of clay moulds and crucibles, dumps of imported clay and small piles of sifted sand could be the raw materials for moulds and crucibles. Laing & Longley (forthcoming) have attempted to relate the results of the 1973 - 1979 excavations to Curle's record and to reconstruct the stratigraphic sequence wherever possible. This is where the metalworking debris was found (see below).

Phase 4: Destruction, abandonment and later history. This phase saw the firing and levelling of the rampart.

The metalworking context

The excavations of 1973 and 1979 investigated areas previously explored by Curle. Curle identified structural features including a 'clay floor' and adjacent stone platform and a three-sided dry-stone structure. The distribution of metalworking debris clearly points to the southern half of the summit hollow as the focus of non-ferrous metalworking on the site. Curle considered a three-sided structure to be a forge or workshop. Re-excavation in 1973 confirmed the presence of both non-ferrous metal-working and iron smelting in the immediate vicinity of the feature. The structure itself, which was permeated with a loose and dusty grey-black sooty soil is best interpreted as a low bench or, perhaps, as a revetment or protection for a hearth. It subsequently became the focus of a substantial midden deposit.

Date

Excavations indicate that the summit was defended early in the post-Roman period by a timber-laced rampart with a timber gateway. Inside this defence extensive metalworking was carried out of both iron and copper. This phase of metalworking was associated with the importation of Mediterranean pottery and glass of Germanic origin. This indicates that metalworking belongs in the main to the 6th century, continuing perhaps into the 7th. This agrees with the radiocarbon date from the timbers of the gateway of 1491 ± 42 BP (SR 321), i.e. AD 459 ± 42. At some stage when the metalworking was still in progress the rampart was fired, causing it to vitrify, the gateway was blocked, apparently hurriedly, then the rampart demolished. Anglian finds, including two runic inscriptions, indicate possible Northumbrian presence on the site in the later 7th century. There is no evidence for occupation on the site later than the 7th century though late occupation, up to the 9th century, has been claimed by some commentators.

Whithorn

Background

Excavations at the multi-period monastic site have been published by Hill (1997). Only the relevant metalworking information is out-lined here, taken and adapted from the published report.

The metalworking context and date

Moulds and crucibles were concentrated in two stratigraphically distinct horizons. The earlier comprises finds from Period I and II contexts. Many of these came from graves and other disturbed contexts, and none can be linked securely to working areas within the trench. Five groups may nevertheless be identified.

Period I - the earlier-6th century AD: The first comprised scattered fragments from the eastern part of the northern sector, and included scraps of crucibles and moulds for casting stick-pins and perhaps a penannular brooch. Adjacent finds include two pieces of copper-alloy scrap. The second group was more widely dispersed in the central and eastern parts of the central sector and included crucible fragments, a mould for nail-headed pins and two ingot moulds. Scattered copper alloy finds from the same general area included two nail-headed stick-pins and one unfinished casting. The third group comprised crucibles, a mould fragment and two further stone ingot moulds. These were dispersed stratigraphically, but concentrated spatially, and are likely to have had a common origin, perhaps in association with the a pit which produced another crucible sherd. All the metalworking finds may have originated in the brief episode of industrial activity in the opening years of Period I/1, dated to around the earlier-6th century..

Period I/II - closing years of the 7th century and opening decades of the 8th AD: The fourth group can be ascribed tentatively to the closing years of Period I, but includes finds from Period II contexts in the northern sector. It comprised crucible fragments, including a lid with traces of silver, a stone rosette-mould, an ingot mould and heating trays. The group coincided broadly with the concentration of fine metalworking waste abutting the Period 1/4.5 platform and with scattered silver finds further to the east. Together these point to a relatively brief phase of prosperity and fine metalworking, possibly pertaining to the closing years of the seventh century and opening decades of the eighth.

Period II – 8th to 9th centuries AD: A small group of crucible fragments provides rare evidence of industrial activity in Period II.

Metalworking evidence was also found in Period IV (*later 12th and early 13th centuries*) but is not discussed here.

Isle Head

Background

At the head of the Isle of Whithorn is a rocky peninsula, which houses a multivallate fort. Nearby is a chapel. Excavations by the Royal Commission across one of the banks revealed an irregular spread of soil and rubble. Mortar, apparently identical with that used in the medieval masonry of the chapel, was still adhering to many of the stones. Below this spread was layer of soil which produced two pottery sherds, one 14th century date, the other of 16th. The bank must be accepted as post-Reformation; it was probably formed to facilitate the removal of material from the chapel. The only other feature observed was a hollow quarried out of rock at one end of the trench. This was filled with soil and rubbish and sealed by the cultivation layer. It may have been one of the sources of the local stone used in building the chapel.

A piece of mould was found during excavation. It may well be a stray find. Dating is also problematic, as excavations did not produce an evidence of an other early Medieval occupation (Radford 1956, 169).

Stannock, Isle of Whithorn

Background

The mould was donated to the National Museum of Scotland (Proc Soc Antiqs Scot, 1930, 260), found in 1926 by a workman while mending a dyke.

Date

Dating the find is difficult. The original publication thought it was ‘...more modern than the Bronze Age’ (ibid.).

Loophill, Evertown

Background

A mould for a chisel and perhaps a small mirror, from Loophill was donated to the National Museums of Scotland (Proc Soc Antiqs Scot, 1930-1, 411) and is best regarded as a stray find.

The metalworking context and date

There is no record of the find circumstances and is best regarded as a stray find, dating is impossible.

Pict's Knowe

Background

The Pict's Knowe, was described as a small defensive enclosure, possibly of a domestic character in 1914 (RCAHMS 1914). However, excavation revealed that the site may have been a small henge monument. The greater part of the interior of the monument was excavated, together with a cutting through the bank on the western side of the henge, and ditch sections. Within the interior, all traces of archaeological features had been destroyed by rabbit action, although sample sieving of the topsoil produced pottery of probable early Bronze Age date and fragments of cremated bone. In the entrance to the monument, the surrounding peat lapped up over the sand surface, preserving an undamaged surface. Here, large numbers of stakeholes were found, clustered around the ditch terminals and around two linear slots lying at right angles to the entrance way. The upper layers of the ditch were composed of peat, which contained perfectly preserved leaves, reeds, turves, roots, nut shells, fruit stones and beetle cases. Beneath this, in a more silty material, were several large wooden objects, including two planks and a possible ard, dated to the late Neolithic/early Bronze Age.

A cutting through the bank on the southern side of the henge investigated the structure of the bank itself and also exposed a pre-bank land surface; the latter contained a dense concentration

of earlier Neolithic pottery and flintwork, and a series of cut features, including one small pit packed with sherds from at least seven vessels, and a flake from a polished stone axe. Radiocarbon dates of 2452±1900 cal BC and 2454±2030 cal BC were obtained from black peat immediately below the bank (see Thomas 1994; 1998).

The metalworking context and date

Although the site appears to be earlier, metalworking residues were found, some from the bank, contiguous with a late stage in the ditch sequence. Radiocarbon dates demonstrated that the re-cutting had taken place in the early centuries AD, a date supported by the EDXRF analysis. Five ceramic objects from Picts Knowe were associated with pyrotechnic processes. Only one can be attributed to a specific industrial process, the crucible fragment (SF230).

EAST LoTHIAN

Traprain Law

Background

Traprain Law hillfort was extensively excavated at intervals between 1915 and 1921 but the sequence of layers that yielded large quantities of finds could not at that time be adequately defined or related to the ramparts. Subsequent careful surveys and limited excavation of the ramparts have established a structural history for the hillfort, but how the finds relate to this is still not clear. In Roman times the surrounding territory was that of the Votadini, whose capital was doubtless Traprain Law (see Curle & Cree 1916; Cree 1923; 1924 and Close-Brooks 1983 for review).

The finds recovered from the excavation indicate a millennium of activity from the Late Bronze Age (in the seventh or even eighth century BC) down to post-Roman times. The great mass of objects recovered from the upper levels belong to the pre-Roman Iron Age and to Roman times.

The nature of the settlement between the 6th century BC and the 4th century AD has been hotly disputed. The early excavations certainly revealed large quantities of Roman-period material and what appear to have been the remains of houses and other structures. The absence of modern

excavation of the interior is a major hinderance to developing any greater understanding of the nature of this occupation although this is presently being investigated.

The metalworking context

Much of the material comes from the western plateau although the main concentrations are at the North of the site. Reconstructing the areas of recovery is very difficult. For example, although the 1914 excavation recovered a number of crucibles (Curle 1915, 195; fig 42) there is no record of what level they were from, although excavations that year concentrated on with the west side of the summit (Areas A, B, C, D & E see Curle 1920, 141 fig 1). Although numerous structural features were found, with the exception of hearths, very little could be understood and no plan was obtained that gave a satisfactory idea of what the dwellings at that time were like' (ibid., 154).

Date

The metalworking debris appears to date from the Late Bronze Age and Iron Age. Dating the Iron Age material more conclusively has to rely on the moulds. That the smith was manufacturing doorknob spearbutts and a range of projecting pins, including proto-handpins suggests that at least some of the activity dates to around the 3rd or 4th centuries AD.

Edgerston

Background

Excavations were carried out by the proprietor Mrs F S Oliver, from 1928 to 1939 and reported in the Roxburgh Inventory (RCAHMS 1956, fig.287). The plan shows an incoherent assemblage of fragmentary structures, though three distinct occupational phases can be deduced.

Phase 1 saw the construction of a multi-vallate fort, represented by ramparts and ditches. On analogy with Hownan Rings it has been suggested that this fort was probably erected in the 1st century AD and that occupation of the fort presumably ended with the Agricola invasion in AD 80 (RCHAMS 1956, 228).

The Early Iron Age fort was succeeded by a settlement represented by stone-walled huts and perhaps some enclosure walls (*Phase 2*). The settlement may date to between AD 139 and AD 197, representing a 'peaceful settlement' (ibid.). The huts were all poorly preserved.

Phase 3: Medieval relics found indicate a brief occupation of the site by a military force during the Wars of Independence. (The RCAHMS 1956 gives a detailed description of the site and notes on the excavations.)

The metalworking context

Despite the recognition of the huts and other negative features nothing can be assigned as a metalworking area. There is no record of where the crucible came from.

Date

Although notable finds were found ‘..the archaeological value of these is considerably diminished by the fact that in few instances were their precise find-spots recorded’ (RCHAMS 1956, 228). Two main groups belonging to widely different periods can be distinguished. The first group comprises a terret, several dress-fasteners, several spiral finger-rings, a penannular brooch; 2nd century Roman material including a melon bead, part of a dragonesque brooch, fragments of Samian and coarse pottery, a denarius of Trajan, struck in AD 114; native pottery, querns, whorls and crucibles. The datable objects within this group fall into the 2nd century AD and have been found on other Roman and native sites in south-eastern Scotland. The second group are medieval objects which includes two pennies of Edward I, early 14th century spur-rowels, an iron arrow-head, and pottery. Although there is no record of the find spot all that can be said that the crucible may date to either the Romano-British period or the Medieval period.

Fisher’s Row East, East Lothian

Background

Excavation demonstrated two principal enclosures, the eastern of which is double ditched. Contrary to what might be deduced from plan, initial analysis suggested that the whole complex is substantially of one phase and was constructed to a pre-determined layout. Where ditch terminals were sampled elaborate, apparently decorative stone revetments were located, suggesting an impressive original appearance of partly defensive, partly symbolic form. The ditch fills yielded animal bone, carbonised grain, artefacts associated with weaving and a few fragments of pottery (see Haselgrove & McCullagh 2000 for review).

Four foci of domestic and related occupation were excavated in part or in whole. The most substantial of these lay at the western side of the circular enclosure. A circular stake-built structure measuring close to 11m in diameter with part of an inner ring of post holes, a porch and an outer ring ditch. The packing of one of the stake holes included a large pottery rim of possible LBA or IA date. Associated fence lines and post-hole structures, and a possible midden base, indicate a wide range of activities taking place close to the dwelling.

The ephemeral remains of a second circular building were located at the entrance from enclosure 2 through into enclosure 3. A shallow ring ditch and a partial outer ring of post holes were the only visible features. A third building was noted in the south-eastern angle of enclosure 3. A number of both internal and external post holes may reflect weaving or other industrial activities associated with this structure (ibid., 10). A fourth building lay in the centre of enclosure 3; internal post-holes may reflect industrial activity (ibid.). Another feature has been interpreted as a facility for processing carcasses. Finds from the site include handmade pottery, the crucible fragments, spindle whorls, three stone balls and whetstones.

The excavator interprets the enclosure complex at Fisher's Road East as a defended homestead of some social and economic status, which probably dates to the pre-Roman Iron Age or even to the late Bronze Age.

The metalworking context

A small number of other features, particularly those located between the ditches of the double circular enclosure may, provide evidence for other industrial activities. Three U-shaped lengths of gully may well have been constructed as wind breaks; fragments of a crucible were found in one of them, 'this argues strongly for metalworking at the site' (ibid.). All the crucible fragments were recovered from context 391, the upper fill of U-gully F390.

Date

There is some evidence for chronological depth at the site, notably where bank material overlies stake holes. Material from the ditch fills implies that the settlement was still occupied after the ditches had begun to silt or collapse. The site dates to the Early Iron Age.

St Germain's, East Lothian

Background

Excavations recovered evidence of a multi-period site (Alexander & Watkins 1998). Perhaps beginning in the Early Bronze Age, activity continued throughout the first millennium BC and into the first millennium AD. Unfortunately, most of the dating material and chronologically diagnostic artefacts were stolen, meaning that the site sequence cannot be accurately dated. Iron Age occupation started with an unenclosed ring-groove house, followed by an enclosed ring-groove house. A defensive ditch was then built, which was followed by an unenclosed house settlement, particularly with stone paved structures. This final phase was associated with Roman glass.

The metalworking context

Both the mould and crucible fragment was associated with a layer of brown silty loam which overlay the remains of stone structure 5 and 6 and also the defensive ditch. Both finds are now lost and descriptions are from drawings.

Date

Stone structure 5 was argued to the latest phase of the sites, the Roman Iron Age.

Broxmouth, East Lothian

Background

The multi-period site was excavated by in 1977-8 and has yet to be fully published (but see Hill 1982). Excavations uncovered a hillfort of considerable complexity. It was preceded by an apparently unenclosed homestead, consisting of a large circular timber house. The hillfort was originally univallate with two opposing entrances, but subsequently its design underwent four major, and several minor phases of modification during which the fort became alternately bivallate and univallate and its entrances rebuilt in different ways. Almost the entire interior of the hillfort was excavated, revealing eleven well-preserved remains of stone and timber built roundhouses, as well as pits, postholes and stakeholes. House types included ring-groove, ring-ditch, double ring-groove and stone revetted platform houses.

The metalworking context

According to Hill (1982b, 188, footnote 188) an ingot mould was found, apparently with traces of gold. Dating the site is problematic. It is likely that the site saw sporadic use from about 2000BC and was settled for much of the first millennium BC and the first two centuries AD (Hill 1982, 184). It is impossible, at present, to date the metalworking activity.

Date

It is considered likely that the site saw sporadic use from about 2000 BC and was settled for much of the 1st millennium BC and the first two centuries of the AD period.

Dirleton Crag Fort

Background

Excavations of the fort were briefly reported by Piggott & Piggott (1952, 194-6). Prior to excavation the fort had largely been quarried away, and only one length of walling remained on the north side. In order to establish the character, and if possible the date, of the fort, a cutting was made across the wall. This demonstrated that the wall was constructed from an outer and inner face of large stones with a core of stone rubble and midden soil. Animal bones, sea shells and pottery were included within the midden. The excavators believe that this midden material derives from occupation from inside the fort (ibid., 194). Occupation soil of a similar character overlay a hearth in the interior of the fort beside the internal rampart wall (ibid., fig 5, 194) and against the inside of the wall. A large number of sherds were recovered from this area. During further quarrying further sherds, and an upper stone of a rotary quern were recovered as well as the mould.

The metalworking context and date

The mould was found 'during quarrying' and not during the small-scale excavation. There is no dating evidence for the fort, although the excavator believes it may date to around 100BC (ibid., 196). As the mould was uncontexted further dating is impossible.

Dalmahoy Hill

Background

The site has never been excavated. Survey suggests that two structural periods are apparent, the earlier of which is very difficult to interpret. Briefly, the craggy and uneven hill was enclosed by a system of stone walls. The second phase structure is an oval enclosure on the very summit of the hill. This enclosure must occupy the same ground as did the central feature of the fort.

While there is no reason to suppose that the earlier works are not of pre-Roman Iron Age date, the period at which the later enclosure was built has not yet been established. There is reason to believe that it may be of post-Roman date, as it belongs to a class of such monuments which are almost always found to overlie pre-Roman forts and which have, in some cases, produced relics of later first millennium AD (RCHAMS 1929, Stevenson 1949). A gold stud-cap was picked up in the Dalmahoy secondary enclosure, as were several fragments of moulds. Stevenson believes that all of these can be assigned to this late period.

The metalworking context and date

The mould was found within the secondary enclosure inspection of the site. Although the site appears to be of standard Early Iron Age construction, the small finds suggest that it was occupied to some extent at a very much later date than this. Thus, the mould may date to anytime during the Long Iron Age.

Arthur's Seat, Dunsapie

Background

The fragmentary remains of a fort occupy the top of Dunsapie Crag. A pear-shaped area some 350' x 200' is enclosed. An outer wall is visible below the steep crags bordering the western margin of the summit, yet whether this wall and that on the summit were contemporary might be determined by excavation, but there is no reason to suppose that they were not (Feachem 1963).

Several platforms in the eastern part, between the outer and inner walls suggest stances for Early Iron Age timber-framed houses (Feachem 1963). The summit area is divided into three

small areas by slightly different natural levels. That to the north is the largest and roughly circular. From a kitchen midden on it came a stone mould for casting rings and brooches, shells, animal bones, vitrified matter etc, which were donated to the NMAS in 1872. The vitrified matter seems to have been the result of numerous fires kindled here and there over the area (PSAS 1873).

The metalworking context

The mould was found in 'kitchen midden' and is clearly not *in situ* and is unhelpful for recognising areas of activity, except to note its occurrence.

Date

There is no record of the find circumstances and dating is impossible.

AYRSHIRE

Trochrig

Background

The mould, found '...in draining about 600 yards south west of the Old Castle, 3 feet underground', was donated to the National Museums of Scotland (Proc Soc Antiqs Scot, 1, 1851-4, 45), It is best regarded as a stray find.

The metalworking context

There is no record of the find circumstances and are best regarded as stray finds.

Date

There is no record of the find circumstances and dating is impossible.

Background

Buiston was excavated at the end of the 19th century (Munro 1882a & 1882b) and again in the 20th century (Crone 2000).

Munro's excavations

Munro summarised his findings (Munro 1882a., 204-6). The island was composed of a succession of layers of the trunks and branches of trees, intermingled in some places with stone and turf. The whole mass was kept firmly together by a peculiar arrangement of upright and horizontal beams, forming a united series of circular stockades. The outer circle was intended more for protection than giving stability to the island. The central area of the crannog was rudely paved with wooden beams, many of which were firmly fixed to the lower woodwork by stout wooden pegs as well as to the encircling stockades. While there was one general fireplace situated near the centre, evidence of occasional fires elsewhere was quite conclusive, one of which appeared to be a smelting-furnace.

Beyond the platform, but separated from it by a massive wooden railing, was a refuse heap and to the right of it a pathway which led downwards and westwards to the line of the outer circle. As to the kind of dwelling-house that once occupied the site, whether one large pagoda-like building or a series of small huts, Munro found the evidence inconclusive, but believed that the evidence represented one large building. Most of the finds were found in a 'refuse heap' which lay outwith the stockade and the surrounding area with little found during excavation of the central area of the crannog excepted 'a few fire places, some slag, and one or two large wooden pins' (ibid., 194-5).

Crone's excavations

The second excavations were undertaken in 1989 and 1990. Buiston was selected as it was assumed that Munro's excavations had removed the archaeologically sensitive deposits and it would be relatively cheap and quick to retrieve the information on condition and decay processes of the timber superstructure and deposits. However, rather than the unitary structure suggested by Munro (1882a, 205) excavations revealed a complex history of construction and refurbishment with spreads of occupation deposits surviving virtually intact (see Crone 2000 for review; Barber and Crone 1991, 528).

The metalworking context and date

The metalworking evidence recovered by Munro cannot be related to *in situ* deposits or features. The majority of objects from Munro's excavations came from a 'refuse heap' (Munro 1882a, 210) and could be from the same context as Crone's 'unstratified' objects (Crone 2000). Crone has demonstrated that the 'refuse heap' lay outside the line of the palisade suggesting that the palisade was in place by the time the domestic refuse was being thrown over the side of the crannog. This palisade has been dendrochronologically dated to AD630 thereby placing the deposition of the 'refuse-heap' artefacts after that date. This fits with the wider picture of the site. Apart from the unstratified finds, all the artefactual material from the recent excavations came from phases III-V which sandwiches the entire stratified assemblage between the dates of AD589 and cAD630. As a result the artefact assemblage provides a snapshot of the accoutrements of a dwelling house of the early 7th century AD.

This date in the second half of the first millennium AD is partly supported by analysis of the finds (MacSween 2000). Only a limited number of artefacts can be unequivocally ascribed to the first two centuries AD, during which time the crannog was first constructed and presumably occupied. These are the sherd of Samian Ware, some of the ironwork, the bottle glass and the glass counter from Munro's excavations, and the three undecorated beads from Crone's excavations. All the more exotic elements in the assemblage can be dated to the 7th century AD, arguably the main period of occupation on the crannog. The hanging bowl, annular brooch, cup bindings and coin forgery are indicative of Anglo-Saxon contact in the seventh century, while the E-Ware, glass vessel fragments and decorated bead indicate Continental contact at around the same time. The combs are also of a seventh century or later date.

Lochlee

Background

The crannog was excavated in 1878 (see Munro 1879; 1882a, 68-151). Work uncovered a crannog and at least four hearths, built one above the other, showing that the fireplace, and perhaps the whole house, had been reconstructed on the same site at least four times. An impressive array of objects were recovered, including cup and ring-marked stones, various wooden objects, shears, spindle whorls, a weaving comb, a snaffle-bit of Celtic type, a spiral finger ring, jet armlets and Roman material includes brooches, melon bead, 2nd century Samian and fragments of coarse pottery. These Roman objects are generally taken to date the occupation, although the crannog was used in later periods.

The metalworking context and date

There is no record of where the possible ingot mould was found. The Roman finds are usually taken to date the main occupation, and perhaps the metalworking could be broadly contemporary. However, this is not definite as the site was used into later periods.

STRATHCLYDE

Glenhead

Background

The fort site was excavated by members of Glasgow University Extra-Mural Class in Archaeology supervised by Hendry in 1968 and 1969 and completed in 1972. The forts proved to be the sites of large wooden huts whose roofs were supported by rings of uprights. Both occupied the sites of earlier huts. Stone-lined passages, entered by steps from the hut interiors, led under the "ramparts". These were filled with debris from the earlier huts and produced Roman glass, 1st century Samian and a fragment of a fine 1st century Roman bowl. Fragments of a bronze spiral finger ring were found in a post hole and on the floor of the upper hut pieces of crucible were found. (Hendry 1968; 1969; 1972).

The metalworking context and date

The crucibles have not been located by the author. If the objects are crucibles, they may date to the Middle Iron Age.

Alt Clut, Castle Rock, Dumbarton

Background

Small-scale excavations at Alt Clut was part of a long term programme of sampling early historic fortifications in Scotland. The fortification implied by Bede in AD731 was identified

and its destruction attributed to the Viking Olaf and Ivarr the Boneless in AD870. The evidence gained in the excavations fall into two categories: portable objects and structures.

A timber-and-rubble rampart was noted as an early form of defensive outwork, subsequently destroyed by fire. Destruction was total, and the consequent disturbance of structural remains and stratification was considerable (Alcock & Alcock 1990, 107). Radiocarbon dating suggests that the Alt Clut defences date to the Late Iron Age, probably no earlier than AD600.

The metalworking context and date

Most of the finds are unstratified and thus further discussion of metalworking areas is difficult. Many of the objects were unstratified, but on typological grounds they can be divided into two groups, one datable to the third quarter of the first millennium AD, the other belonging to the 9th-10th centuries. In the first group are 12 sherds of amphorae from the east Mediterranean of Classes Bi and Bii, datable to about AD 470-600. There are also 5 sherds of Class E ware; evidence suggests that this appears later than the Class B and continues to AD 700 if not later. Merovingian glass was also found and dates to the 5th to 7th centuries AD. The excavators state that '... the iron knives and crucibles could also belong here, but could equally well go back into the preceding century' (ibid.). On the evidence of datable finds, the early medieval *floruit* ended in the early decades of the 8th century. Its terminus is marked by the cessation of imports of E-Ware, possibly as early as AD720 to 730. Then there is a hiatus in the finds until the appearance of the first Viking artefacts perhaps as early as AD800.

The excavators interpret these finds as a sign that the site was a royal one where over a period of several centuries they imported wine from the Mediterranean and drank it from glass cups and beakers of germanic origin. In the vicinity bronze was probably being worked to create high class jewellery (ibid., 114-5). It should be noted that several Romano-British artefacts were also found, although Alcock interprets these as 'reliquaries' (ibid., 116).

PEEBLESHIRE

Castle O'er, Eskdalemuir

Background

The finds were donated to the National Museums of Scotland (Proc Soc Antiqs Scot, 1968, 201). They are best regarded as stray finds.

The metalworking context and date

There is no record of the find circumstances and are best regarded as stray finds. Two sandstone moulds for bars were recorded – only one has been found by the author.

Appendix B

REF NO	PROVENANCE	TYPE	INTACT?	SUMMARY DESCRIPTION
GSA 251	A'cheardach Mhor, North Uist		4 N	Rim and body fragment. Distinct shape in section curving to create a shallow bottomed vessel approximately 130 – 140mm in diameter. Object likely to be sub-circular in plan with thick rim. Glazed vitrification and heat have affected the shape of the rim. Glazed vitrification and red residue on parts of rim and inside the crucible.
GSA 252	A'cheardach Mhor, North Uist ?		N	Fragment of ceramic. Broken on all sides except for one small area of the rim. Reduced grey, no sign of vitrification. Cavity on one side. Due to the fragmentary nature of the piece it is impossible to tell if this is a crucible.
HR 1211	Achahaird, Loch Broom, Ross ? and Cromarty		?	A 'lump of bronze in two fragments apparently from a large crucible of bronze scrap' was found near Achnahaird Enard Bay, Wester Ross by C.F. Tebbutt, and recorded in the donations to NMS in the <i>Proceedings of the Society of Antiquaries of Scotland</i> (1960, 253). In storage; not seen by the author.
HR 1605	Achanellan, Argyll	?	N	Crucible fragment. One third of the circumference survives with complete profile from rim to base. Grey very hard fabric, cuprous masses encrusted on exterior.
HR 1604	Achanellan, Argyll	?	N	Body fragment. In storage; not seen by the author.
HT 47	Airieolland, Wigtownshire	?1A	N	Rim and body fragment and part of base. Type 1A?
HT 48	Airieolland, Wigtownshire	?1A	N	Rim and body fragment. Type 1A?. Similar fabric to HT 47, although appearance suggests not part of same crucible. Bubbly interior.
HT 49	Airieolland, Wigtownshire	1E	N	Body and base fragment of distinctive crucible. V-shaped in profile. Due to the broken nature of the piece difficult to be sure whether it was triangular or circular in plan. Looks more triangular. Type 1E.
CAT?	Allt Chrisal, Barra	?	N	Base fragment. Too small to reconstruct shape. Wall thickness of 3-4mm.
CAT 54	Alt Clut, Dumbarton	9A	N	Rim and body fragment for a flat bottomed crucible or hot working tray, crudely fashioned in a pale pink or grey fabric. No signs of vitrification, internally or externally.
GR 29	Ardifuar, Argyll		1 N	Rim and body fragment of a ?Type A crucible. Thick-walled. Extensive deposit on interior and exterior.
GNB 87	Bac Mhic Connain, North Uist	1A	Y	Complete. Triangular in plan. Slight asymmetry with one wall straight in plan and section with the two other walls slightly convex in plan and bowing to create pouring lip which has been accentuated by pinching. V-shaped in section, although appears to have a slight rounded bottom, although heating has caused the bottom to become bubbly and mis-shapen.
GNB 88	Bac Mhic Connain, North Uist	1A	Y	Complete. Triangular in plan. Slight asymmetry. One wall straight in plan and section with the two other walls slightly convex in plan and bowing to form spout. V-shaped in section with slight rounded bottom, although heating has caused the bottom to become bubbly and mis-shapen. Outside is glazed with the base particularly vitrified. Vitrification on one lip.
GNB 89	Bac Mhic Connain, North Uist	1A	Y	Complete. Triangular in plan. Slight asymmetry. One wall straight in plan and section with the two other walls slightly convex in plan and bowing to form spout. V-shaped in section. Vitrification at the bottom of the crucible, which rises to the middle of the outside. The base thickness has therefore lost its normal shape and structure.

GNB 90	Bac Mhic Connain, North Uist	1A	Y	Base and body fragment. Triangular in plan. V-shaped section. Bottom vitrified and glazed. Cracked due to heat
GNB 91 & 92	Bac Mhic Connain, North Uist	1A, B OR C	N	Base fragment. Possible that it and GNB 92 may be part of the same vessel.
CAT 237	Balloch Hill, Argyll		?4 N	Rim, body and base fragment. EDXRF shows no evidence of metalworking.
CAT 251	Balloch Hill, Argyll	1A	Y	Complete. Triangular in plan and section. Patches of red/green glaze. Vitrification on base and body. Heated from below.
unreg	Birnie, Moray		1 N	Body and base fragment of a triangular crucible. Type 1. In profile, the object seems fairly shallow for a Type A crucible. Deposits in interior.
unreg	Berst Ness, Knowe of Skea, Orkney	?	?	Record of recent find. Not available to study by the author.
GE 275	Broch of Lingro, Orkney	?	N	Small body fragment of a crucible.
HB 378	Brough of Bursary, Orkney	7 OR 8	N	Large lug (unused).
HB 392	Brough of Birsay, Orkney		4 Y	Complete. Bag shaped crucible. Rounded base, D-shaped opening at top. Base at vitrified showing heating from below.
HB 393 A	Brough of Birsay, Orkney		1 Y	Complete. Triangular in plan. Pointed base.
HB 394	Brough of Birsay, Orkney	1D	Y	Complete. Triangular in plan with rounded base.
HB 395	Brough of Birsay, Orkney	7C	Y	Complete. Lugged. Rounded base. Vitrification on sides and on top of lug.
HB 396	Brough of Birsay, Orkney	7A	Y	Complete. Lugged. Rounded base. Vitrification on base.
HB 397	Brough of Birsay, Orkney	7A	Y	Complete. Lugged. Flat base.
HB 398	Brough of Birsay, Orkney	7A	Y	Complete. Lugged. Flat base. Vitrification on base.
HB 399	Brough of Birsay, Orkney	7A	Y	Complete. Lugged. Rounded base.
HB 400	Brough of Birsay, Orkney	7 OR 8	Y	Complete. Lugged. Rounded base. Slight vitrification.

HB 401A	Brough of Birsay, Orkney	?	N	Base fragment.
HB 401B1	Brough of Birsay, Orkney	?	N	Base fragment. Vitrified on the bottom. Thin-walled.
HB 401B2	Brough of Birsay, Orkney	?	N	Base fragment. Vitrified and glazed on the bottom and mis-shapen. Thin-walled.
HB 401B3	Brough of Birsay, Orkney	?	N	Base fragment. Very vitrified and glazed on the bottom, and mis-shapen. Thin-walled.
HB 401B4	Brough of Birsay, Orkney	?	N	Base fragment. Glazed. Thin-walled.
Hb 401B6	Brough of Birsay, Orkney	?	N	Base fragment. Glazed and slightly vitrified on the exterior. Thin-walled.
HB 401B8	Brough of Birsay, Orkney	?	N	Base fragment. Glazed and slightly vitrified on the exterior. Thin-walled.
Hb 401B9	Brough of Birsay, Orkney	?	N	Base fragment. Very vitrified and glazed on the bottom, and mis-shapen. Thin-walled.
HB 401B5	Brough of Birsay, Orkney	?	N	Body fragment. Type ?. Deposits in interior and partly vitrified on the outside.
HB 401B7	Brough of Birsay, Orkney	?	N	Base and body fragment. Thin-walled.
HB 401B10	Brough of Birsay, Orkney	?	N	Base and body fragment. Glazed and vitrified on the exterior. Thin-walled.
HB 401B11	Brough of Birsay, Orkney	?	N	Base fragment. Glazed and slightly vitrified on the exterior. Thin-walled.
HB 401B12	Brough of Birsay, Orkney	?	N	Base fragment. Vitrified on outside. Thin-walled.
HB 401B13	Brough of Birsay, Orkney	?	N	Base fragment. Thin-walled.
HB 401B14	Brough of Birsay, Orkney	1 OR 8	N	Base and body fragment. Type 1 (possibly may be 8, although unlikely). Thin-walled.
HB 401B15	Brough of Birsay, Orkney	?	N	Base fragment. Thin-walled.
HB 401B16	Brough of Birsay, Orkney	?	N	Base fragment. Thin-walled.
HB 401B17	Brough of Birsay, Orkney	?	N	Base fragment. Vitrified and mis-shaped exterior. Fairly thick-walled.

HB 401B18	Brough of Birsay, Orkney	?	N	Base fragment. Vitrified and mis-shaped exterior. Thick-walled.
HB 401B19	Brough of Birsay, Orkney	?	N	Base fragment. Vitrified and mis-shaped exterior. Thick-walled.
HB 401B20	Brough of Birsay, Orkney	?	N	Base fragment. Vitrified and mis-shaped exterior. Thick-walled.
HB 401B21	Brough of Birsay, Orkney	?	N	Base and body fragment. Thick-walled.
HB 401B22	Brough of Birsay, Orkney	?	N	Base and body fragment. Thick-walled.
HB 401B23	Brough of Birsay, Orkney	?	N	Base fragment. Thin-walled.
HB 401B24	Brough of Birsay, Orkney	?	N	Base fragment. Thin-walled. Glazed and vitrified exterior.
HB 401B25	Brough of Birsay, Orkney	?	N	Base fragment. Thin-walled. Glazed and vitrified exterior.
HB 401B26	Brough of Birsay, Orkney	1 OR 8	N	Base and side of thin-walled crucible. Vitrified, glazed and mis-shapen on the bottom.
HB 401B27	Brough of Birsay, Orkney	?	N	Base and body fragment. Thick-walled. No signs of vitrification.
HB 401B28	Brough of Birsay, Orkney	?	N	Base fragment. Vitrified and mis-shaped exterior. Thick-walled.
HB 401B29	Brough of Birsay, Orkney	?1	N	Base fragment. Thick-walled. Vitrified and mis-shaped exterior. Interior deposits.
HB 401B30	Brough of Birsay, Orkney		1 N	Rim and body fragment, including a corner. Thin-walled. Type 1. No vitrification or deposits. ID number A209 on outside of object.
HB 401B31	Brough of Birsay, Orkney	?1	N	Rim and body fragment, including a corner. Thin-walled. Vitrified and glazed all over.
HB 401B32	Brough of Birsay, Orkney	?1	N	Rim and body fragment. Possible spout. Thin-walled. Vitrified on exterior and rim.
HB 401B33	Brough of Birsay, Orkney		1 N	Rim and body fragment. Including a corner or possible spout. Thin-walled.
HB 401B34	Brough of Birsay, Orkney	?4	N	Rim and body fragment. Including a spout. Thin-walled. Curvature of the vertical section suggests that the crucible may not be a triangular crucible, but perhaps globular in shape. Deposits in interior and vitrified and glazed exterior.
HB 401B35	Brough of Birsay, Orkney	?1	N	Possible spout. Thin-walled.

HB 401B36	Brough of Birsay, Orkney	?1	N	Rim and body fragment, including a corner. Thin-walled. Vitrified and glazed on exterior and interior.
HB 401B37	Brough of Birsay, Orkney	?1	N	Rim and body fragment, including part of a corner. Thin-walled.
HB 401B38	Brough of Birsay, Orkney	?	N	Rim and body fragment. Thick-walled. Glazed and vitrified on the exterior.
HB 401B39	Brough of Birsay, Orkney	?1B	N	Rim and body fragment. Thick-walled. Possibly part of a large spout. No vitrification.
HB 401B40	Brough of Birsay, Orkney	?	N	Rim and body fragment. Vitrified and glazed exterior and interior. Possibly part of a spout.
HB 401B41	Brough of Birsay, Orkney	?7	N	Rim and body fragment. Type 7?. Vitrified and glazed exterior, deposits inside. Possibly Type G as the top folds into make a rim, possibly part of a spout.
HB 401B42	Brough of Birsay, Orkney		1 N	Body fragment. Thin-walled. Type 1. Deposits in interior.
HB 401B43	Brough of Birsay, Orkney	?	N	Body fragment. Thin-walled.
HB 401B44	Brough of Birsay, Orkney	?	N	Body fragment. Thin-walled.
HB 401B45	Brough of Birsay, Orkney	?	N	Body fragment. Vitrified exterior.
HB 401B46	Brough of Birsay, Orkney	?	N	Body fragment. Thin-walled.
HB 401B47	Brough of Birsay, Orkney	?	N	Body fragment. Thin-walled.
HB 401B48	Brough of Birsay, Orkney	?	N	Body fragment. Thin-walled. Glazed exterior and deposit.
HB 401B49	Brough of Birsay, Orkney	?	N	Rim and body fragment. Thin-walled. Vitrified exterior and evidence of re-lining.
HB 401B50	Brough of Birsay, Orkney	?	N	Body fragment. Thin-walled.
HB 401B51	Brough of Birsay, Orkney	?	N	Body fragment and? base.
HB 401B52	Brough of Birsay, Orkney	?7	N	Body fragment. Type 7? Thin-walled.
HB 401B53	Brough of Birsay, Orkney	?	N	Body fragment. Vitrified exterior. Thin-walled.

HB 401B54	Brough of Birsay, Orkney	?	N	Body fragment. Evidence of pinching on side. Thin-walled.
HB 401B55	Brough of Birsay, Orkney	?	N	Body fragment. Thin-walled. Vitrified on exterior.
HB 401B56	Brough of Birsay, Orkney	?	N	Body fragment. Thin-walled.
HB 401B57	Brough of Birsay, Orkney	?	N	Body fragment. Thin-walled.
HB 401B58	Brough of Birsay, Orkney	?	N	Body fragment. Thin-walled. Glazed exterior.
HB 401B59	Brough of Birsay, Orkney	?	N	Body fragment. Thin-walled. Glazed and vitrified exterior.
HB 401B60	Brough of Birsay, Orkney	?	N	Body fragment. Thin-walled. Glazed and vitrified exterior. ID number A64 on exterior.
HB 401B61	Brough of Birsay, Orkney	?1B	N	Body fragment. Type A.
HB 401B62	Brough of Birsay, Orkney		1 N	Rim and body fragment. Type 1. Small part of rim surviving. Vitrified and glazed on the outside.
HB 401B63	Brough of Birsay, Orkney	?	N	Body fragment. Vitrified and glazed exterior, mis-shapen through firing. This may be a mould.
HB 401B64	Brough of Birsay, Orkney	?	N	Body (?base) fragment.
HB 401B65	Brough of Birsay, Orkney	?	N	Body fragment. Thin-walled. Glazed and vitrified exterior. This may be a mould.
HB 401B66	Brough of Birsay, Orkney	?	N	Body fragment. Vitrified exterior.
HB 401B67	Brough of Birsay, Orkney	?	N	Body fragment. Deposits in interior.
HB 401B68	Brough of Birsay, Orkney	?	N	Body (?base) fragment.
HB 401B69	Brough of Birsay, Orkney	?	N	Body (?base) fragment.
HB 401B70	Brough of Birsay, Orkney	?	N	Body (?base) fragment.
HB 401B71	Brough of Birsay, Orkney	?	N	Body fragment.

HB 401B72	Brough of Birsay, Orkney	?	N	Body fragment. Inside face missing.
HB 401B73	Brough of Birsay, Orkney	7B	N	Handle and body fragment. Handle pinched vertically.
HB 401B74	Brough of Birsay, Orkney	7A	N	Handle and body fragment. Unclear whether the handle is at the base or the top. Handle pinched horizontally. Vitrified exterior.
HB 401B75	Brough of Birsay, Orkney	7A	N	Handle and body fragment. Handle pinched horizontally. Glazed exterior.
HB 401B76	Brough of Birsay, Orkney	7A	N	Handle and body fragment. Handle added on to the body later - not like the others. Vitrified exterior, particularly under the handle.
HB 401B77	Brough of Birsay, Orkney	7A	N	Handle and body fragment. Handle pinched horizontally.
HB 401B78	Brough of Birsay, Orkney	7 OR 8	N	Handle. Large handle. Handle pinched horizontally.
HB 401B79	Brough of Birsay, Orkney	7A	N	Handle and body fragment. Handle pinched horizontally.
HB 401B80	Brough of Birsay, Orkney	7A	N	Handle and body fragment. Handle pinched horizontally. Vitrified exterior.
HB 401B81	Brough of Birsay, Orkney	7A	N	Handle and body fragment. Only half of the handle survives. Vitrified exterior.
HB 401B82	Brough of Birsay, Orkney	?7A	N	Handle. Large handle. Pinched horizontally with indentation on top.
HB 401B83	Brough of Birsay, Orkney	7 OR 8	N	Handle. No vitrification
HB 401B83	Brough of Birsay, Orkney	7 OR 8	N	Handle. No vitrification
HB 401B84	Brough of Birsay, Orkney	7 OR 8	N	Handle. Vitrified.
HB 401B85	Brough of Birsay, Orkney	7 OR 8	N	Handle with half vitrified. Pinched horizontally.
HB 401B86	Brough of Birsay, Orkney	?7 OR 8	N	?Handle. Vitrified on three sides.
HB 401B87	Brough of Birsay, Orkney	7B	N	Handle and body fragment. Handle pinched vertically.
HB 401B88	Brough of Birsay, Orkney	7A	N	Handle and body fragment. Vitrified exterior.

HB 401B89	Brough of Birsay, Orkney		7 N	Body fragment. Glazed and vitrified exterior.
HB 401B90	Brough of Birsay, Orkney	9A	N	Body, base and rim fragment of sub-rectangular vessel. Corner preserved suggesting that the vessel is sub-rectangular in shape. Glazed and vitrified exterior particularly on the top. Very vitrified interior.
HB 401B91	Brough of Birsay, Orkney	?9A	N	Body, base and rim fragment of vessel. Not enough preserved to suggest what the plan of the vessel is. Glazed and vitrified exterior particularly on the top. Very vitrified interior.
HB 401B92	Brough of Birsay, Orkney	?9A	N	Body and rim fragment of vessel. Not enough preserved to suggest what the plan of the vessel is. Slightly bubbly vitrification on rim, but the rest not vitrified. Red deposit in interior.
HB 401B93	Brough of Birsay, Orkney	?9A	N	Body, base and rim fragment of small, shallow sub-rectilinear vessel. Vitrified exterior and interior.
HB 401B94	Brough of Birsay, Orkney	?9 OR 4	N	Body, base and rim fragment of miscellaneous crucible? Vitrified exterior. The shape of the body section suggests that the crucible may either be type 9 or 4 although not enough survives to be sure.
HB 401B95	Brough of Birsay, Orkney	?9 OR 4	N	Body, base and rim fragment of miscellaneous crucible? No vitrification. Part of the exterior flaking away. The shape of the body section suggests that the crucible may either be type 9 or 4 although not enough survives to be sure.
HB 401B96	Brough of Birsay, Orkney	?9	N	Base and part of body of sub-circular vessel. Not enough survives to be sure of shape although it may be Type 9. Very flat base, which is vitrified.
HB 401B97	Brough of Birsay, Orkney	?5 OR 7	N	Body and rim fragment of vessel. Type 5 or 7. No vitrification.
HB 401B98	Brough of Birsay, Orkney	?9 OR 4	N	Body and rim fragment of ?circular crucible The shape of the body section suggests that the crucible may either be type 9 or 4 although not enough survives to be sure. Not vitrified.
HB 401B99	Brough of Birsay, Orkney	?	N	Body and rim fragment of miscellaneous crucible. Glazed and vitrified on exterior on bottom half. The top half looks like it has been rubbed away after use.
HB 401B100	Brough of Birsay, Orkney	?9	N	Body fragment, including the corner, of large, deep vessel. Type 9? Vitrified exterior. Not enough survives to be sure of original shape.
HB 401B101	Brough of Birsay, Orkney	?7B	N	Body fragment. Vitrified exterior. May be a vertically pinched Type 7B crucible although not enough survives to be sure.
HB 401B102	Brough of Birsay, Orkney	-	N	Tuyère. Glazed exterior.
HB 401B103	Brough of Birsay, Orkney	?	N	Miscellaneous ceramic. CR 20 on exterior.
HB 401B104	Brough of Birsay, Orkney	?	N	Miscellaneous ceramic.
HB 401B105	Brough of Birsay, Orkney	?	N	Miscellaneous ceramic. Interior deposit.
HB 401B106	Brough of Birsay, Orkney	?	N	Miscellaneous ceramic.

HB 401B107	Brough of Birsay, Orkney	?	N	Miscellaneous ceramic.
HB 401B108	Brough of Birsay, Orkney	?	N	Miscellaneous ceramic.
HB 401B109	Brough of Birsay, Orkney	?	N	Miscellaneous ceramic. Vitrified and bubbly exterior.
HB 401B110	Brough of Birsay, Orkney	?	N	Miscellaneous ceramic.
HB 401B111	Brough of Birsay, Orkney	?	N	Miscellaneous ceramic. Glazed and spotty exterior.
HB 401B112	Brough of Birsay, Orkney	?	N	Miscellaneous ceramic.
HB 401B113	Brough of Birsay, Orkney	?	N	Miscellaneous ceramic. Vitrified and bubbly exterior.
HB 401B114	Brough of Birsay, Orkney	?	N	Miscellaneous ceramic. Vitrified and bubbly exterior.
HB 401B115	Brough of Birsay, Orkney	?	N	Miscellaneous ceramic.
HB 401B116	Brough of Birsay, Orkney	?	N	Miscellaneous ceramic or stone. Glazed exterior in places.
HB 402	Brough of Birsay, Orkney	?	N	Miscellaneous fragments, fired but unused.
HB 403i	Brough of Birsay, Orkney	?	N	Rim and part of body of crucible.
HB 403ii	Brough of Birsay, Orkney	?	N	Rim and part of body of crucible.
HB 403iii	Brough of Birsay, Orkney	?	N	Rim of crucible.
HB 403iv	Brough of Birsay, Orkney	?	N	Rim and part of body of crucible.
HB 403v	Brough of Birsay, Orkney	?	N	Rim and part of body of crucible.
HB 403vi	Brough of Birsay, Orkney	?	N	Rim and part of body of crucible.
HB 403vii	Brough of Birsay, Orkney	?	N	Rim of crucible.

HB 403viii	Brough of Birsay, Orkney	?	N	Rim of crucible.
HB 403ix	Brough of Birsay, Orkney	?	N	Rim and part of body of crucible.
HB 403x	Brough of Birsay, Orkney	?	N	Rim and part of body of crucible.
HB 403xi	Brough of Birsay, Orkney	?	N	Rim of crucible.
HB 403xii	Brough of Birsay, Orkney	?	N	Rim of crucible.
HB 403xiii	Brough of Birsay, Orkney	?	N	Miscellaneous fragment
HB 403xiv	Brough of Birsay, Orkney	?	N	Miscellaneous fragment
HB 403xv	Brough of Birsay, Orkney	?	N	Miscellaneous fragment
HB 403xvi	Brough of Birsay, Orkney	?	N	Miscellaneous fragment
HB 403xvii	Brough of Birsay, Orkney	?	N	Miscellaneous fragment
HB 403xviii	Brough of Birsay, Orkney	?	N	Miscellaneous fragment
HB 403xix	Brough of Birsay, Orkney	7 OR 8	N	Handle fragment. Type 7 or 8
HB 404	Brough of Birsay, Orkney	?	N	Fragment of very large crucible, heavily vitrified.
HB 405	Brough of Birsay, Orkney	-	N	Tuyère (incomplete).
HB 406	Brough of Birsay, Orkney	-	N	Blow-pipe (incomplete).
HB 407	Brough of Birsay, Orkney	-	N	Blow-pipe (incomplete).
HB 408a	Brough of Birsay, Orkney	-	N	Tuyère or large blow-pipe (incomplete).
HB 409	Brough of Birsay, Orkney	?9A	N	Fragment of straight-sided container, rectangular flat base.

HB 410	Brough of Birsay, Orkney	9A	N	Flat bottomed container.
HB 411a	Brough of Birsay, Orkney	9A	N	Flat bottomed container.
HB 413	Brough of Birsay, Orkney	?9A	N	Circular dish (incomplete). Flat, round-edged rim. D 88mm.
HB 414	Brough of Birsay, Orkney	?9A	N	Fragment of round-edged rim for dish. D 30mm.
HB 415	Brough of Birsay, Orkney	?9A	N	Fragment of circular dish. D 68mm.
HB 416A	Brough of Birsay, Orkney	?9A	N	Fragment of circular dish. 45mm x 35mm.
HB 416B	Brough of Birsay, Orkney	?9A	N	Fragment of circular dish. 45mm x 35mm.
HB 417	Brough of Birsay, Orkney	?9A	N	Rim fragment of straight sided, circular dish.
	5220 Brough of Birsay, Orkney		7 N	Handle from Type 7 crucible. Has snapped off of the main part of the body. Broken at the other end also.
	5491 Brough of Birsay, Orkney	?	N	Body fragment.
SF 49	Bruach an Druiem, Argyll	?	N	Small body fragment. Broken on all sides and no diagnostic features (rim, base etc). Deposits in interior.
SF 85	Bruach an Druiem, Argyll	?	N	Body fragment ?base of crucible. Broken on all sides. Deposits on inside and outside.
Z16028B	Bruthach Mor, Benbecula	?	?	Fragment. Type ? Not seen. In Cambridge Museum
CAT 170	Bu, Orkney		3 N	Rim and body fragment. No surface indications of high temperature heating. On the exterior is a green/grey glaze and red deposits on interior.
CAT 172	Bu, Orkney		3 N	Almost complete. Pear shaped crucible. Green/grey glaze on the exterior and spout. Red-surface deposits in the interior, rim and upper body.
GT 59	Buaile Risary, North Uist		10 Y	Small vessel with a rounded bottom. Broken at one side. No pouring spout. Irregular sub rounded internal shape which bows markedly at one half. No vitrification or signs of extensive heating. More like a small thumb pot or miniature pot. Type 10.
GT 60	Buaile Risary, North Uist		10 N	Small flat bottomed vessel. Broken at top and half of one side missing. Fabric pale orange and gritty with larger inclusions of mica and quartz (1 - 3mm). No vitrification or signs of extensive heating. More like a small thumb pot.
HV 124	Buiston, Ayrshire	7 OR 8	N	Small handle or lid knob, rectangular in cross-section.

HV 145	Buiston, Ayrshire		1 Y	Complete. Type 1. Exterior surface is vitrified, particularly on the base. Thickness 4mm.
HV 144	Buiston, Ayrshire	1A OR B	Y	Complete. Type 1. The exterior surface is heat cracked and has a grit-enriched slip. The interior has a metallic deposit adhering to it. Thickness 4mm.
GA 872	Caithness'	1A OR B	N	Body and base fragment of triangular crucible. Type 1A or B. Deposits in interior. Glazed and vitrified outside.
unreg	Carn Liath, Sutherland	?	?	Crucible. Not studied by the author. Not catalogued elsewhere.
GL 76	Cinn Trolla, Sutherland	1A OR B	N	Rim and body fragment of ?triangular crucible. Type 1A or B. Glazed and vitrified interior and metallic deposits. Broken just above base.
GL 74	Cinn Trolla, Sutherland	?1	N	Body fragment. No diagnostic features.
GL 75	Cinn Trolla, Sutherland	?1	N	Body fragment. No diagnostic features.
	107 Clatchard Craig, Fife	9A	N	About half of original survives. Upper surface is vitrified, smooth, glossy red and black. X-ray fluorescence analysis in 1974 showed high lead and a little tin on this surface.
	106 Clatchard Craig, Fife	?	N	Rim and body fragment from a thick-walled, curved sided vessel, 35mm thick, with a few large grits; it has been fired to a high temperature. Buff brown inside; orange outside, blackened towards base. It could be part of a large crucible or lamp.
	108 Clatchard Craig, Fife	?	N	Body fragment , outer surface curves in two directions. Inner face no longer survives. May be part of a large crucible.
HD 1330	Clettraval, North Uist	?1 OR 4	N	Rim fragment. Extensive red deposit on outside and inside of object with entrapped slag. Coarse fabric with small quartz inclusions. Type?. Too small to reconstruct.
CAT 176	Clickhimin, Shetland	?1A	N	Body fragment. No diagnostic features.
CAT 41	Clickhimin, Shetland	?1A	N	Body fragment. No diagnostic features.
CAT 70	Clickhimin, Shetland	?1A	N	Body fragment. No diagnostic features.
CAT 71	Clickhimin, Shetland	?1A	N	Body fragment. No diagnostic features.
HR 1301	Coll, Ross and Cromarty	?	N	Classed as a crucible in past publications and in National Museum catalogue. However, it is best describing this as a vitrified ceramic sherd. Very thick, with only one surviving true edge. No internal face making recognition of whether a crucible or not impossible.
unreg	Craigmarloch Wood, Renfrewshire	?	?	In Paisley Museum. Not available to study the author

unreg	Crawford, Lanarkshire	?4	N	The fragment appears to belong to a roughly hemispherical or bag-shaped crucible, probably with an external rim-diameter of about 4 in and an original capacity of at least 250 cc; the maximum surviving thickness is 0.65 in. As such it would rank among the largest examples of crucibles from Roman or Romano-British sites. ¹⁹ The outside surface of the fragment is partially covered with a red and black glass-like layer in which the impression of the tongs used to hold the crucible is clearly visible. From this it would appear that the crucible was removed from the source of heat, from above, by means of fairly narrow tongs, perhaps not unlike those found at Newstead. The fabric of the crucible appears to have been a fireclay-like material, built up in three layers of differing composition in such a way that the most durable was on the outside and the most resistant to the action of molten metal on the inside. X-ray fluorescence analysis of the outer and inner surfaces provided evidence that the metal in use was a copper-zinc alloy (brass).
unreg	Crawford, Lanarkshire	?	N	The rim fragment of a second crucible was found in loose soil above the W end of the Antonine granary. Although similar in most respects to that already described, it appears to belong to a somewhat smaller vessel, in which the layered structure of the former example is not so clearly defined.
CAT 566	Crosskirk, Caithness	?	N	Part of a spout, cracked by heat and grey in colour. The object has a greenish vitreous glaze.
CAT 707	Crosskirk, Caithness	?	N	Part of a spout, with exterior covered with vitreous material.
SF 38	Cullykhan, Banffshire	?	N	Fragment of crucible rim with vitrified exterior and curious sandy interior.
SF 203	Cullykhan, Banffshire		6 Y	Large crucible with pouring lip and gripping lug. Large construction with heavy blue vitrification on side of pouring lip. Some damage to rim opposite pouring lip.
SF 254	Cullykhan, Banffshire	?	N	Possible crucible fragment. May be re-lined. Outer surface highly vitrified. Dated roughly to 377BC (M. Spearman pers comm).
SF 281	Cullykhan, Banffshire		1 Y	Rim fragment. Slight angle at rim may suggest that this is from the pouring lip or from a triangular crucible. From a black occupation layer that pre dates 106BC and post 387BC..
SF 316	Cullykhan, Banffshire	?	N	Crucible fragment.
SF 451	Cullykhan, Banffshire	?	N	Crucible fragment. Lies under two possible furnaces (feature 17 and 20). SF451 was found between these two features.
SF 480	Cullykhan, Banffshire	?	N	Rim fragment of large crucible. Very vitrified. Deposits on object.
HU 36	Dowalton Loch, Wigtownshire		10 N	Body, rim and base fragment of half of a vessel. Sub-rectangular in shape. Has no visual or scientific characteristics of being a crucible. May have played no part in the metalworking process.
	4 Dun Ardtreck, Syke	?4	N	Rim and body fragment of globular vessel. Possibly a type 4 vessel. May not be a crucible as it has no visible signs of heating.
	8 Dun Ardtreck, Syke	?10	Y	Complete globular vessel. Possibly a type 10 vessel. May not be a crucible as it has no visible signs of heating.
	47 Dun Ardtreck, Syke	?10	Y	Complete globular vessel. Possibly a type 10 vessel. May not be a crucible as it has no visible signs of heating.

GT 135	Dun a Ghallian, North Uist	?1A	N	Base fragment. Type 1A?
GA 1071	Dun Beag, Skye	?	Y	Flat bottomed circular vessel. May not be a crucible.
GA 1072	Dun Beag, Skye	?2	N	Very shallow vessel. ?Possibly a type 2 crucible. Missing part of side and bottom. Vitrified, reduced grey around rim. No obvious spout and no metallic residues.
GA 1073	Dun Beag, Skye	?	N	May either be a crucible of a tuyère. Alternatively, may be a thumb pot. Reduced grey inside
unreg	Dun Bharabhat, Lewis		10 Y	Complete vessel. Small thumb pot with no evidence of metal deposits of vitrification. Very small, diameter little over 15mm.
unreg	Dun Bharabhat, Lewis		10 Y	Complete vessel. Small thumb pot with no evidence of metal deposits of vitrification. Very small, diameter little over 15mm.
unreg	Dun Bharabhat, Lewis		10 Y	Complete vessel. Small thumb pot with no evidence of metal deposits of vitrification. Diameter a little over 20mm.
	30 Dun Bharabhat, Lewis		10 Y	Complete vessel. Small thumb pot with no evidence of metal deposits of vitrification. Diameter a little over 20mm.
	85 Dun Bharabhat, Lewis		10 Y	Complete vessel. Small thumb pot with no evidence of metal deposits of vitrification. Very small, diameter little over 15mm.
	85 Dun Bharabhat, Lewis		10 Y	Complete vessel. Small thumb pot with no evidence of metal deposits of vitrification. Very small, diameter little over 15mm.
	85 Dun Bharabhat, Lewis		10 Y	Complete vessel. Small thumb pot with no evidence of metal deposits of vitrification. Very small, diameter little over 15mm.
	85 Dun Bharabhat, Lewis		10 Y	Complete vessel. Small thumb pot with no evidence of metal deposits of vitrification. Very small, diameter little over 15mm.
	85 Dun Bharabhat, Lewis		10 Y	Complete vessel. Small thumb pot with no evidence of metal deposits of vitrification. Very small, diameter little over 15mm.
86/04	Dun Bharabhat, Lewis		10 Y	Complete vessel. Small thumb pot with no evidence of metal deposits of vitrification. Very small, diameter little over 15mm.
86/05	Dun Bharabhat, Lewis		10 Y	Complete vessel. Small thumb pot with no evidence of metal deposits of vitrification. Very small, diameter little over 15mm.
86/06	Dun Bharabhat, Lewis		10 Y	Complete vessel. Small thumb pot with no evidence of metal deposits of vitrification. Very small, diameter little over 15mm.
86/09	Dun Bharabhat, Lewis		10 Y	Complete vessel. Small thumb pot with no evidence of metal deposits of vitrification. Very small, diameter little over 15mm.
86/10	Dun Bharabhat, Lewis		10 Y	Complete vessel. Small thumb pot with no evidence of metal deposits of vitrification. Very small, diameter little over 15mm.
86/17	Dun Bharabhat, Lewis		10 Y	Complete vessel. Small thumb pot with no evidence of metal deposits of vitrification. Very small, diameter little over 15mm.

86/11	Dun Bharabhat, Lewis		10 Y	Complete vessel. Small thumb pot with no evidence of metal deposits or vitrification. Very small, diameter little over 15mm.
86/01	Dun Bharabhat, Lewis		1 Y	Complete vessel. Type 1. Slightly mis-shaped at the top of the vessel, one side pinched to make a spout.
95/02	Dun Bharabhat, Lewis	?	N	Base of vessel. Possibly a crucible. Thick walled.
GU 342	Dun Cuier, Western Isles		4 N	Rim and body fragment of a globular vessel. May be a type 4 vessel.
DMV 21.AX	Dun Mor Vault, Tiree		1 N	Two joining fragments of the body, rim and spout of thin-walled triangular crucible. Large pouring spout created by pinching. Inside and outside reduced fired grey. No sign of vitrification on inside or outside, although an extensive red residue on outside and inside of rim.
DMV AI	Dun Mor Vault, Tiree	?1	N	Body and rounded rim fragment. Too fragmentary to reconstruct although may be similar to the larger crucible, 21.AX. Inside and outside reduced fired grey. Slight glazed vitrification on outside.
DMV BC	Dun Mor Vault, Tiree	?	N	Body fragment. No diagnostic features. Fabric usual grey and gritty with only very small inclusions. Inside and outside reduced fired grey. Bubbly, glazed vitrification and fusion of matrix on outside.
DMV BQ	Dun Mor Vault, Tiree	?	N	Rim and body fragment. Fabric usual grey and gritty with only very small inclusions. Inside and outside reduced fired grey. Slight glazed vitrification on outside and cracking.
DMV DZ	Dun Mor Vault, Tiree	?	N	Body fragment. No diagnostic features. Fabric usual grey and gritty with only very small inclusions. Inside and outside reduced fired grey. Heavily green bubbly glazed vitrification, fusion of matrix and mis-shapen on outside
DMV EF	Dun Mor Vault, Tiree	?	N	Body and rounded rim fragment. Fabric usual grey and gritty with only very small inclusions. Inside and outside reduced fired grey. No sign of extensive although outside glazed green and fused. Inside and outside reduced fired grey.
DMV EH	Dun Mor Vault, Tiree	1A	N	Body and rim fragment. Thin-walled. Probably a triangular crucible, very similar appearance as 35.BA. Fabric grey and gritty with only very small mineral inclusions less than 1mm. Exterior cracked, through heating. Inside and outside reduced fired grey. No sign of vitrification on inside or outside.
DMV EL	Dun Mor Vault, Tiree	?	N	Curved body fragment. No diagnostic features. Fabric usual grey and gritty with only very small inclusions. Outside reduced fired grey, inside paler, yet may have been cleaned after excavation. No sign of vitrification on inside or outside.
DMV FE	Dun Mor Vault, Tiree	?	N	Two fragments of heated sherds of fine grey clay. Not located at Hunterian Museum.
DMV KZ	Dun Mor Vault, Tiree	?	N	Fragment with vitrified outer surface - not located at Hunterian museum
DMV HV (145)	Dun Mor Vault, Tiree	?	N	Body and rounded rim fragment. Fabric usual grey and gritty with only very small inclusions. Inside and outside reduced fired grey. No sign of vitrification yet outside and rim cracked by heat. Similar fabric and appearance to 440.JX.

SF 224.EJ	Dun Mor Vault, Tiree	?	N	Body fragment. Fabric usual grey and gritty with only very small inclusions. Outside reduced fired grey. Green glazed vitrification on outside and cracked by heat.
SF 243.ED	Dun Mor Vault, Tiree	?	N	Body and rounded rim fragment. Fabric usual grey and gritty with only very small inclusions. Inside and outside reduced fired grey. Slight glazed vitrification on outside and cracking.
SF 342.EV	Dun Mor Vault, Tiree	?	N	Body fragment. No diagnostic features. Fabric usual grey and gritty with only very small inclusions. Inside and outside reduced fired grey. Heavily green bubbly glazed vitrification and fusion of matrix on outside.
SF 35.BA	Dun Mor Vault, Tiree	1A	N	Almost complete. Vertical section V-shaped, triangular in plan and symmetrical. Inside and outside reduced fired grey. Little sign of vitrification although the bottom is cracked and slightly glazed suggesting heating from below. Staining in the bottom of the crucible. Missing portion likely to be the pouring spout.
SF 440.JX	Dun Mor Vault, Tiree	?4	N	Body and rim fragment. Inside and outside reduced fired grey. Greenish 'glaze' vitrification and fusion of matrix on outside, particularly towards base of crucible. Reconstructed the crucible may have been a hemispherical vessel (diam c60mm) and quite shallow (c25mm deep). There are two small 'nicks' on the outside face perhaps where the crucible was gripped.
GP 222	Dunadd, Argyll	7A	Y	Complete. Hemispherical crucible with a broad flat handle and a rounded base. Type 7A. The handle is drawn out from the body. The fabric is buff coloured with a sand temper containing a fine quartz grit. the external surface is grey in colour and is covered in a grit-enriched slip which is vitrified in places.
GP 223	Dunadd, Argyll	7C	Y	Broadly triangular crucible with a narrow base at right angles to the flat handle. Type 7C. Triangular in overview, may have been lidded at some point. The exterior surface is highly vitrified, some areas having a glaze-like consistency while other patches have bubbly vitrification.
GP 224	Dunadd, Argyll	7A	Y	Cylindrical shaped and pinched crucible with the handle drawn from the body. Type 7A. Short flattish oblique handle. The exterior is covered in a vitrified grit-enriched slip.
GP 225	Dunadd, Argyll	9A	Y	Cup-shaped crucible with a flat bottom. Type 9A. External surface vitrified with dark red and black glazed patches. The internal surface is covered with a blue-green coating.
GP 226	Dunadd, Argyll	4 OR 9	Y	Large, deep hemispherical crucible. No handle. Type 4. Exterior covered in a vitrified grit-enriched slip with patches of bubbly vitrification. Residue on base and rim
GP 227	Dunadd, Argyll	?	N	Rim and body fragment. Type ? Exterior is covered in a vitrified grit-enriched slip with patches of bubbly vitrification. Interior heat affected, particularly on the rim.
GP 228	Dunadd, Argyll	?4	N	Rim and body fragment. Type 4? Exterior vitrified. Interior has metallic residue.
GP 229	Dunadd, Argyll	?1	N	Base fragment. Type 1? Exterior surface has a thin vitrified grit-enriched slip and areas of vitrification. Interior has metallic residue.
GP 230	Dunadd, Argyll	?	N	Body fragment. Exterior surface has a vitrified slip with small patches of vitrification.
GP 231	Dunadd, Argyll	7A	N	Handle and body fragment. Handle drawn out from the body. Type 7A. Exterior vitrified and the interior has metallic deposits.
GP 251	Dunadd, Argyll	?	N	Body fragment, thinning at one end and a thickened out-turned rim with a flat surface. Type ? Exterior is vitrified
GP 252	Dunadd, Argyll	9A	N	Body and base fragment. Type 9A

HPO 178	Dunadd, Argyll		8 Y	Complete. Lidded crucible with a portion of a handle remaining. Type 8. The lid extends over a portion of the wall. The mouth is pinched forming the spout. The exterior is vitrified, particularly near the base.
HPO 179	Dunadd, Argyll		5 Y	Small cylindrical crucible lacking the rim. Type 5.
HPO 180	Dunadd, Argyll	9A	N	Body and base fragment. Type 9A. The wall of the crucible has been re-lined, and the exterior is heavily vitrified. The interior has metallic deposits. Two fragments, fused together. Thickness ranges from 3mm to 6.5mm. Present depth 34mm.
HPO 181	Dunadd, Argyll	?	N	Body and base fragment. Type ? The exterior surface is heavily vitrified and heat cracked. Interior slightly vitrified.
HPO 182	Dunadd, Argyll	?	N	Rim, body and base fragment. Type ? small crucible. The rim is slightly pinched to aid pouring. Exterior vitrified in places.
HPO 183	Dunadd, Argyll		1 N	Rim, body and base fragment. Type ? small crucible. Exterior vitrified. The interior surface, especially in and around the base, has patches of gold and vitrification half-way up the wall
HPO 184	Dunadd, Argyll		1 N	Body and base fragment. Type 1. Exterior surface is vitrified, particularly on the base.
HPO 185	Dunadd, Argyll		1 N	Body and base fragment. Type 1. Exterior vitrified. A small patch of bronze adheres to the interior surface
HPO 186	Dunadd, Argyll	?	N	Rim, pinched, and body fragment.
HPO 187	Dunadd, Argyll	?1	N	Rim fragment. The rim curves sharply, perhaps for a triangular crucible. Type 1? Exterior vitrified.
HPO 189	Dunadd, Argyll	?8	N	Rim fragment. Thin-walled. Exterior vitrified. Type ?
HPO 190	Dunadd, Argyll	?	N	Rim and body fragment. Exterior surface is vitrified. Perhaps evidence for a lid.
HPO 191	Dunadd, Argyll	?	N	Rim and body fragment. Exterior surface is vitrified. Type ?
HPO 192	Dunadd, Argyll	?	N	Rim and body fragment. Exterior surface is vitrified. Type ?
HPO 193	Dunadd, Argyll	?	N	Body fragment. Springing for the lid extends over half of the sherd. Type ? Exterior vitrified.
HPO 194	Dunadd, Argyll	?	N	Body fragment.
HPO 195	Dunadd, Argyll	?	N	Rim and body fragment. Exterior surface is vitrified. Type ?
HPO 196	Dunadd, Argyll	?	N	Rim fragment. Type ?
HPO 197	Dunadd, Argyll	?8	N	Body fragment. Exterior vitrified. Is there evidence for a lid? Type ? Interior has metallic residues. Thickness 6mm.
HPO 198	Dunadd, Argyll	?8	N	Rim and body fragment. Springing for a lid extends over a portion of the exterior surface. Thickness ranges from 3mm to 4.75mm.
HPO 199	Dunadd, Argyll	?8	N	Body fragment. Vitrified exterior. Interior golden green in colour. From the same vessel as HPO 197
HPO 200	Dunadd, Argyll	?	N	Body fragment. Vitrified exterior.
HPO 201	Dunadd, Argyll	?	N	Rim and body fragment. Exterior and interior vitrified.
HPO 202	Dunadd, Argyll	?	N	Rim and body fragment. Exterior vitrified.
HPO 203	Dunadd, Argyll	?	N	Body fragment.
HPO 204	Dunadd, Argyll	?	N	Body fragment.

HPO 205	Dunadd, Argyll	?	N	Small fragment from the rounded base of a small crucible. Exterior vitrified.
HPO 206	Dunadd, Argyll	?	N	Body fragment. Exterior vitrified.
HPO 207	Dunadd, Argyll	?	N	Rim, body and base fragment. Exterior vitrified which extends over the rim and into the interior.
HPO 208	Dunadd, Argyll	?	N	Rim and body fragment. Exterior heavily vitrified. Metallic deposit in interior.
HPO 209	Dunadd, Argyll	?	N	Rim and body fragment. Exterior vitrified.
HPO 210	Dunadd, Argyll	?	N	Rim and body fragment. Exterior heavily vitrified. Interior has metallic deposits.
HPO 211	Dunadd, Argyll	?	N	Rim and body fragment. Exterior vitrified.
HPO 212	Dunadd, Argyll	?	N	Rim and body fragment. Exterior vitrified.
HPO 213	Dunadd, Argyll	?	N	Body fragment. Exterior and interior vitrified.
HPO 214	Dunadd, Argyll	?	N	Rim fragment, slightly bulbous. Rim is vitrified and covered in a red colour.
HPO 215	Dunadd, Argyll	?	N	Rim and body fragment. Exterior vitrified. Does this have a lid?
HPO 216	Dunadd, Argyll	?	N	Rounded base fragment. Both surfaces heavily vitrified.
HPO 217	Dunadd, Argyll	?	N	Rounded base fragment. Exterior vitrified.
HPO 218	Dunadd, Argyll	?	N	Body fragment. Exterior heavily vitrified.
HPO 219	Dunadd, Argyll	?	N	Body fragment. Exterior heavily vitrified.
HPO 220	Dunadd, Argyll	?	N	Rim and body fragment of a thick-walled crucible. Exterior surface vitrified.
HPO 221	Dunadd, Argyll	?	N	Rim and body fragment of a thick-walled crucible. Exterior surface vitrified.
HPO 222	Dunadd, Argyll	?	N	Rim and body fragment of a thick-walled crucible. Exterior surface vitrified. From the same crucible as HPO 220? The internal surface may have been re-lined.
HPO 223	Dunadd, Argyll	?	N	Rim and body fragment. The exterior is irregular and has stone or cinder adhering to it.
HPO 226	Dunadd, Argyll	?	N	Body fragment. From the same crucible as HPO 221? Exterior surface vitrified. Interior may have been relined. Greatest thickness 19mm.
HPO 227	Dunadd, Argyll	?	N	Body fragment. Exterior vitrified.
HPO 228	Dunadd, Argyll	?	N	Body fragment. Exterior vitrified.
HPO 229	Dunadd, Argyll	?	N	Body fragment approaching a flat base.
HPO 230	Dunadd, Argyll	?	N	Rim and body fragment of shallow crucible.
HPO 231	Dunadd, Argyll	?	N	Body fragment.
HPO 232	Dunadd, Argyll	?	N	Body fragment.
HPO 233	Dunadd, Argyll	?	N	Body fragment.
HPO 234	Dunadd, Argyll	?	N	Body fragment.
HPO 235	Dunadd, Argyll	?	N	Body fragment.
HPO 237	Dunadd, Argyll	?	N	Body fragment.
HPO 238	Dunadd, Argyll	?	N	Rim fragment. Thin-walled. Exterior is vitrified.

HPO 239	Dunadd, Argyll	?5	N	Rim fragment. Type 5? Both sides are heavily vitrified. Thickness ranges from 5mm to 8mm.
HPO 240	Dunadd, Argyll	?	N	Body fragment.
HPO 241	Dunadd, Argyll	?	N	Body fragment.
HPO 242	Dunadd, Argyll	?	N	Body fragment.
HPO 243	Dunadd, Argyll	?	N	Body fragment.
HPO 244	Dunadd, Argyll	?	N	Body fragment.
HPO 245	Dunadd, Argyll	?	N	Body fragment.
HPO 246	Dunadd, Argyll	?	N	Body fragment.
HPO 247	Dunadd, Argyll	?	N	Body fragment.
HPO 248	Dunadd, Argyll	?	N	Body fragment.
HPO 249	Dunadd, Argyll	?	N	Body fragment.
HPO 250	Dunadd, Argyll	?	N	Body fragment.
HPO 251	Dunadd, Argyll	?	N	Body fragment.
HPO 252	Dunadd, Argyll	?	N	Body fragment.
HPO 253	Dunadd, Argyll	?	N	Body fragment.
HPO 254	Dunadd, Argyll	?	N	Body fragment.
HPO 255	Dunadd, Argyll		8 N	Lid with handle attached to body with out-turning rim. Thin-walled. Type 8. Knob rectangular in section, 20mm in length
HPO 256	Dunadd, Argyll	7 OR 8	N	Handle or lid knob, rectangular in cross-section Type 7 or 8?
HPO 257	Dunadd, Argyll	7 OR 8	N	Handle or lid knob, rectangular in cross-section. Type 7 or 8?
HPO 258	Dunadd, Argyll	7 OR 8	N	Handle or lid knob, rectangular in cross-section. Handle is vitrified. Type 7 or 8?
HPO 259	Dunadd, Argyll	7 OR 8	N	Handle or lid knob, rectangular in cross-section, 21mm in length. Greatest width 10mm, thickness 7mm. Type 7 or 8?
HPO 260	Dunadd, Argyll	7 OR 8	N	Handle or lid knob, rectangular in cross-section. Type 7 or 8?
HPO 261	Dunadd, Argyll	7 OR 8	N	Handle or lid knob, rectangular in cross-section. Type 7 or 8?
HPO 262	Dunadd, Argyll	7 OR 8	N	Handle or lid knob, rectangular in cross-section. Type 7 or 8?
HPO 263	Dunadd, Argyll	7 OR 8	N	Handle or lid knob, rectangular in cross-section. Type 7 or 8?
HPO 264	Dunadd, Argyll	7 OR 8	N	Handle or lid knob, rectangular in cross-section. Type 7 or 8?
HPO 265	Dunadd, Argyll	7 OR 8	N	Handle or lid knob, rectangular in cross-section. Type 7 or 8?
	105 Dunadd, Argyll	?	N	Body fragment. Type ?
112/1	Dunadd, Argyll		8 N	Two joining lid fragments. Type 8 Knob abraded and mostly missing.
112/2-7	Dunadd, Argyll	?	N	Six body fragments. Type ? Sizes 28, 25,18, 18, 15,14 mm.
112/8	Dunadd, Argyll		9 N	Body fragment. Type 9.

112/9	Dunadd, Argyll	?8	N	Rim fragment. Type ?8. Traces of lid attachment
112/10	Dunadd, Argyll	?	N	Rim fragment. Type ?
	163 Dunadd, Argyll		8 N	Lid handle. Type 8. Lug tapers.
	187 Dunadd, Argyll		7 N	About half of complete object. Type 7. Broken lengthwise, handle missing.
	188 Dunadd, Argyll		7 N	About half of complete object. Type 7. Broken across the axis. Handle present, pointing upwards with tongs-mark. Estimated volume 1 cc.
	192 Dunadd, Argyll	?4	N	Rim, body and base fragment. Type 4? Bowl-shaped with extra layers inside and outside, heavily vitrified.
	193 Dunadd, Argyll	?	N	Body fragment, Type?
	195 Dunadd, Argyll	? May be ingot	N	Rim fragment. May be a crucible or ingot. Oval shape or end of long bar mould. Very thick base, greater than 12 mm. Differs from other ingot moulds in being vitrified like crucibles.
	196 Dunadd, Argyll	9B	N	Rim and base fragment. Type 9B. Shallow flat bottomed bowl, or possibly lid. D. estimated 140 mm. T. max. 12 mm. Part of the same vessel as 1815/1?
1815/1	Dunadd, Argyll	9B	N	Rim fragment. Type (B. Size 43 mm. Flat base with rounded basal angle. Signs of lid attachment (or possibly the fragment could be a lid). Part of same vessel as 196?
	208 Dunadd, Argyll		8 N	Lid handle, Type 8. Tall, thin.
	211 Dunadd, Argyll	?8	N	Base fragment. Type 8? Thick slag on base exterior.
	220 Dunadd, Argyll	9E	N	Rim fragment of large crucible with vertical walls, estimated Type 9E.
221/465/447/1435	Dunadd, Argyll	9D	N	Rim, body and base fragment of large crucible, Type 9D. Flat base, D. c.80 mm, globular incurving walls, Added layers on interior. Traces of green vitrification on lower part of interior. Volume 180 cc. Same vessel as 447 and 1435
	230 Dunadd, Argyll	9B	N	Rim fragment. Type 9B. Rapidly thickening similar to 196.
	281 Dunadd, Argyll	?	N	Body fragment. Type?
	303 Dunadd, Argyll		4 Y	Complete. Hemispherical crucible Type 4. Faint trace of a pouring lip. Cracked during use, but vitrified over breaks. Slag globules on exterior and slag and metal dross in interior. heavily vitrified inside and out. Volume 17.5 cc
	308 Dunadd, Argyll	?	N	Body fragment. Type?
	316 Dunadd, Argyll		4 N	Body fragment. Type large 4? Fragment very abraded.
	333 Dunadd, Argyll	?	N	Body fragment. Type?
	379 Dunadd, Argyll	?	N	Rim fragment. Type ?.
	418 Dunadd, Argyll		8 N	Lid handle. Type 8. Rectangular handle 14 mm high. Part of pouring hole edge remains, running parallel to the handle.
	425 Dunadd, Argyll	?	N	Body fragment. Type?
	429 Dunadd, Argyll	?8	N	Base fragment. Type 8? Conical body.
	445 Dunadd, Argyll		8 N	Lid fragment. Type 8. Part of pouring hole edge remains
	454 Dunadd, Argyll		8 N	Lid fragment. Type 8. Abraded

	459 Dunadd, Argyll		7 Y	Complete. Type 7. Vitrified all over. Handle curving upwards. Volume 2cc. Handle rectangular.
	466 Dunadd, Argyll		8 N	Body and lid fragment. Type 8. Oval in plan, greater than 35mm high. Lid attached by thick vitrification.
550/1	Dunadd, Argyll		8 N	More than half of object, now in four fragments. Type 8. Conical in section, oval in plan. Traces of lid attachment. Exterior slaggy and vitrified, interior with dross.
550/2-6	Dunadd, Argyll	?	N	Five body fragments. Type? Sizes 22, 20,18, 18,13 mm.
	600 Dunadd, Argyll		5 N	Rim fragment. Type 5. Estimated D. 20 mm. Exterior vitrified.
621/1667	Dunadd, Argyll	9C	N	Two joining fragments giving profile of large crucible. Type 9C. Flat base T. 10 mm, incurving wall with rounded basal angle. Estimated D. 90 mm. Height 38 mm.
621/2-3	Dunadd, Argyll		8 N	Lid and body fragment. Type 8.
	624 Dunadd, Argyll		8 N	Lid fragment and part of lip. Type 8. relined.
	630 Dunadd, Argyll		8 N	Handle from lid. Type 8. Rectangular.
	632 Dunadd, Argyll		8 N	Body fragment. Type 8.
646/1	Dunadd, Argyll		8 N	Rim fragment. Type 8.Trace of lid attachment. Exterior slaggy.
646/2	Dunadd, Argyll	?8	N	Rim fragment. Type 8? Exterior vitrified
646/3	Dunadd, Argyll	?7	N	Body fragment. Type 7?
	666 Dunadd, Argyll	?9D	N	Rim fragment. Type ?9D. Size 33 mm. Large vessel height greater than 32 mm, with carinated wall.
	678 Dunadd, Argyll		8 N	Rim fragment. Type 8.
	681 Dunadd, Argyll		8 N	Handle from lid? Type 8. Triangular shape.
	697 Dunadd, Argyll		8 N	Lid fragment. Type 8. Pouring edge and part of attachment to body.
	753 Dunadd, Argyll	7 OR 8	N	Handle from lid or body. Type 7 or 8. Oblong in shape
	754 Dunadd, Argyll		8 N	Rim and pouring lip. Type 8. Part of lid attachment remains, heavy vitrification on exterior.
	756 Dunadd, Argyll	?	N	Body fragment. Type?.
	782 Dunadd, Argyll	?	N	Base fragment of tiny crucible. Type ?7.
	799 Dunadd, Argyll		8 N	Rim fragment. Type 8. Traces of lid attachment, exterior vitrified.
	816 Dunadd, Argyll		4 N	Rim fragment. Type 4. Badly cracked and heavily vitrified inside and outside.
	832 Dunadd, Argyll	9A	N	Large part of shallow dish-shaped crucible, flat base and inward sloping wall. Type 9A. Interior black on base.
839/1	Dunadd, Argyll		8 N	Rim fragment. Type 8. Large crucible with lid attachment and heavy slagging on exterior. Height greater than 25 mm. Additional layer on top of slaggy surface.
839/2	Dunadd, Argyll		8 N	Rim fragment. Type 8. Size 23 mm. Lid attachment and vitrification on exterior.
	842 Dunadd, Argyll		8 N	Rim fragment. Type 8. Lid attachment and slag on exterior.
846/851	Dunadd, Argyll		8 N	Lid fragment. Type 8. Knob badly abraded but rectangular in section. Large crucible, estimated D. c.80 mm.
	854 Dunadd, Argyll	7 OR 8	N	Body fragment. Type 7 or 8. Extra outer layer, highly vitrified.
	884 Dunadd, Argyll		4 N	Rim fragment. Type 4. Vitrified inside and outside. Slaggy dross with charcoal on inside. Estimated D. 50 mm.

	885 Dunadd, Argyll		7 N	Handle. Type 7. Rectangular, section 18 x 6 mm., length about 15 mm. Shows signs of characteristic folding.
	888 Dunadd, Argyll		5 N	Rim fragment. Type 5 or 7. Exterior vitrified, interior slag and metal dross. D. 16 mm.
911/1	Dunadd, Argyll		8 N	Rim fragment. Type 8. Lid attachment visible. Slag on interior.
911/2	Dunadd, Argyll		8 N	Body fragment. Type 8. Lid attachment visible. Exterior vitrified.
911/3-5	Dunadd, Argyll		8 N	Three lid fragments. Type 8. Sizes 27, 25, 15mm. Remains of knobs on two fragments.
932/1	Dunadd, Argyll		8 N	Rim fragment. Type 8. Lid attachment visible, exterior slaggy.
932/2	Dunadd, Argyll	?7	N	Body fragment. Type 7? Exterior lightly vitrified.
944/1	Dunadd, Argyll	?	N	Body fragment. Type? Exterior has added layer over vitrification.
944/2	Dunadd, Argyll	?	N	Body fragment. Type? Heavy vitrification exterior, slaggy interior.
952/1	Dunadd, Argyll		8 N	Lid. Type 8. Vitrified exterior. Estimated D. 30 mm. Same vessel as 1004/4
1004/4	Dunadd, Argyll		8 N	Lid fragment. Type 8. Size 11 mm. Same vessel as 952/1.
952/2	Dunadd, Argyll	?	N	Rim fragment. Type ?
	963 Dunadd, Argyll		8 N	Lid handle. Type 8. Rectangular section.
	989 Dunadd, Argyll		8 N	Body fragment. Type 8. Extra internal layer. Exterior vitrified over lid attachment.
1004/1	Dunadd, Argyll		8 N	Body fragment. Type 8. Slaggy exterior over lid attachment.
1004/2	Dunadd, Argyll	?	N	Base fragment. Type ? Slaggy interior, vitrified exterior.
1004/3	Dunadd, Argyll		8 N	Lid fragment. Type 8.
	1016 Dunadd, Argyll	9A	N	Rim fragment. Type 9A. Shallow dish-shaped crucible, flat base and inwards sloping wall.
1030/1	Dunadd, Argyll		8 N	Rim fragment. Type 8. Lid attachment and pouring lip.
1030/2	Dunadd, Argyll	?	N	Body fragment. Type? Slaggy interior and exterior.
1030/3	Dunadd, Argyll	?	N	Body fragment. Type?
1030/4	Dunadd, Argyll	?	N	Body fragment. Type? Vitrified exterior.
	1031 Dunadd, Argyll		8 N	Lid handle. Type 8. Knob broken.
	1034 Dunadd, Argyll		8 N	Lid handle. Type 8. Knob rectangular.
	1135 Dunadd, Argyll	?8	N	Rim fragment. Type 8?
1164/1	Dunadd, Argyll		8 N	Lid. Type 8.
1164/2-6	Dunadd, Argyll	?	N	Body fragments. Type? Sizes 25, 24, 22, 17 mm. 1164/5 has added inner layer.
1164/7	Dunadd, Argyll	?8	N	Rim fragment. Type 8? Lid attachment covered by slag and vitrification.
	1200 Dunadd, Argyll	? Crucible	N	Body fragment. Highly fired with oxidised surfaces and vitrification on exterior. May not be a crucible.
1221/1	Dunadd, Argyll	5 OR 7	N	Rim fragment. Type 5 or 7.
1221/2-3	Dunadd, Argyll	?	N	Body fragments. Type?
	1232 Dunadd, Argyll	5 OR 7	N	Rim fragment. Type 5 or 7. Size 17 mm. Estimated D. 13 mm. Slaggy exterior, dross interior.

	1261 Dunadd, Argyll		4 N	Complete. Type 4. Vitrified exterior and interior, which also has dross. D. c.31 mm. Volume 4.5 cc.
	1282 Dunadd, Argyll		8 N	Lid fragment. Type 8.
	1334 Dunadd, Argyll	7 OR 8	N	Rim fragment. Type 7 or 8.
	1346 Dunadd, Argyll	?	N	Body fragment. Type ? Vitrified exterior
1352/1	Dunadd, Argyll	9E	N	Rim fragment. Type 9E. Exterior with thick slag showing impressions of tongs, one of which is about 4 mm. wide with a ridged surface. Estimated D. c.80 mm.
1352/2	Dunadd, Argyll	?	N	Rim fragment. Type?
1352/3	Dunadd, Argyll	?	N	Rim fragment. Type?
1378/1	Dunadd, Argyll		4 N	Rim fragment. Type 4. Interior vitrified and slaggy, badly cracked during use. Estimated D. 50 mm.
1378/2	Dunadd, Argyll	?	N	Rim fragment. Type?
	1404 Dunadd, Argyll		8 N	Lid with handle. Type 8. Fairly complete except for attachment to body. Knob height 16 mm, section 6 x 17 mm. Estimated size of crucible 35 x 40 mm. Has pouring lip parallel to handle
	1431 Dunadd, Argyll		8 N	Lid with handle. Type 8. Fairly complete except for lid attachment and pouring lip. Handle rectangular, height 18mm, section 7 x 25 mm. Crucible body sub-triangular, estimated size 40 x 50 mm
	1434 Dunadd, Argyll		7 N	Handle and body fragment. Type 7. Handle pinched, pointing upwards, section 18 x 7 mm. Heavily vitrified exterior. Interior with extra clay lining.
1506/1	Dunadd, Argyll	?	N	Body fragment with pinched pouring spout. Type?
1506/2	Dunadd, Argyll	5 OR 7	N	Rim fragment. Type 5 or 7? Estimated D. 20 mm.
1506/3	Dunadd, Argyll		8 N	Rim fragment. Type 8. Estimated D. 40 mm. Slaggy exterior.
1506/4	Dunadd, Argyll	?	N	Body fragment. Type?
1506/5	Dunadd, Argyll	?	N	Body fragment with pinched pouring spout. Type?
1506/6	Dunadd, Argyll	?	N	Body fragment. Type?
	1514 Dunadd, Argyll	9A	N	Rim, body and base fragment. Type 9A. Faint traces of vitrification on interior. Estimated D. 80 mm.
	1517 Dunadd, Argyll	?9B or ingot	N	Rim fragment. Type ?9B or possibly an open ingot mould.
	1518 Dunadd, Argyll	5 OR 7	N	Base fragment. Type 5 or 7. Vitrified exterior, slag and dross interior.
1538/1	Dunadd, Argyll		8 N	Lid handle. Type 8. Knob rectangular.
1538/2	Dunadd, Argyll		8 N	Rim fragment. Type 8. Slaggy exterior.
1538/3,4	Dunadd, Argyll	?	N	Base and body fragments. Type?. Vitrified exterior, slaggy interior.
1538/5	Dunadd, Argyll		8 N	Rim fragment. Type 8
1538/6	Dunadd, Argyll		8 N	Rim fragment. Type 8. Large slag on exterior
1551/3	Dunadd, Argyll	9A	N	Rim, body and base fragment. Type 9A. Irregular in shape.
	1567 Dunadd, Argyll	?	N	Body fragment. Type? Exterior vitrified, interior slag and dross.
1576/1	Dunadd, Argyll	?	N	Rim fragment. Type?

1576/2	Dunadd, Argyll	?	N	Body fragment. Type? Vitrified exterior.
1576/3	Dunadd, Argyll		8 N	Lid fragment. Type 8. Vitrified exterior.
1576/4	Dunadd, Argyll	?	N	Rim fragment. Type?
1576/5	Dunadd, Argyll		9 N	Body fragment. Type 9.
	1579 Dunadd, Argyll	9E	N	Rim fragment. Type 9E. Estimated D. 80 mm.
1602/1	Dunadd, Argyll	?	N	Body fragment. Type? Extra layer on inside.
1602-6	Dunadd, Argyll	?	N	Body fragments. Types? Sizes 27, 25, 20, 10,10 mm.
	1625 Dunadd, Argyll	?8	N	Rim fragment. Type 8? Vitrified exterior and interior
	1630 Dunadd, Argyll	?	N	Rim fragment. Type? Extra layers inside and outside.
	1632 Dunadd, Argyll	9A	N	Rim and base fragment. Type 9A. Estimated D.60 mm.
1650/1	Dunadd, Argyll	?8	N	Body fragment. Type 8? Vitrified exterior.
1650/2	Dunadd, Argyll	?	N	Rim fragment. Type? Extra layers inside and outside.
	1656 Dunadd, Argyll	?9	N	Rim fragment. Type 9?
1665/1	Dunadd, Argyll		4 N	Rim fragment. Type 4D. Vitrified inside and outside. Tongs' mark 4 mm. wide. Estimated D. 40 mm.
1665/2	Dunadd, Argyll		8 N	Rim fragment. Type 8. Lid attachment visible under thick exterior slag and vitrification.
1665/3	Dunadd, Argyll		8 N	Lid handle. Type 8. Knob rectangular, section 12 x 5mm, height 16 mm
1665/4	Dunadd, Argyll	?	N	Rim fragment,. Type?
1665/5	Dunadd, Argyll	?	N	Body fragment. Type?
	1666 Dunadd, Argyll	?	N	Body fragment. Type?
	1701 Dunadd, Argyll		9 N	Base fragment. Type 9.
1730/1	Dunadd, Argyll	?	N	Base fragment. Type? Vitrified exterior, slag and dross interior.
1730/2	Dunadd, Argyll		8 N	Lid fragment. Type 8. Extra layer exterior.
	1731 Dunadd, Argyll	?	N	Body fragment. Type? Fused into large lumps of slag and vitrification.
	1748 Dunadd, Argyll	?	N	Body fragment. Type?
1815/2	Dunadd, Argyll	?4	N	Base fragment. Type 4? Exterior vitrified.
1815/3	Dunadd, Argyll	?8	N	Rim fragment. Type 8? Exterior vitrified.
1815/4	Dunadd, Argyll		8 N	Rim fragment. Type 8. Lid attachment visible.
1815/5	Dunadd, Argyll	?	N	Body fragment. Type?
1830/1	Dunadd, Argyll		8 N	Lid handle. Type 8.
1830/2	Dunadd, Argyll		8 N	Lid and handle. Type 8. Part of pouring lip edge is present and is parallel to long axis of knob
1830/3	Dunadd, Argyll		7 N	Handle and body fragment. Type 7. Handle rectangular sloping upwards. Lower surface vitrified.
1830/4	Dunadd, Argyll	?	N	Unusual fragment. Type?
	1831 Dunadd, Argyll	?	N	Body fragment. Type? Thick slag and vitrification on exterior and extra layer

1847/1	Dunadd, Argyll	?	N	Rim fragment. Type?
1847/2	Dunadd, Argyll	?	N	Body fragment. Type? Vitrified inside and outside.
1847/3	Dunadd, Argyll	?	N	Body fragment. Type? Vitrified exterior, slaggy interior.
1847/4	Dunadd, Argyll	?	N	Body fragment. Type? Exterior slaggy, interior oxidised.
1847/5	Dunadd, Argyll	?	N	Body fragment. Type? Exterior vitrified.
1847/6	Dunadd, Argyll		9 N	Base fragment. Type 9.
1847/7	Dunadd, Argyll		8 N	Rim fragment. Type 8.
1847/8	Dunadd, Argyll		8 N	Body fragment. Type 8.
1848/9-10	Dunadd, Argyll	?	N	Body fragments. Type?
	1857 Dunadd, Argyll	?	N	Body fragment. Type?
	1926 Dunadd, Argyll	5 OR 7	N	Rim fragment. Type 5 or 7. Added outer layer. Vitrification inside and outside.
	1989 Dunadd, Argyll		8 N	Lid fragment. Type 8.
	2024 Dunadd, Argyll	5 OR 7	N	Rim fragment. Type 5 or 7. Estimated D. 20 mm.
	2073 Dunadd, Argyll	?	N	Body fragment. Type? Exterior vitrified, interior slag and dross.
	2303 Dunadd, Argyll		8 N	Lid handle. Type 8. Handle height 19 mm.
BT A272	Dunagoil, Bute	1A	N	Body and corner fragment. Thin-walled. Vertical section V-shaped. Inside and outside reduced fired grey. Green and red copper deposits on rim and on crucible interior. Extensive green glaze on outside.
BT A273	Dunagoil, Bute		10 Y	Complete. Round in plan. Very gritty fabric with large inclusions up to 5mm. Orangey brown in colour with no signs of vitrification, reducing conditions or general extensive heating. Repaired in antiquity.
BT A274	Dunagoil, Bute		10 Y	Almost complete. Round in horizontal cross-section and semi-circular in vertical cross section. Repaired in antiquity. Very gritty coarse fabric with large inclusions up to 5mm. Orangey brown in colour with no signs of vitrification or general extensive heating. Grey buff stain on inside suggests reducing condition.
BT A275	Dunagoil, Bute	1A	Y	Complete. Vertical section V-shaped and asymmetrical. The bottom is vitrified and mis-shaped due to heating. Triangular in plan with a slight asymmetry, with one side more convex than the other 2 flatter sides. Extensive copper deposits on the interior and rim. Vitrification on bottom shows heating from below. Rim and spout also vitrified.
BT A276	Dunagoil, Bute		10 Y	Complete. Crudely made with 'rim' very irregular in shape. Round in horizontal cross-section and semi-circular in vertical cross section. Very gritty coarse fabric with large inclusions. Numerous cracks and flaws on body. Orangey brown in colour with no signs of vitrification, grey buff or general extensive heating
BT A277	Dunagoil, Bute		10 Y	Complete. Elliptical in horizontal cross-section and semi-circular in vertical cross section. Very gritty coarse fabric with large inclusions up to 5mm and cracked in numerous areas. Fabric orangey brown with no signs of vitrification or general extensive heating.
BT A278	Dunagoil, Bute		10 Y	Complete. Very crudely made with 'rim' very irregular in shape. .Round in horizontal cross-section and semi-circular in vertical cross section. Very gritty coarse fabric with large inclusions up to 5mm and cracked in numerous areas. Fabric orangey brown with no signs of vitrification or general extensive heating.

BT A279	Dunagoil, Bute		10 Y	Almost complete. Probably a thumb pot. Very coarsely made with irregular rim. Round in horizontal cross section and semi-circular in vertical cross section. Very gritty coarse fabric with large inclusions up to 5mm. Numerous cracks and flaws on body.
BT A280	Dunagoil, Bute	1A	Y	Complete. Rim and spout slightly damaged. Spout and body cracked. Vertical section V-shaped and slightly rounded at bottom. Triangular in plan with a slight asymmetry, with one side more convex than the other two. Inside and outside reduced fired grey in places. No vitrification. Extensive copper deposits on the interior and parts of the rim
BT A43	Dunagoil, Bute	1A	N	Body and rim fragment of deep triangular crucible.
BT A94.85	Dunagoil, Bute		10 N	Rim and body fragment. Round in horizontal cross section and semi-circular in vertical cross section.. Very gritty orangey coarse fabric with large inclusions. No signs of vitrification, grey buff or metallic traces.
BT A94.86	Dunagoil, Bute		10 N	Rim and body fragment. Fabric pale orange with limited inclusions smaller than other vessels. No signs of vitrification or general extensive heating although grey buff on interior suggests some material was burnt in the vessel.
BT A94.87	Dunagoil, Bute	1A	N	Body and corner fragments, two joining. Thin-walled. Vertical section V-shaped. Fabric gritty with few inclusions. Inside and outside reduced fired grey. Green copper deposits on inside and rim of crucible. No signs of vitrification on fragment suggesting that the object was heated from below.
BT A94.88	Dunagoil, Bute	?1	N	Base fragment of round-bottomed crucible. Fragmentary nature makes reconstruction impossible. Fabric gritty with few inclusions. No signs of vitrification although exterior heavily cracked due to heat. Remains of interior face reduced fire grey with small green copper deposits.
BT A94.89	Dunagoil, Bute		10 N	Rim and body fragment. Round in horizontal cross section and semi-circular in vertical cross section. Very gritty orangey coarse fabric with large inclusions. No signs of vitrification, grey buff or metallic traces.
CAT ?	Dunan Ruadh, Barra	?1	N	Rim, body and base fragment. Quite a shallow crucible (c.35mm deep). The walls are quite thick relative to the overall size of the artefact, ranging from 5mm towards the edge to 15mm at the base. Heated from below.
CAT 38	Dundurn, Perthshire	?	N	Body fragment. Fabric light/grey buff. Sand tempered and soft. Deposits on exterior of yellow and pink. Inside is a bubbly, black carbon rich material with blue/red patches.
CAT 40	Dundurn, Perthshire	4 OR 5	N	Rim fragment. Thin-walled. Exposed to high temperatures. Fabric grey, finely tempered and hard. Exterior is coated with a reddish vitreous material.
CAT 41	Dundurn, Perthshire	?	N	Body fragment. Fabric grey, fine grained and hard. On the exterior is a bright red vitreous material. Interior is a carbonised substance with flecks of ?gold. However, XRF analysis shows that only copper, lead and tin. No zinc or gold. Consistent with a bronze casting.
CAT 80 (DH 117)	Dunollie, Oban		4 N	Rim and body fragment. Vitrified on the outside. Too small to determine type actual type. but rounded in horizontal section and bag shaped in vertical section.
CAT 81 (DH 300)	Dunollie, Oban	?5	N	Rim and body fragment. Rounded in horizontal section and cylindrical or thimble shaped in vertical cross section. Slightly vitrified.
CAT 82 (DH 308)	Dunollie, Oban	?	N	Body fragment. Type? The fabric is light grey in colour, the interior surface having a mauve tinge, with a high percentage of fine quartz grit. Bubbly vitrification on outside.

CAT 83 (DH 110)	Dunollie, Oban	7 OR 8	N	Handle fragment.
GA 1268	Dunphail, Sutherland	1A	N	Rim, body and base fragment. Type 1A. Vitrified and glazed interior and metallic deposits. Particularly on top half of rim, corner and spout.
HH 853	Edgerston, Roxburghshire	?1	N	Rim and body fragment of Type ?1 crucible. Thick rim. No vitrification or residue. Either this is not a crucible or it has not been used.
HH 854	Edgerston, Roxburghshire	9, 10 or not a crucible	N	Rim and body fragment of a thick vessel. Deposits in interior. Looks more like a shallow, globular dish, rather than a triangular crucible
CAT 183	Eilean Olabhat, North Uist	1A	Y	Complete. Triangular in plan, rounded base. Fabric very gritty, grey, exterior cracked and glazed, interior buff.
CAT 184	Eilean Olabhat, North Uist	1A	Y	Almost complete. Triangular in plan, one wall straight, the others bowed towards pouring lip. Fabric gritty, grey, exterior with extensive bubbly vitrification, interior paler.
CAT 185	Eilean Olabhat, North Uist	1A	Y	Almost complete. Unused? Fabric gritty, orange-brown, not vitrified
CAT 186	Eilean Olabhat, North Uist	1A	Y	Complete. Triangular in plan, one wall concave, the other two slightly convex towards pouring lip. Fabric gritty, grey, exterior cracked and glazed. Interior buff with slaggy dross, charcoal and cupriferous deposit. Slight tongs mark on concave side
CAT 187	Eilean Olabhat, North Uist	1A	Y	Complete. Triangular in plan. Fabric gritty, grey, exterior with extensive bubbly vitrification, interior buff.
CAT 189	Eilean Olabhat, North Uist	1A	N	Rim, body and base fragment. Thin-walled. Fabric gritty, grey with exterior heavily vitrified , interior with some bubbly vitrification
CAT 195	Eilean Olabhat, North Uist	1A	N	Rim and body fragment.
CAT 203	Eilean Olabhat, North Uist	1A	N	Rim and body fragment. Thin-walled, wall distorted, perhaps by tongs.
CAT 205	Eilean Olabhat, North Uist	1A	N	Rim, body and base fragment. Exterior vitrified.
CAT 213A	Eilean Olabhat, North Uist	1A	N	Rim, body and base fragment. Type 1A.
CAT 213C	Eilean Olabhat, North Uist	1A	N	Body fragment of large thick crucible, with extensive bubbly vitrification on exterior. Interior oxidised.
CAT 213B	Eilean Olabhat, North Uist	?1B	N	Rim and body fragment. Thick-walled. Extensive bubbly vitrification on exterior. Interior oxidised.
CAT 197	Eilean Olabhat, North Uist	?1B	N	Body fragment. Thick-walled. Thickening rapidly towards base, exterior oxidised, exterior cracked.

CAT 190	Eilean Olabhat, North Uist	?1B	N	Rim and body fragment. Thick-walled. Fabric gritty, grey with orange core, exterior cracked and glazed.
CAT 191	Eilean Olabhat, North Uist	?1B	N	Two non-joining body and rim fragments of large crucible. Pronounced pouring lip in one angle. Fabric grey, very gritty, quartz-rich, exterior cracked and heavily glazed with red deposits, interior with bubbly vitrification in zone near rim.
CAT 188	Eilean Olabhat, North Uist	?1B	N	Body fragment. Thick-walled. Lip of wall deformed and intumed with impression of tongs on upper surface. Fabric very gritty, grey, exterior cracked and glazed.
CAT 210	Eilean Olabhat, North Uist	?1B	N	Rim and body fragment. Thick-walled with sharp angle like a spout.
CAT 193b	Eilean Olabhat, North Uist		1 N	Rim and body fragment. Angle of triangular shaped crucible. No deposits on interior, bubbly vitrification on exterior. This may be the equivalent of 193 which can't be traced.
CAT 194A	Eilean Olabhat, North Uist		1 N	Rim and body fragment. Angle of triangular crucible. Exterior with extensive bubbly vitrification. Interior with some dross near lip, with cupriferous decay products. Length of side about 4 cm.
CAT 194B	Eilean Olabhat, North Uist		1 N	Body fragment. Exterior with extensive bubbly vitrification. Interior with some dross near lip, with cupriferous decay products. Length of side about 4 cm.
CAT 194C	Eilean Olabhat, North Uist		1 N	Body fragment. Exterior with extensive bubbly vitrification. Interior with some dross near lip, with cupriferous decay products. Length of side about 4 cm.
CAT 194D	Eilean Olabhat, North Uist		1 N	Body fragment. Exterior with extensive bubbly vitrification. Interior with some dross near lip, with cupriferous decay products. Length of side about 4 cm.
CAT 195E	Eilean Olabhat, North Uist		1 N	Body fragment. Corner.
CAT 200	Eilean Olabhat, North Uist		1 N	Base fragment. Thick, with heavy vitrification on exterior.
CAT 206a	Eilean Olabhat, North Uist		1 N	Rim and body fragment. Corner.
CAT 214	Eilean Olabhat, North Uist		1 N	Base fragment. Vitrified.
CAT 218	Eilean Olabhat, North Uist		1 N	Base fragment. Thick-walled. Bubbly appearance.
CAT 219	Eilean Olabhat, North Uist		1 N	Base fragment. Exterior bubbly vitrification.
CAT 199	Eilean Olabhat, North Uist	1, 7 OR 8	N	Base fragment.
CAT 202	Eilean Olabhat, North Uist	1, 7 OR 8	N	Rim and body fragment, bubbly vitrification on exterior, dross on interior. Body appears to turn inwards at top.
CAT 207	Eilean Olabhat, North Uist	1, 7 OR 8	N	Base fragment. Pointed. Some dross on interior, vitrified exterior.

CAT 209	Eilean Olabhat, North Uist	?7 OR 8	N	Fragment, with rim or edge, with fingered lug, vitrified. Perhaps a lug or spout on large crucible.
CAT 212	Eilean Olabhat, North Uist	1, 7 OR 8	N	Body and base fragment. Base pointed. No signs of vitrification or heating, perhaps unused. Coarse fabric, orange
CAT 192A	Eilean Olabhat, North Uist	?		Fragment. Heavily vitrified on exterior, glassy
CAT 198	Eilean Olabhat, North Uist	?	N	Body and base fragment. Thick-walled. Heavily vitrified exterior, interior with line of red dross.
CAT 201	Eilean Olabhat, North Uist	?	N	Rim and body fragment. Thin-walled. Dross inside.
CAT 196A	Eilean Olabhat, North Uist	?	N	Rim and body fragment. Turned in, with tongs mark on wall and possibly on rim.
CAT 196B	Eilean Olabhat, North Uist	?	N	Rim and body fragment.
CAT 204	Eilean Olabhat, North Uist	?	N	Rounded incomplete base, two rims and body herd.
CAT 206b	Eilean Olabhat, North Uist	?	N	Body fragment.
CAT 206c	Eilean Olabhat, North Uist	?	N	Body fragment.
CAT 206d	Eilean Olabhat, North Uist	?	N	Rim and body fragment.
CAT 208	Eilean Olabhat, North Uist	?	N	Unfired, orange, not complete.
CAT 211	Eilean Olabhat, North Uist	?	N	Rim fragment. Exterior vitrified, interior oxidised, thickening rapidly away from rim
CAT 215	Eilean Olabhat, North Uist	?	N	About half a small triangular crucible. Exterior vitrified. Estimated height 3.5 cm.
CAT 216	Eilean Olabhat, North Uist	?	N	Rim fragment. Broken and edge vitrified after breaking.
CAT 217	Eilean Olabhat, North Uist	?	N	Irregular sherd with vitrification on edges, broken in half. Similar to SF 166 and 135.
CAT 220	Eilean Olabhat, North Uist	?	N	Sharply defined corner of rim making spout. Fabric overfired, very black
	1824 Ellary Boulder Cave, Argyll	?	N	One tiny fragment of a crucible.

CAT 277	Fairyknowe, Stirlingshire	?4	N	Rim fragment with tapering rim. The fabric is fairly soft and in parts oxidized to a pale yellowish-brown. No surface deposits nor vitrification.
CAT 72	Fairyknowe, Stirlingshire	2B	Y	Almost complete. Represented by 14 fragments. It is around 105mm in diameter with about 75% of the rim present. Vitrification on rim, interior and exterior. Green residue trapped in the interior vitrification. The vessel had one spout, evidently simply formed, now missing. The crucibles capacity is c 220cm ³ equivalent to around 1.5kg of copper alloy.
HH 397	Finavon, Angus		10 Y	Complete vessel. Type 10. More like a thumb pot than a crucible.
HH 398a	Finavon, Angus	?10 or mould	N	Rim and body fragment. Described in the literature as a crucible but may equally be an ingot mould. Too fragmentary to tell. Can't tell if the object would be rectangular or rounded. May equally be a thumb pot as there is no evidence of vitrification or metallic residue. If it is a crucible it is a type J. The intact crucible from here is a thumb pot or a type J crucible.
HH 398b	Finavon, Angus	?10	N	Rim and body fragment. Nothing to suggest that this is a crucible - may be a thumb pot. No vitrification or metallic residues. Not enough survives to reconstruct shape.
HH 398c	Finavon, Angus	?10	N	Rim and body fragment. Nothing to suggest that this is a crucible - may be a thumb pot
SF5078	Fisherrow East, East Lothian	1B	N	Six conjoining fragments (four rim sherds and two body base sherds) of a triangular crucible. The vessel is steep-sided, with thin walls and a tapering rim. The complete profile of the vessel survives. Both exterior and interior surfaces are heavily used.
SF5098	Fisherrow East, East Lothian	?1	N	Rim and joining body fragment of a small vessel with a pinched or tapering rim and thin walls. Most of the profile survives.
SF 5070	Fisherrow East, East Lothian	?	N	One fragment from the lower body of a small possibly globular and unused crucible. EDXRF analysis did not indicate the presence of copper, tin or any other heavy metals. The sherd thickness (8-10mm) implies a more substantial vessel than the previous two crucibles.
SF 5111	Fisherrow East, East Lothian	?	N	Rim and body fragment, probably from one vessel. The rim tapers and is fairly flat. Most of the profile exists, giving a height estimate of around 40mm. There are traces of a fused deposit on both the interior and exterior surfaces.
GNA 303	Foshigarry, North Uist		10 Y	Complete. Very small vessel, repaired in antiquity. Rounded in plan yet very lop sided in section. No pouring spout. Evidence of burning on bottom of vessel yet no signs of vitrification. Inside pale orange and no signs of reducing grey in interior or rim.
GT 477	Garry lochdrach, North Uist	2A	Y	Complete. Triangular in cross section with pointed-to-rounded bottom with pinched pouring spout. Sub-circular in plan. Extensive bubbly vitrification and copper residue around one side of the lip, down one side and around the spout as well as a slight vitreous glaze. Copper residue interior as well as some silica residue.
GT 478	Garry lochdrach, North Uist	1E	N	Body and base fragment. Distinct flat bottom. Broken around top and one side. Silica and quartz inclusions ranging in size from 1mm to 6mm. No vitrification. Slight grey buff on parts of the vessel bottom and insides, although this is probably due to the firing of the vessel rather than indicative of metalworking. No metallic residue or traces visible.
GT 479	Garry lochdrach, North Uist		10 Y	Complete. Small vessel with skewed pointed bottom. Created by pushing a finger into a piece of clay. XRF: no metal traces.

un reg	Glenhead, Lanarkshire	?	?	Crucibles recorded as coming from this site. Not located by the author.
GA 804	Gurness, Orkney	2C	Y	Complete. With foot and pouring lip
GA 805	Gurness, Orkney	?1 OR 2	N	Three fragments. Heavy green fusion on the outside and a pointed base with none.
GA 806	Gurness, Orkney	?	N	Fragment with some dark green fusion on outside.
GA 807	Gurness, Orkney	?	N	Four fragments. Pointed base; heavy green fusion on outside
GA 808	Gurness, Orkney	?	N	Six pieces of shaped carbon which may have been residual shell inside crucible.
GA 809	Gurness, Orkney		5 N	Body and base fragments. Eleven fragments of misshapen crucible with a pointed base and dark green fusion on outside.
GA 810	Gurness, Orkney	?	N	Flake of vitrified material that looks as though it has come from the side of a crucible. (GA33.431).
GA 811	Gurness, Orkney		5 N	Body and base fragment of gently rounded crucible base. Grey in colour with some red adhesions on outside.
CAT 4395	Howe, Orkney		10 Y	Complete. Globular vessel identified in the original report as a crucible. Appears to be a small thumb.
CAT 7875	Howe, Orkney		3 N	Rim and body fragment . Grey in colour, vitrified in internal.
HHA 227	Hurly Hawkin, Angus	IN STORAGE	?	Tiny fragment of crucible.
HTA 102	Hyndford, Ayrshire	?	N	Body fragment. Miscellaneous. Thick-walled. No surviving diagnostic features -may be a base. Vitrified and glazed interior.
CAT 1	Iona, Argyll	1A	N	Body fragment, including corner. The outer surface is coated in black residue with red patches. There are possible tong impressions on the residue. The interior surface is heat-crazed. Grey partially vitrified.
CAT 2	Iona, Argyll	7 OR 8	N	Lug. Traces of a burgundy coloured residue adheres to the surface. T 1mm. Horizontally pinched.
CAT 3	Iona, Argyll	1A	N	Body fragment. The vessel narrows to the base and was probably cone-shaped. The exterior and interior are heat crazed. Traces of black residue on exterior. Brown with buff surfaces
HSA 1380	Jarlshof, Shetland	5 OR 7	N	Rim, body and base fragment. Deposits in interior. Missing one side, May have once had a handle, but impossible to tell due to missing one side. Deposits on rim and interior.
HAS 1381	Jarlshof, Shetland	?	?	Intact crucible, pear-shaped at lip. No available for study.
HSA 3892	Jarlshof, Shetland	5?	N	Piece of a large crucible
HSA 3983	Jarlshof, Shetland	?	N	Piece of a large crucible showing building ring
HSA 3984	Jarlshof, Shetland	?	N	Rim fragment of a crucible.
HSA 3985	Jarlshof, Shetland	?	N	Two rim fragments of a crucible
HSA 3986	Jarlshof, Shetland	?	N	Fragments of large crucibles
HSA 3987	Jarlshof, Shetland	?	N	Piece of two small round crucibles
HH 712	Kaimes Hill, Midlothian	?	N	Crucible fragment from large crucible

GA 501	Keiss Harbour, Caithness	1A	Y	Complete. Triangular crucible. Small. Deposits on interior base and inside wall.
unreg	Kildonan, Argyll	?9 OR 10	Y	Seven fragments of baked brown clay, rather soft, apparently forming parts of a small thick cup, roughly shaped, about 37mm high and 60mm across.
unreg	Knowe of Taft, Orkney	?	?	Record of a crucible being found here (see Hedges 1987, 55). Author does not know it's location; Hedges notes that some items are now lost
GE 275	Lingro, Orkney	?	N	Small body fragment.
unreg	Lochend, Lanarkshire	?	N	Body fragment - in Kelvingrove Museum? Not located by author.
?	Loch Glashan, Argyll		8 Y	Two fragments of same vessel. Lower part of lidded crucible. Type 8. Sub-triangular in section. Interior deposits. Clay luting of lid survives round most of surviving body. Other fragment the lug and part of a lid. Both fragments found together.
SF 1143	Loch na Beirgh, Lewis	1A	N	Body, rim, spout and base fragment. V-shaped in section with slightly rounded base. Vitrification on all outside of body, increasing towards the base where the bottom becomes glazed, misshapen, bubbly and fused with silica inclusions. Green copper staining and deposits in interior.
SF 1188	Loch na Beirgh, Lewis	?1A	N	Rim and body fragment. Stained grey colour in interior. Coarse fabric, orange in colour with grey and yellow discolouring. No signs of vitrification.
SF 1194	Loch na Beirgh, Lewis	1A	N	Rim, body, spout and base fragment. Approximately half of the original survives. V-shaped in section. Peculiar planned shape with two pronounced 'pinched' corners. Base and side vitrified with base slightly misshapen due to heating from below. Inside and outside stained grey colour due to heating. Green copper deposits on rim and outside.
SF 1207	Loch na Beirgh, Lewis	?	N	Body fragment. Fine sandy fabric with limited inclusions (less than 0.7mm). Grey staining on external and internal
SF 1208	Loch na Beirgh, Lewis	?1	N	Rim and body fragment. ?triangular. V-shaped in section. Stained grey colour on external base. Slight bubbling on bottom of sherd perhaps indicating heating from below. Very similar shape, fabric and appearance to SF 1595.
SF 1215	Loch na Beirgh, Lewis	?	N	Body fragment. Fine sandy fabric. Grey staining throughout. No signs of vitrification.
SF 1216	Loch na Beirgh, Lewis	?	N	Body and corner fragment. Fine sandy fabric. Limited inclusions (less than 0.7mm). Grey staining on external and internal.
SF 1217	Loch na Beirgh, Lewis	?	N	Body and spout fragment. Stained grey colour inside and outside. Signs of glazed vitrification on external face. Attached vitrified residue in interior of spout. Very small and fragmentary and therefore difficult to reconstruct its original shape,
SF 1243	Loch na Beirgh, Lewis	1A	N	Rim, body and spout fragment. Irregular triangular in plan. V-shaped in section. Broken just above base point. Grey and yellow staining from heating and use. Green copper deposits on inside of spout. Vitrification under spout and bottom of body.
SF 1301	Loch na Beirgh, Lewis	1A	N	Rim, spout and body fragment. V-shaped in section with slightly rounded base. Stained grey colour. No signs of vitrification or deposits.

SF 1595	Loch na Beirgh, Lewis	1A	N	Body, rim and ?spout fragment. V-shaped in section with slightly rounded base. External glazing and vitrification show heating from below. Green staining and deposits on inside of spout. Internal base stained black / grey. Similar to SF 1208
SF A126	Loch na Beirgh, Lewis		10 Y	Complete. Completely different design from other crucibles, both in shape, fabric and size. Circular in plan with circular hole. No signs of vitrification.
SF S237A	Loch na Beirgh, Lewis	?	N	Rim fragment. Extensive signs of vitrification. Part of thin-walled rim of crucible. Fine sandy fabric. Glazed. Green deposits on side
SF S237B	Loch na Beirgh, Lewis	?	N	Body or base fragment. Rounded and bubbly and vitrified suggesting evidence of heating from below. Fine sandy fabric. Internal grey staining.
SF S238C	Loch na Beirgh, Lewis	?	N	Corner fragment. Fine sandy fabric with external signs of vitrification and copper residue on interior
HT 85	Lochan Dughaill, Argyll		3 Y	Complete. Pear-shaped crucible. 37mm in diameter. It is coated externally with reddish slag.
unreg	Mavis Grind, Shetland	?	?	Not seen by the author. Unknown location. Not described in original report
GAM 160a	Midhowe, Orkney	?1	N	Rim and body fragment. Type ?1. Bubbly, glazed exterior, particularly at rim on the outside. Not enough survives to be sure of original shape.
GAM 160b	Midhowe, Orkney	?	N	Rim and body fragment. Type ? Rather pronounced rim. Not enough survives to be sure of original form. Vitrified and glazed on rim.
GAM 160c	Midhowe, Orkney	1 OR 2	N	Rim, spout and body fragment. Type 1 or 2? May join GAM 160D. Bubbly and vitrified interior. Pronounced spout.
GAM 160d	Midhowe, Orkney	1 OR 2	N	Rim, spout and body fragment. Type 1 or 2? Bubbly and vitrified interior.
unreg	Mine Howe, Orkney	2C	N	Rim and body fragment. Type ? Not enough survives to be sure of original form. Vitrified and glazed on rim.
unreg	Mine Howe, Orkney		1 N	Various other crucible fragments. Not fully studied by author.
SF 15	Moncrieffe, Perthshire	?	N	Body fragment. Whitish clay. About 30mm diameter with a slaggy deposit inside and vitrified on the outer surface. There is a droplet of bronze on the outside, identified as a leaded bronze with significant traces of silver and antimony. Illus 15 (Stewart 1985, 144).
Curle 1913; 1501	Mote of Mark, Kirkcudbrightshire		1 N	Rim, spout and body fragment. Type 1 or 2? May join GAM 160D. Bubbly and vitrified interior. Pronounced spout.
Curle 1913; 1502	Mote of Mark, Kirkcudbrightshire		1 N	Rim and base fragment.
Curle 1913; 1503	Mote of Mark, Kirkcudbrightshire		1 N	Base fragment. Inner face uneven.
Curle 1913; 1504	Mote of Mark, Kirkcudbrightshire		1 N	Base fragment.
Curle 1913; 1506	Mote of Mark, Kirkcudbrightshire		1 N	Rim fragment. Red gloss on outer and inner faces.

Curle 1913; 1507	Mote of Mark, Kirkcudbrightshire	1 N	Rim fragment. Small fragment of copper metal adhering to uneven inner face.
Curle 1913; 1508	Mote of Mark, Kirkcudbrightshire	1 N	Rim fragment.
Curle 1913; 1509	Mote of Mark, Kirkcudbrightshire	1 N	Rim fragment. Traces of copper metal on inner face; red gloss on outer and inner faces.
2010	Mote of Mark, Kirkcudbrightshire	1 N	Body fragment. Hair lines on both surfaces, possible traces of metal on inner surface.
2011	Mote of Mark, Kirkcudbrightshire	1 N	Rim fragment. Round. Yellow vitrified concretion on inner face, red vitrified gloss on both faces near rim.
2013	Mote of Mark, Kirkcudbrightshire	1 N	Rim, body and base fragment. Triangular, thin-walled, very hard with simple thinned and rounded rim. Outer face with possible streaks of vegetable inclusion. Three spots of red-tinged glassy slag on outer wall, bluish metallic tinge on inner face.
2017	Mote of Mark, Kirkcudbrightshire	1 N	Body fragment.
2021	Mote of Mark, Kirkcudbrightshire	1 N	Rim and base fragment. Triangular crucible; relined; bubbly vitreous concretion on outer face and possible tong marks.
2028	Mote of Mark, Kirkcudbrightshire	1 N	Body fragment in very hard fabric. Hair lines on both faces.
2024	Mote of Mark, Kirkcudbrightshire	1 N	Rim fragment.
2048	Mote of Mark, Kirkcudbrightshire	1 N	Body fragment. Red spot of vitreous gloss on outer face.
2055	Mote of Mark, Kirkcudbrightshire	1 N	?Base fragment. Crust of red vitreous material.
2077	Mote of Mark, Kirkcudbrightshire	1 N	Body fragment. Green copper staining in parts of core and small nodules of metal (?silver) on outer surface.
2083	Mote of Mark, Kirkcudbrightshire	1 N	Rim fragment. Thin-walled. Red vitreous gloss on inner face.
2091	Mote of Mark, Kirkcudbrightshire	1 N	Body fragment. Thin-walled. Red vitreous gloss on outer face.
2096	Mote of Mark, Kirkcudbrightshire	1 N	Body fragment.
2118	Mote of Mark, Kirkcudbrightshire	1 N	Body fragment with clay relining.
2130	Mote of Mark, Kirkcudbrightshire	1 N	Rim fragment. Thick red and black vitreous encrustation.

2158 Mote of Mark, Kirkcudbrightshire	1 N	Body fragment.
2161 Mote of Mark, Kirkcudbrightshire	1 N	?Rim fragment. Green, yellow and orange stain on inside face; red vitreous gloss on outer face; dark gloss inside rim.
2167 Mote of Mark, Kirkcudbrightshire	1 N	Base fragment.
2179 Mote of Mark, Kirkcudbrightshire	1 N	Rim fragment. Thin-walled. Red vitrified gloss on rim and inner face.
2189 Mote of Mark, Kirkcudbrightshire	1 N	Rim fragment. Thin-walled. Red vitrified gloss on rim and inner face.
2192 Mote of Mark, Kirkcudbrightshire	1 N	Body fragment.
2201 Mote of Mark, Kirkcudbrightshire	1 N	Rim fragment. Thin-walled.
2202 Mote of Mark, Kirkcudbrightshire	1 N	Rim fragment. Thin-walled. Red vitreous spots on inner and outer faces.
2210 Mote of Mark, Kirkcudbrightshire	1 N	Rim fragment. Thin-walled. Green-black and red gloss on outer face.
2216 Mote of Mark, Kirkcudbrightshire	1 N	Rim fragment. Thin-walled. Heavily vitrified.
2232 Mote of Mark, Kirkcudbrightshire	1 N	Base fragment. Hard fabric.
2267 Mote of Mark, Kirkcudbrightshire	1 N	Rim fragment. Thin-walled.
2268 Mote of Mark, Kirkcudbrightshire	1 N	Rim fragment. Thin-walled.
2283 Mote of Mark, Kirkcudbrightshire	1 N	Thin-walled crucible; orange-red gloss on inner face, hair lines on outer face.
2287 Mote of Mark, Kirkcudbrightshire	1 N	Rim fragment. Rounded. Heavily vitrified; vesicular with red and black vitrified gloss on both faces.
2288 Mote of Mark, Kirkcudbrightshire	1 N	Body fragment. Red and orange-yellow vitrified gloss on outer face. Small spots of green vitrified gloss on outer face.
2332 Mote of Mark, Kirkcudbrightshire	1 N	Body fragment. Red and orange-yellow vitrified gloss on outer face. Small spots of green vitrified gloss on outer face.
2335 Mote of Mark, Kirkcudbrightshire	1 N	Thinned crucible rim.

2344 Mote of Mark, Kirkcudbrightshire	1 N	Body and rim fragment. Thin-walled. Slight gloss of vitrification; hair lines.
2346 Mote of Mark, Kirkcudbrightshire	1 N	Body fragment. Heavily vitrified.
2413 Mote of Mark, Kirkcudbrightshire	1 N	Body fragment; red vitreous gloss on outer face.
2414 Mote of Mark, Kirkcudbrightshire	1 N	Body and base fragment.
2415 Mote of Mark, Kirkcudbrightshire	1 N	Body fragment. Thin-walled.
2416 Mote of Mark, Kirkcudbrightshire	1 N	Rim fragment. Thin-walled. Orange-red vitreous concretion and spot of green ?copper on inner face.
2417 Mote of Mark, Kirkcudbrightshire	1 N	Body fragment. Red vitreous gloss on outer face.
2419 Mote of Mark, Kirkcudbrightshire	1 N	Body fragment; spot of bright green copper on inner face.
2433 Mote of Mark, Kirkcudbrightshire	1 N	?fragment of crucible. Inner face coated with red/brown & green vitreous material. Outer face black vitreous coating with lump of bubbly ?slag
2434 Mote of Mark, Kirkcudbrightshire	1 N	?Rim fragment. Heavily vitrified. Inner face with bronze traces. Outer face coated with globules of black vitreous material
2556 Mote of Mark, Kirkcudbrightshire	1 N	Rim fragment. Thin-walled. Red and yellow vitreous gloss on inner face; red gloss on outer face.
2586 Mote of Mark, Kirkcudbrightshire	1 N	Rim fragment. Small crucible.
2589 Mote of Mark, Kirkcudbrightshire	1 N	Body fragment. Laminated fabric; orange vitreous gloss on outer face, hair lines on inner and outer faces.
2615 Mote of Mark, Kirkcudbrightshire	1 N	Body fragment.
2624 Mote of Mark, Kirkcudbrightshire	1 N	Body fragment. Heavy concretion of deep red glassy material on inner surface; possible trace of re-lining.
2625 Mote of Mark, Kirkcudbrightshire	1 N	Body fragment with heavy vitreous concretion. Small patch of green ?copper on outer face.
2626 Mote of Mark, Kirkcudbrightshire	1 N	Body and base fragment.
2627 Mote of Mark, Kirkcudbrightshire	1 N	Rim fragment. Thin-walled.

2637 Mote of Mark, Kirkcudbrightshire	1 N	Rim fragment. Thin-walled.
2654 Mote of Mark, Kirkcudbrightshire	1 N	Body fragment. Red vitreous gloss on outer face.
2738 Mote of Mark, Kirkcudbrightshire	1 N	Body fragment.
3045 Mote of Mark, Kirkcudbrightshire	1 N	Body fragment. Red bubbly vitreous glaze on inner face
3062 Mote of Mark, Kirkcudbrightshire	1 N	Body fragment.
3064 Mote of Mark, Kirkcudbrightshire	1 N	Body fragment. Microscopic (less than 0.3mm) globules of dark metal on inner face.
3065 Mote of Mark, Kirkcudbrightshire	1 N	Rim fragment. Thin-walled.
3067 Mote of Mark, Kirkcudbrightshire	1 N	Rim and body fragment. Red vitreous tinge on inner rim.
3069 Mote of Mark, Kirkcudbrightshire	1 N	Base fragment. Red vitreous gloss on outer face.
3076 Mote of Mark, Kirkcudbrightshire	1 N	Rim fragment.
3078 Mote of Mark, Kirkcudbrightshire	1 N	Rim fragment. Heavily vitrified; possibly broken in antiquity as slag seals breaks. Numerous microscopic spots of gold over rim and on both faces.
3079 Mote of Mark, Kirkcudbrightshire	1 N	Rim fragment. Bright green vitreous stain on inner face.
3080 Mote of Mark, Kirkcudbrightshire	1 N	Rim fragment.
3089 Mote of Mark, Kirkcudbrightshire	1 N	Rim fragment. Bubbly concretion on inner and outer faces and over rim. Red vitreous gloss on outer face.
3094 Mote of Mark, Kirkcudbrightshire	1 N	Body fragment.
3100 Mote of Mark, Kirkcudbrightshire	1 N	Rim fragment. Hair lines on outer face.
3106 Mote of Mark, Kirkcudbrightshire	1 N	Body fragment; hair lines on outer face.
3122 Mote of Mark, Kirkcudbrightshire	1 N	Rim fragment. Green and red vitreous gloss on both faces. Microscopic spots (less than 0.2mm) of gold metal on outer and inner faces. Green and red vitreous glaze over rim

	3123 Mote of Mark, Kirkcudbrightshire	1	N	Body fragment. Red vitreous gloss on outer face.
	3125 Mote of Mark, Kirkcudbrightshire	1	N	Rim fragment. Thin-walled.
	3126 Mote of Mark, Kirkcudbrightshire	1	N	Body fragment. Red vitreous slag on outer face.
	3130 Mote of Mark, Kirkcudbrightshire	1	N	Body fragment.
	3148 Mote of Mark, Kirkcudbrightshire	1	N	Rim fragment. Thin-walled. Hair lines on outer face.
	3149 Mote of Mark, Kirkcudbrightshire	1	N	Complete. Small crucible; occasional spots of red vitreous gloss on inner and outer faces.
	3165 Mote of Mark, Kirkcudbrightshire	1	N	Body and base fragment. Bright orange concretion and red vitreous gloss on outer face. Red vitreous glaze on outer face.
	3199 Mote of Mark, Kirkcudbrightshire	1	N	Base fragment. Red vitreous gloss on outer face.
	3245 Mote of Mark, Kirkcudbrightshire	1	N	Rim fragment. Rounded. Dark green vitreous gloss and red orange spots on outer face; red vitreous gloss inside rim; possible tong marks on outer face.
	3246 Mote of Mark, Kirkcudbrightshire	1	N	Heavily vitrified and vesicular fragment of possible crucible; red vitreous gloss on one face.
	3247 Mote of Mark, Kirkcudbrightshire	1	N	Rim fragment. Rounded.
others	Mote of Mark, Kirkcudbrightshire	1	N	In addition there are eight fragments of vitrified quartz fabric which probably represent crucibles. One fragment was recorded an early occupation context; four were recorded in phase 4 contexts, relating to the disturbance of the latest occupation within the ramparts or, possibly but less likely, activity immediately post-dating the slighting of the ramparts; two are from the backfill of the 1913 excavations and one fragment was not securely stratified. The average dimension rating of these pieces is 380.
HH 283? 1283A	Mote of Mark, Kirkcudbrightshire	1B	N	Rim fragment. Triangular crucible; buff-green and red gloss over most of external surface; out-turned lip at angle.
HH 283? 1283B	Mote of Mark, Kirkcudbrightshire	1B	N	Rim fragment. Triangular crucible. Buff-green and red gloss over most of external surface.
HH 283? 1283C	Mote of Mark, Kirkcudbrightshire	1	N	Body and base fragment of triangular crucible.
HH 283? 1283D	Mote of Mark, Kirkcudbrightshire	1	N	Body and base fragment of triangular crucible.
HH 283? 1283E	Mote of Mark, Kirkcudbrightshire	1	N	Base and body fragment of triangular crucible.

HH 283? 1283F	Mote of Mark, Kirkcudbrightshire	1	N	Base fragment of ?triangular crucible.
HH 283? 1283K	Mote of Mark, Kirkcudbrightshire	1	N	Rim and body fragment of triangular crucible. Almost half survives, lacking base.
HH 283? 1284	Mote of Mark, Kirkcudbrightshire	1B	N	Rim fragment. Triangular crucible (joins 1283)
HH 283? 1500	Mote of Mark, Kirkcudbrightshire	1B	N	Four fragments; green/buff gloss on outer face.
HH 283? 1510	Mote of Mark, Kirkcudbrightshire	1B	N	Crucible (joins 1500)
HH 283? 1511	Mote of Mark, Kirkcudbrightshire	1B	N	Crucible (joins 1500)
HH 283? 1512	Mote of Mark, Kirkcudbrightshire	1B	N	Crucible (joins 1500)
Curle 1913; 1505	Mote of Mark, Kirkcudbrightshire	1B	N	Crucible; mottled grey/brown gloss on outer face.
Curle 1913; 1528	Mote of Mark, Kirkcudbrightshire	1B	N	Fragment of probable crucible. Hair marks on inner face. Slight glassy vitrification of outer face
2039	Mote of Mark, Kirkcudbrightshire	1B	N	Body fragment. Vesicular and vitrified. Possible tongs impression in dark green vitreous gloss on outer face.
2182	Mote of Mark, Kirkcudbrightshire	1B	N	Body fragment. Hair lines on both faces; brown vitreous gloss on outer face.
2323	Mote of Mark, Kirkcudbrightshire	?	N	Rim fragment of large shallow dish; hand-made but well formed. Green vitreous gloss on outer face; bright green ?copper spot.
2404	Mote of Mark, Kirkcudbrightshire	1B	N	Body fragment. Hair lines on both faces.
2412	Mote of Mark, Kirkcudbrightshire	1B	N	Rim fragment. Thick-walled. Fabric similar to E ware; traces of red glassy slag on both faces; hair lines on outer and inner faces.
2551	Mote of Mark, Kirkcudbrightshire	1B	N	Rim fragment. Rounded. Burnt clay attached to inside face. Dark vitreous gloss on rim and blue-green sheen on outer face.
2695	Mote of Mark, Kirkcudbrightshire	1B	N	Rim fragment. Highly vitrified. Clay re-lining on inner face.
2739	Mote of Mark, Kirkcudbrightshire	1B	N	Rim fragment. Thick-walled. Heavily vitrified, vesicular. Abraded re-lining of inner face.
3160	Mote of Mark, Kirkcudbrightshire	1B	N	Body fragment of large crucible; red vitreous gloss on inner and outer faces.

	3179 Mote of Mark, Kirkcudbrightshire	1B	N	Rim and body fragment of large crucible; patch of vitreous glaze on outer face; hair lines on inner and outer faces.
Curle 1913; 1274 (and 1520-1526)	Mote of Mark, Kirkcudbrightshire	9	N	Flat based, thick-walled circular ceramic vessel with inturned side walls, bevelled at the rim, converging to form a small oval aperture. The fabric contains no deliberately added grits. The thickness of the vessel appears, in section to have been achieved through folding the clay. Large crucible or crucible stand, in several fragments. Diameter at base: 75.0 Maximum diameter: 82.0 Height of vessel: 43.0 Diameter of aperture: 31.0 by 21.0
Curle 1913; 1276	Mote of Mark, Kirkcudbrightshire	9A	N	Large 'dog dish' crucible; one of two fragments (joins 1527). Flat-based, thick-walled crucible with generally upright side walls and rounded rim. The crucible was sub-circular or sub-rectangular in plan view. The fabric contains no deliberately added grits (Curle, 1914, fig. 19). Height of vessel: 64
Curle 1913; 1277	Mote of Mark, Kirkcudbrightshire	9	N	Large 'dog dish' crucible. Upright wall thinning towards bevelled rim, flat base.
Curle 1913; 1278	Mote of Mark, Kirkcudbrightshire	9	N	Fragment of large, thick-walled crucible of 'dog dish' type.
Curle 1913; 1279	Mote of Mark, Kirkcudbrightshire	9	N	Fragment of large, thick-walled crucible of 'dog dish' type.
Curle 1913; 1280	Mote of Mark, Kirkcudbrightshire	9	N	Fragment of large, thick-walled crucible of 'dog dish' type.
Curle 1913; 1281	Mote of Mark, Kirkcudbrightshire	9A	N	Fragment of large, thick-walled crucible of 'dog dish' type. Flat based circular crucible with upright, slightly inturned wall; rounded rim; additional outer envelope of clay around lower part of circumference doubles the thickness of the wall. Height: 37.5. Approximate diameter of crucible: 100.0
Curle 1913; 1282	Mote of Mark, Kirkcudbrightshire	9A	N	Fragment of large, thick-walled crucible of 'dog dish' type; rounded rim.
HH 275	Mote of Mark, Kirkcudbrightshire	?	N	Portion of a bowl-shaped crucible
	2236 Mote of Mark, Kirkcudbrightshire	9	N	Fragment of large crucible or heating tray. Thick-walled pink fabric; hair lines on both faces; fabric similar to raw clay deposit.
	3190 Mote of Mark, Kirkcudbrightshire	9	N	Possible sherd from large crucible; inner surface uneven. Very similar fabric to raw clay sample; no deliberate addition of quartz inclusions.
GT 936	Newtownferry, North Uist	?	N	Large fragment of large circular vessel with a very vitrified exterior, almost coat like, making a lip around the outer edge. Reconstructed the vessel would have been a large, circular shallow dish. Estimated diameter around 160mm.
GA 746	Ness, Caithness	10	Y	Very small thump pot. No evidence of vitrification or metallic residues
GA 684	Nybster, Caithness	10	Y	Very small thump pot. No evidence of vitrification or metallic residues
unreg	Oakbank, Perthshire	?	?	Record of two crucible being found - not available for study by the author

RF 20	Orphir or Lavacroon, Orkney	?	N	Rim and body fragment. Thin layer of glassy waste adhering to face.
RF 205	Orphir or Lavacroon, Orkney	?1	N	Rim fragment.
un reg	Ousdale Broch, Sutherland	?	N	Recorded in Tylecote (1986, 236) not been located by the author. May be for a pedestalled crucible of a type not catalogued in this study
SF230	Picts Knowe, Dumfries-shire	1A	N	Rim, corner and body fragment. Triangular crucible. Fine orange-sandy fabric with limited inclusions (less than 0.7mm) typically of quartz and mica. Vitrified on rim and reduced grey on the exterior and interior. Metallic deposits on rim, exterior and interior.
Q.L.1961.115	Rockside, An Dun, Argyll	IN STORAGE	?	This object has not been studied by the author. In NMS - in storage.
unreg	St Germain's, East Lothian	?1	N	Rim fragment of an industrial ceramic object. This is described in the site records as a possible tuyère although from the drawing it could equally be a crucible. Without analysis it is impossible to tell.
CAT 1399 (same vessel as 5405, 5407, 5387, 5413?)	Scalloway, Shetland	?1B	N	Rim and lower wall sherds of very large cylindrical or bucket-shaped crucible. Two fragments. Exterior heavily vitrified, completely covered in thick glassy red, brown and black deposit. Interior also heavily vitrified with bubbly red and black vitrification and a band of copper corrosion products just below the rim.
CAT 5405 (same vessel as 1399, 5407, 5387, 5413?)	Scalloway, Shetland	?1B	N	Rim and lower wall fragments of large bucket-shaped crucible, probably the same vessel as 1399. Fabric and description as 1399. 700.
CAT 5407 (same vessel as 1399; 5405, 5387, 5413?)	Scalloway, Shetland	?1B	N	Body fragment from near base. Fabric and description as 1399, probably the same vessel.

CAT 5387 (same vessel as 1399, 5405, 5407, 5413?)	Scalloway, Shetland	?1B	N	Rim fragment of large crucible. Fabric and description as 5405, probably same vessel.
CAT 5413 (same vessel as 1399, 5405, 5407, 5387?)	Scalloway, Shetland	?	N	Body fragment. Large crucible. Fabric and description as 1399, probably the same vessel.
CAT 5406	Scalloway, Shetland	?5	N	Rim fragments of medium-sized ?cylindrical crucible. Exterior heavily vitrified with brown, black and red glassy deposits, interior with bubbly vitrification and metal corrosion products (?silver). Campbell's Vessel 2 (1998, 160). Internal deposits suggest it was possibly used for melting silver or gold or for refining metals
CAT 5012	Scalloway, Shetland		1 N	Base and lower body fragment of a large pyramidal or bowl-shaped crucible. Exterior cracked and vitrified with black glassy deposits. Interior with no signs of vitrification or metal dross. Fabric coarse, grey, with abundant quartz and rock fragments. Campbell's Vessel 4
CAT 5414	Scalloway, Shetland	?	N	Rim fragment of tiny ?cylindrical crucible. Exterior with thick red glassy vitrification, interior with bubbly vitrification. Campbell's Vessel 3 (1998, 160). Very small and cannot have had a capacity of more than 1-2 cubic centimetres. Tiny crucibles are known from Dunadd where they used for melting gold. That said, analysis suggests only copper alloy traces.
CAT 1323	Scalloway, Shetland	-	N	Heating tray.
SSA00	Shanzie, Perthshire		1 N	Fragment of rim, corner and body of triangular crucible. Coarse sandy fabric with limited inclusions (less than 0.7mm) typically of quartz and mica. Reduced grey on the exterior and interior, fabric distorted by heating, particularly on the lower inside. Although the crucible has clearly been heated to a high temperature and has a vitreous appearance, EDXRF analysis revealed no traces of any metal. This is unusual as the majority of crucibles that have been used have metal droplets contained within their fabric. Over enthusiastic cleaning of the Shanzie crucible cannot explain the lack of metal traces. On balance the crucible may have not been used.
CAT 34	Skaill, Deerness, Orkney	?	N	Body fragment. Heavy carbon deposits on inside. May not be a crucible.
CAT 61	Skaill, Deerness, Orkney	?	N	Base fragment. May not be a crucible.
CAT 141	Skaill, Deerness, Orkney	?	Y	Complete, very small, pot-shaped vessel. Not a crucible.

CAT 497	Sollas, North Uist	2A	Y	Complete. Triangular in cross section with pinched pouring spout. Circular in plan. Extensive bubbly vitrification all around the lip. Copper corrosion on interior. Most of the exterior is unvitified. Fabric hard and gritty with much quartz and some fine organic temper. Heated from above.
CAT 499	Sollas, North Uist	?	N	Rim fragment. Small crucible. Shape unknown. Fabric is fired but not vitrified – unused?
BT	St Blane's, Bute	7C	Y	Complete. Horizontally pinched handle.
BT	St Blane's, Bute	?	N	Base fragment.
GQ 65	St Blane's, Bute	?	N	Fragment of a crucible. Not enough survives to be sure of original shape.
GQ 66	St Blane's, Bute	?	N	Fragment of a crucible. Not enough survives to be sure of original shape.
	11021.1 St Columba's Cave, Argyll	?4 OR 10	Y	Complete. Globular vessel made from a lump of clay presses out with a thumb or finger.
	11021.2 St Columba's Cave, Argyll	?4 OR 10	N	Body fragment of possible globular vessel.
	11008.1 St Columba's Cave, Argyll	?4 OR 10	N	Rim and body fragment of globular vessel. Similar to 11021.1
	11022 St Columba's Cave, Argyll	?4 OR 10	N	Body fragment of globular vessel. Similar to 11008.1
	11013.1 St Columba's Cave, Argyll		7 Y	?Handle fragment.
GA 965	Stywick Bay, Orkney	1A	N	Body, base and rim of almost complete crucible. V-shaped tapering to a rounded bottom
	688 Tarbat, Ross & Cromarty	5 OR 7	N	Rim and body fragment. Sub-cylindrical shape and thickness of body suggest that it is either type 5 or 7. Glazed and vitrified on the outside with attached vitrified lump.
	689 Tarbat, Ross & Cromarty	?	N	Body fragment. Vitrified exterior.
	694 Tarbat, Ross & Cromarty	5 OR 7	N	Rim and body fragment. Sub-cylindrical shape and thickness of body suggest that it is either type 5 or 7. Glazed and vitrified on the outside.
	698 Tarbat, Ross & Cromarty	?	N	Rim fragment. Type? Thick crucible suggesting that it is not a Type 5, 7 or 8. Vitrified on the outside with deposits in the interior
	699 Tarbat, Ross & Cromarty	?	N	Body fragment. Type ?
	700 Tarbat, Ross & Cromarty	?	N	Body fragment. Type ?
	703 Tarbat, Ross & Cromarty	?	N	Rim and body fragment. Type? The depth and curvature of the inside body suggests that it is not a Type 5, 7 or 8. Vitrified on the outside with deposits in the interior
	708 Tarbat, Ross & Cromarty	7A	N	Body and handle fragment. Type 7A. Heavily vitrified and glazed on the outside. Residues inside and outside.

709 Tarbat, Ross & Cromarty	7A	N	Handle and body fragment. Type 7A. Residues inside. Formed by horizontal pinching with finger print still visible on back. Handle sub-rectangular in shape.
764 Tarbat, Ross & Cromarty	?	N	Body fragment. Type ?
770 Tarbat, Ross & Cromarty	?5 OR 7	N	Body fragment. Type 5 or 7?
771 Tarbat, Ross & Cromarty	?5 OR 7	N	Rim and body fragment. Sub-cylindrical shape of body suggest that it is either type 5 or 7. Glazed on the outside.
773 Tarbat, Ross & Cromarty	?	N	Base fragment. Thin-walled. Type ? Vitrified on the exterior and interior
797 Tarbat, Ross & Cromarty	?	N	Body fragment. Type ? Thick-walled. Vitrified exterior.
810 Tarbat, Ross & Cromarty	?	N	Body fragment. Thick-walled with little sign of vitrification or residue - is this a crucible?
818 Tarbat, Ross & Cromarty	?	N	Body fragment. Vitrified exterior.
838 Tarbat, Ross & Cromarty	?	N	Base and body fragments (3 in total). Type ? No signs of vitrification, although reduced grey - appearance more similar to the moulds.
919 Tarbat, Ross & Cromarty	?	N	Body fragment. Thick-walled. Type ? Little signs of vitrification and no metallic residues.
1137 Tarbat, Ross & Cromarty	7A	N	Large handle and body fragment. Type 7A. Heavily vitrified and glazed on the outside. Residues inside and outside. Formed by horizontal pinching. Handle sub-rectangular in shape.
1175 Tarbat, Ross & Cromarty		1 N	Rim and body fragment. Type 1. Majority of rim missing. Heavily vitrified on the outside and inside with deposits on both.
1509 Tarbat, Ross & Cromarty	?1	N	Body fragments. Three. Type 1. Little evidence of vitrification or deposits.
1582 Tarbat, Ross & Cromarty	?	N	Body fragment. Thick-walled with little sign of vitrification or residue - is this a crucible?
2547 Tarbat, Ross & Cromarty	?	N	Rim and body fragment. Vitrified rim.
2583 Tarbat, Ross & Cromarty	?	N	Rim and body fragment. Vitrified rim.
2690 Tarbat, Ross & Cromarty	?	N	Body fragment. Thick-walled. Type ? Vitrified on the outside. Evidence of relining?
2691 Tarbat, Ross & Cromarty	?	N	Body fragment. Thick-walled. Type ? Well vitrified on the outside.

2737 Tarbat, Ross & Cromarty	?1	N	Rim, body and base fragments. Four in total. Thick-walled-crucible of unknown type. Evidence of relining and heavily vitrified on the outside. The thickness suggests that it is not a Type 5, 7 or 8, likely to be a triangular crucible
2772 Tarbat, Ross & Cromarty	?5 OR 7	N	Base fragment. Thin-walled. Type 5 or 7? Vitrified and glazed on the exterior.
2928 Tarbat, Ross & Cromarty	?	N	Rim and body fragment. Thick-walled-crucible of unknown type. Relining on the outside; original inside face flaking off.
3469 Tarbat, Ross & Cromarty		9 N	Base, rim and body fragments (4 fragments no all of which join) of a shallow, flat bottomed vessel with almost vertical sides. However, in plan, the vessel is very irregular, almost boat-shaped. Bright yellow deposits in interior. Bottom grey but not vitrified.
3475 Tarbat, Ross & Cromarty	5 OR 7	N	Rim and body fragment. Sub-cylindrical shape and thickness of body suggest that it is either type 5 or 7. Glazed and vitrified on the inside and outside.
3477 Tarbat, Ross & Cromarty	?	N	Base fragment. Thick-walled. Type ? Vitrified on outside.
3480 Tarbat, Ross & Cromarty	9A	N	Base, rim and body fragment of a shallow, flat bottomed vessel with almost vertical sides, inturning at the top. Very similar to examples from Dunadd (e.g. 832). Base broken, original face no longer surviving. Greying through heat but no metallic residues or vitrification
3485 Tarbat, Ross & Cromarty	?7	N	Base, body and handle fragment. Type 7. Relining, of which only have no survives. Vitrified and glazed on the bottom. Deposits in the interior. Surviving handle now small, yet was probably originally larger due to relining. Handle made from the bottom.
3502 Tarbat, Ross & Cromarty	?	N	Rim and body fragment. Thick-walled-crucible of unknown type. Residue and vitrification on the outside and on the rim.
3560 Tarbat, Ross & Cromarty	?	N	Body fragment. Vitrified exterior.
3563 Tarbat, Ross & Cromarty	7 OR 8	N	Handle. Type 7 or 8? So little survives of the body that it is difficult to be sure whether the crucible belongs to Type G or H, although likely to be G. Sub-rectangular in shape and glazed. Residue and droplet on the inside.
3568 Tarbat, Ross & Cromarty	?	N	Rim and body fragment. Thin-walled. Type ? Vitrified on the interior. The crucible looks like it may be at type 5 or 7. However, in section the crucible is beginning to curve, suggesting that the original height was far smaller than surviving type 5 or 7 crucibles.
3572 Tarbat, Ross & Cromarty	5 OR 7	N	Rim and body fragment. Sub-cylindrical shape and thickness of body suggest that it is either type 5 or 7. Glazed and vitrified on the inside and outside.
3585 Tarbat, Ross & Cromarty	?	N	Base fragment. Thick-walled. Type ? Vitrified and residues on interior.
3604 Tarbat, Ross & Cromarty	?	N	Body fragment. Type ? Vitrified exterior.

3913	Tarbat, Ross & Cromarty	7A	Y	Complete. Type 7A. Glazed and vitrified all over. Deposits in the inside and outside. Handle curving upwards from the bottom. Although formed by horizontal pinching, the handle has subsequently been shaped into a square.
4033	Tarbat, Ross & Cromarty	5 OR 7	N	Body fragment. Possible type 5 or 7 as the body shape is similar although thicker than the other examples. Well vitrified on the inside and outside; metallic residues in interior. Evidence of relining.
4082	Tarbat, Ross & Cromarty	?	N	Rim and body fragment. Thin-walled. Type ? Vitrified on the exterior and deposits in interior. The crucible looks like it may be at type E/G. However, in section the crucible is beginning to curve, suggesting that the original height was far smaller than surviving type E/G crucibles.
4260	Tarbat, Ross & Cromarty		1 N	Rim, body and base fragment. Type 1. Very highly vitrified and glazed on the outside and deposits in the interior.
4260	Tarbat, Ross & Cromarty		1 N	Rim, body and base fragment. Type 1. Very highly vitrified and glazed on the outside and deposits in the interior.
4548	Tarbat, Ross & Cromarty	?	N	Rim fragment. Type ? Residues on the outside; vitrified on outside and inside. Curvature suggests that this may also be part of the spout
4568	Tarbat, Ross & Cromarty	7A	Y	Complete. Type 7A. Glazed and vitrified all over. Deposits in the inside and outside. Handle curving upwards from the bottom. Although formed by horizontal pinching, the handle has subsequently been shaped into a square.
4569	Tarbat, Ross & Cromarty	7A	N	Almost complete. Missing handle. Type 7A. Deposits in the inside, outside and rim.
4584	Tarbat, Ross & Cromarty	7A	Y	Complete. Type 7A. Glazed and vitrified all over. Deposits in the inside and outside. Handle curving upwards from the bottom. Handle formed by horizontal pinching.
4585	Tarbat, Ross & Cromarty	9A	N	Base, rim and body fragments (2 fragments) of a shallow, flat bottomed vessel with almost vertical sides. Signs of burning on the sides and rim, but not actually vitrified; metallic deposits in the interior. The rim, like SF4643, is not flat but rises up in a concave manner.
4643	Tarbat, Ross & Cromarty	?9	N	Base, rim and body fragment of a shallow, flat bottomed vessel with almost vertical sides, inturning at the top. Bright yellow deposits in interior; deposits similar to SF3469. The rim, like SF4585, is not flat but rises up in a concave manner.
4587A	Tarbat, Ross & Cromarty	7 OR 8	N	Large handle. Type 7 or 8? So little survives of the body that it is difficult to be sure whether the crucible belongs to Type G or H. Sub-rectangular in shape. Size of handle suggests that the crucible would have been large.
4587B	Tarbat, Ross & Cromarty	7A	N	Handle and body fragment. Type 7A?
4587C	Tarbat, Ross & Cromarty	?7	N	Fragment found with 4587a & b; although no diagnostic features to suggest what it is
Unknown	Tigh Talamhanta, Western Isles	?	?	Crucibles recorded as coming from the site but not located by the author.
GV 437	Traprain Law, East Lothian	A	Y	Complete. Restored; small portion of side wanting; triangular mouth. Traces of bronze in interior.

GV 809	Traprain Law, East Lothian	A	N	Body and base fragment. Object contracts to base, which is slightly rounded.
GVM 570B	Traprain Law, East Lothian	A	N	Triangular fragment.
GVM 574 (cat 1)	Traprain Law, East Lothian	A	Y	Complete. Used for melting silver.
GVM 575 (cat 2)	Traprain Law, East Lothian	A	Y	Complete.
GVM 576 (cat 3)	Traprain Law, East Lothian	A	N	Two thirds of a triangular crucible.
no no (Cat 4)	Traprain Law, East Lothian	?D	Y	Not a crucible?
GVM 577 (cat 5)	Traprain Law, East Lothian	?J	Y	Small shallow bowl-shaped vessel, possibly a crucible
GVM 578 (cat 6)	Traprain Law, East Lothian	?A2	N	Fragment of the base of a large crucible
GVM 579A	Traprain Law, East Lothian	?A	N	Half of an ovoid crucible
GVM 579B (cat 7)	Traprain Law, East Lothian	?A	N	Body fragment
GVM 579C (cat 8)	Traprain Law, East Lothian	?A1	N	Base of a crucible
GVM 579 D (cat 9)	Traprain Law, East Lothian	?A1	N	Base of a crucible
no no (cat 10)	Traprain Law, East Lothian	?A1	N	Portion of the wall of a crucible
GVM 580 (cat 11)	Traprain Law, East Lothian	?	N	Thick-walled vessel, may not be a crucible
GVM 582	Traprain Law, East Lothian	?A	N	Fragment of the wall of a crucible
GVM 581 (cat 12)	Traprain Law, East Lothian	?A1	N	Body fragment
GVM 582 (cat 13)	Traprain Law, East Lothian	?A2	N	Body fragment of large crucible
GVM 583 (cat 14)	Traprain Law, East Lothian	?A2	N	Body fragment of large crucible
GVM 583 (Cat 15)	Traprain Law, East Lothian	?A	N	Body fragment
GVM 583 (cat 16)	Traprain Law, East Lothian	?A	N	Body fragment
GVM 583 (Cat 17)	Traprain Law, East Lothian	?A	N	Body fragment
GVM 583 (cat 18)	Traprain Law, East Lothian	?A	N	Body fragment
GVM 583 (Cat 19)	Traprain Law, East Lothian	?A	N	Body fragment
GVM 583 (cat 20)	Traprain Law, East Lothian	?A	N	Body fragment
GVM 583 (Cat 21)	Traprain Law, East Lothian	?A	N	Body fragment
GVM 583 (cat 22)	Traprain Law, East Lothian	?A	N	Body fragment
GVM 584 (cat 23)	Traprain Law, East Lothian	?A	N	Fragment of a crucible of thick coarse ware
GVM 585 (cat 24)	Traprain Law, East Lothian	?A2	N	Base and body fragment of a thick grey crucible
GVM 585 (cat 25)	Traprain Law, East Lothian	?A	N	Rim and body fragment of a thick grey crucible
GVM 586 (cat 26)	Traprain Law, East Lothian	?E	N	Straight-sided fragment of crucible. Not triangular, may be large type E.
GVM 586 (cat 27)	Traprain Law, East Lothian	?A1	N	Rim and body fragment of thin-walled crucible.
GVM 586 (Cat 28)	Traprain Law, East Lothian	?A1	N	Body fragment
GVM 586 (cat 29)	Traprain Law, East Lothian	?A1	N	Body fragment

GVM 586 (cat 29)	Traprain Law, East Lothian	?A1	N	Body fragment
GVM 586 (cat 30)	Traprain Law, East Lothian	?A1	N	Rim and body fragment
GVM 587 (cat 31)	Traprain Law, East Lothian	?D	N	Rim, body and part of the base of globular crucible. Melting glass?showing patches of molten glass in the interior or on the exterior
GVM 587 (cat 32)	Traprain Law, East Lothian	?	N	Rim and body fragment of crucible. Melting glass?showing patches of molten glass in the interior or on the exterior
GVM 587 (cat 33)	Traprain Law, East Lothian	?A1	N	Body fragment. Possibly for melting glass?showing patches of molten glass in the interior or on the exterior
GVM 587 (cat 34)	Traprain Law, East Lothian	?A1	N	Body fragment. Possibly for melting glass?showing patches of molten glass in the interior or on the exterior
GVM 587 (cat 35)	Traprain Law, East Lothian	?	N	Rim and body fragment of crucible. Melting glass?showing patches of molten glass in the interior or on the exterior
GVM 587 (cat 36)	Traprain Law, East Lothian	?G OR H	N	Rim and body fragment with deposits on rim. Melting glass?showing patches of molten glass in the interior or on the exterior. Note that the half way up the body the fragment curves inwards towards the rim, unlike other triangular crucibles. Is this a type G or H?
GVM 587 (cat 38)	Traprain Law, East Lothian	?A	N	Rim and body of crucible. Lip turns inwards towards the top. Melting glass?showing patches of molten glass in the interior or on the exterior
GVM 587 (cat 39)	Traprain Law, East Lothian	?A1	N	Body fragment. Possibly for melting glass?showing patches of molten glass in the interior or on the exterior
GVM 587 (cat 40)	Traprain Law, East Lothian	?	N	Rim and body of crucible. Melting glass?showing patches of molten glass in the interior or on the exterior
GVM 587 (cat 41)	Traprain Law, East Lothian	?	N	Rim and body of crucible. Lip turns inwards towards the top. Melting glass?showing patches of molten glass in the interior or on the exterior
GVM 587 (cat 42)	Traprain Law, East Lothian	?A	N	Body fragment. Possibly for melting glass?showing patches of molten glass in the interior or on the exterior
GVM 587 (cat 43)	Traprain Law, East Lothian	?A	N	Body fragment. Possibly for melting glass?showing patches of molten glass in the interior or on the exterior
GVM 588 (cat 37)	Traprain Law, East Lothian	?A1	N	Base of crucible.
GVM 588 (cat44)	Traprain Law, East Lothian	?A	N	Rim and body fragment.
GVM 588 (cat 45)	Traprain Law, East Lothian	?A2 OR E	N	Rim and body fragment of large crucible. Similar to C26.
GVM 588 (cat 46)	Traprain Law, East Lothian	?	N	Rim and body fragment. Joins C52
GVM 588 (cat 47)	Traprain Law, East Lothian	?A1	N	Rim and body fragment
GVM 588 (cat 48)	Traprain Law, East Lothian	?A1	N	Base of crucible.
GVM 588 (cat 49)	Traprain Law, East Lothian	?A2	N	Rim and body of thick crucible. In two pieces. Large triangular crucible?
GVM 588 (cat 50)	Traprain Law, East Lothian	?A1	N	Base of crucible.
GVM 588 (cat 51)	Traprain Law, East Lothian	?A1	N	Rim and body of triangular crucible.
GVM 588 (cat 52)	Traprain Law, East Lothian	?	N	Rim and body fragment. Joins C46.
GVM 588 (cat 53)	Traprain Law, East Lothian	?	N	Fragment
GVM 588 (cat 54)	Traprain Law, East Lothian	?	N	Fragment
GVM 588 (cat 55)	Traprain Law, East Lothian	?	N	Fragment

GVM 588 (cat 56)	Traprain Law, East Lothian	?	N	Body fragment
GVM 588 (cat 57)	Traprain Law, East Lothian	?	N	Body fragment
GVM 588 (cat 58)	Traprain Law, East Lothian	?	N	Body fragment. Slightly curved in profile.
no no (cat 59)	Traprain Law, East Lothian	?	N	Body fragment
no no (cat 60)	Traprain Law, East Lothian	A1	N	Rim, body and base fragment of a triangular crucible.
no no (cat 61)	Traprain Law, East Lothian	A1	N	Rim, body and base fragment of a triangular crucible.
(cat B27)	Traprain Law, East Lothian	?	N	Body fragment
(cat B28)	Traprain Law, East Lothian	?	N	Body fragment
(cat B29)	Traprain Law, East Lothian	?	N	Body fragment
GVB 54A (cat B31)	Traprain Law, East Lothian	?	N	Body fragment
GVB 54A (cat B35)	Traprain Law, East Lothian	?	N	Body fragment
GVB 54A (cat B36)	Traprain Law, East Lothian	?	N	Body fragment
unreg	Ugadale Point, Argyll	?10	?	Two crucibles were found 'somewhat similar to that found in the Kildonan dun, period 1 (ibid., 19). The finds were no illustrated. However, on parallel with Kildonan they appear to be of the large globular type (Fairhurst 1939, 213; see description above - are these in Campbeltown museum?). No drawing.
HH 915	West Mains of Ethie, Angus	?	N	Ceramic crucible. Light grey external surface, grey internal surface; vitreous material adhering to external surface.
91/13939	Whithorn, Galloway	?	N	Rim and body fragment. Vitrified throughout with a glassy exterior.
91/13625	Whithorn, Galloway	7 OR 8	N	Lid fragment.
90/11987/0	Whithorn, Galloway	?	N	Rim fragment. Long S shaped rim sherd with glassy exterior and white inner surface..
90/11987/1	Whithorn, Galloway		1 N	Rim fragment. Triangular. Red staining on the inside and rim exterior.
88/8419	Whithorn, Galloway		1 N	Body fragment. Triangular in shape with vitrified exterior and reduced grey interior.
88/8338	Whithorn, Galloway	?	N	Spout fragment. With slightly vitrified exterior.
91/13950	Whithorn, Galloway	?	N	Fragment. Glassy, vitrified exterior with piece of slag adhering
91/13945	Whithorn, Galloway	?1	N	Rim and body fragment. ?Triangular crucible. Body tapering to rim with a glassy exterior.
91/13913	Whithorn, Galloway	?	N	Fragment with a glassy brown exterior, slightly vitrified.
89/10511	Whithorn, Galloway	?	N	Rim fragment of rectilinear shape. Small red stains on inner face and larger ones on exterior.
91/13389/1	Whithorn, Galloway	?	N	Body fragment. Dark/black interior with glassy grey exterior.

88/9533/0	Whithorn, Galloway	?1	N	Rim fragment. Triangular shape. Vitrified, rough, dark exterior and interior.
89/10962	Whithorn, Galloway	?	N	Body fragment. Rectangular shape and vitrified throughout. Dark interior and lighter exterior.
91/14109/0-1	Whithorn, Galloway	?	N	Two body fragments. Both thick and coarse grained with 2 clay layers, the outer 3mm thick and brown the inner tapering with a smooth curved face.
91/14109/2	Whithorn, Galloway	?	N	Body fragment. Probably from 14109/0-1 but does not join. Very coarse, vitrified exterior with blue/grey patches.
	Whithorn, Galloway			In total, roughly 64 crucible fragments were recovered from the site (listed as SG15.1-64) Twenty-six of these fragments date to between c 500 and 845 (see Hill in publication report (Hill 1997, 400-4). The author has only been able to gain information from those listed above (information from S Gilmour).

Appendix C

MUSEUM REG	PROVENANCE	Type	XRF ref no	Position of analysis	MAJOR	MINOR	TRACE	OTHER NOTES & ANALYSIS BY OTHERS
GSA 251	A'cheardach Mhor, North Uist	4	F118334B	Inside	Cu	Sn, Pb		
GSA 251	A'cheardach Mhor, North Uist	4	F118335B	Rim		Cu	Pb	
GSA 251	A'cheardach Mhor, North Uist	4	F118336B	Outside			Cu, Sn, Pb?	
HT 47	Airiedollan, Wigtownshire	?1A	F125452B	Inside green deposit		Cu		
HT 47	Airiedollan, Wigtownshire	?1A	F125453B	Inside deposit			Cu	
HT 49	Airiedollan, Wigtownshire	1E	F125445B	Inside			(Cu, Zn)	
HT 49	Airiedollan, Wigtownshire	1E	F125446B	Inside			Zn (Cu)	
HT 49	Airiedollan, Wigtownshire	1E	F125447B	Rim deposit (green)	Sn, Cu, Zn			
HT 49	Airiedollan, Wigtownshire	1E	F125448B	Outside red deposit			(Zn)	
GR 29	Ardifuair, Argyll	1	F129143B	Inside deposit	Cu**	Sn	Pb(Zn)	
GR 29	Ardifuair, Argyll	1	F129144B	Inside deposit		Cu	Sn	
GR 29	Ardifuair, Argyll	1	F129145B	Outside deposit	Cu**		(Sn)	
GR 29	Ardifuair, Argyll	1	F129147B	Outside deposit	Cu**	Sn		
GR 29	Ardifuair, Argyll	1	F129148B	Outside deposit	Cu**	Sn	(Pb)	
GNB 87	Bac Mhic Connain, North Uist	1A	F118444B	Rim / spout		Zn	Cu	
GNB 87	Bac Mhic Connain, North Uist	1A	F118445B	Inside		Zn	Cu	
GNB 87	Bac Mhic Connain, North Uist	1A	F118446B	Outside			Zn, Cu	
GNB 88	Bac Mhic Connain, North Uist	1A	F118447B	Rim / deposit		Cu, Zn	Pb	
GNB 88	Bac Mhic Connain, North Uist	1A	F118333B	Outside		Zn, Cu	Pb	
GNB 89	Bac Mhic Connain, North Uist	1A	F118441B	Outside		Cu, Zn		
GNB 89	Bac Mhic Connain, North Uist	1A	F118439B	Spout / res		Cu, Zn, Sn	Pb	
GNB 89	Bac Mhic Connain, North Uist	1A	F118440B	Outside / res		Zn	Cu	
GNB 90	Bac Mhic Connain, North Uist	1A	F118437B	Outside/res	Cu	Pb, Sn		
GNB 90	Bac Mhic Connain, North Uist	1A	F118443B	Outside/res		Cu	Zn, Pb	
GNB 90	Bac Mhic Connain, North Uist	1A	F118442B	Outside/res		Zn	Cu	
GNB 90	Bac Mhic Connain, North Uist	1A	F118438B	Outside/res			Zn, Cu	
GNB 91	Bac Mhic Connain, North Uist	1A OR B	F118448B	Inside		Zn	Cu	
GNB 91	Bac Mhic Connain, North Uist	1A OR B	F118449B	Outside			Zn, Cu	
GNB 92	Bac Mhic Connain, North Uist	1C	F118350B	Inside		Zn, Cu	Pb, Ag	
GNB 92	Bac Mhic Connain, North Uist	1C	F118349B	Outside			Zn? Cu?	
CAT 251	Balloch Hill, Argyll	1A	L Salter	?				

unreg	Birnie, Moray	1	F128780B	Inside			Cu (Zn)
unreg	Birnie, Moray	1	F128781B	Inside			Cu (Zn)
unreg	Birnie, Moray	1	F128782B	Inside			(Cu, Zn)
unreg	Birnie, Moray	1	F128783B	Inside			
unreg	Birnie, Moray	1	F128784B	Inside			Zn (Cu)
HB 393 A	Brough of Birsay, Orkney	1	F125695B	Inside	Zn		Cu
HB 393 A	Brough of Birsay, Orkney	1	F125694B	Inside	Zn		
HB 401B1	Brough of Birsay, Orkney	?	F125703B	Inside	Ag, Zn, Cu, Pb, Sn		Sn
HB 401B1	Brough of Birsay, Orkney	?	F125704B	Inside	Ag, Zn, Cu, Pb, Sn		
HB 401B2	Brough of Birsay, Orkney	?	F125705B	Inside	Ag, Pb, Cu		Sn
HB 401B2	Brough of Birsay, Orkney	?	F125706B	Inside	Pb, Cu, Ag		Zn, Sn
HB 401B3	Brough of Birsay, Orkney	?	F125707B	Inside			Cu, Zn
HB 401B3	Brough of Birsay, Orkney	?	F125708B	Inside		Cu, Zn	Pb
HB 401B4	Brough of Birsay, Orkney	?	F125709B	Inside	Cu**, Pb**, Sn	Zn	
HB 401B4	Brough of Birsay, Orkney	?	F125710B	Inside	Pb*, Cu* Sn, Zn		
Hb 401B6	Brough of Birsay, Orkney	?	F125713B	Inside		Cu	
Hb 401B6	Brough of Birsay, Orkney	?	F125714B	Inside	Cu		Sn
HB 401B8	Brough of Birsay, Orkney	?	F125718B	Inside	Cu**	Pb, Sn	
HB 401B8	Brough of Birsay, Orkney	?	F125719B	Inside	Cu**	Pb, Sn	
Hb 401B9	Brough of Birsay, Orkney	?	F125720B	Inside	Cu, Sn	Pb, Zn	
Hb 401B9	Brough of Birsay, Orkney	?	F125721B	Inside	Cu, Sn	Pb, Zn	
HB 401B5	Brough of Birsay, Orkney	?	F125711B	Inside	Pb**, Sn*, Cu, Ag, Zn		
HB 401B5	Brough of Birsay, Orkney	?	F125712B	Inside	Pb**, Ag, Sn, Cu		Zn
HB 401B7	Brough of Birsay, Orkney	?	F125716B	Inside	Pb**, Cu		Zn, Ag
HB 401B7	Brough of Birsay, Orkney	?	F125717B	Inside	Pb**, Cu		
HB 401B7	Brough of Birsay, Orkney	?	F125715B	Inside	Pb*, Cu		Zn, Ag
HB 401B11	Brough of Birsay, Orkney	?	F128426B	Inside	Cu**	Pb	Ag, Sn, Zn
HB 401B11	Brough of Birsay, Orkney	?	F128427B	Inside	Cu**	Pb	Zn
HB 401B12	Brough of Birsay, Orkney	?	F128428B	Inside		Cu, Zn	Pb
HB 401B13	Brough of Birsay, Orkney	?	F128429B	Inside		Cu, Zn	Ag, Pb
HB 401B13	Brough of Birsay, Orkney	?	F128430B	Inside		Cu, Ag	Zn, Pb
HB 401B14	Brough of Birsay, Orkney	1 OR 8	F128431B	Inside	Cu **	Sn, Pb, Zn	
HB 401B15	Brough of Birsay, Orkney	?	F128432B	Inside		Zn, Cu, Pb	Ag

HB 401B15	Brough of Birsay, Orkney	?	F128433B	Inside		Pb, Ag, Zn, Cu	
HB 401B16	Brough of Birsay, Orkney	?	F128434B	Inside		Zn	Cu, Pb
HB 401B16	Brough of Birsay, Orkney	?	F128435B	Inside		Zn	Cu, Pb
HB 401B17	Brough of Birsay, Orkney	?	F128436B	Inside		Cu, Pb	
HB 401B17	Brough of Birsay, Orkney	?	F128437B	Inside	Cu*, Pb	Sn	
HB 401B18	Brough of Birsay, Orkney	?	Nothing detected	Very clean			
HB 401B19	Brough of Birsay, Orkney	?	F128438B	Inside	Cu*	Sn	
HB 401B19	Brough of Birsay, Orkney	?	F128439B	Inside		Cu	
HB 401B20	Brough of Birsay, Orkney	?	FF128440B	Inside		Cu	Zn
HB 401B20	Brough of Birsay, Orkney	?	F128441B	Inside			(Cu, Zn)
HB 401B21	Brough of Birsay, Orkney	?	F128442B	Inside		Cu, Pb	Zn, Sn
HB 401B21	Brough of Birsay, Orkney	?	F128443B	Inside		Pb, Zn	Cu, Sn
HB 401B22	Brough of Birsay, Orkney	?	F128444B	Inside		Cu, Zn	Ag
HB 401B22	Brough of Birsay, Orkney	?	F128445B	Inside	Cu	Zn	
HB 401B23	Brough of Birsay, Orkney	?	F128446B	Inside	Cu*, Zn		Pb
HB 401B23	Brough of Birsay, Orkney	?	F128447B	Inside	Cu*, Zn		Pb
HB 401B24	Brough of Birsay, Orkney	?	F128448B	Inside	Cu, Sn	Pb, Zn	
HB 401B24	Brough of Birsay, Orkney	?	F128449B	Inside	Cu	Sn, Zn, Pb	
HB 401B24	Brough of Birsay, Orkney	?	F128450B	Inside	Cu	Zn, Pb, Sn	
HB 401B25	Brough of Birsay, Orkney	?	F128451B	Inside		Cu, Zn, Sn	Pb
HB 401B25	Brough of Birsay, Orkney	?	F128452B	Inside		Cu, Zn, Sn	Pb
HB 401B26	Brough of Birsay, Orkney	1 OR 8	F128453B	Inside	Cu		(Sn)
HB 401B26	Brough of Birsay, Orkney	1 OR 8	F128454B	Inside	Cu		Sn
HB 401B27	Brough of Birsay, Orkney	?	Nothing detected	Very clean			
HB 401B28	Brough of Birsay, Orkney	?	F128455B	Inside	Zn**	Cu	
HB 401B28	Brough of Birsay, Orkney	?	F128456B	Inside	Zn**	Cu	Pb
HB 401B29	Brough of Birsay, Orkney	?1	F128457B	Inside		Cu, Sn	(Zn)
HB 401B29	Brough of Birsay, Orkney	?1	F128458B	Inside		Cu, Sn	(Zn)
HB 401B30	Brough of Birsay, Orkney	1	Nothing detected	Very clean			
HB 401B31	Brough of Birsay, Orkney	?1	F128504B	inside stain		Cu, Zn, Pb	Sn (?Ag)
HB 401B31	Brough of Birsay, Orkney	?1	F128505B	inside stain	Zn	Cu	Pb, Sn (?Ag)
HB 401B31	Brough of Birsay, Orkney	?1	F128506B	Inside deposit	Zn**, Cu, Sn, Pb		(?Ag)
HB 401B32	Brough of Birsay, Orkney	?1	F128507B	Inside green deposit	Cu, Pb		Zn

HB 401B32	Brough of Birsay, Orkney	?1	F128508B	Inside spout		Cu, Pb	Zn
HB 401B32	Brough of Birsay, Orkney	?1	F128509B	Inside grey stain	Cu**, Pb		Zn
HB 401B33	Brough of Birsay, Orkney	1	F128510B	Inside			(Cu, Zn)
HB 401B33	Brough of Birsay, Orkney	1	F128511B	Inside			Zn, Cu
HB 401B33	Brough of Birsay, Orkney	1	F128512B	Outside spout			(Cu)
HB 401B34	Brough of Birsay, Orkney	?4	F128513B	Inside grey stain		Zn, Cu	Pb, Sn
HB 401B34	Brough of Birsay, Orkney	?4	F128514B	Inside deposit	Cu, Zn, Pb, Sn		
HB 401B34	Brough of Birsay, Orkney	?4	F128515B	Outside green deposit	Cu, Sn		Zn, Pb
HB 401B34	Brough of Birsay, Orkney	?4	F128516B	Outside red deposit	Cu	Sn	Zn, Pb
HB 401B35	Brough of Birsay, Orkney	?1	Nothing detected	Very clean			
HB 401B36	Brough of Birsay, Orkney	?1	F128517B	Inside stain		Cu	
HB 401B36	Brough of Birsay, Orkney	?1	F128518B	Inside stain		Cu	
HB 401B36	Brough of Birsay, Orkney	?1	F128519B	Inside stain		Cu	
HB 401B42	Brough of Birsay, Orkney	1	F125702B	Inside	Zn**, Cu, Ag		Pb, Sn
HB 401B42	Brough of Birsay, Orkney	1	F125701B	Inside	Zn**, Cu, Ag		Pb, Sn
HB 401B42	Brough of Birsay, Orkney	1	F125699B	Inside	Zn**, Cu, Ag		Pb, Sn
HB 401B43	Brough of Birsay, Orkney	?	Nothing detected	Inside	-	-	-
HB 401B44	Brough of Birsay, Orkney	?	Nothing detected	Inside	-	-	-
HB 401B45	Brough of Birsay, Orkney	?	F129109B	Inside		Cu, Ag	Zn, Pb, Sn
HB 401B45	Brough of Birsay, Orkney	?	F129110B	Inside		Cu, Ag	Zn, Pb, Sn
HB 401B46	Brough of Birsay, Orkney	?	F129111B	Inside	Cu**	Pb, Sn	(Zn)
HB 401B46	Brough of Birsay, Orkney	?	F129112B	Inside	Cu**, Pb		Zn
HB 401B47	Brough of Birsay, Orkney	?	F129113B	Inside		Cu	Pb, (Sn)
HB 401B48	Brough of Birsay, Orkney	?	F129114B	Inside			Zn, (Cu)
HB 401B48	Brough of Birsay, Orkney	?	F129115B	Inside			Zn, Cu
HB 401B49	Brough of Birsay, Orkney	?	F129119B	Inside		Zn	Cu, (Pb)
HB 401B50	Brough of Birsay, Orkney	?	F129120B	Inside	Zn, Pb	Cu	Sn
HB 401B50	Brough of Birsay, Orkney	?	F129121B	Inside	Pb**, Zn	Cu, Sn	
HB 401B51	Brough of Birsay, Orkney	?	F129122B	Inside			Cu, Zn, Pb
HB 401B51	Brough of Birsay, Orkney	?	F129123B	Inside			Cu, Zn, Pb
HB 401B52	Brough of Birsay, Orkney	?7	F129124B	Inside	Cu	Pb, Zn, Sn	(Ag)
HB 401B52	Brough of Birsay, Orkney	?7	F129125B	Inside	Cu	Pb, Zn, Sn	(Ag)
HB 401B53	Brough of Birsay, Orkney	?	F129126B	Inside			Cu

HB 401B53	Brough of Birsay, Orkney	?	F129127B	Inside			Cu
HB 401B54	Brough of Birsay, Orkney	?	F129128B	Inside		Cu, Zn, Pb	(Pb), (Ag)
HB 401B54	Brough of Birsay, Orkney	?	F129129B	Inside	Cu		Zn, Ag, Pb, Sn
HB 401B54	Brough of Birsay, Orkney	?	F129130B	Inside	Cu		Zn, Ag, Pb, Sn
HB 401B55	Brough of Birsay, Orkney	?	F129131B	Inside		Cu	Zn (Pb)
HB 401B55	Brough of Birsay, Orkney	?	F129132B	Inside			Cu, Zn, Pb
HB 401B56	Brough of Birsay, Orkney	?	F129133B	Inside	Cu**	Pb	Zn, Ag, Sn
HB 401B56	Brough of Birsay, Orkney	?	F129134B	Inside	Cu		Pb, Zn
HB 401B56	Brough of Birsay, Orkney	?	F129135B	Inside		Cu	Zn, Pb
HB 401B57	Brough of Birsay, Orkney	?	F129136B	Inside	Cu, Zn	Ag	Pb, Sn
HB 401B58	Brough of Birsay, Orkney	?	F129137B	Inside	Zn	Cu, Ag	(Sn)
HB 401B58	Brough of Birsay, Orkney	?	F129138B	Inside		Zn, Pb, Cu	Ag, Sn
HB 401B59	Brough of Birsay, Orkney	?	F129139B	Inside	Cu	Pb	Ag, Sn, Zn
HB 401B60	Brough of Birsay, Orkney	?	F129140B	Inside	Ag*, Pb, Sn	Cu, Zn	
HB 401B60	Brough of Birsay, Orkney	?	F129141B	Inside	Ag*, Pb, Sn	Cu, Zn	
HB 401B61	Brough of Birsay, Orkney	?1B	F129142B	Nothing detected	-	-	-
HB 401B62	Brough of Birsay, Orkney	1	F129149B	Inside		Zn	Cu
HB 401B62	Brough of Birsay, Orkney	1	F129150B	Inside			Cu, Zn
HB 401B62	Brough of Birsay, Orkney	1	F129151B	Inside		Zn	Cu
HB 401B63	Brough of Birsay, Orkney	?	F129152B	Inside			(Cu, Zn)
HB 401B63	Brough of Birsay, Orkney	?	F129153B	Inside			(Cu, Zn)
HB 401B64	Brough of Birsay, Orkney	?	F129154B	Inside	Pb**	Cu, Sn	
HB 401B64	Brough of Birsay, Orkney	?	F129155B	Inside	Pb**	Cu	Sn
HB 401B64	Brough of Birsay, Orkney	?	F129156B	Inside	Pb**, Cu		Sn
HB 401B65	Brough of Birsay, Orkney	?	F129157B	Inside			(Cu)
HB 401B66	Brough of Birsay, Orkney	?	F129158B	Inside			(Cu, Zn)
HB 401B66	Brough of Birsay, Orkney	?	F129159B	Inside			(Cu, Zn)
HB 401B67	Brough of Birsay, Orkney	?	F129160B	Inside			(Cu, Zn)
HB 401B67	Brough of Birsay, Orkney	?	F129161B	Inside			(Cu)
HB 401B68	Brough of Birsay, Orkney	?	F129162B	Inside		Cu, Zn	Pb
HB 401B68	Brough of Birsay, Orkney	?	F129163B	Inside			Cu, Zn, (Pb)
HB 401B69	Brough of Birsay, Orkney	?	F129164B	Inside			(Cu)
HB 401B69	Brough of Birsay, Orkney	?	F129165B	Inside			(Cu, Pb)

HB 401B70	Brough of Birsay, Orkney	?	F129166B	Inside			Cu, Pb (Zn)
HB 401B71	Brough of Birsay, Orkney	?	F129167B	Inside	Pb**, Cu		
HB 401B74	Brough of Birsay, Orkney	7A	F129202B	Nothing detected			
HB 401B74	Brough of Birsay, Orkney	7A	F129203B	Inside			(Cu, Zn)
HB 401B75	Brough of Birsay, Orkney	7A	F129204B	Inside		Cu, Sn	Pb
HB 401B75	Brough of Birsay, Orkney	7A	F129205B	Inside		Cu, Sn	Zn, (Pb)
HB 401B76	Brough of Birsay, Orkney	7A	F129206B	Inside			Cu
HB 401B76	Brough of Birsay, Orkney	7A	F129207B	Inside			Cu, Sn, (Ag)
HB 401B77	Brough of Birsay, Orkney	7A	F129208B	Inside		Zn	Cu, Pb
HB 401B78	Brough of Birsay, Orkney	7 OR 8	F129209B	Inside	Zn*, Cu, Pb	Sn	
HB 401B78	Brough of Birsay, Orkney	7 OR 8	Nothing detected	Inside			
HB 401B79	Brough of Birsay, Orkney	7A	Nothing detected	Inside			
HB 401B80	Brough of Birsay, Orkney	7A	F129210B	Inside	Zn*, Cu, Pb	Sn	
HB 401B81	Brough of Birsay, Orkney	7A	F129211B	Inside	Cu	Sn	(Zn, Pb)
HB 401B81	Brough of Birsay, Orkney	7A	F129212B	Inside	Cu	Sn	
HB 401B82	Brough of Birsay, Orkney	?7A	Nothing detected	Inside			
HB 401B82	Brough of Birsay, Orkney	?7a	Nothing detected	Inside			
HB 401B83	Brough of Birsay, Orkney	7 OR 8	F129213B	Inside		Cu, Pb	
HB 401B83	Brough of Birsay, Orkney	7 OR 8	F129214B	Inside (green)	Pb	Cu	
HB 401B84	Brough of Birsay, Orkney	7 OR 8	Nothing detected	Nothing detected			
HB 401B84	Brough of Birsay, Orkney	7 OR 8	Nothing detected	Nothing detected			
HB 401B85	Brough of Birsay, Orkney	7 OR 8	F129215B	Nothing detected			
HB 401B86	Brough of Birsay, Orkney	?7 OR 8	F129216B	Inside			(Zn)
HB 401B86	Brough of Birsay, Orkney	?7 OR 8	F129217B	Inside			(Zn)
HB 401B87	Brough of Birsay, Orkney	7B	F129218B	Inside			Zn, (Cu)
HB 401B87	Brough of Birsay, Orkney	7B	F129219B	Inside			(Cu, Zn)
HB 401B88	Brough of Birsay, Orkney	7A	F129220B	Inside	Pb**, Cu*		Ag, Zn
HB 401B88	Brough of Birsay, Orkney	7A	F129221B	Inside	Pb**, Cu		
HB 401B89	Brough of Birsay, Orkney	7	F129222B	Inside	Cu, Zn		(Pb)
HB 401B89	Brough of Birsay, Orkney	7	F129123B	Inside	Zn*, Cu, Pb		Cu
HB 401B90	Brough of Birsay, Orkney	9A	F129224B	Rim green	Pb**, Cu	Sn	
HB 401B90	Brough of Birsay, Orkney	9A	F129225B	Inside (green)	Pb**, Cu**		
HB 401B91	Brough of Birsay, Orkney	?9A	F129242B	Inside	Pb**, Cu*		

HB 401B91	Brough of Birsay, Orkney	?9A	F129243B	Inside	Pb**, Cu*	Sn	
HB 401B91	Brough of Birsay, Orkney	?9A	F129244B	Rim deposit	Pb**, Cu**	Sn	
HB 401B92	Brough of Birsay, Orkney	?9A	F129245B	Inside		Pb, Cu	
HB 401B92	Brough of Birsay, Orkney	?9A	F129246B	Outside		Cu	Pb
HB 401B93	Brough of Birsay, Orkney	?9A	F129247B	Inside	Cu*, Pb, Sn, Zn		
HB 401B94	Brough of Birsay, Orkney	?9 OR 4	F129248B	Zn*, Cu	Pb		
HB 401B95	Brough of Birsay, Orkney	?9 OR 4	Nothing detected	Inside			
HB 401B96	Brough of Birsay, Orkney	?9	Nothing detected	Inside			
HB 401B97	Brough of Birsay, Orkney	?5 OR 7	Nothing detected	Inside			
HB 401B98	Brough of Birsay, Orkney	?9 OR 4	Nothing detected	Inside			
HB 401B99	Brough of Birsay, Orkney	?	F129249B	Cu	Zn	Pb, Cu	
HB 403i	Brough of Birsay, Orkney	?	F125723B	Inside	Pb, Cu		
HB 403ii	Brough of Birsay, Orkney	?	F125724B	Inside	Pb**, Cu		
HB 403iii	Brough of Birsay, Orkney	?	F125727B	Inside	Pb**, Cu		
HB 403iv	Brough of Birsay, Orkney	?	F125723B	Inside	Pb, Cu		
HB 403v	Brough of Birsay, Orkney	?	F125724B	Inside	Pb**, Cu		
HB 403vi	Brough of Birsay, Orkney	?	F125727B	Inside	Pb**, Cu		
HB 403vii	Brough of Birsay, Orkney	?	F125723B	Inside	Pb, Cu		
HB 403viii	Brough of Birsay, Orkney	?	F125724B	Inside	Pb**, Cu		
HB 403ix	Brough of Birsay, Orkney	?	F125727B	Inside	Pb**, Cu		
HB 403x	Brough of Birsay, Orkney	?	F125723B	Inside	Pb, Cu		
HB 403xi	Brough of Birsay, Orkney	?	F125724B	Inside	Pb**, Cu		
HB 403xii	Brough of Birsay, Orkney	?	F125727B	Inside	Pb**, Cu		
HB 403xiii	Brough of Birsay, Orkney	?	F125724B	Inside	Pb**, Cu		
HB 403xiv	Brough of Birsay, Orkney	?	F125727B	Inside	Pb**, Cu		
HB 403xv	Brough of Birsay, Orkney	?	F125723B	Inside	Pb, Cu		
HB 403xvi	Brough of Birsay, Orkney	?	F125724B	Inside	Pb**, Cu		
HB 403xvii	Brough of Birsay, Orkney	?	F125727B	Inside	Pb**, Cu		
HB 403xviii	Brough of Birsay, Orkney	?	F125723B	Inside	Pb, Cu		
HB 403xix	Brough of Birsay, Orkney	7 OR 8	F125724B	Inside	Pb**, Cu		
HB 411a	Brough of Birsay, Orkney	9A	F125700B	Inside	Cu, Pb, Sn	Zn	
HB 411a	Brough of Birsay, Orkney	9A	F125698B	Inside			(Cu, Zn)
HB 411a	Brough of Birsay, Orkney	9A	F125697B	Inside		Cu	

HB 411a	Brough of Birsay, Orkney	9A	F125696B	Inside		Cu	
SF 49	Bruach an Druiem, Argyll	?	F126740B	Inside	Zn*, Pb	Ag, Sn	(Cu, Br)
SF 85	Bruach an Druiem, Argyll	?	F126741B	Inside		Cu, Sn	Pb
SF 85	Bruach an Druiem, Argyll	?	F126742B	Inside		Cu, Pb	Sn
CAT 170	Bu, Orkney	3	Salter 1987	?	Cu		
CAT 172	Bu, Orkney	3	Salter 1987	?	Cu		
GT 59	Buaile Risary, North Uist	10	F118369B	Inside			(Cu, Zn)
GT 59	Buaile Risary, North Uist	10	F119370B	Inside			(Cu, Zn)
GT 59	Buaile Risary, North Uist	10	F119370B	Outside			(Cu, Zn)
GA 872	Caithness'	1A OR B	F125256B	Inside deposit	Zn		Cu, Pb
GA 872	Caithness'	1A OR B	F125255B	Inside deposit	Zn	Cu	
GA 872	Caithness'	1A OR B	F125258B	Inside deposit	Zn		Pb, Cu
GA 872	Caithness'	1A OR B	F125257B	Outside			
GL 76	Cinn Trolla, Sutherland	1A OR B	F125437B	Inside red deposit	Cu*	Zn	Pb
GL 76	Cinn Trolla, Sutherland	1A OR B	F125437B	Inside green stain	Zn*, Cu	Sn, Pb	
GL 76	Cinn Trolla, Sutherland	1A OR B	F125439B	Inside purple stain	Zn**; Cu	Sn, Pb	
HD 1330	Clettraval, North Uist	?1 OR 4	F125441B	Inside red stain	Cu, Zn, Pb		
HD 1330	Clettraval, North Uist	?4	F125442B	Inside red stain	Cu, Zn, Sn		
unreg	Crawford, Lanarkshire	?4	NMS	Inside	Cu, Zn		
SF 38	Cullykhan, Banff	?	F1576B	Glazed area			(Cu)
SF 38	Cullykhan, Banff	?	F1577B	Body			Pb (Zn Cu)
SF 203	Cullykhan, Banff	?	F1558B	Body - red glaze	Cu**	Sn	
SF 203	Cullykhan, Banff	6	F1559B	Glazed area			(Cu)
SF 203	Cullykhan, Banff	6	F1560B	Glazed area			(Cu)
SF 203	Cullykhan, Banff	6	F1561B	Unglazed area			
SF 203	Cullykhan, Banff	6	F1562B	Inner surface			(Cu)
SF 203	Cullykhan, Banff	6	F1563B	Inner surface encrustation			
SF 203	Cullykhan, Banff	6	F1564B	Red pigment	Cu** Sn		
SF 254	Cullykhan, Banff	?	F1573B	Glazed area			(Cu)
SF 254	Cullykhan, Banff	?	F1574B	Red area			
SF 254	Cullykhan, Banff	?	F1575B	Ceramic			
SF 281	Cullykhan, Banff	1	F 1565B	Body	Sn	Cu, Pb, Zn	
SF 281	Cullykhan, Banff	1	F 1566B	Body			(Cu)

SF 316	Cullykhan, Banff	?	F1569B	Ceramic			(Cu)
SF 316	Cullykhan, Banff	?	F1567B	Red area			
SF 316	Cullykhan, Banff	?	F1568B	Black area			
SF 451	Cullykhan, Banff	?	F1578B	Body			(Zn)
SF 451	Cullykhan, Banff	?	F1580B	Concave			(Zn)
SF 451	Cullykhan, Banff	?	F1579B	Encrustation on side			Zn Pb
SF 480	Cullykhan, Banff	?	F1570B	Blue' area			
SF 480	Cullykhan, Banff	?	F1571B	Glazed area			
SF 480	Cullykhan, Banff	?	F1572B	Ceramic			
HU 36	Dowlaton Loch, Wigtownshire	10	F125444B	Crucible?			(Cu)
DMV 21.AX	Dun Mor Vault	1	F118338B	Inside / res	Cu	Sn	Zn, Pb
DMV 21.AX	Dun Mor Vault	1	F118337B	Outside		Cu	Sn
DMV 21.AX	Dun Mor Vault	1	F118339B	Inside			Cu
DMV 21.AX	Dun Mor Vault	1	F118340B	Outside			Zn
DMV AI	Dun Mor Vault	?1	F118342B	Inside		Zn	Cu
DMV AI	Dun Mor Vault	?1	F118341B	Inside			Zn
DMV AI	Dun Mor Vault	?1	F118343B	Outside			Zn, Cu
DMV BC	Dun Mor Vault	?	F119109B	Inside			Cu, Zn
DMV BQ	Dun Mor Vault	?	F119107B	Inside			Zn, (Cu)
DMV DZ	Dun Mor Vault	?	F118353B	Inside		Zn	Cu
DMV DZ	Dun Mor Vault	?	F118356B	Inside		Zn	Cu
DMV DZ	Dun Mor Vault	?	F119357B	Outside (ceramic)			
DMV EF	Dun Mor Vault	?	F119105B	Inside	Zn	Cu	
DMV EH	Dun Mor Vault	1A	F118345B	Inside		Zn	Cu
DMV EL	Dun Mor Vault	?	F119106B	Inside		Zn	Cu
DMV FE	Dun Mor Vault	?	F118435B	Inside			Cu?, Zn?
DMV KZ	Dun Mor Vault	?	F119115B	Inside		Zn, Cu	
DMV HV (145)	Dun Mor Vault	?	F119112B	Inside		Zn	Cu
SF 224.EJ	Dun Mor Vault	?	F119109B	Inside (deposit)	Zn, Cu, Pb	Sn	
SF 224.EJ	Dun Mor Vault	?	F119111B	Inside (deposit)	Zn, Cu, Pb, Sn		
SF 224.EJ	Dun Mor Vault	?	F119110B	Inside (ceramic)			Zn, Cu, Pb
SF 243.ED	Dun Mor Vault	?	F119113B	Inside		Zn	
SF 342.EV	Dun Mor Vault	?	F119114B	Inside	Zn**		Cu

SF 440.JX	Dun Mor Vault	?4	F119104B	Inside	Zn**	Cu	Pb	
GP 228	Dunadd, Argyll	?4	Duncan 1982, 56	Inside				Cu, Zn, Pb, Sn, Ag
GP 229	Dunadd, Argyll	?1	Duncan 1982, 56	Inside				Cu, Zn, Pb, Sn, Ag
HPO 183	Dunadd, Argyll	1	Duncan 1982, 56	Inside				Cu, Zn, Pb, Sn, Ag
HPO 185	Dunadd, Argyll	1	Duncan 1982, 56	Inside				Cu, Zn, Pb, Sn
HPO 206	Dunadd, Argyll	?	Duncan 1982, 56	Inside				Cu, Pb, Sn
HPO 208	Dunadd, Argyll	?	Duncan 1982, 56	Inside				Cu, Pb, Sn
HPO 210	Dunadd, Argyll	?	Duncan 1982, 56	Inside				Cu, Zn, Sn, Ag
HPO 211	Dunadd, Argyll	?	Duncan 1982, 56	Inside				Cu, Zn, Pb, Sn
HPO 216	Dunadd, Argyll	?	Duncan 1982, 56	Inside				Cu, Zn, Ag
112/1	Dunadd, Argyll	8	Ancient Mon Lab	Inside				Zn
112/2-7	Dunadd, Argyll	?	Ancient Mon Lab	Inside				Zn (Cu Pb? Ag)
	188 Dunadd, Argyll	7	Ancient Mon Lab	Inside				Au
	192 Dunadd, Argyll	?4	Ancient Mon Lab	Inside				Zn Cu Sn Pb
	193 Dunadd, Argyll	?	Ancient Mon Lab	Inside				Zn
	220 Dunadd, Argyll	9E	Ancient Mon Lab	Inside				Cu Zn Sn Pb
	230 Dunadd, Argyll	9B	Ancient Mon Lab	Inside				Ag Cu Zn
	303 Dunadd, Argyll	4	Ancient Mon Lab	Inside				Cu Sn Pb
	308 Dunadd, Argyll	?	Ancient Mon Lab	Inside				Zn (Cu? Ag)
	425 Dunadd, Argyll	?	Ancient Mon Lab	Inside				Zn Ag Cu Pb
	429 Dunadd, Argyll	?8	Ancient Mon Lab	Inside				Cu Zn Sn
	459 Dunadd, Argyll	7	Ancient Mon Lab	Inside				Ag** Cu Zn Sn Ag Pb
	466 Dunadd, Argyll	8	Ancient Mon Lab	Inside				Zn Ag (Cu Pb)
550/1	Dunadd, Argyll	8	Ancient Mon Lab	Inside				Zn Ag Sn Pb
550/2-6	Dunadd, Argyll	?	Ancient Mon Lab	Inside				Zn Ag (Au Cu Pb)
	600 Dunadd, Argyll	5	Ancient Mon Lab	Inside				Cu Ag Zn Pb
621/1667	Dunadd, Argyll	9C	Ancient Mon Lab	Inside				Ag Au Zn Pb (Cu)
621/2-3	Dunadd, Argyll	8	Ancient Mon Lab	Inside				Zn
	632 Dunadd, Argyll	8	Ancient Mon Lab	Inside				Zn Pb Ag Sn Cu
646/1	Dunadd, Argyll	8	Ancient Mon Lab	Inside				Pb Zn (Ag Sn Cu)
646/2	Dunadd, Argyll	?8	Ancient Mon Lab	Inside				Au** Zn Ag Cu (Pb)
646/3	Dunadd, Argyll	?7	Ancient Mon Lab	Inside				Au
	678 Dunadd, Argyll	8	Ancient Mon Lab	Inside				Zn Cu (Pb ?Ag)

	697 Dunadd, Argyll	8	Ancient Mon Lab	Inside	Zn Ag (Cu)
	754 Dunadd, Argyll	8	Ancient Mon Lab	Inside	Zn Pb(Cu ?Ag ?Sn)
	756 Dunadd, Argyll	?	Ancient Mon Lab	Inside	Zn Ag Cu (?Pb)
	782 Dunadd, Argyll	?	Ancient Mon Lab	Inside	Au * Ag Zn Cu
	799 Dunadd, Argyll	8	Ancient Mon Lab	Inside	Au*
	816 Dunadd, Argyll	4	Ancient Mon Lab	Inside	Cu Sn Zn Pb
846/851	Dunadd, Argyll	8	Ancient Mon Lab	Inside	Zn Pb
	854 Dunadd, Argyll	7 OR 8	Ancient Mon Lab	Inside	Cu Sn Zn Pb
	884 Dunadd, Argyll	4	Ancient Mon Lab	Inside	Cu Sn Pb (Zn)
	888 Dunadd, Argyll	5	Ancient Mon Lab	Inside	Cu Zn Sn Pb
911/1	Dunadd, Argyll	8	Ancient Mon Lab	Inside	Zn Ag Pb (Cu)
911/2	Dunadd, Argyll	8	Ancient Mon Lab	Inside	Zn Ag Pb (Cu)
944/1	Dunadd, Argyll	?	Ancient Mon Lab	Inside	Cu Zn (Sn)
944/2	Dunadd, Argyll	?	Ancient Mon Lab	Inside	Zn Ag Cu (Pb)
952/1	Dunadd, Argyll	8	Ancient Mon Lab	Inside	Zn Pb (Cu)
1004/1	Dunadd, Argyll	8	Ancient Mon Lab	Inside	Zn (?Ag)
1004/2	Dunadd, Argyll	?	Ancient Mon Lab	Inside	Cu Pb Sn Zn Ag
1004/3	Dunadd, Argyll	8	Ancient Mon Lab	Inside	(?Cu Zn)
1030/1	Dunadd, Argyll	8	Ancient Mon Lab	Inside	Pb Sn Zn Cu
1030/2	Dunadd, Argyll	?	Ancient Mon Lab	Inside	Ag Zn Cu Pb
1030/3	Dunadd, Argyll	?	Ancient Mon Lab	Inside	Zn Pb (Cu)
1030/4	Dunadd, Argyll	?	Ancient Mon Lab	Inside	Cu Ag (Sn Pb)
1164/1	Dunadd, Argyll	8	Ancient Mon Lab	Inside	Zn Ag Pb Cu Sn
1164/7	Dunadd, Argyll	?8	Ancient Mon Lab	Inside	Zn Ag Pb Cu Sn
	1232 Dunadd, Argyll	5 OR 7	Ancient Mon Lab	Inside	Zn Pb Cu Sn
	1261 Dunadd, Argyll	4	Ancient Mon Lab	Inside	Cu Sn Pb (Zn)
	1282 Dunadd, Argyll	8	Ancient Mon Lab	Inside	Zn Ag (Cu)
	1334 Dunadd, Argyll	7 OR 8	Ancient Mon Lab	Inside	Zn
	1346 Dunadd, Argyll	?	Ancient Mon Lab	Inside	Ag Zn Cu (Pb)
1352/1	Dunadd, Argyll	9E	Ancient Mon Lab	Inside	Cu Zn (Pb)
1352/2	Dunadd, Argyll	?	Ancient Mon Lab	Inside	Zn Ag Cu Pb
1352/3	Dunadd, Argyll	?	Ancient Mon Lab	Inside	Zn (Pb)
1378/1	Dunadd, Argyll	4	Ancient Mon Lab	Inside	Cu Sn Pb (Zn)

1378/2	Dunadd, Argyll	?	Ancient Mon Lab	Inside	Cu Zn Pb Sn
	1434 Dunadd, Argyll	7	Ancient Mon Lab	Inside	Zn Ag (Cu)
1506/1	Dunadd, Argyll	?	Ancient Mon Lab	Inside	Zn Pb Cu (?Ag)
1506/2	Dunadd, Argyll	5 OR 7	Ancient Mon Lab	Inside	Zn
1506/3	Dunadd, Argyll	8	Ancient Mon Lab	Inside	Zn (Cu)
1506/4	Dunadd, Argyll	?	Ancient Mon Lab	Inside	Zn Ag (Cu)
	1514 Dunadd, Argyll	9A	Ancient Mon Lab	Inside	Pb Zn Cu Ag
	1518 Dunadd, Argyll	5 OR 7	Ancient Mon Lab	Inside	Zn Cu Pb Sn Ag
1538/2	Dunadd, Argyll	8	Ancient Mon Lab	Inside	Zn
1538/3,4	Dunadd, Argyll	?	Ancient Mon Lab	Inside	Zn Ag Pb Cu Sn
1538/5	Dunadd, Argyll	8	Ancient Mon Lab	Inside	Zn Sn Ag
1538/6	Dunadd, Argyll	8	Ancient Mon Lab	Inside	Zn Cu Ag Sn Pb
	1567 Dunadd, Argyll	?	Ancient Mon Lab	Inside	Zn Cu Sn Pb
1576/2	Dunadd, Argyll	?	Ancient Mon Lab	Inside	Au*
1576/3	Dunadd, Argyll	8	Ancient Mon Lab	Inside	Zn Ag (Cu Pb)
1602-6	Dunadd, Argyll	?	Ancient Mon Lab	Inside	Zn Ag
	1625 Dunadd, Argyll	?8	Ancient Mon Lab	Inside	Cu Pb Sn (Zn)
	1630 Dunadd, Argyll	?	Ancient Mon Lab	Inside	(Sn Zn Pb Cu)
	1632 Dunadd, Argyll	9A	Ancient Mon Lab	Inside	Au (Zn Cu)
1650/1	Dunadd, Argyll	?8	Ancient Mon Lab	Inside	Zn Ag (Pb Cu)
1650/2	Dunadd, Argyll	?	Ancient Mon Lab	Inside	Zn Ag (Cu Pb)
1665/1	Dunadd, Argyll	4	Ancient Mon Lab	Inside	Cu Sn Pb Zn
1665/2	Dunadd, Argyll	8	Ancient Mon Lab	Inside	Zn Cu (Pb)
1665/4	Dunadd, Argyll	?	Ancient Mon Lab	Inside	Zn
1665/5	Dunadd, Argyll	?	Ancient Mon Lab	Inside	Zn (Ag Cu)
	1666 Dunadd, Argyll	?	Ancient Mon Lab	Inside	Zn Cu
1730/1	Dunadd, Argyll	?	Ancient Mon Lab	Inside	Pb Sn Cu Zn
1730/2	Dunadd, Argyll	8	Ancient Mon Lab	Inside	Zn Pb Cu
	1748 Dunadd, Argyll	?	Ancient Mon Lab	Inside	Zn
1815/2	Dunadd, Argyll	?4	Ancient Mon Lab	Inside	Zn Cu (Pb)
1815/3	Dunadd, Argyll	?8	Ancient Mon Lab	Inside	Pb Zn Cu Ag
1815/4	Dunadd, Argyll	8	Ancient Mon Lab	Inside	Zn ?Ag (Cu)
1830/3	Dunadd, Argyll	7	Ancient Mon Lab	Inside	(Zn Cu)

1830/4	Dunadd, Argyll	?	Ancient Mon Lab	Inside			(Zn)
	1831 Dunadd, Argyll	?	Ancient Mon Lab	Inside			Pb Cu Zn Ag Sn
1847/1	Dunadd, Argyll	?	Ancient Mon Lab	Inside			Zn
1847/2	Dunadd, Argyll	?	Ancient Mon Lab	Inside			Zn Ag (Cu)
1847/3	Dunadd, Argyll	?	Ancient Mon Lab	Inside			Ag Zn Cu (Pb)
1847/4	Dunadd, Argyll	?	Ancient Mon Lab	Inside			Zn
1847/5	Dunadd, Argyll	?	Ancient Mon Lab	Inside			Cu Zn Sn Ag (Au Pb)
	1857 Dunadd, Argyll	?	Ancient Mon Lab	Inside			Pb Zn Ag (Cu)
	1926 Dunadd, Argyll	5 OR 7	Ancient Mon Lab	Inside			Cu Zn Ag Pb (?Sn)
	2024 Dunadd, Argyll	5 OR 7	Ancient Mon Lab	Inside			Zn
	2073 Dunadd, Argyll	?	Ancient Mon Lab	Inside			Ag Zn Cu Pb
BT A272	Dunagoil, Bute	1A	F119211B	Inside (residue red)	Cu	(Sn)	
BT A272	Dunagoil, Bute	1A	F119216B	Inside (residue red)	Cu	(Sn)	
BT A272	Dunagoil, Bute	1A	F119215B	Inside (residue red)	Cu, Sn	(Zn)	
BT A272	Dunagoil, Bute	1A	F119212B	Inside (residue green)	Cu, Sn	(Zn)	
BT A272	Dunagoil, Bute	1A	F119213B	Spout		(Cu, Zn)	
BT A272	Dunagoil, Bute	1A	F119214B	Outside (ceramic)		Sn	
BT A273	Dunagoil, Bute	10	F119197B	Ceramic		(Zn)	
BT A273	Dunagoil, Bute	10	F119198B	Ceramic		(Zn)	
BT A273	Dunagoil, Bute	10	F119199B	Ceramic		(Zn)	
BT A274	Dunagoil, Bute	10	F119200B	Inside (stain)		(Cu)	
BT A274	Dunagoil, Bute	10	F119202B	Inside (stain)		(Zn)	
BT A274	Dunagoil, Bute	10	F118365B	Outside			
BT A274	Dunagoil, Bute	10	F119201B	Ceramic (out)			
BT A275	Dunagoil, Bute	1A	F118413B	Inside	Cu**	Pb, Sn	
BT A275	Dunagoil, Bute	1A	F118414B	Outside		Cu	
BT A276	Dunagoil, Bute	10	F119204B	Outside (ceramic)		Zn	
BT A276	Dunagoil, Bute	10	F119203B	Rim (stain)		Zn	
BT A277	Dunagoil, Bute	10	F119205B	Inside (stain)		(Cu, Zn)	
BT A277	Dunagoil, Bute	10	F118378B	Outside		Cu?Zn?	
BT A277	Dunagoil, Bute	10	F119206B	Inside (stain)		(Zn)	
BT A277	Dunagoil, Bute	10	F119207B	Outside (ceramic)		(Zn)	
BT A278	Dunagoil, Bute	10	F119211B	Inside (stain)		(?Cu, Zn)	

BT A278	Dunagoil, Bute	10	F119210B	Inside (stain)			(?Cu, Zn)	
BT A278	Dunagoil, Bute	10	F118382B	Rim			Cu?Zn?	
BT A279	Dunagoil, Bute	10	F119195B	Inside (stain)			(Zn)	
BT A279	Dunagoil, Bute	10	F119196B	Outside (ceramic)			(Zn)	
BT A280	Dunagoil, Bute	1A	F119217B	Inside (deposit)	Cu	Zn		
BT A280	Dunagoil, Bute	1A	F119220B	Inside (deposit)		Cu	Zn	
BT A280	Dunagoil, Bute	1A	F119218B	Inside (deposit)		Cu, Zn		
BT A280	Dunagoil, Bute	1A	F119219B	Outside (ceramic)			Cu, Zn	
BT A94.86	Dunagoil, Bute	10	F119208B	Inside (stain)			(Zn, Cu)	
BT A94.86	Dunagoil, Bute	10	F119209B	Outside (ceramic)			(Zn)	
BT A94.87	Dunagoil, Bute	1A	F118367B	Inside	Cu	Sn	Zn, Pb	
BT A94.87	Dunagoil, Bute	1A	F118368B	Outside	Cu	Sn	Zn, Pb	
BT A94.88	Dunagoil, Bute	?1	F118415B	Inside		Cu		
BT A94.89	Dunagoil, Bute	10	F118379B	Inside			Zn?,Cu?	
BT A94.89	Dunagoil, Bute	10	F118379B	Outside			Zn?,Cu?	
CAT ?	Dunan Ruadh	?1	Not analysed	?500			Cu, Zn, Pb	
CAT 38	Dundurn, Perthshire	?	F7556 (Tate 1984)	?				Ag, Cu, Pb, Zn. No tin.
CAT 41	Dundurn, Perthshire	?	F7555 (Tate 1984)	?				Cu, Pb and Sn. No gold
GA 1268	Dunphail, Sutherland	1A	F125259B	Inside deposit			Cu, Pb	
GA 1268	Dunphail, Sutherland	1A	F125260B	Inside rim stain			Cu	
GA 1268	Dunphail, Sutherland	1A	F125261B	Inside red stain	Cu**, Pb, Sn			
GA 1268	Dunphail, Sutherland	1A	F125262B	Inside stain			Cu	
GA 1268	Dunphail, Sutherland	1A	F125263B	Inside stain			Cu	
GA 1268	Dunphail, Sutherland	1A	F125264B	Outside ceramic				
CAT 183	Eilean Olabhat, Western Isles	1A	F119517B	Inside		Zn	Cu	
CAT 183	Eilean Olabhat, Western Isles	1A	F119516B	Spout / res				
CAT 183	Eilean Olabhat, Western Isles	1A	F119515B	Outside				
CAT 183	Eilean Olabhat, Western Isles	1A	F119569B	Inside				
CAT 184	Eilean Olabhat, Western Isles	1A	F119520B	Inside		Zn		
CAT 184	Eilean Olabhat, Western Isles	1A	F119519(a)B	Inside		Zn		
CAT 184	Eilean Olabhat, Western Isles	1A	F119534B	Inside			Zn	
CAT 184	Eilean Olabhat, Western Isles	1A	F119535B	Inside			Zn	
CAT 184	Eilean Olabhat, Western Isles	1A	F119537B	Inside			Zn	

CAT 184	Eilean Olabhat, Western Isles	1A	F119538B	Inside			Zn
CAT 184	Eilean Olabhat, Western Isles	1A	F119536B	Inside			Zn (Cu)
CAT 184	Eilean Olabhat, Western Isles	1A	F119519(b)B	Outside			
CAT 184	Eilean Olabhat, Western Isles	1A	F119539B	Outside			
CAT 184	Eilean Olabhat, Western Isles	1A	F119560B	Outside			
CAT 185	Eilean Olabhat, Western Isles	1A	F119561B	Inside			
CAT 185	Eilean Olabhat, Western Isles	1A	F119562B	Inside			
CAT 185	Eilean Olabhat, Western Isles	1A	F119563B	Outside			
CAT 186	Eilean Olabhat, Western Isles	1A	F119568(a)B	Inside	Cu	Zn, Pb	Sn
CAT 186	Eilean Olabhat, Western Isles	1A	F118566B	Inside		Cu	Zn, Pb
CAT 186	Eilean Olabhat, Western Isles	1A	F119564B	Inside		Cu, Zn, Pb	
CAT 186	Eilean Olabhat, Western Isles	1A	F119568(b)B	Outside			Cu
CAT 186	Eilean Olabhat, Western Isles	1A	F119565B	Inside		Zn, Cu, Pb	
CAT 187	Eilean Olabhat, Western Isles	1A	F119522B	Inside			(Cu, Zn)
CAT 187	Eilean Olabhat, Western Isles	1A	F119528B	Inside			(Cu, Zn)
CAT 187	Eilean Olabhat, Western Isles	1A	F119533B	Inside			(Cu, Zn)
CAT 187	Eilean Olabhat, Western Isles	1A	F119533B	Inside			(Cu, Zn)
CAT 187	Eilean Olabhat, Western Isles	1A	F119530B	Inside			(Cu)
CAT 187	Eilean Olabhat, Western Isles	1A	F119529B	Inside			(Pb, Cu, Zn)
CAT 187	Eilean Olabhat, Western Isles	1A	F119532B	Inside			Cu
CAT 187	Eilean Olabhat, Western Isles	1A	F119521B	Inside			
CAT 187	Eilean Olabhat, Western Isles	1A	F119531B	Inside			Zn, Pb (Cu)
CAT 195	Eilean Olabhat, Western Isles	1A	F119598B	Inside (spout)	Mn		(Cu, Br)
CAT 195	Eilean Olabhat, Western Isles	1A	F119602B	Inside		Mn	(Cu)
CAT 195	Eilean Olabhat, Western Isles	1A	F119603B	Inside		Mn, Cu, Sn, Zn	
CAT 195	Eilean Olabhat, Western Isles	1A	F119604B	Inside		Mn, Cu, Sn, Zn	
CAT 195	Eilean Olabhat, Western Isles	1A	F119600B	Outside			Mn
CAT 195	Eilean Olabhat, Western Isles	1A	F119605B	Outside			Mn
CAT 195	Eilean Olabhat, Western Isles	1A	F119599B	Inside			Mn (Cu)
CAT 195	Eilean Olabhat, Western Isles	1A	F119601B	Inside		Sn Cu	
CAT 205	Eilean Olabhat, Western Isles	1A	F119747B	Inside (deposit)	Br**, Ag**, Sn	Cu	Zn, Pb
CAT 205	Eilean Olabhat, Western Isles	1A	F119746B	Inside (droplet)	Br**, Ag**, Sn	Cu, Zn, Pb	
CAT 205	Eilean Olabhat, Western Isles	1A	F119749B	Inside		Cu	Zn, (Br, Ag)

CAT 205	Eilean Olabhat, Western Isles	1A	F119748B	Inside (spout)		Cu, Zn	
CAT 205	Eilean Olabhat, Western Isles	1A	F119750B	Outside			(Cu)
CAT 213A	Eilean Olabhat, Western Isles	1A	F119608B	Inside			Cu, Zn
CAT 213A	Eilean Olabhat, Western Isles	1A	F119609B	Outside			
CAT 213A	Eilean Olabhat, Western Isles	1A	F119606B	Inside		Zn	Cu
CAT 213A	Eilean Olabhat, Western Isles	1A	F119607B	Inside		Zn, Cu	
CAT 213C	Eilean Olabhat, Western Isles	1A	F119617B	Inside			(Cu)
CAT 213C	Eilean Olabhat, Western Isles	1A	F119616B	Inside			
CAT 213C	Eilean Olabhat, Western Isles	1A	F119618B	Outside			
CAT 213B	Eilean Olabhat, Western Isles	?1B	F119610B	Inside			(Cu)
CAT 213B	Eilean Olabhat, Western Isles	?1B	F119611B	Inside			(Cu)
CAT 213B	Eilean Olabhat, Western Isles	?1B	F119612B	Inside			(Cu)
CAT 213B	Eilean Olabhat, Western Isles	?1B	F119613B	Inside			
CAT 213B	Eilean Olabhat, Western Isles	?1B	F119614B	Outside			
CAT 213B	Eilean Olabhat, Western Isles	?1B	F119615B	Outside			
CAT 191	Eilean Olabhat, Western Isles	?1B	F119769B	Inside		Cu, Sn	
CAT 191	Eilean Olabhat, Western Isles	?1B	F119770B	Inside		Sn, Cu	
CAT 188	Eilean Olabhat, Western Isles	?1B	F119622B	Inside		Cu, Sn	
CAT 188	Eilean Olabhat, Western Isles	?1B	F119620B	Inside			(Cu, Zn)
CAT 188	Eilean Olabhat, Western Isles	?1B	F119619B	Inside			(Cu)
CAT 188	Eilean Olabhat, Western Isles	?1B	F119621B	Inside			(Cu)
CAT 188	Eilean Olabhat, Western Isles	?1B	F119624B	Outside			
CAT 210	Eilean Olabhat, Western Isles	?1B	F119744B	Inside			(Zn, Cu)
CAT 210	Eilean Olabhat, Western Isles	?1B	F119743B	Inside			(Zn)
CAT 210	Eilean Olabhat, Western Isles	?1B	F119742B	Inside			Zn (Cu)
CAT 210	Eilean Olabhat, Western Isles	?1B	F119745B	Outside			
CAT 194A	Eilean Olabhat, Western Isles	1	F119758B	Inside (deposit)	Cu**, Sn, Zn, Pb	Ag	
CAT 194A	Eilean Olabhat, Western Isles	1	F119759B	Inside	Cu**, Sn, Zn, Pb	Ag	
CAT 194A	Eilean Olabhat, Western Isles	1	F119760B	Inside		Cu, Sn	Ag, Zn, Pb
CAT 194A	Eilean Olabhat, Western Isles	1	F119761B	Outside			(Cu, Zn)
CAT 194B	Eilean Olabhat, Western Isles	1	F119763B	Inside (deposit)	Cu*, Zn, Pb	Sn, Ag	
CAT 194B	Eilean Olabhat, Western Isles	1	F119764B	Inside	Cu*, Zn, Pb	Sn, Pb	
CAT 194B	Eilean Olabhat, Western Isles	1	F119765B	Inside		Cu, Zn, Sn	Pb

CAT 194B	Eilean Olabhat, Western Isles	1	F119766B	Outside			Cu, Sn
CAT 194B	Eilean Olabhat, Western Isles	1	F119762B	Inside (deposit)	Zn, Cu	Sn, Pb	
CAT 194C	Eilean Olabhat, Western Isles	1	F119676B	Inside (deposit)		Cu, Sn	Zn
CAT 194D	Eilean Olabhat, Western Isles	1	F119768B	Inside (deposit)	Cu*	Sn, Ag, Pb	Zn
CAT 200	Eilean Olabhat, Western Isles	1	F119751B	Inside			Cu, (Zn)
CAT 200	Eilean Olabhat, Western Isles	1	F119752B	Inside			Cu, (Zn)
CAT 200	Eilean Olabhat, Western Isles	1	F119753B	Outside			
CAT 214	Eilean Olabhat, Western Isles	1	F119581B	Inside		Zn	Cu, Pb
CAT 214	Eilean Olabhat, Western Isles	1	F119582B	Inside			Zn, Cu
CAT 214	Eilean Olabhat, Western Isles	1	F119583B	Outside			
CAT 219	Eilean Olabhat, Western Isles	1	F119745B	Inside		Cu	Zn, Br
CAT 219	Eilean Olabhat, Western Isles	1	F119755B	Inside		Cu	Zn, Br
CAT 219	Eilean Olabhat, Western Isles	1	F119756B	Inside		Cu	Zn, Br
CAT 219	Eilean Olabhat, Western Isles	1	F119757B	Outside			
CAT 199	Eilean Olabhat, Western Isles	1, 7 OR 8	F119739B	Inside		Cu	Zn, Sn
CAT 199	Eilean Olabhat, Western Isles	1, 7 OR 8	F119738B	Inside		Cu, Sn	Pb, Br, (Zn)
CAT 199	Eilean Olabhat, Western Isles	1, 7 OR 8	F119740B	Inside		Cu, Sn	Zn, Pb
CAT 199	Eilean Olabhat, Western Isles	1, 7 OR 8	F119741B	Outside			
CAT 202	Eilean Olabhat, Western Isles	1, 7 OR 8	F119630B	Inside (droplet)	Br**, Ag**		
CAT 202	Eilean Olabhat, Western Isles	1, 7 OR 8	F119733B	Inside (deposit)		Zn	Cu
CAT 202	Eilean Olabhat, Western Isles	1, 7 OR 8	F119631B	Inside (deposit)		Zn	Cu, Ag
CAT 202	Eilean Olabhat, Western Isles	1, 7 OR 8	F119734B	Outside			
CAT 207	Eilean Olabhat, Western Isles	1, 7 OR 8	F119624B	Inside (droplet)	Br**, Ag**	Sn, Pb, Cu, Zn	
CAT 207	Eilean Olabhat, Western Isles	1, 7 OR 8	F119629b	Outside (residue)	Cu**	Pb	
CAT 207	Eilean Olabhat, Western Isles	1, 7 OR 8	F119626B	Inside		Zn	(Cu, Br, Ag)
CAT 207	Eilean Olabhat, Western Isles	1, 7 OR 8	F119627B	Inside		Zn	(Cu, Pb)
CAT 207	Eilean Olabhat, Western Isles	1, 7 OR 8	F119625B	Inside		Zn, Ag, Br	Cu Pb
CAT 207	Eilean Olabhat, Western Isles	1, 7 OR 8	F119628B	Outside			
CAT 209	Eilean Olabhat, Western Isles	?7 OR 8	F119597B	Outside		Mn	.
CAT 209	Eilean Olabhat, Western Isles	?7 OR 8	F119594B	Outside		Mn	
CAT 209	Eilean Olabhat, Western Isles	?7 OR 8	F119595B	Inside			Mn
CAT 209	Eilean Olabhat, Western Isles	?7 OR 8	F119596B	Rim			Mn
CAT 212	Eilean Olabhat, Western Isles	1, 7 OR 8	F119592B	Inside			

CAT 212	Eilean Olabhat, Western Isles	1, 7 OR 8	F119593B	Outside			
CAT 198	Eilean Olabhat, Western Isles	?	F119771B	Inside (residue)	Cu	Sn	(Pb, Br)
CAT 198	Eilean Olabhat, Western Isles	?	F119772B	Inside (residue)		Cu, Sn	Pb
CAT 198	Eilean Olabhat, Western Isles	?	F119773B	Inside			Cu Sn
CAT 201	Eilean Olabhat, Western Isles	?	F119726B	Inside (droplet)	Br**, Ag**	Cu, Zn, Sn, Pb	
CAT 201	Eilean Olabhat, Western Isles	?	F119727B	Inside (droplet)	Br**, Ag**, Cu*, Pb*	Zn, Sn, Pb, Bi	
CAT 201	Eilean Olabhat, Western Isles	?	F119731B	Rim		Br, Ag, Cu, Zn, Pb	
CAT 201	Eilean Olabhat, Western Isles	?	F199730B	Rim	Cu*, Sn		Zn, Pb
CAT 201	Eilean Olabhat, Western Isles	?	F119729B	Rim	Cu**, Sn	Zn, Pb	
CAT 201	Eilean Olabhat, Western Isles	?	F119728B	Inside		Cu, Zn, Pb	
CAT 201	Eilean Olabhat, Western Isles	?	F119732B	Outside			
CAT 216	Eilean Olabhat, Western Isles	?	F119584B	Rim		Mn	(Cu)
CAT 216	Eilean Olabhat, Western Isles	?	F119585B	Inside			
CAT 216	Eilean Olabhat, Western Isles	?	F119586B	Inside			(Cu, Zn)
CAT 216	Eilean Olabhat, Western Isles	?	F119587B	Inside		Mn	(Cu, Zn)
CAT 216	Eilean Olabhat, Western Isles	?	F119588B	Rim (deposit)	Mn	Cu	Zn, Sn
CAT 216	Eilean Olabhat, Western Isles	?	F119589B	Rim		Mn, Cu	
CAT 216	Eilean Olabhat, Western Isles	?	F119590B	Outside (deposit)		Mn	Cu, Zn
CAT 216	Eilean Olabhat, Western Isles	?	F119591B	Outside (deposit)	Mn	Cu	Sn, Zn
CAT 220	Eilean Olabhat, Western Isles	?	F119735B	Inside (spout)			
CAT 220	Eilean Olabhat, Western Isles	?	F119736B	Inside			(Zn)
CAT 220	Eilean Olabhat, Western Isles	?	F119737B	Outside			(Zn)
CAT 277	Fairyknowe, Stirlingshire	?4	Dungworth 1998a	Slag dribble	Sn	Cu	Zn, Pb
HH 397	Finavon, Angus	10	Nothing detected	Inside			
HH 398a	Finavon, Angus	?10 or mould	Nothing detected	Inside			
HH 398b	Finavon, Angus	?10	Nothing detected	Inside			
HH 398c	Finavon, Angus	?10	Nothing detected	Inside			
SF5078	Fisherrow East, East Lothian	1B	Clogg 2000	Inside		Cu, Sn	
SF5098	Fisherrow East, East Lothian	?1	Clogg 2000	Inside	Cu, Sn, Pb		
SF 5070	Fisherrow East, East Lothian	?	Clogg 2000	Inside			Nothing detected
SF 5111	Fisherrow East, East Lothian	?	Clogg 2000	Inside		Cu, Sn	
GNA 303	Foshigarry, North Uist	10	F118376B	Outside / vitrified			Cu? Zn?
GNA 303	Foshigarry, North Uist	10	F118377B	Outside			Cu? Zn?

GNA 303	Foshigarry, North Uist	10	F118374B	Inside			Cu? Zn? Pb?
GNA 303	Foshigarry, North Uist	10	F118375B	Inside			Cu? Zn? Pb?
GT 477	Garry lochdrach, North Uist	2A	F118346B	Outside/res	Cu, Zn	Pb, Sn	
GT 477	Garry lochdrach, North Uist	2A	F118347B	Outside/res	Cu, Zn	Pb, Sn	
GT 477	Garry lochdrach, North Uist	2A	F118348B	Outside	Zn	Cu	Pb, Sn
GT 479	Garry lochdrach, North Uist	10	F118373B	Outside			Cu? Zn?
GT 479	Garry lochdrach, North Uist	10	F118372B	Inside			Cu? Zn?
HR 1070	Gask House, Perthshire	?	F125443B	Inside deposit	Cu**, Zn**, Pb, Sn		
HTA 102	Hyndford, Ayrshire	?	F125449B	Red deposit			Cu
HTA 102	Hyndford, Ayrshire	?	F125449B	Red deposit			Cu
CAT 1	Iona, Argyll	1A	NMS	?	Cu		Sn
CAT 2	Iona, Argyll	7 OR 8	NMS	?	Cu		
CAT 3	Iona, Argyll	1A	NMS	?			Cu
GA 501	Keiss Harbour, Caithness	1A	F125440B	Rim deposit	Cu**, Zn**	Sn, Pb	
?	Loch Glashan, Argyll	8	Campbell pers comm	Inside and outside	Ag		Used for silver sulphide making, making niello
SF 1143	Loch na Berie, Lewis	1A	F9533B	Inside	Cu	Sn, Pb	Zn
SF 1143	Loch na Berie, Lewis	1A	F118360B	outside	Cu	Zn, Sn, Ag	Pb
SF 1143	Loch na Berie, Lewis	1A	F9532B	Outside		Cu	Zn
SF 1188	Loch na Berie, Lewis	?1A	F118363B	Outside			Cu? Zn?
SF 1188	Loch na Berie, Lewis	?1A	F118364B	Inside			Zn, Cu, Pb
SF 1194	Loch na Berie, Lewis	1A	F9530B	Inside / spout		Cu, Zn	Pb?
SF 1194	Loch na Berie, Lewis	1A	F9529B	Outside			Cu, Zn
SF 1207	Loch na Berie, Lewis	?	F118408B	Outside			Cu? Zn?
SF 1207	Loch na Berie, Lewis	?	F118407B	Inside (base)		Zn	Cu, Pb, Sn
SF 1208	Loch na Berie, Lewis	?1	F118397B	Outside			Cu, Pb, Zn
SF 1208	Loch na Berie, Lewis	?1	F9526B	Outside			Cu, Zn
SF 1208	Loch na Berie, Lewis	?1	F9525B	Inside	Zn	Cu, Pb	Sn
SF 1208	Loch na Berie, Lewis	?1	F118398B	Inside	Zn	Cu, Pb	Sn
SF 1215	Loch na Berie, Lewis	?	F118400B	Outside			Cu? Zn?
SF 1215	Loch na Berie, Lewis	?	F118399B	Inside		Zn	Cu, Pb
SF 1216	Loch na Berie, Lewis	?	F118410B	Outside			Cu? Zn?
SF 1216	Loch na Berie, Lewis	?	F118409B	Inside		Zn, Cu, Pb	

SF 1217	Loch na Berie, Lewis	?	F120356B	Inside (spout)	Cu	Pb, Sn, Ag, Zn	
SF 1217	Loch na Berie, Lewis	?	F118404B	Spout / residue	Cu	Pb, Sn, Zn, Ag	
SF 1217	Loch na Berie, Lewis	?	F120354B	Inside (purple deposit)	Cu	Pb, Sn, Zn, Ag	
SF 1217	Loch na Berie, Lewis	?	F120355B	Inside (purple stain)	Cu	Pb, Sn, Zn, Ag	
SF 1217	Loch na Berie, Lewis	?	F118405B	Inside / residue		Cu, Pb, Sn, Zn	Ag?
SF 1217	Loch na Berie, Lewis	?	F118406B	Outside			Cu, Sn
SF 1243	Loch na Berie, Lewis	1A	F118356B	Spout inside	Cu	Zn, Pb, Sn	Ni
SF 1243	Loch na Berie, Lewis	1A	F9527B	Inside	Cu	Zn, Pb, Sn	
SF 1243	Loch na Berie, Lewis	1A	F118358B	Outside / spout			Cu, Zn
SF 1243	Loch na Berie, Lewis	1A	F9528B	Outside			Cu, Zn, Pb, Sn
SF 1243	Loch na Berie, Lewis	1A	F118355B	Rim			Cu, Zn, Pb, Sn
SF 1243	Loch na Berie, Lewis	1A	F118357B	Outside			Cu, Zn, Pb, Sn
SF 1301	Loch na Berie, Lewis	1A	F118361B	Inside			Cu, Zn, Pb
SF 1301	Loch na Berie, Lewis	1A	F118362B	Outside			Cu? Zn?
SF 1595	Loch na Berie, Lewis	1A	F118351B	Inside	Cu	Zn, Sn, Pb	
SF 1595	Loch na Berie, Lewis	1A	F118353B	Residue in spout	Cu	Zn, Sn, Pb	
SF 1595	Loch na Berie, Lewis	1A	F118354B	Outside			Cu, Zn, Pb, Sn
SF A126	Loch na Berie, Lewis	10	F9531B	Outside			Cu, Zn
SF S237A	Loch na Berie, Lewis	?	F118391B	Spout / residue	Zn, Sn	Cu, Pb, Ni	
SF S237A	Loch na Berie, Lewis	?	F118392B	Outside		Zn	Cu, Ni
SF S237B	Loch na Berie, Lewis	?	F118393B	Inside (base)			Cu, Zn, Pb
SF S237B	Loch na Berie, Lewis	?	F118394B	Outside			Cu, Zn?
SF S238C	Loch na Berie, Lewis	?	F118401B	Inside / residue	Cu, Sn	Pb	Zn?
SF S238C	Loch na Berie, Lewis	?	F118402B	Outside		Cu, Sn	Pb? Zn?
SF S238C	Loch na Berie, Lewis	?	F118403B	Outside / deposit		Cu, Sn	Zn, Pb?
GAM 160a	Midhowe, Orkney	?1	F125426B	Outside / deposit		Cu	(Zn)
GAM 160a	Midhowe, Orkney	?1	F125427B	Outside / deposit		Cu	
GAM 160a	Midhowe, Orkney	?1	F125428B	Inside		Cu, Sn	(Zn)
GAM 160a	Midhowe, Orkney	?1	F125429B	Inside		Cu	Zn, Pb
GAM 160b	Midhowe, Orkney	?	F125430B	Inside deposit	Zn, Sn, Cu	Pb	
GAM 160b	Midhowe, Orkney	?	F125431B	Inside grey stain	Zn, Cu, Sn	Pb	
GAM 160b	Midhowe, Orkney	?	F125432B	Inside deposit	Zn, Cu, Sn	Pb	
GAM 160c	Midhowe, Orkney	1 OR 2	F125433B	Inside deposit	Zn**; Cu**, Pb, Sn		

GAM 160c	Midhowe, Orkney	1 OR 2	F125434B	Inside deposit	Cu**, Sn, Zn, Pb			
GAM 160c	Midhowe, Orkney	1 OR 2	F125435B	Inside red stain	Zn**	Cu, Pb	Sn	
SF 15	Moncrieffe, Perthshire	?	Close-Brooks 1985	?	Cu, Pb, Sn		Ag? & Ab?	see Stewart (1985, 144).
GA 684	Nybster, Caithness	?10	No readings	Inside				
GA 683	Nybster, Caithness	?10	No readings	Inside				
RF 20	Orphir or Lavacroon, Orkney	?	Bayley (pers comm)	Inside	Cu			Bayley (pers. comm). copper or one of its alloys
SF230	Picts Knowe, Dumfries-shire	1A	F123103B	Rim deposit	Zn**		Cu	
SF230	Picts Knowe, Dumfries-shire	1A	F123104B	Rim deposit	Zn**		Cu	
SF230	Picts Knowe, Dumfries-shire	1A	F123105B	Rim deposit	Zn**	Cu		
SF230	Picts Knowe, Dumfries-shire	1A	F123106B	Stain on outside		Zn		
CAT 1399 etc	Scalloway, Shetland	?1B	Campbell	Inside				Copper alloy
CAT 5406	Scalloway, Shetland	?5	Campbell	Inside	Au, Ag?			Silver & gold
CAT 5012	Scalloway, Shetland	1	Campbell	Inside				?
CAT 5414	Scalloway, Shetland	?	Campbell	Inside				Copper alloy
SSA00	Shanzie, Perthshire	1	F126255B	Outside				No reading
SSA00	Shanzie, Perthshire	1	F126256B	Inside				No reading
SSA00	Shanzie, Perthshire	1	F126249B	Inside				No reading
SSA00	Shanzie, Perthshire	1	F126250B	Inside				No reading
SSA00	Shanzie, Perthshire	1	F126251B	Inside				No reading
SSA00	Shanzie, Perthshire	1	F126254B	Outside				No reading
CAT 497	Sollas, North Uist	2A	Campbell 1991	?				Copper melting
CAT 499	Sollas, North Uist	?	Campbell 1991	?				Not analysed
	700 Tarbat, Inverness-shire	?	F127575B	Outside red deposit	Cu**			
	700 Tarbat, Inverness-shire	?	F127576B	Inside vitrified area	Cu**			
	703 Tarbat, Inverness-shire	?	F127550B	Inside		Sn	Br	
	703 Tarbat, Inverness-shire	?	F127551B	Inside deposit	Cu**, Sn, Pb		Ag	
	708 Tarbat, Inverness-shire	7A	F127577B	Inside green stain		Cu, Pb	Sn	
	708 Tarbat, Inverness-shire	7A	F127578B	Outside red stain		Cu, Pb		
	709 Tarbat, Inverness-shire	7A	F127900B	Inside grey area	Pb**, Cu			
	709 Tarbat, Inverness-shire	8A	F127901B	Inside grey area	Pb**, Cu			
	771 Tarbat, Inverness-shire	5 OR 7	F127792B	Inside deposit	Cu**, Zn*, Pb	Ag, Sn		
	771 Tarbat, Inverness-shire	5 OR 7	F127791B	Inside deposit	Cu**, Pb, Zn	Ag		

797 Tarbat, Inverness-shire	?	F127788B	Inside grey area	Zn, Cu, Pb, Ag, Sn		
797 Tarbat, Inverness-shire	?	F127787B	Inside deposit	Cu**, Pb**, Sn, Ag, Zn		
838 Tarbat, Inverness-shire	?	F127785B	Inside			
838 Tarbat, Inverness-shire	?	F127786B	Outside			
1137 Tarbat, Inverness-shire	7A	F127569B	Outside	Cu	Sn, Pb	
1137 Tarbat, Inverness-shire	7A	F127568B	Outside	Cu	Sn, Pb	
1175 Tarbat, Inverness-shire	1	F127572B	Inside purple deposit	Cu**		Sn, Pb, Zn
1175 Tarbat, Inverness-shire	1	F127573B	Inside red deposit	Cu**		Sn, Pb, Zn
1175 Tarbat, Inverness-shire	1	F127574B	Inside red deposit	Cu**		Sn, Pb, Zn
1509 Tarbat, Inverness-shire	?1	F127552B	Inside			Cu
1509 Tarbat, Inverness-shire	?1	F127553B	Inside		Cu, Sn	Pb, Zn
2547 Tarbat, Inverness-shire	?	F127565B	Outside red deposit		Cu	(Zn, Pb)
2547 Tarbat, Inverness-shire	?	F127566B	Outside			(Cu, Zn)
2547 Tarbat, Inverness-shire	?	F127567B	Inside red deposit			(Cu, Zn)
2583 Tarbat, Inverness-shire	?	F127558B	Inside	Cu**		Sn, Br
2583 Tarbat, Inverness-shire	?	F127559B	Inside	Cu**, Sn	Pb	
2583 Tarbat, Inverness-shire	?	F127560B	Inside	Cu**, Sn	Pb	
2583 Tarbat, Inverness-shire	?	F127561B	Inside	Cu, Sn		Pb
2737 Tarbat, Inverness-shire	?1	F127579B	Inside base			(Cu, Zn)
2737 Tarbat, Inverness-shire	?1	F127580B	Outside rim			(Cu, Zn)
3469 Tarbat, Inverness-shire	9	F127892B	Inside yellow deposit	Pb**	Sn	
3469 Tarbat, Inverness-shire	9	F127893B	Inside yellow deposit	Pb**	Sn	
3477 Tarbat, Inverness-shire	?	F127750B	Inside		Cu, Ag, Zn	Sn, Pb
3477 Tarbat, Inverness-shire	?	F127751B	Inside		Cu, Ag, Zn	Sn, Pb
3485 Tarbat, Inverness-shire	?7	F127891B	Inside deposit	Cu		Sn, Ag, Zn, Pb
3502 Tarbat, Inverness-shire	?	F127894B	Inside	Cu	Sn	Zn. Pb
3502 Tarbat, Inverness-shire	?	F127895B	Rim	Cu**		
3560 Tarbat, Inverness-shire	?	F127798B	Outside grey stain		Cu	(Zn)
3560 Tarbat, Inverness-shire	?	F127799B	Outside grey stain		Cu	
3560 Tarbat, Inverness-shire	?	F127800B	Inside grey stain		Zn Cu	(Pb)
3563 Tarbat, Inverness-shire	7 OR 8	F127793B	Inside deposit	Cu**, Ag** Zn, Pb, Sn		
3563 Tarbat, Inverness-shire	7 OR 8	F127794B	Inside deposit	Ag**, Br**, Cu, Sn	Zn	
3572 Tarbat, Inverness-shire	5 OR 7	F127801B	Outside deposit	Cu**		

	3572 Tarbat, Inverness-shire	5 OR 7	F127802B	Inside	Cu	Sn	
	3572 Tarbat, Inverness-shire	5 OR 7	F127803B	Inside	Cu	Sn	
	3585 Tarbat, Inverness-shire	?	F127795B	Inside lump		Cu	
	3585 Tarbat, Inverness-shire	?	F127796B	Inside deposit	Cu**	Sn	
	3585 Tarbat, Inverness-shire	?	F127797B	Inside grey deposit	Cu**	Sn	
	3913 Tarbat, Inverness-shire	7A	F127896B	Outside red deposit	Cu**, Zn, Pb, Sn		
	3913 Tarbat, Inverness-shire	7A	F127897B	Outside lump on rim	Cu**, Pb, Sn, Ag	Zn	
	3913 Tarbat, Inverness-shire	7A	F127898B	Outside red deposit	Cu, Pb	Zn, Sn	
	3913 Tarbat, Inverness-shire	7A	F127899B	Outside rim	Cu**, Sn, Pb		Zn, Ag
	4033 Tarbat, Inverness-shire	5 OR 7	F127554B	Inside glazed area	Cu**, Ag, Sn, Zn, Pb	Br	
	4033 Tarbat, Inverness-shire	5 OR 7	F127555B	Inside glazed area	Zn**, Br*, Cu, Ag, Sn	Pb	
	4033 Tarbat, Inverness-shire	5 OR 7	F127556B	Outside glazed area	Cu**		
	4033 Tarbat, Inverness-shire	?5 OR 7	F127557B	Inside glazed area	Zn, Cu	Pb	
	4260 Tarbat, Inverness-shire	1	F127888B	Outside red deposit	Cu**	Sn	
	4260 Tarbat, Inverness-shire	1	F127889B	Outside green deposit	Cu**, Sn		
	4260 Tarbat, Inverness-shire	1	F127890B	Outside orange deposit	Cu**, Ag, Sn		Zn, (Pb)
	4548 Tarbat, Inverness-shire	?	F127562B	Outside green deposit	Cu		Sn, Br
	4548 Tarbat, Inverness-shire	?	F127563B	Outside green deposit	Cu**, Sn**, Pb**, Zn**	Ag	
	4548 Tarbat, Inverness-shire	?	F127564B	Outside green deposit	Cu*	Sn	
	4569 Tarbat, Inverness-shire	7A	F127547B	Outside deposit	Br**, Ag**, Sn**, Cu, Zn, Pb	Sn	
	4569 Tarbat, Inverness-shire	7A	F127548B	Outside deposit	Br**, Ag**, Sn**, Cu	Zn, Pb	
	4569 Tarbat, Inverness-shire	7A	F127549B	Outside deposit			Cu
	4584 Tarbat, Inverness-shire	7A	F127887B	Outside rim deposit	Sn*, Cu*, Zn, Pb	Ag	
	4585 Tarbat, Inverness-shire	9A	F127581B	Inside	Pb**, Sn		
	4585 Tarbat, Inverness-shire	9A	F127582B	Inside	Pb**, Sn		
	4585 Tarbat, Inverness-shire	9A	F127583B	Inside	Pb**, Sn		
GVM 574	Traprain Law, East Lothian	1	F6870B	Red deposit, inner rim	Cu, Zn, Pb, Sn		Analysis by NMS
GVM 574	Traprain Law, East Lothian	1	F6871B	Inside, base, deposit	Cu, Zn, Pb, Sn	Ag	Analysis by NMS
GVM 574	Traprain Law, East Lothian	1	F6872B	Outside fabric	Cu, Zn, Pb, Sn		Analysis by NMS
GVM 574	Traprain Law, East Lothian	1	F6873B	Inside fabric	Cu, Zn, Pb, Sn	Ag	Analysis by NMS
GVM 575	Traprain Law, East Lothian	1	F6874B	Inside		Cu, Zn	Analysis by NMS
GVM 575	Traprain Law, East Lothian	1	F6875B	Outside		Zn	Analysis by NMS
GVM 576	Traprain Law, East Lothian	1	F6876B	Outside fabric	Zn, Pb, Sn	Cu	Analysis by NMS

GVM 576	Traprain Law, East Lothian	1	F6877B	Inside, vitrified area	Cu, Zn, Pb, Sn			Analysis by NMS
GVM 576	Traprain Law, East Lothian	1	F6878B	Inside, rim deposit	Cu, Zn, Pb, Sn		Ag	Analysis by NMS
GVM 576	Traprain Law, East Lothian	1	F6879B	Outside	Cu, Zn, Pb, Sn		Ag	Analysis by NMS
GVM 576	Traprain Law, East Lothian	1	F6880B	Outside deposit	Sn		Cu	Analysis by NMS
GVM 576	Traprain Law, East Lothian	1	F6881B	Inside	Cu, Zn, Pb, Sn			Analysis by NMS
no no (1)	Traprain Law, East Lothian	?4	F6882B	Inside		Cu Zn		Analysis by NMS
no no (1)	Traprain Law, East Lothian	?4	F6883B	Inside		Cu Zn		Analysis by NMS
GVM 577	Traprain Law, East Lothian	?10	F6884B	Outside		Cu Zn		Analysis by NMS
GVM 577	Traprain Law, East Lothian	?10	F6885B	Inside		Cu Zn	Pb	Analysis by NMS
GVM 578	Traprain Law, East Lothian	?1B	F6643B	Inside deposit	Zn, Pb, Sn		Cu	Analysis by NMS
GVM 578	Traprain Law, East Lothian	?1B	F6644B	Inside deposit	Zn, Pb, Sn		Cu	Analysis by NMS
GVM 578	Traprain Law, East Lothian	?1B	F6645B	Inside fabric	Zn, Pb		Cu, Sn	Analysis by NMS
GVM 579B	Traprain Law, East Lothian	?1	F6658B	Outside	Sn, Ag	Cu, Zn, Pb		Analysis by NMS
GVM 579B	Traprain Law, East Lothian	?1	F6659B	Inside	Sn, Ag	Cu, Pb	Zn	Analysis by NMS
GVM 579B	Traprain Law, East Lothian	?1	F6670B	Section	Sn, Ag	Cu, Zn, Pb		Analysis by NMS
GVM 579C	Traprain Law, East Lothian	?1A	F6671B	Inside base	Zn, Ag		Cu, Pb, Sn	Analysis by NMS
GVM 579C	Traprain Law, East Lothian	?1A	F6672B	Outside base			Cu, Zn	Analysis by NMS
GVM 579C	Traprain Law, East Lothian	?1A	F6673B	Section			Cu, Zn, Ag	Analysis by NMS
GVM 579 D	Traprain Law, East Lothian	?1A	F6640B	Outside deposit		Cu, Zn, Pb, Sn, Ag		Analysis by NMS
GVM 579 D	Traprain Law, East Lothian	?1A	F6641B	Inside deposit	Cu, Zn, Pb, Sn, Ag, Br			Analysis by NMS
GVM 579 D	Traprain Law, East Lothian	?1A	F6642B	Section		Ag	Cu, Zn, Pb, Sn	Analysis by NMS
no no (2)	Traprain Law, East Lothian	?1A	F6677B	Inside	Zn		Cu	Analysis by NMS
no no (2)	Traprain Law, East Lothian	?1A	F6678B	Outside	Zn		Cu	Analysis by NMS
no no (2)	Traprain Law, East Lothian	?1A	F6674B	Outside vitrified			Cu, Zn	Analysis by NMS
no no (2)	Traprain Law, East Lothian	?1A	F6675B	Outside vitrified			Cu, Zn	Analysis by NMS
GVM 580	Traprain Law, East Lothian	?	F6676B	Section			Cu, Zn, Pb	Analysis by NMS
GVM 580	Traprain Law, East Lothian	?	F6679B	Inside			Cu, Zn, Pb	Analysis by NMS
GVM 581	Traprain Law, East Lothian	?1A	F6751B	Inside base		Zn	Cu, Pb	Analysis by NMS
GVM 581	Traprain Law, East Lothian	?1A	F6752B	Outside	Cu, Pb	Zn		Analysis by NMS
GVM 582	Traprain Law, East Lothian	?1B	F6753B	Outside	Cu, Pb	Zn		Analysis by NMS
GVM 582	Traprain Law, East Lothian	?1B	F6754B	Inside	Zn		Cu, Pb	Analysis by NMS
GVM 583 (1)	Traprain Law, East Lothian	?1B	F6650B	Inside deposit	Cu, Zn		Pb, Sn	Analysis by NMS
GVM 583 (1)	Traprain Law, East Lothian	?1B	F6651B	Inside deposit	Cu, Zn, Pb, Sn			Analysis by NMS

GVM 583 (2)	Traprain Law, East Lothian	?1	F6743B	Outside	Zn		Cu, Pb	Analysis by NMS
GVM 583 (2)	Traprain Law, East Lothian	?1	F6744B	Inside	Cu, Zn		Pb, Sn, Ni	Analysis by NMS
GVM 583 (2)	Traprain Law, East Lothian	?1	F6745B	Inside deposit	Cu, Zn		Sn, Ni	Analysis by NMS
GVM 583 (3)	Traprain Law, East Lothian	?1	F6646B	Inside deposit	Cu, Zn, Sn		Pb, Ni	Analysis by NMS
GVM 583 (3)	Traprain Law, East Lothian	?1	F6647B	Inside deposit	Cu, Zn	Sn	Pb, Ni	Analysis by NMS
GVM 583 (3)	Traprain Law, East Lothian	?1	F6648B	Inside deposit	Cu, Zn		Sn, Pb, Ni	Analysis by NMS
GVM 583 (3)	Traprain Law, East Lothian	?1	F6649B	Section	Cu, Zn			Analysis by NMS
GVM 583 (4)	Traprain Law, East Lothian	?1	F6755B	Inside	Cu, Zn		Pb, Sn	Analysis by NMS
GVM 583 (4)	Traprain Law, East Lothian	?1	F6756B	Outside	Zn		Cu, Sn, Ni	Analysis by NMS
GVM 583 (5)	Traprain Law, East Lothian	?1	F6746B	Inside	Cu, Zn, Sn		Pb	Analysis by NMS
GVM 583 (5)	Traprain Law, East Lothian	?1	F6747B	Outside	Zn		Cu, Pb, Sn	Analysis by NMS
GVM 583 (5)	Traprain Law, East Lothian	?1	F6748B	Inside		Zn	Cu, Pb, Sn	Analysis by NMS
GVM 583 (6)	Traprain Law, East Lothian	?1	F6757B	Inside	Cu, Zn, Sn		Pb, Ni	Analysis by NMS
GVM 583 (6)	Traprain Law, East Lothian	?1	F6758B	Inside	Cu, Zn		Sn, Ni	Analysis by NMS
GVM 583 (6)	Traprain Law, East Lothian	?1	F6759B	Outside	Zn		Cu, Sn	Analysis by NMS
GVM 583 (7)	Traprain Law, East Lothian	?1	F6887B	Inside, vitrified	Zn	Cu	Pb	Analysis by NMS
GVM 583 (7)	Traprain Law, East Lothian	?1	F6888B	Outside	Zn	Cu	Pb	Analysis by NMS
GVM 583 (7)	Traprain Law, East Lothian	?1	F6889B	Outside vitrified	Zn	Cu	Pb	Analysis by NMS
GVM 583 (8)	Traprain Law, East Lothian	?1	F6890B	Outside fabric	Zn		Cu, Pb	Analysis by NMS
GVM 583 (8)	Traprain Law, East Lothian	?1	F6891B	Outside vitrified	Cu, Zn		Pb	Analysis by NMS
GVM 583 (9)	Traprain Law, East Lothian	?1	F6892B	Inside fabric	Cu, Zn		Pb, Sn, Ni	Analysis by NMS
GVM 583 (9)	Traprain Law, East Lothian	?1	F6893B	Inside deposit	Cu, Zn		Pb, Sn, Ni	Analysis by NMS
GVM 583 (9)	Traprain Law, East Lothian	?1	F6894B	Inside	Cu, Zn		Pb, Ni	Analysis by NMS
GVM 583 (9)	Traprain Law, East Lothian	?1	F6895B	Outside deposit	Cu, Zn, Pb, Sn		Ni	Analysis by NMS
GVM 583 (9)	Traprain Law, East Lothian	?1	F6896B	Outside		Zn	Cu, Pb, Ni	Analysis by NMS
GVM 583 (9)	Traprain Law, East Lothian	?1	F6897B	Outside deposit	Cu		Zn, Sn	Analysis by NMS
GVM 584 (1)	Traprain Law, East Lothian	?1	F6652B	Inside deposit	Cu, Pb, Sn			Analysis by NMS
GVM 584 (1)	Traprain Law, East Lothian	?1	F6653B	Black layer	Cu, Pb, Sn			Analysis by NMS
GVM 584 (1)	Traprain Law, East Lothian	?1	F6654B	Brown layer	Cu, Pb, Sn			Analysis by NMS
GVM 584 (1)	Traprain Law, East Lothian	?1	F6656B	White deposit	Cu, Pb, Sn			Analysis by NMS
GVM 584 (1)	Traprain Law, East Lothian	?1	F6655B	Black surface	Cu, Pb, Sn			Analysis by NMS
GVM 585 (2)	Traprain Law, East Lothian	?1B	F6929B	Outside	Zn	Cu	Pb, Sn, Ni	Analysis by NMS
GVM 585 (2)	Traprain Law, East Lothian	?1B	F6930B	Inside	Cu, Zn, Pb, Sn		Ni	Analysis by NMS

GVM 585 (2)	Traprain Law, East Lothian	?IB	F6931B	Inside	Zn, Pb	Cu, Ni	Analysis by NMS
GVM 585 (3)	Traprain Law, East Lothian	?1	F6977B	Inside deposit	Cu, Zn, Pb, Sn		Analysis by NMS
GVM 585 (3)	Traprain Law, East Lothian	?1	F6978B	Inside deposit	Cu, Zn, Pb	Sn	Analysis by NMS
GVM 585 (3)	Traprain Law, East Lothian	?1	F6979B	Inside fabric	Cu, Zn, Pn	Sn, Ni	Analysis by NMS
GVM 585 (3)	Traprain Law, East Lothian	?1	F6980B	Outside deposit	Cu	Zn, Sn	Analysis by NMS
GVM 585 (3)	Traprain Law, East Lothian	?1	F6981B	Outside deposit	Zn	Pb, Ni	Analysis by NMS
GVM 585 (3)	Traprain Law, East Lothian	?1	F6982B	Outside deposit		Cu, Zn, Pb	Analysis by NMS
GVM 586 (cat 27)	Traprain Law, East Lothian	?1A	F6812B	Inside	Zn	Cu, Pb, Sn	Analysis by NMS
GVM 586 (cat 27)	Traprain Law, East Lothian	?1A	F6813B	Outside		Cu, Zn, Pb, Sn, Ni	Analysis by NMS
GVM 586 (cat 27)	Traprain Law, East Lothian	?1A	F6814B	Inside deposit	Cu, Zn, Pb	Sn	Analysis by NMS
GVM 586 (Cat 28)	Traprain Law, East Lothian	?1A	F6898B	Outside deposit	Cu, Pb, Sn		Analysis by NMS
GVM 586 (Cat 28)	Traprain Law, East Lothian	?1A	F6899B	Inside	Cu, Pb, Sn	Zn, Ag	Analysis by NMS
GVM 586 (Cat 28)	Traprain Law, East Lothian	?1A	F6900B	Section	Cu, Pb, Sn	Zn, Ag	Analysis by NMS
GVM 586 (Cat 28)	Traprain Law, East Lothian	?1A	F6901B	Section	Cu, Pb, Sn	Zn, Ag	Analysis by NMS
GVM 586 (Cat 28)	Traprain Law, East Lothian	?1A	F6902B	Section	Cu, Pb, Sn	Zn	Analysis by NMS
GVM 586 (cat 29)	Traprain Law, East Lothian	?1A	F6815B	Outside	Zn	Cu, Pb, Sn, Ni	Analysis by NMS
GVM 586 (cat 29)	Traprain Law, East Lothian	?1A	F6816B	Inside	Zn	Cu, Pb, Sn, Ni	Analysis by NMS
GVM 586 (cat 30)	Traprain Law, East Lothian	?1A	F6723B	Inside rim	Cu, Zn, Pb, Ag, Br		Analysis by NMS
GVM 586 (cat 30)	Traprain Law, East Lothian	?1A	F6724B	Inside	Cu, Zn, Pb, Ag, Br		Analysis by NMS
GVM 586 (cat 30)	Traprain Law, East Lothian	?1A	F6725B	Inside	Zn	Cu, Pb, Sn, Ag, Ni	Analysis by NMS
GVM 586 (cat 30)	Traprain Law, East Lothian	?1A	F6726B	Section		Cu, Zn, Pb, Sn, Ag, Ni	Analysis by NMS
GVM 586 (cat 30)	Traprain Law, East Lothian	?1A	F6727B	Outside		Cu, Zn, Pb, Sn, Ag, Ni	Analysis by NMS
GVM 587 (cat 31)	Traprain Law, East Lothian	?4	F6906B	Outside deposit	Cu, Zn, Pb	Sn, Ag, Ni	Analysis by NMS
GVM 587 (cat 31)	Traprain Law, East Lothian	?4	F6707B	Inside deposit	Cu, Zn, Pb	Sn, Ag	Analysis by NMS
GVM 587 (cat 31)	Traprain Law, East Lothian	?4	F6708B	Inside deposit	Cu, Pb	Zn, Sn, Ag	Analysis by NMS
GVM 587 (cat 31)	Traprain Law, East Lothian	?4	F6709B	Inside fabric	Cu, Pb	Ag	Analysis by NMS
GVM 587 (cat 32)	Traprain Law, East Lothian	?	F6740B	Outside deposit	Cu, Zn	Pb, Sn, NI	Analysis by NMS
GVM 587 (cat 32)	Traprain Law, East Lothian	?	F6741B	Outside deposit	Cu, Zn, Pb	Sb	Analysis by NMS
GVM 587 (cat 32)	Traprain Law, East Lothian	?	F6742B	Outside fabric	Zn	Cu	Analysis by NMS
GVM 587 (cat 33)	Traprain Law, East Lothian	?1A	F6941B	Inside	Zn	Cu, Pb, Sn	Analysis by NMS
GVM 587 (cat 33)	Traprain Law, East Lothian	?1A	F6942B	Outside	Zn	Cu, Pb	Analysis by NMS
GVM 587 (cat 33)	Traprain Law, East Lothian	?1A	F6943B	Outside deposit	Zn	Cu, Pb	Analysis by NMS
GVM 587 (cat 33)	Traprain Law, East Lothian	?1A	F6944B	Inside deposit	Cu, Zn	Pb	Analysis by NMS

GVM 587 (cat 34)	Traprain Law, East Lothian	?1A	F6945B	Outside deposit	Cu, Zn	Pb	Analysis by NMS
GVM 587 (cat 34)	Traprain Law, East Lothian	?1A	F6946B	Outside	Cu	Zn, Pb, Ni	Analysis by NMS
GVM 587 (cat 34)	Traprain Law, East Lothian	?1A	F6947B	Inside deposit	Cu, Zn	Pb	Analysis by NMS
GVM 587 (cat 34)	Traprain Law, East Lothian	?1A	F6948B	Inside deposit	Cu, Zn, Pb, Sn		Analysis by NMS
GVM 587 (cat 34)	Traprain Law, East Lothian	?1A	F6949B	Inside deposit	Cu, Zn, Pb	Ni	Analysis by NMS
GVM 587 (cat 35)	Traprain Law, East Lothian	?	F6950B	Outside fabric		Cu, Zn, Pb	Analysis by NMS
GVM 587 (cat 35)	Traprain Law, East Lothian	?	F6951B	Outside deposit		Cu, Zn, Pb	Analysis by NMS
GVM 587 (cat 35)	Traprain Law, East Lothian	?	F6962B	Inside deposit	Cu, Pb	Zn, Sn	Analysis by NMS
GVM 587 (cat 35)	Traprain Law, East Lothian	?	F6953B	Inside deposit	Cu, Pb	Zn, Sn	Analysis by NMS
GVM 587 (cat 35)	Traprain Law, East Lothian	?	F6954B	Inside rim	Cu, Zn, Pb	Sn	Analysis by NMS
GVM 587 (cat 36)	Traprain Law, East Lothian	?7 OR 8	F6955B	Deposit	Cu, Zn	Pb, Sn, Ni	Analysis by NMS
GVM 587 (cat 36)	Traprain Law, East Lothian	?7 OR 8	F6956B	Inside deposit	Zn	Cu, Pb	Analysis by NMS
GVM 587 (cat 36)	Traprain Law, East Lothian	?7 OR 8	F6957B	Inside fabric	Cu, Zn, Pb	Ni	Analysis by NMS
GVM 587 (cat 36)	Traprain Law, East Lothian	?7 OR 8	F6958B	Outside deposit	Cu, Zn, Pb	Ni	Analysis by NMS
GVM 587 (cat 36)	Traprain Law, East Lothian	?7 OR 8	F6959B	Outside fabric	Zn, Pb	Ni	Analysis by NMS
GVM 587 (cat 38)	Traprain Law, East Lothian	?1	F6910B	Outside fabric	Pb	Cu, Zn	Analysis by NMS
GVM 587 (cat 38)	Traprain Law, East Lothian	?1	F6911B	Outside deposit	Cu, Pb, Sn, Ag		Analysis by NMS
GVM 587 (cat 38)	Traprain Law, East Lothian	?1	F6912B	Inside deposit	Cu, Pb, Sn	Ag	Analysis by NMS
GVM 587 (cat 38)	Traprain Law, East Lothian	?1	F6913B	Inside deposit	Cu, Pb, Sn	Ag	Analysis by NMS
GVM 587 (cat 38)	Traprain Law, East Lothian	?1	F6914B	Inside deposit	Cu, Pb		Analysis by NMS
GVM 587 (cat 39)	Traprain Law, East Lothian	?1A	F6819B	Outside		Cu, Zn, Pb	Analysis by NMS
GVM 587 (cat 39)	Traprain Law, East Lothian	?1A	F6820B	Inside	Cu, Zn	Pb	Analysis by NMS
GVM 587 (cat 40)	Traprain Law, East Lothian	?	F6821B	Outside deposit	Pb, Sn	Cu, Zn, Pb	Analysis by NMS
GVM 587 (cat 40)	Traprain Law, East Lothian	?	F6822B	Inside deposit	Cu, Pb, Sn		Analysis by NMS
GVM 587 (cat 40)	Traprain Law, East Lothian	?	F6823B	Inside deposit	Cu, Pb, Sn, Ag		Analysis by NMS
GVM 587 (cat 40)	Traprain Law, East Lothian	?	F6824B	Section	Cu, Pb, Sn	Zn, Ag	Analysis by NMS
GVM 587 (cat 40)	Traprain Law, East Lothian	?	F6825B	Section		Cu, Pb	Analysis by NMS
GVM 587 (cat 40)	Traprain Law, East Lothian	?	F6826B	Inside deposit	Cu, Pb, Sn, Ag		Analysis by NMS
GVM 587 (cat 41)	Traprain Law, East Lothian	?	F6925B	Outside fabric	Pb	Cu, Zn	Analysis by NMS
GVM 587 (cat 41)	Traprain Law, East Lothian	?	F6926B	Inside deposit	Cu, Pb, Sn		Analysis by NMS
GVM 587 (cat 41)	Traprain Law, East Lothian	?	F6927B	Inside fabric	Cu, Pb, Sn	Ag	Analysis by NMS
GVM 587 (cat 42)	Traprain Law, East Lothian	?1	F6919B	Inside deposit	Cu, Pb	Sn	Analysis by NMS
GVM 587 (cat 42)	Traprain Law, East Lothian	?1	F6920B	Inside fabric	Pb	Cu, Zn	Analysis by NMS

GVM 587 (cat 42)	Traprain Law, East Lothian	?1	F6921B	Outside	Cu, Zn			Analysis by NMS
GVM 587 (cat 43)	Traprain Law, East Lothian	?1	F6915B	Outside, glassy deposit	Sb	Zn	Cu, Pb	Analysis by NMS
GVM 587 (cat 43)	Traprain Law, East Lothian	?1	F6916B	Outside, glassy deposit	Sb	Cu, Zn, Pb		Analysis by NMS
GVM 587 (cat 43)	Traprain Law, East Lothian	?1	F6917B	Inside	Zn	Cu, Pb		Analysis by NMS
GVM 587 (cat 43)	Traprain Law, East Lothian	?1	F6918B	Outside fabric	Zn	Cu, Pb		Analysis by NMS
GVM 588 (cat 26)	Traprain Law, East Lothian	?5	F6903B	Outside deposit	Cu, Zn, Pb		Sn, Ni	Analysis by NMS
GVM 588 (cat 26)	Traprain Law, East Lothian	?5	F6904B	Outside fabric	Zn		Cu, Pb, Sn, Ni	Analysis by NMS
GVM 588 (cat 26)	Traprain Law, East Lothian	?5	F6905B	Inside fabric	Zn	Cu, Pb		Analysis by NMS
GVM 588 (cat 37)	Traprain Law, East Lothian	?1A	F6817B	Outside	Zn		Pb	Analysis by NMS
GVM 588 (cat 37)	Traprain Law, East Lothian	?1A	F6818B	Inside	Zn		Cu, Ni	Analysis by NMS
GVM 588 (cat44)	Traprain Law, East Lothian	?1	F6932B	Residue on rim			Cu, Zn	Analysis by NMS
GVM 588 (cat44)	Traprain Law, East Lothian	?1	F6933B	Outside deposit	Cu, Zn, Pb, Sn			Analysis by NMS
GVM 588 (cat44)	Traprain Law, East Lothian	?1	F6934B	Outside fabric	Zn		Cu, Pb	Analysis by NMS
GVM 588 (cat44)	Traprain Law, East Lothian	?1	F6935B	Inside, near rim	Cu, Zn, Pb, Sn			Analysis by NMS
GVM 588 (cat44)	Traprain Law, East Lothian	?1	F6936B	Inside, base of fragment	Zn	Pb	Cu	Analysis by NMS
GVM 588 (cat 45)	Traprain Law, East Lothian	?1B OR 5	F6937B	Inside deposit	Cu, Zn, Pb		Sn	Analysis by NMS
GVM 588 (cat 45)	Traprain Law, East Lothian	?1B OR 5	F6938B	Inside deposit	Zn		Cu, Pb	Analysis by NMS
GVM 588 (cat 45)	Traprain Law, East Lothian	?1B OR 5	F6939B	Outside fabric		Zn	Cu, Pb	Analysis by NMS
GVM 588 (cat 45)	Traprain Law, East Lothian	?1B OR 5	F6940B	Outside deposit	Cu, Zn		Pb, Sn	Analysis by NMS
GVM 588 (cat 46)	Traprain Law, East Lothian	?	F6989B	Inside	Cu, Zn			Analysis by NMS
GVM 588 (cat 46)	Traprain Law, East Lothian	?	F6990B	Inside			Cu, Zn	Analysis by NMS
GVM 588 (cat 46)	Traprain Law, East Lothian	?	F6991B	Inside			Cu, Zn	Analysis by NMS
GVM 588 (cat 46)	Traprain Law, East Lothian	?	F6992B	Outside			Cu, Zn	Analysis by NMS
GVM 588 (cat 46)	Traprain Law, East Lothian	?	F6993B	Outside			Cu, Zn	Analysis by NMS
GVM 588 (cat 46)	Traprain Law, East Lothian	?	F6994B	Inside	Cu, Zn		Ni	Analysis by NMS
GVM 588 (cat 47)	Traprain Law, East Lothian	?1A	F6728B	Inside	Cu, Zn, Ag, Br	Pb		Analysis by NMS
GVM 588 (cat 47)	Traprain Law, East Lothian	?1A	F6729B	Inside	Cu, Zn		Pb, Ag	Analysis by NMS
GVM 588 (cat 47)	Traprain Law, East Lothian	?1A	F6730B	Outside	Cu, Zn		Pb, Ag, Br	Analysis by NMS
GVM 588 (cat 47)	Traprain Law, East Lothian	?1A	F6731B	Outside deposit	Cu, Zn		Pb, Ag, Br	Analysis by NMS
GVM 588 (cat 47)	Traprain Law, East Lothian	?1A	F6732B	Outside deposit	Cu, Zn		Pb, Ag, Br	Analysis by NMS
GVM 588 (cat 48)	Traprain Law, East Lothian	?1A	F6738B	Inside deposit	Cu, Zn, Pb, Ag, Br			Analysis by NMS
GVM 588 (cat 48)	Traprain Law, East Lothian	?1A	F6739B	Inside fabric	Zn		Cu, Pb, Ag, Br	Analysis by NMS
GVM 588 (cat 49)	Traprain Law, East Lothian	?1B	F6995B	Outside deposit	Cu, Pb, Sn	Zn		Analysis by NMS

GVM 588 (cat 49)	Traprain Law, East Lothian	?1B	F6996B	Outside deposit	Cu	Sn	Zn, Pb	Analysis by NMS
GVM 588 (cat 49)	Traprain Law, East Lothian	?1B	F6997B	Outside deposit	Cu, Pb, Sn	Zn		Analysis by NMS
GVM 588 (cat 49)	Traprain Law, East Lothian	?1B	F6998B	Inside deposit	Cu, Zn, Pb, Sn			Analysis by NMS
GVM 588 (cat 49)	Traprain Law, East Lothian	?1B	F6999B	Inside deposit	Cu, Zn, Pb, Sn			Analysis by NMS
GVM 588 (cat 49)	Traprain Law, East Lothian	?1B	F7000B	Inside fabric	Zn	Cu, Pb		Analysis by NMS
GVM 588 (cat 49)	Traprain Law, East Lothian	?1B	F7001B	Inside deposit	Cu, Zn	Pb	Sn	Analysis by NMS
GVM 588 (cat 49)	Traprain Law, East Lothian	?1B	F7002B	Inside deposit	Cu, Zn, Sn	Pb		Analysis by NMS
GVM 588 (cat 50)	Traprain Law, East Lothian	?1A	F6733B	Inside deposit	Cu, Zn, Pb, Sn		Ag	Analysis by NMS
GVM 588 (cat 50)	Traprain Law, East Lothian	?1A	F6734B	Inside fabric	Zn, Pb	Cu	Sn, Ag	Analysis by NMS
GVM 588 (cat 50)	Traprain Law, East Lothian	?1A	F6735B	Outside deposit		Cu, Zn, Pb	Pb, Sn	Analysis by NMS
GVM 588 (cat 50)	Traprain Law, East Lothian	?1A	F6736B	Outside	Zn, Pb, Sn		Cu	Analysis by NMS
GVM 588 (cat 50)	Traprain Law, East Lothian	?1A	F6737B	Outside	Zn, Pb		Cu, Sn	Analysis by NMS
GVM 588 (cat 51)	Traprain Law, East Lothian	?1A	F6827B	Outside	Zn		Cu, Pb, Ni	Analysis by NMS
GVM 588 (cat 51)	Traprain Law, East Lothian	?1A	F6828B	Inside	Zn		Cu, Pb, Ni	Analysis by NMS
GVM 588 (cat 52)	Traprain Law, East Lothian	?	F7003B	Outside			Cu, Zn, Pb, Ni	Analysis by NMS
GVM 588 (cat 52)	Traprain Law, East Lothian	?	F7004B	Inside	Zn		Cu, Pb, Ni	Analysis by NMS
GVM 588 (cat 53)	Traprain Law, East Lothian	?	F6829B	Outside		Cu, Zn		Analysis by NMS
GVM 588 (cat 53)	Traprain Law, East Lothian	?	F6830B	Inside	Zn	Cu		Analysis by NMS
GVM 588 (cat 54)	Traprain Law, East Lothian	?	F6834B	Inside	Zn		Cu, Pb	Analysis by NMS
GVM 588 (cat 54)	Traprain Law, East Lothian	?	F6835B	Inside deposit	Zn		Cu, Pb	Analysis by NMS
GVM 588 (cat 54)	Traprain Law, East Lothian	?	F6836B	Outside	Zn		Cu, Pb	Analysis by NMS
GVM 588 (cat 55)	Traprain Law, East Lothian	?	F6831B	Outside	Zn		Cu, Pb	Analysis by NMS
GVM 588 (cat 55)	Traprain Law, East Lothian	?	F6832B	Inside	Zn		Cu, Pb	Analysis by NMS
GVM 588 (cat 55)	Traprain Law, East Lothian	?	F6833B	Inside deposit	Cu, Zn, Pb, Ag, Br			Analysis by NMS
GVM 588 (cat 56)	Traprain Law, East Lothian	?	F6837B	Outside deposit	Cu, Zn, Pb, Sn			Analysis by NMS
GVM 588 (cat 56)	Traprain Law, East Lothian	?	F6838B	Outside deposit	Cu, Zn, Pb, Sn			Analysis by NMS
GVM 588 (cat 56)	Traprain Law, East Lothian	?	F6839B	Outside	Zn, Pb		Cu, Sn	Analysis by NMS
GVM 588 (cat 56)	Traprain Law, East Lothian	?	F6840B	Inside	Zn, Pb	Cu	Sn	Analysis by NMS
GVM 588 (cat 56)	Traprain Law, East Lothian	?	F6841B	Inside deposit	Zn, Pb		Cu	Analysis by NMS
GVM 588 (cat 57)	Traprain Law, East Lothian	?	F6842B	Outside deposit	Cu, Zn		Pb	Analysis by NMS
GVM 588 (cat 57)	Traprain Law, East Lothian	?	F6843B	Outside deposit	Cu, Zn		Pb	Analysis by NMS
GVM 588 (cat 57)	Traprain Law, East Lothian	?	F6844B	Outside	Zn	Cu	Pb	Analysis by NMS
GVM 588 (cat 57)	Traprain Law, East Lothian	?	F6845B	Inside	Zn	Cu	Pb	Analysis by NMS

GVM 588 (cat 58)	Traprain Law, East Lothian	?	F6846B	Outside deposit	Cu, Zn	Pb	Analysis by NMS
GVM 588 (cat 58)	Traprain Law, East Lothian	?	F6847B	Outside deposit	Cu, Zn		Analysis by NMS
GVM 588 (cat 58)	Traprain Law, East Lothian	?	F6848B	Outside deposit		Cu, Zn, Pb	Analysis by NMS
GVM 588 (cat 58)	Traprain Law, East Lothian	?	F6849B	Outside fabric	Zn	Cu, Pb	Analysis by NMS
GVM 588 (cat 58)	Traprain Law, East Lothian	?	F6850B	Inside fabric	Zn	Cu, Pb	Analysis by NMS
GVM 588 (cat 58)	Traprain Law, East Lothian	?	F6851B	Inside deposit	Cu, Zn		Analysis by NMS
GVM 588 (cat 58)	Traprain Law, East Lothian	?	F6852B	Inside deposit	Cu, Zn		Analysis by NMS
no no (cat 59)	Traprain Law, East Lothian	?	F6853B	Outside		Cu, Zn, Pb	Analysis by NMS
no no (cat 59)	Traprain Law, East Lothian	?	F6854B	Inside		Cu, Zn, Pb	Analysis by NMS
no no (cat 59)	Traprain Law, East Lothian	?	F7005B	Section		Cu, Zn, Pb	Analysis by NMS
no no (cat 59)	Traprain Law, East Lothian	?	F7006B	Section		Cu, Zn, Pb	Analysis by NMS
no no (cat 60)	Traprain Law, East Lothian	1A	F6855B	Outside deposit	Cu, Sn	Zn	Analysis by NMS
no no (cat 60)	Traprain Law, East Lothian	1A	F6856B	Outside deposit	Cu, Zn, Pb, Sn		Analysis by NMS
no no (cat 60)	Traprain Law, East Lothian	1A	F6857B	Outside	Cu, Zn, Pb, Sn		Analysis by NMS
no no (cat 60)	Traprain Law, East Lothian	1A	F6858B	Inside	Cu, Zn, Pb, Sn		Analysis by NMS
no no (cat 61)	Traprain Law, East Lothian	1A	F6971B	Outside deposit	Cu, Zn	Pb, Ni	Analysis by NMS
no no (cat 61)	Traprain Law, East Lothian	1A	F6972B	Outside deposit	Cu, Zn	Pb, Ni	Analysis by NMS
no no (cat 61)	Traprain Law, East Lothian	1A	F6973B	Inside, rim, deposit	Cu, Zn, Pb	Sn, Ni, Sb	Analysis by NMS
no no (cat 61)	Traprain Law, East Lothian	1A	F6974B	Inside fabric	Zn	Cu, Pb, Sn, Ni, Sb	Analysis by NMS
no no (cat 61)	Traprain Law, East Lothian	1A	F6975B	Inside deposit	Zn	Cu, Pb, Ni	Analysis by NMS
no no (cat 61)	Traprain Law, East Lothian	1A	F6976B	Outside fabric	Zn	Cu, Pb, Ni	Analysis by NMS
(cat B27)	Traprain Law, East Lothian	?	F6983B	Inside deposit	Cu, Pb, Sn		Analysis by NMS
(cat B27)	Traprain Law, East Lothian	?	F6984B	Inside deposit	Cu, Pb, Sn		Analysis by NMS
(cat B27)	Traprain Law, East Lothian	?	F6985B	Inside deposit	Cu, Pb, Sn		Analysis by NMS
(cat B27)	Traprain Law, East Lothian	?	F6986B	Inside	Cu, Pb, Sn		Analysis by NMS
(cat B27)	Traprain Law, East Lothian	?	F6988B	Section	Cu, Pb, Sn	Zn	Analysis by NMS
(cat B27)	Traprain Law, East Lothian	?	F6987B	Outside	Cu	Zn	Analysis by NMS
(cat B28)	Traprain Law, East Lothian	?	F6863B	Outside	Cu	Zn, Pb	Analysis by NMS
(cat B28)	Traprain Law, East Lothian	?	G6864B	Inside deposit	Cu, Pb, Sn		Analysis by NMS
(cat B28)	Traprain Law, East Lothian	?	F6865B	Inside deposit	Cu, Pb, Sn		Analysis by NMS
(cat B28)	Traprain Law, East Lothian	?	F6866B	Inside	Cu, Pb	Zn, Sn	Analysis by NMS
(cat B29)	Traprain Law, East Lothian	?	F6867B	Inside	Pb, Sn	Cu, Zn, Sb	Analysis by NMS
(cat B29)	Traprain Law, East Lothian	?	F6868B	Inside	Cu, Pb, Sn, Sb		Analysis by NMS

(cat B29)	Traprain Law, East Lothian	?	F6869B	Outside	Pb		Cu, Zn	Analysis by NMS
GVB 54A (cat B31)	Traprain Law, East Lothian	?	F6967B	Inside deposit	Cu, Pb, Sn			Analysis by NMS
GVB 54A (cat B31)	Traprain Law, East Lothian	?	F6968B	Inside	Cu, Pb, Sn		Zn, Ni	Analysis by NMS
GVB 54A (cat B31)	Traprain Law, East Lothian	?	F6969B	Section	Cu, Pb, Sn		Zn, Ni	Analysis by NMS
GVB 54A (cat B31)	Traprain Law, East Lothian	?	F6970B	Outside	Cu, Pb, Sn		Zn, Ni	Analysis by NMS
GVB 54A (cat B31)	Traprain Law, East Lothian	?	F6071B	Outside	Cu, Zn		Pb	Analysis by NMS
GVB 54A (cat B35)	Traprain Law, East Lothian	?	F6922B	Outside	Cu		Zn, Pb, Ni	Analysis by NMS
GVB 54A (cat B35)	Traprain Law, East Lothian	?	F6923B	Inside deposit	Cu, Pb			Analysis by NMS
GVB 54A (cat B35)	Traprain Law, East Lothian	?	F6924B	Inside deposit	Cu, Pb			Analysis by NMS
GVB 54A (cat B36)	Traprain Law, East Lothian	?	F6960B	Section	Cu, Zn, Pb			Analysis by NMS
GVB 54A (cat B36)	Traprain Law, East Lothian	?	F6961B	Outside	Cu, Zn, Pb			Analysis by NMS
GVB 54A (cat B36)	Traprain Law, East Lothian	?	F6962B	Inside deposit	Cu, Pb		Zn, Sn	Analysis by NMS
GVB 54A (cat B36)	Traprain Law, East Lothian	?	F6963B	Inside deposit	Cu, Pb, Sn		Zn, Sn, Ni	Analysis by NMS
GVB 54A (cat B36)	Traprain Law, East Lothian	?	F6964B	Inside deposit	Cu, Pb		Zn, Sn	Analysis by NMS
GVB 54A (cat B36)	Traprain Law, East Lothian	?	F6965B	Inside deposit			Cu, Zn, Pb	Analysis by NMS
91/13939	Whithorn, Galloway	?	F5519B	?		Cu	Zn, Pb, Sn	Analysis by NMS/ Gilmour / Gooder
91/13939	Whithorn, Galloway	?	F5521B	?	Cu, Zn, Pb, Sn			Analysis by NMS/ Gilmour / Gooder
91/13625	Whithorn, Galloway	7 OR 8	F5529B	?		Cu, Zn, Pb, Ag		Analysis by NMS/ Gilmour / Gooder
90/11987/0	Whithorn, Galloway	?	F5538B	?		Zn, Pb		Analysis by NMS/ Gilmour / Gooder
90/11987/1	Whithorn, Galloway	1	F5539B	?	Cu, Zn, Pb	Sn		Analysis by NMS/ Gilmour / Gooder
88/8419	Whithorn, Galloway	1	F5542B	?	Cu, Zn, Pb	Sn		Analysis by NMS/ Gilmour / Gooder
88/8338	Whithorn, Galloway	?	F5545B	?	Zn	Cu, Pb		Analysis by NMS/ Gilmour / Gooder
88/8338	Whithorn, Galloway	?	F5544B	Outside	Zn	Cu, Pb		Analysis by NMS/ Gilmour / Gooder
91/13950	Whithorn, Galloway	?	F5562B	?	Cu	Zn, Pb		Analysis by NMS/ Gilmour / Gooder
91/13945	Whithorn, Galloway	?1	F5569B	?	Zn	Cu, Pb		Analysis by NMS/ Gilmour / Gooder
91/13913	Whithorn, Galloway	?	F5573B	?	Cu, Zn, Pb, Sn			Analysis by NMS/ Gilmour / Gooder
89/10511	Whithorn, Galloway	?	F5577B	?	Cu, Zn, Sn	Pb		Analysis by NMS/ Gilmour / Gooder
91/13389/1	Whithorn, Galloway	?	F5700B	?		Ag	Cu, Zn, Pb, Sn	Analysis by NMS/ Gilmour / Gooder
88/9533/0	Whithorn, Galloway	?1	F5702B	?	Cu	Zn, Pb		Analysis by NMS/ Gilmour / Gooder
89/10962	Whithorn, Galloway	?	F5704B	?	Cu, Zn, Pb		Sn	Analysis by NMS/ Gilmour / Gooder
91/14109/0-1	Whithorn, Galloway	?	F5706B	?	Zn		Pb	Analysis by NMS/ Gilmour / Gooder
91/14109/2	Whithorn, Galloway	?	F5708B	?	Zn		Cu, Pb	Analysis by NMS/ Gilmour / Gooder

Appendix D

REF NO	PROVENANCE	OBJECT MADE	SUMMARY DESCRIPTION
HH 725	Alltshellach, An Dunan	?	Three small fragments of baked clay, possibly from a mould
GR 19	Ardifuar, Argyll	Ingot (various)	Greenstone; large; with moulds for a semicircular object, a plain bar and an 'fish-tail' object on one side; flat oval mould on other side
CM 28	Arthur's Seat, Dunsapie, Midlothian	Ingot (various)	Mould of sandstone with matrices for a ring, horse-shoe shaped object, dumb-bell shaped object, and part of another ring,
GNB 93	Bac Mhic Connain, North Uist	Fitting	Upper valve for the production of a ?fitting. The produced object would have had three rings ordered in the shape of a triangle. No known Iron Age parallels.
GNB 94	Bac Mhic Connain, North Uist	Ring or annular object	Upper valve for the production of a ring or annular object. Not enough survives of the object to be sure of original shape. Positive keymarks around edge.
GNB 94	Bac Mhic Connain, North Uist	Ring or annular object	Upper valve for the production of a ring or annular object. Not enough survives of the object to be sure of original shape. Positive keymarks around edge.
GNB 95	Bac Mhic Connain, North Uist	Ingot	Clay mould for ingot, similar to X.GNB 96.
GNB 96	Bac Mhic Connain, North Uist	Ingot	Clay mould for ingot, similar to X.GNB 95.
GNB 97	Bac Mhic Connain, North Uist	Ingot	Stone mould for a small bar.
GNB 97	Bac Mhic Connain, North Uist	Ingot	Stone mould for a small bar.
GNB 118	Bac Mhic Connain, North Uist	Ingot	Stone mould for casting ingots and bars.
GNB 118	Bac Mhic Connain, North Uist	Ingot	Stone mould for casting ingots and bars.
unreg	Balevullin, Western Isles	?	Record of recent find. Not available to study by the author.
CAT 169	Balloch Hill, Argyll	Ingot?	Mould or crucible. Light grey ceramic with small internal deposit containing copper and tin oxides.
unreg	Berst Ness, Knowe of Skea	Pin	Record of recent find. Not available to study by the author.
unreg	Broch of Bowrick, Orkney	Crusie?	Mould for an iron crusie recorded as coming from here (Hedges 1987, 85) but no longer extant - likely, also not to be Iron Age
GE 39	Broch of Lingro, Orkney	? Projecting pin	Upper valve for the production of a projecting ring-headed pin. Broken at the head. Positive keying. Unfortunately the mould is broken at the point where the shaft meets the head, making it impossible to be sure what the pin would have been.
HB 300	Brough of Birsay, Orkney	St Ninian's Isle chape (brooch?)	Upper half of mould for penannular brooch, incomplete, zoomorphic terminals, oval cartouche with central setting.
HB 294	Brough of Birsay, Orkney	Penannular brooch bird-headed (Type Kb)	Upper half of two-piece mould for penannular brooch with zoomorphic terminals with cusps at junction to hoop. Oval cartouche with circular setting at top of hoop. Broken in three places and repaired.

HB 295	Brough of Birsay, Orkney	Penannular brooch bird-headed (Type Kb)	Lower half of a mould for HB 294.
HB 296	Brough of Birsay, Orkney	Penannular brooch bird-headed (Type Kb)	Fragment of Upper half of mould for penannular brooch, showing zoomorphic terminal similar to brooch HB 300.
HB 297	Brough of Birsay, Orkney	Penannular brooch bird-headed (Type Kb)	Fragment of Upper half of mould for penannular brooch, showing circular terminal.
HB 299	Brough of Birsay, Orkney	Penannular brooch bird-headed (Type Kb)	Lower half of mould for penannular brooch, terminals probably zoomorphic.
HB 298	Brough of Birsay, Orkney	Penannular brooch Type Jc	Upper half of mould for penannular brooch, slightly damaged, terminals trilobate with central circular setting and with two cusps, oval panel with circular disc at top of hoop.
HB 305	Brough of Birsay, Orkney	Penannular brooch type H	Upper half of mould for penannular brooch (incomplete) showing triangular terminals outlined by raised band with faint signs of ornamentation in centre, plain rings at junction with hoop.
HB 306	Brough of Birsay, Orkney	Penannular brooch type H	Upper half of mould for penannular brooch (incomplete) showing triangular terminals, plain rings at junction with hoop.
HB 307	Brough of Birsay, Orkney	Penannular brooch type H	Fragment of Upper half of mould for penannular brooch showing ends of triangular terminals.
HB 309a	Brough of Birsay, Orkney	Penannular brooch type H	Fragment of Upper of two piece mould for penannular brooch, showing ends of triangular terminals.
HB 309b	Brough of Birsay, Orkney	Penannular brooch type H	Fragment of Upper of two piece mould for penannular brooch, showing ends of triangular terminals. Similar to HB 309a.
HB 310	Brough of Birsay, Orkney	Penannular brooch type H	Lower half of mould for penannular brooch showing terminals with up-turned ends.
HB 301	Brough of Birsay, Orkney	Penannular brooch misc	Fragment of lower half of mould for penannular brooch, part of hoop and beginning of swelling for terminals.
HB 302	Brough of Birsay, Orkney	Penannular brooch misc	Fragment of lower half of mould for penannular brooch, part of hoop and terminal with large lobe.
HB 303	Brough of Birsay, Orkney	Penannular brooch misc	Upper half of mould for penannular brooch (incomplete), terminals circular, outlined by plain band; joined to wide hoop with plain band; oval panel with circular disc.
HB 304	Brough of Birsay, Orkney	Penannular brooch misc	Fragment of half of mould for penannular brooch showing part of hoop, and plain band for attachment to terminal.
HB 308	Brough of Birsay, Orkney	Penannular brooch misc	Fragment of lower half of mould for penannular brooch showing ingate and upper part of hoop.
HB 311	Brough of Birsay, Orkney	Ornamental fragments	Upper half of mould (incomplete) with matrix for bird's head in profile.
HB 312	Brough of Birsay, Orkney	Ornamental fragments	Lower half of mould (pair to 311), with matrices for 2 birds heads, one in profile, one in plan,
HB 313	Brough of Birsay, Orkney	Ornamental fragments	Fragment of mould with matrix for bird's head in profile (similar to 313).
HB 314	Brough of Birsay, Orkney	Ornamental fragments	Fragment of lower half of mould showing half of circular disc with central setting surrounded by pellets.

HB 315	Brough of Birsay, Orkney	Ornamental fragments	Fragment of upper half of mould with part of ingate leading to a small panel, vertical and horizontal depressions.
HB 316	Brough of Birsay, Orkney	Ornamental fragments	Part of bottom of upper half of mould, showing shallow hoop with rectangular panel enclosing horizontal lines.
HB 317	Brough of Birsay, Orkney	Ornamental fragments	Tiny fragment of mould with rectangular panel enclosing horizontal lines.
HB 318	Brough of Birsay, Orkney	Ring or annular object	Lower half of mould for finger ring with ornamental cluster of knobs.
HB 319	Brough of Birsay, Orkney	Ring or annular object	Lower half of mould for finger ring.
HB 320	Brough of Birsay, Orkney	Ring or annular object	Fragment of mould for finger ring; badly worn.
HB 321	Brough of Birsay, Orkney	Ring or annular object	Lower half of mould for a finger ring.
HB 322	Brough of Birsay, Orkney	Ring or annular object	Lower half of mould for finger ring with triangular extension.
HB 323	Brough of Birsay, Orkney	Ring or annular object	Lower half of mould; divided ingate for two objects, one of which is a ring.
HB 324	Brough of Birsay, Orkney	Ring or annular object	Fragment of mould for two rings.
HB 325	Brough of Birsay, Orkney	Ring or annular object	Mould; incomplete, for small wide ring.
HB 326	Brough of Birsay, Orkney	Ring or annular object	Circular fragment from Upper half of mould, probably broken off from the centre of a ring.
HB 340	Brough of Birsay, Orkney	Ring or annular object	Lower valve for a ring. Almost complete although lacking the top left hand part. Part of ingate surviving.
HB 341	Brough of Birsay, Orkney	Ring or annular object	Lower valve for a ?ring. Not enough of the object survives to be sure of original form.
HB 327	Brough of Birsay, Orkney	Stick pin with ornate head	End of lower half of mould showing ornamental head and part of shaft; possibly for dress pin.
HB 328	Brough of Birsay, Orkney	Ball-headed pin	Lower half of mould for three short thick pins with rounded heads.
HB 329	Brough of Birsay, Orkney	Animal-headed pin	Fragment of upper half of mould; matrix for two round headed pins, incomplete, remaining; similar to X.HB 328.
HB 330	Brough of Birsay, Orkney	Animal-headed pin	End of lower half of mould for pin with animal head.
HB 331	Brough of Birsay, Orkney	Ball-headed pin with collar / elliptical headed	End of the lower half of a mould showing one pin, incomplete end of lower half of mould; showing one pin, round head with collar, part of shaft with runner crossing to fragment of second similar pin.
HB 332	Brough of Birsay, Orkney	Ball-headed pin with collar / elliptical headed	Upper half of mould showing one complete pin with barrel shaped head with collar; traces of a second pin.
HB 333	Brough of Birsay, Orkney	Ball-headed pin	Lower half of mould (incomplete) for two pins with round heads. Similar to 332.
HB 334	Brough of Birsay, Orkney	Pin shafts	Fragment of lower half of mould for two pins, incomplete, shanks only.
HB 335	Brough of Birsay, Orkney	Pin shaft	Ingate and part of upper half of mould for shank of single pin.
HB 336	Brough of Birsay, Orkney	Pin shafts	Group of thirteen moulds for pins; 5 for multiple pins, 5 probably for single pins, 3 uncertain.
HB 357	Brough of Birsay, Orkney	Tacks or studs	Upper valve, broken on one side. For the production of double-headed tacks (matrix for three only remaining).
HB 358	Brough of Birsay, Orkney	Tacks or studs	Upper valve, broken on one side. For the production of double-headed tacks (remains of four surviving). Joins 359.

HB 359	Brough of Birsay, Orkney	Tacks or studs	Lower valve, broken at one side. For the production of double-headed tacks (remains of one surviving). Ingate surviving. Part of 358.
HB 360	Brough of Birsay, Orkney	Tacks or studs	Fragment of side of mould for the production of tacks. Surviving objects shows casting surface for one single-headed tack.
HB 361	Brough of Birsay, Orkney	Tacks or studs	Upper valve, broken at one side. For the production of double-headed tacks. Surviving surface shows the remains of three double-headed tacks.
HB 362	Brough of Birsay, Orkney	Tacks or studs	Upper valve, broken. Surviving casting surface shows flat head of single-headed tack.
HB 363	Brough of Birsay, Orkney	Tacks or studs	Lower valve, broken at one side. For the production of ?double-headed tacks (remains of one surviving). Ingate surviving. Similar to 364.
HB 364	Brough of Birsay, Orkney	Tacks or studs	Lower valve, broken at one side. For the production of double-headed tacks (remains of one surviving). Ingate surviving. Similar to 363.
HB 365	Brough of Birsay, Orkney	Tacks or studs	Upper valve, broken at one side. For the production of double-headed tacks (remains of two surviving). Ingate surviving. Similar to 363 and 364.
HB 366	Brough of Birsay, Orkney	Tacks or studs	Upper valve, broken on two sides. For the production of double-headed tacks. Matrix for three survive.
HB 367	Brough of Birsay, Orkney	Tacks or studs	Upper valve, broken on all sides. For the production of double-headed pins. Remains of two surviving.
HB 368	Brough of Birsay, Orkney	Tacks or studs	Lower valve, broken. For the production of single-headed pin with squared end to shank.
HB 369	Brough of Birsay, Orkney	Tacks or studs	Lower valve, broken. For the production of single-headed pin.
HB 570	Brough of Birsay, Orkney	Ingot	Fragment. Sandstone. Mould for one ingot
HB 571	Brough of Birsay, Orkney	Ingot	Fragment. Sandstone. Mould for one ingot. Re-used as a whetstone
HB 572	Brough of Birsay, Orkney	Ingot	Fragment. Sandstone. Mould for one ingot
HB 573	Brough of Birsay, Orkney	Ingot	Fragment. Surviving mould triangular. Ingot on one side; circular object on the other side.
HB 574	Brough of Birsay, Orkney	Ingot	Fragment. Steatite. Mould for one ingot.
HB 575	Brough of Birsay, Orkney	Ingot	Fragment. Steatite. Mould for two ingots. Made from a broken vessel
HB 576	Brough of Birsay, Orkney	Ingot	Fragment. Steatite. Mould for one ingot. Made from a broken vessel
HB 577	Brough of Birsay, Orkney	Ingot	Fragment. Steatite. Mould for 8 ingots of various shapes and sizes.
HB 578	Brough of Birsay, Orkney	Ingot	Fragment. Steatite. Mould for multiple ingots.
HB 337	Brough of Birsay, Orkney	Miscellaneous	Upper valve, broken just above ingate and at bottom. Signs of keying on one side. This valve joins 338. The surviving cast surface suggests that the object was slightly cigar shaped although not enough survives to reconstruct all of the shape. Possibly a plate.
HB 338	Brough of Birsay, Orkney	Miscellaneous	Lower valve, broken just above ingate and at bottom. This valve joins 337. The surviving cast surface suggests that the object was slightly cigar shaped although not enough survives to reconstruct all of the shape. Possibly a plate.
HB 339	Brough of Birsay, Orkney	Miscellaneous	Upper valve, broken. Similar perhaps to 337 and 338. Suggestion that the object was slightly cigar shaped, although not enough survives to be sure. Possibly a plate?

HB 342	Brough of Birsay, Orkney	Miscellaneous	Upper valve, broken at ingate and at bottom of object. The surviving mould preserves part of a ring with a ?knob at the top. It is unclear whether this was all that was made in the mould; the shape of the mould suggests that the surviving object was part of a larger, perhaps composite object.
HB 343	Brough of Birsay, Orkney	Miscellaneous	Upper valve, broken at top and bottom. Plate for rectangular hollow at centre. Unknown function.
HB 344	Brough of Birsay, Orkney	Miscellaneous	Lower valve, broken. The majority of the surviving mould is of the ingate and the top of a ?rectangular plate. Keying on one side.
HB 345	Brough of Birsay, Orkney	Miscellaneous	Upper valve, broken. Possibly for a plate. Object pointed at the top with what appears to be a bar running across it.
HB 346	Brough of Birsay, Orkney	Miscellaneous	Lower valve, broken at top and bottom. Not enough survives to be sure of original form although it appears to be for a shallow object (?plate) that was slightly bowed. Keymarks on both sides of the surviving mould.
HB 347	Brough of Birsay, Orkney	Miscellaneous	Lower valve, broken at top and bottom. Not enough survives to be sure of original form although it appears to be for a shallow object (?plate) that was slightly bowed.
HB 348	Brough of Birsay, Orkney	Miscellaneous	Upper valve, broken at top although most of the bottom survives. Although not enough of the original shape survives, the mould appears to be for the production of an object that terminated with a rectangular terminal. Probably a plate or mount.
HB 349	Brough of Birsay, Orkney	Miscellaneous	Lower valve, broken at top and bottom, preserving only the centre of the object. Two joining components: a tapering plate with a central raised rib which appears to join a ring at one end. Maybe a key?
HB 350	Brough of Birsay, Orkney	Miscellaneous	?Upper valve, broken at top and one side. For the production of a square or rectangular object with a hollow rectangle at one end. Unknown function or shape.
HB 351	Brough of Birsay, Orkney	Miscellaneous	Lower valve, broken at bottom though the top and associated sides survive. Negative keying on top and sides. The surviving casting surface suggests that a looped ring was produced.
HB 352	Brough of Birsay, Orkney	Miscellaneous	Lower valve, broken at bottom though the top and associated sides survive. Negative keying on top and sides. The surviving casting surface suggests that a sub-rectangular hollow object or link was made. Appears not to be for a buckle. May be part of a similar object, if not mould, produced by 353.
HB 353	Brough of Birsay, Orkney	Miscellaneous	Upper valve, broken at bottom. Ingate, top of object and sides survive. Evidence of positive keying. The surviving casting surface suggests that a sub-rectangular hollow object or link was made. Appears not to be for a buckle. May be part of a similar object, if not mould, produced by 352.
HB 354	Brough of Birsay, Orkney	Miscellaneous	Lower valve, broken on most sides. Negative keying visible on part of mould. For the production of sub-rectangular hollow object or link. The terminals do not appear to join. This may be a ?buckle.
HB 355	Brough of Birsay, Orkney	Miscellaneous	Lower valve. For the production of sub-rectangular hollow object or link. This may be a ?buckle.

HB 370	Brough of Birsay, Orkney	Miscellaneous	Upper valve, broken at top and bottom making reconstruction impossible. The surviving cast surface suggests that the object is for a ?triangular plate with a hollow triangular central area. The object appears terminate with circular shapes at the top.
HB 371	Brough of Birsay, Orkney	Miscellaneous	Lower valve, broken at top and bottom. Appears to preserve only the ingate and top of an unidentifiable object.
HB 373	Brough of Birsay, Orkney	Miscellaneous	Lower valve broken diagonally along one side. Negative keymarks survive. The surviving cast surface suggests that the object ended with a sub-triangular terminal. The surviving shape of the mould suggests that this is not a terminal for a brooch, but some other unidentifiable object.
HB 374	Brough of Birsay, Orkney	Miscellaneous	Upper valve, broken at top and bottom. Surviving cast surface suggests part of the objects was a tapering, expanding plate.
HB 375	Brough of Birsay, Orkney	Miscellaneous	Upper valve, broken at bottom, Signs of keying on sides. The casting face no longer survives and it is difficult to be sure what was being made.
HB 376	Brough of Birsay, Orkney	Miscellaneous	Lower valve broken at bottom. The object, now lacking its terminal would have been made up of long thin strip which appears to have tapered out, although this part is where the mould is broken. Seems to long for a pin - perhaps a spoon?
HB 381	Brough of Birsay, Orkney	Miscellaneous	?Lower valve. Curved mould, broken at top and one side. Casting surface preserves part of a bar.
HB 356i	Brough of Birsay, Orkney	Miscellaneous	Miscellaneous fragment showing part of curved object.
HB 356ii	Brough of Birsay, Orkney	Miscellaneous	Miscellaneous fragment showing part of curved object.
HB 356iii	Brough of Birsay, Orkney	Miscellaneous	Miscellaneous fragment showing part of curved object.
HB 356iv	Brough of Birsay, Orkney	Miscellaneous	Miscellaneous fragment showing part of curved object.
HB 356v	Brough of Birsay, Orkney	Miscellaneous	Miscellaneous fragment showing part of curved object.
HB 356vi	Brough of Birsay, Orkney	Miscellaneous	Miscellaneous fragment showing part of curved object.
HB 356vii	Brough of Birsay, Orkney	Miscellaneous	Miscellaneous fragment showing part of curved object.
HB 356viii	Brough of Birsay, Orkney	Miscellaneous	Miscellaneous fragment showing part of curved object.
HB 379	Brough of Birsay, Orkney	Miscellaneous	Miscellaneous fragment showing part of curved object.
HB 380	Brough of Birsay, Orkney	Miscellaneous	Miscellaneous fragment
HB 382	Brough of Birsay, Orkney	Miscellaneous	Fragment of mould (?bottom) for the production of a bulbous object.
HB 383	Brough of Birsay, Orkney	Miscellaneous	Fragment of mould (?bottom) for the production of a bulbous object.
HB 384-91	Brough of Birsay, Orkney	Miscellaneous	Numerous small fragments of miscellaneous moulds. All undiagnostic. Listed in Curle 1982 (113-4).
HB 372	Brough of Birsay, Orkney	Ingate	Ingate for mould.
HB 378	Brough of Birsay, Orkney	Ingate	Broken ingate or plug
HB 377	Brough of Birsay, Orkney	Miscellaneous	Circular plug
CAT 1354	Brough of Birsay, Orkney	?	Fragment with faint, worn impression.

CAT 1391	Brough of Birsay, Orkney	?	Fragment showing worn pouring gate
5224	Brough of Birsay, Orkney	?	Fragment showing key marks, possibly for a blade
5589	Brough of Birsay, Orkney	?	Fragment showing worn pouring gate
-	Broxmouth, East Lothian	Ingot	According to Hill (1982b, 188) an ingot mould apparently with traces of gold. Not studied by the author
HV 201	Buiston, Ayrshire	Ingot	Double ingot mould of sandstone. The obverse face has a bar mould with rounded ends measuring 79mm in length, 12.5mm in width, 11mm in depth. On the same face there is also a circular mould, 56mm in diameter, 15mm in depth. The reverse face has been heat-affected and is partially covered with a clay coating.
FN 724	Buiston, Ayrshire	Ingot	Sandstone ingot mould, ingots on two faces.
HD 2052	Carlungie, Angus	Ingot (various)	Stone; open mould with matrices on two surfaces; rectangular, bar shaped and mirror shaped matrices. From filling of souterrain, 2ft 2 inches above paving. Cat 136 (Wainwright 1963, 142, pl xxxix).
CM 50	Castle O'er, Eskdalemuir, Peebleshire	Ingot	Ingot mould. In storage. Not studied by the author.
47	Clatchard Craig, Fife	Penannular brooch H	Part of a upper valve for a large brooch with triangular terminals. The gate, which has lost some of its inner surface, has two splayed leads one running into each terminal of the brooch which was cast upside down. The expanded terminals were ornamented with raised mouldings outlining shaped panels and forming three transverse bars at the ends. The outer edge of the terminal had a flat flange outside the raised moulding, but the inner edge seems to be lost, since the division between the terminals continues to the broken edge of the mould. The surviving width across the terminals is 75mm; the original width across the hoop was around 120-130mm.
48	Clatchard Craig, Fife	Penannular brooch H	Part of a upper valve with a matrix for a brooch hoop. From colour, texture and size it could belong to mould 47. The hoop was 11 mm wide and convex in section with two raised mouldings along each edge. The mould seems to have been made with a central hole, unfilled by the added 'envelope'.
49	Clatchard Craig, Fife	Penannular brooch H	Upper valve of a mould with a brooch hoop matrix, probably part of 48. There is also part of a cusp, either for one end of a panel at the top of the hoop, or for the junction of hoop and terminal.
50	Clatchard Craig, Fife	Penannular brooch H?	Fragment, 25 mm long, of the edge of the same mould as 48 and 49, but without the matrix.

51 Clatchard Craig, Fife	Penannular brooch Jb	Lower valve of a mould for a penannular brooch with round terminals. This is part of the same mould as 52 where the valves have been keyed together by prominent ribs in the centre of the upper valve which fit sockets in the lower valve; there is also a notch on the edge of the back valve, partly covered by an extra layer of clay. The pouring gate must have been at the terminals (at the bottom). The surviving matrix is for part of the hoop and one round terminal of a penannular brooch about 60mm wide. The hoop as cast had a flat back, a convex front and a panel of fine linear decoration in relief. The two border lines stood higher than the transverse infill. The round terminal had a central boss, possibly with a flat top, surrounded by two fine raised mouldings, and was backed by a cusp.
52 Clatchard Craig, Fife	Penannular brooch Jb	Upper valve of a mould for a penannular brooch with round terminals. This is part of the same mould as 51 where the valves have been keyed together by prominent ribs in the centre of the upper valve which fit sockets in the lower valve. The pouring gate must have been at the terminals (at the bottom). The surviving matrix is for part of the hoop and one round terminal of a penannular brooch about 60mm wide. The hoop as cast had a flat back, a convex front and a panel of fine linear decoration in relief. The two border lines stood higher than the transverse infill. The round terminal had a central boss, possibly with a flat top, surrounded by two fine raised mouldings, and was backed by a cusp.
53 Clatchard Craig, Fife	Penannular brooch type H	Lower valve of a mould for two small decorated penannular brooches; associated with 54 and 55. The upper gate, 54, fits the lower 53, while the other upper piece 55 almost certainly fits 53 also, and has the same colour and texture. If 55 is not part of the same mould it belongs to an identical one. The mould has a double gate leading to the hoop of a brooch.
54 Clatchard Craig, Fife	Penannular brooch type H	Upper valve of a mould probably associated with 53 and 55. The piece fits the lower valve 53. The mould has a double gate leading to the hoop of a brooch.
55 Clatchard Craig, Fife	Penannular brooch type H	The upper valve of a mould for two small decorated penannular brooches, Associated with 53 and 54 (if 55 is not part of the same mould it belongs to an identical one). The front valve preserves only the terminals of one brooch and the hoop of the second, but it is most likely that the brooches were identical and made from the same pattern. From its terminals there are two leads to the hoop of a second brooch. The brooches were 27 mm wide, their backs plain and flat, their fronts decorated. The expanded terminals had a pattern of triple-twisted, two-line skeins in relief (impressed in the matrix) and a flat-topped knob where they met the hoop; in the centre of the hoop was a group of three small knobs surrounded by a band filled with fine transverse relief lines which circled tightly round the knobs and was itself interlaced to form another simple skein pattern.
56 Clatchard Craig, Fife	Penannular brooch type H	The lower valve of a mould similar to 53-55 for a brooch with expanded terminals, but not part of 53.
57 Clatchard Craig, Fife	Penannular brooch type H	Lower valve of a similar mould for two penannular brooches, but with the brooches cast upside down. There is a double lead from the gate to the brooch terminals.

58 Clatchard Craig, Fife	Penannular brooch type H	The lower valve of a mould similar to 57 and possible part of it and a joining fragment of the front valve, 59. NB: this appears to have another brooch coming off from the terminals
59 Clatchard Craig, Fife	Penannular brooch type H	The upper valve of a penannular brooch. Related to find 57 and 59. The mould has skein decoration on the brooch terminals identical to that on 55, and the matrices were probably made from the same pattern.
60 Clatchard Craig, Fife	?	?Upper valve with a gate and two leads. It is similar to 54, but cannot be compared closely since much of the surface of 54 is damaged. This may be part of a brooch mould.
61 Clatchard Craig, Fife	Fragment of brooch or ring	Small fragment of the edge of a front valve. The matrix is worn but preserves part of a ring, or the hoop of a brooch, decorated with raised lines and a transverse bar or stop at each end, similar in size to brooches 53-9. If this is the panel at the top of a brooch hoop, then the brooch was cast upside down like 58. If not a brooch, it may be the edge of some disc or ring-shaped object.
62 Clatchard Craig, Fife	Fragment of brooch or ring	Part of a mould for a large ring-shaped object, flat on one side, possibly the hoop of a large brooch at least 5 mm wide. Diameter perhaps around 110-20 mm.
63 Clatchard Craig, Fife	?	Lower valve with the matrix for a flat object with curved edge and a flat channel leading to it, either part of the object or a wide lead.
64 Clatchard Craig, Fife	?	Lower valve, the gate having two wide splayed leads to the corners of a flat plate. This had concave sides and two rounded corners, each with a knob on the matrix to make a rivet hole in the plate. Another tiny separate fragment preserves a third corner also with a rivet hole. Maximum width of object 42 mm.
65 Clatchard Craig, Fife	?	Lower valve with gate and single lead for a circular object slightly convex at the back, about 70 mm diameter.
66 Clatchard Craig, Fife	?	Lower valve, 42 mm long, with part of the gate and matrix for a curved object similar to 65.
67 Clatchard Craig, Fife	Disc?	Lower valve, 65 mm long, for a flat object with curved edge. The matrix has an uneven surface.
68 Clatchard Craig, Fife	Disc?	Lower valve for a thin fiat circular (?) object. If a complete disc, the diameter was about 120mm.
69 Clatchard Craig, Fife	Disc?	Lower valve, 38 mm long, with matrix for part of a flat object with curved edge.
70 Clatchard Craig, Fife	?	Lower valve, 30 mm long, thicker than 69, with similar matrix.
71 Clatchard Craig, Fife	?	Lower valve, 21 mm long, for a thin flat object with curved edge, probably a different mould to any of the above.
72 Clatchard Craig, Fife	?	Two pieces of the edge of a mould for a circular object, slightly convex on one side, about 80mm diameter, and 6 mm thick, so thinner than 62 above. Larger piece 24 mm long.
73 Clatchard Craig, Fife	Disc?	Lower valve for a circular object, convex at the back, about 50mm diameter. The matrix reaches the edge of the mould, there is no flange.
74 Clatchard Craig, Fife	?	Lower valve for a thin elongated object with flat back and curved end. Fragment 31mm long; object about 7 mm wide.

75 Clatchard Craig, Fife	?	Small fragment, 21 mm long, of the front valve for a plain flat object, with straight or possible concave side. If concave, this may be related to the back valve 64.
76 Clatchard Craig, Fife	?	Small fragment, 30 mm long, of mould for flat object with straight side.
77 Clatchard Craig, Fife	Ball-headed pin with collar?	Lower valve of a mould for three or more small pins. Joins 78. 29 mm long. The two pinhead matrices are for ball-shaped heads, flat on top, and there is part of the shaft of a third pin. Almost the whole depth of the pinhead is sunk in the back valve, so on the front valve it appears to be simply round. The key sockets of the edge of this mould are thin and elongated. The two pieces were found together.
78 Clatchard Craig, Fife	Ball-headed pin with collar?	Upper valve of a mould for three or more small pins. Joins 77. One pinhead survives although as the whole depth of the pinhead is sunk in the lower valve, 77, the pin on this upper valve appears to be simply round. The key sockets of the edge of this mould are thin and elongated.
79 Clatchard Craig, Fife	Ball-headed pin with collar?	Tiny piece of mould, 17 mm long, with the head of a pin. The pin had a round head topped by a flat disc.
80 Clatchard Craig, Fife	Ball-headed pin with collar?	Fragment of edge of mould with part of pin shaft, possibly from a mould similar to 78. Shaft 7mm long.
81 Clatchard Craig, Fife	Pin	Small burnt mould fragment, all edges broken, 15 mm long, with parts of two pin shafts side by side; possibly from a mould similar to 78.
82 Clatchard Craig, Fife	Pin	Lower valve, 32 mm long, with part of gate leading to a single narrow channel, perhaps a pin shaft.
83 Clatchard Craig, Fife	Pin	Fragment of a narrow mould, 20 mm long and 20 mm wide, with a single pin shaft, broken each end.
84 Clatchard Craig, Fife	Pin	Small burnt fragment of straight edge of mould, 19 mm long, with a pin shaft or rod having three transverse mouldings, and a trace of another shaft parallel to the first.
85 Clatchard Craig, Fife	Pin?	Upper valve of mould and gate, 42 mm long, with an irregular matrix for a pin shaft or a curved object. There is an elongated key on the face of the mould.
86 Clatchard Craig, Fife	?	Lower valve, 22 mm long, for a curved object with a flat back. If circular, the diameter was about 80 mm, and the ring is 3 mm wide. The mould was made as a ring with a hole in the middle, for both sides are preserved. At the bottom in the drawing there is a peculiar feature, for the object bends at 90° and sticks down into the mould like a short pin, 8mm long, not quite reaching the back.
87 Clatchard Craig, Fife	Handpin?	Upper valve, 27 mm wide, with a broad flat flange carrying three elongated keys. The central area has lost its surface and the right side is missing. The only trace of the matrix is a small blackened hole for a boss or rounded knob. This might be part of a handpin mould, with the pinhead about 10 mm wide; the shape and size are right and the surviving knob is in the correct position to be the end of a finger.
88 Clatchard Craig, Fife	?	Part of a gate from a upper valve and part of the matrix retaining a small rectangle, 11 mm by 7mm, with a raised edge.

89 Clatchard Craig, Fife	Ingate	Upper valve with broad lead
90 Clatchard Craig, Fife	Ingate	Upper valve with broad lead
91 Clatchard Craig, Fife	Ingate	Upper valve with single narrow lead or matrix or pin shaft, 24 mm long.
92 Clatchard Craig, Fife	Ingate	Upper valve
93 Clatchard Craig, Fife	Ingate	Lower valve
94 Clatchard Craig, Fife	Ingate	Lower valve split down the middle, 30 mm long.
95 Clatchard Craig, Fife	Ingate	Lower valve
96 Clatchard Craig, Fife	Ingate	Lower valve
97 Clatchard Craig, Fife	Ingate	Fragment.
98 Clatchard Craig, Fife	Ingate	Fragment
99 Clatchard Craig, Fife	Ingate	Fragment.
100 Clatchard Craig, Fife	Fragment of brooch or ring	Part of a large mould with the edge of a matrix for a ring or hoop, 24 mm long, thickened towards the middle. Possibly part of the large brooch mould 47.
101 Clatchard Craig, Fife	Penannular brooches misc	Seven small fragments of the edges of relatively thin moulds, the largest piece 22 mm long; most may belong to brooch moulds 538. Five fragments.
102 Clatchard Craig, Fife	Pins?	Four small fragments, the largest 18 mm long, broken from a long narrow mould or moulds, convex in section. No matrix preserved, but the shape suggests moulds for single pin shafts.
103 Clatchard Craig, Fife	?	Twenty-four fragments of moulds from 12 to 34 mm long, most tiny and without any trace of matrix.
104 Clatchard Craig, Fife	Disc?	Part of back valve 28 mm long with raised border and part of matrix for flat object with curved edge; similar to 69.
GA1270? Clivocast, Uyeasound, Shetland	Ingot	Part of a stone mould for casting a bar like object
? Clivocast, Uyeasound, Shetland	?	Half of a mould of steatite for casting an object of indeterminate function.

SF	Cnip, Lewis	Ring-headed or proto-handpin	Ring-headed pin mould. One valve of a bipartite mould, broken at the head. Made from fine brown oxidised clay with few inclusions, reduced to grey at the casting face. A skin of clay has been applied to the exterior to hold the two halves of the mould together. The shaft of the pin is defined by two prominent ridges. Rather than having keys to hold the mould together, the face is dished on either side of the pin impression to act as keying for corresponding convex areas on the other valve. The broken area contained the crucial details for identifying the pin type. It is a projecting ring-headed pin, with the plane of the head 4.5 mm in front of the shank. The face is lost, but the edge is preserved up to about half the head's original height and is plain, indicating it was not a beaded or rosette-headed pin. It could be either a plain ring-headed pin or a proto-handpin, where the crescent in the lower half is plain (Stevenson 1955, fig 13, nos. 2, 12): it is not possible on this evidence to discriminate between them. Extrapolating the frill extent of the head gives a pin of L some 75 mm, with a head of W 19 mm and H 20 mm, and a shank of L 55 mm and D 2.5 2.7mm.
GT 858	Cnoc a Comdhalach, Western Isles	Penannular brooch Type Jc	Lower valve of a two-piece mould and shows the front surface of a penannular brooch. About half of the left-hand terminal and part of the right survive. The form of the terminals is circular, with lobate extensions round the margins. The exact form of the terminal is difficult to reconstruct, but appears to have been composed of either three or four crescentic lobes separated by small circular settings each about 2mm in diameter. The central circular area has concentric rings around a circular indentation for a central setting. There is no cast decoration on the lobes. The circular terminal would have been about 15mm in diameter. Comparison with other brooches of similar form would suggest that the complete brooch would have measured around 60mm in diameter. The mould shows an incised keying mark on the margin, similar to those from the seventh-century metalworking area on the royal site of Dunadd, Argyll, but differing from those on other Pictish moulds from the Brough of Birsay (Lane & Campbell 2000, 202).
HH 793	Craigmarloch Wood, Renfrewshire	Pinhead?	Lower valve for the production of a ?pinhead
HH 885	Craig Phadraig, Inverness-shire	Hanging bowl mount	One half of a two piece mould used to cast a circular, slightly dished 'escutcheon', 2.5cms in diameter. Two opposed slightly raised 'pelta' shapes with a similar diamond shape between them made an openwork pattern
SF 13	Cullykhan, Grampian	?	Fragment of sand tempered clay. Irregular shape but with flat surface which may have been part of a mould.
SF 13	Cullykhan, Grampian	?	Fragment of sand tempered clay. Irregular shape but with flat surface which may have been part of a mould.
SF 39	Cullykhan, Grampian	?	Fragment of mould. Discodial pattern, diameter 18mm.
SF 39	Cullykhan, Grampian	?	Fragment of mould. Discodial pattern, diameter 18mm.
SF 39	Cullykhan, Grampian	?	Fragment of mould. Discodial pattern, diameter 18mm.
SF 158	Cullykhan, Grampian	?	Fragment of mould.

SF 196	Cullykhan, Grampian	Possible pattern	Bulbous button shaped piece of clay with sausage of clay across the back. Pattern for button moulds?
SF 44	Cullykhan, Grampian	Vitrified stone	Vitrified stone; possibly associated with non-ferrous metalworking
HH 577	Dalmahoy Hill, Midlothian	?	Miscellaneous mould fragment lacking diagnostic features
HH 496	Dirleton Crag Fort, East Lothian	Fastener or fitting	Lower valve. Claying lining on one side. Broken at top, bottom and left hand side. Possibly for a fitting, a strap fitting to a fastener.
CM 8	Dorzel, Aberdeenshire	Ingot	The mould has impressions for the casting of a dumb-bell shaped object, a horse-shoe shaped object, and bars of ingots
Oban - now lost	Dun an Fheurain, Argyll	Crusie?	Broken upper quern-stone fragment reused as a mould for a ?crusie, now lost. The quern is said to have been presented (along with other objects) to the Oban Scientific and Literary Society, but cannot now be found (Ritchie 1971, 109, no 44). The object was described by Anderson (1895, 279). 'The most remarkable feature of the stone, however, is that, after it was broken irregularly across, and thus rendered useless for grinding, the part of the flat grinding face was converted into a mould, for what at first site looked like a rather long and narrow flat axe-head of bronze. The cavity of the mould, however, does not conform to the shape a flat axe so closely as these founders' stone moulds usually do, and the probability is that it was a blacksmith's mould for fashioning a triangular crusie, by beating into it the red-hot plate of iron from which the shell of the crusie is formed'
GA 1069	Dun Beag, Skye	Ingot	Portion of a stone mould for an ingot
GA 1070	Dun Beag, Skye	Ingot (various)	Steatite mould with matrices for a ring, T-shaped object and bars
GA 1070	Dun Beag, Skye	Ingot (various)	Steatite mould with matrices for a ring, T-shaped object and bars
GA 1070	Dun Beag, Skye	Ingot (various)	Steatite mould with matrices for a ring, T-shaped object and bars
GA 1068	Dun Beag, Syke	Ingot (various)	Stone mould for casting a bar, made from a quernstone
GU 341	Dun Cuier, Barra	?	Open mould of white crystalline rock with triangular shaped 'terminal'
HHD 111	Dun Cul Bhuirg, Iona	Ingot	Ceramic; orange and brown; one has broad shallow groove approx 12 mm across, with part of mould or a piece of oven capping
HHD 95	Dun Cul Bhuirg, Iona	Ingot	Stone; large boulder 'ingot mould'; possibly trimmed; probably of sedimentary rock; ovoid depressions on two faces; one contains a single ovoid depression measuring about 180mm by 80mm and 20mm deep; the other has three differing ovoid shape
DMV. 217.DT	Dun Mor Vault, Tiree	Bar or ingot	Open mould for a bar or ingot constructed in a fragment of the upper stone of a flat rotary quern

DMV 360.AX	Dun Mor Vault, Tiree	Doorknob spearbutt	Mould for doorknob spearbutt. Five joining pieces form lower valve and in-gate for manufacture of a spear butt. Mould sub-circular in section. Fabric orange with little inclusions. Grey staining in internal shape mould with partial greying throughout where the mould has been in contact with the molten metal. This is wrongly identified by Raftery as a Lisnacrogher type, it is of the doorknob type (Raftery confuses the in-gate as part of the actual object). The complete in-gate for the half of the mould survives and is sub-circular in section and was made at the same time as the mould. A rectangular notch down the middle of the in-gate suggests some form of mechanism to hold the core for the socket. The mould has no remains of keying slots or notches, although the fragmentary nature of parts of the mould may not preserve such notches. However, the upper and lower valves of the mould would have fitted together by the two flat faces registering together, with perhaps the upper valve being slightly dished. A thick clay lining was clearly used to bind the two halves together. The mould is a two piece mould and not a single piece mould as suggested by MacKie (1974, 153). Although the m
DMV 360.AX	Dun Mor Vault, Tiree	Doorknob spearbutt	Mould for doorknob spearbutt. Five joining pieces form lower valve and in-gate for manufacture of a spear butt. Mould sub-circular in section. Fabric orange with little inclusions. Grey staining in internal shape mould with partial greying throughout where the mould has been in contact with the molten metal. This is wrongly identified by Raftery as a Lisnacrogher type, it is of the doorknob type (Raftery confuses the in-gate as part of the actual object). The complete in-gate for the half of the mould survives and is sub-circular in section and was made at the same time as the mould. A rectangular notch down the middle of the in-gate suggests some form of mechanism to hold the core for the socket. The mould has no remains of keying slots or notches, although the fragmentary nature of parts of the mould may not preserve such notches. However, the upper and lower valves of the mould would have fitted together by the two flat faces registering together, with perhaps the upper valve being slightly dished. A thick clay lining was clearly used to bind the two halves together. The mould is a two piece mould and not a single piece mould as suggested by MacKie (1974, 153). Although the m
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DMV 503.LO	Dun Mor Vault, Tiree	Doorknob spearbutt	Mould for doorknob spearbutt. Fragment of lower valve. Flat face which would have formed the joining plane with the upper valve survives, as well as the left hand impression of the edge of a doorknob spearbutt and ridge; broken just as the bulb of the spearbutt began. Mould broken at top, bottom and side – the in-gate does not survive. Sub-rectangular in section. Fabric orange with little inclusions. Grey staining in internal shape mould with partial greying throughout where the mould has been in contact with the molten metal. The mould has a large triangular slot for registration (18mm x 13mm x 8mm). The upper and lower valves of the mould would have fitted together by the two flat faces registering together, with perhaps the upper valve being slightly dished, and the triangular notches. Clay lining would have bound the two halves together. The spearbutt produced is a Doorknob (Type 2) (after Raftery 1982). Although only part survives it is still possible to reconstruct part of the cast object. The shaft (of which the top does not survive) would have been at least c45mm in length and c15mm in diameter. The ridge is quite pronounced being 2.5mm high. It is not possible to reconstruct t
DMV 365.OK	Dun Mor Vault, Tiree	Doorknob spearbutt	Mould for doorknob spearbutt. Fragment of upper valve and ingate. Flat face which would have formed the joining plane with the lower valve survives, as well as the left hand impression of the edge of a doorknob spearbutt and ridge; broken just as the bulb of the spearbutt began. Mould bottom and side. The in-gate survives in half and would have been circular in section. Actual mould sub-circular in section. Fabric orange with little inclusions. Grey staining in internal shape mould with partial greying throughout where the mould has been in contact with the molten metal. The mould has no remains of keying slots or notches. However, the upper and lower valves of the mould would have fitted together by the two flat faces registering together, with perhaps the upper valve being slightly dished (and perhaps other keying, such as the triangular notches seen on 503.LO, that do not survive). An extensive, thick clay lining illustrates how the two halves were held together. The mould is a two piece mould and not a single piece mould as suggested by MacKie (1974, 153). The spearbutt produced is a Doorknob (Type 2) (after Raftery 1982). Although only part survives it is still possible to reconstruct p
DMV GH	Dun Mor Vault, Tiree	Ring	Mould for curved object with protruding edge. One fragment of a lower valve for casting a curved object with remnants of a protruding edge. Mould sub-rectangular in section. No in-gate surviving. Fabric orange with little inclusions. Grey staining in internal shape mould with partial greying throughout where the mould has been in contact with the molten metal. Thickness of ring 2.5mm. The fragment of mould has no remains of obvious keying slots or notches.
DMV EB	Dun Mor Vault, Tiree	Ring	Mould for curved object. One fragment of a lower valve for casting a curved object, probably a ring. Mould sub-rectangular in section. No in-gate surviving. Fabric orange with little inclusions. Grey staining in internal shape mould with partial greying throughout where the mould has been in contact with the molten metal. The fragment of mould has no remains of obvious keying slots or notches although the surviving face outwith the ring is slightly dished. Thickness of ring 5mm.

DMV FE	Dun Mor Vault, Tiree	Ring	Mould fragment for curved object. One fragment of valve. Only ephemeral traces remain, although the object cast was slightly curved and now partly hidden by clay which fills part of the vast void. Sub rectangular in section. No in-gate surviving. Fabric orange with little inclusions. Grey staining in internal shape mould with partial greying throughout where the mould has been in contact with the molten metal. The fragment of mould has no remains of obvious keying slots or notches although one edge is slightly convex.
DMV FE	Dun Mor Vault, Tiree	?	Miscellaneous mould fragment. One fragment of valve. Sub-circular in section. Fabric orange with little inclusions. Grey staining in internal shape mould with partial greying throughout where the mould has been in contact with the molten metal. The fragment of mould has no remains of obvious keying slots or notches although one edge is slightly convex. Appears to be the remnants of the top and back of a mould with only slight remnants of the object cast. Circle impression on object cast perhaps indicative of decoration. Too little survives to be sure of object cast.
DMV EJ	Dun Mor Vault, Tiree	?	Miscellaneous fragment of fired ceramic. Incorrectly identified by MacKie as a mould for 'casting a circular object with concentric ridges' (ibid). These concentric rings are infact impressions (perhaps finger) on the outside of a dense ceramic that has been subsequently fired – the reduced grey patches are on the other side of these 'concentric rings'. Remnant of daub or similar fired material?.
DMV GF	Dun Mor Vault, Tiree	?	Miscellaneous fragment. A fragment of hard light grey pottery with a smooth concave surface. Not a mould or crucible fragment.
GP 221	Dunadd, Argyll	Penannular brooch Type D7	Lower valve for the production of a D& brooch. Complete. Negative keymarks around side and surviving ingate.
HPO 50	Dunadd, Argyll	Penannular brooch Type H	Fragment of a clay mould for penannular brooch with flat ends. Type H?
HPO 51	Dunadd, Argyll	Penannular brooch	Portion of a two-piece clay mould for casting a penannular brooch (?). Portion of decorated hoop panel remains with rounded ends. The panel contains five circular depressions, possibly for bosses, and a small interlace pattern. The mould is similar to the decorated hoop panels on the St. Ninian's Isle brooches (Duncan 1982, 74).
HPO 52	Dunadd, Argyll	Penannular brooch Type G3	Portion of a two-piece clay mould for casting a type G3 penannular brooch. One complete terminal, a portion of the second and a portion of the hoop remains. The terminals are squared, with a sunken lozenge between the two grooves.
HPO 54	Dunadd, Argyll	Penannular brooch misc	Portion of a two-piece clay mould, one key visible on the edge. For casting a penannular brooch although only a portion of the hoop remains.
HPO 57	Dunadd, Argyll	Penannular brooch misc	Portion of a two-piece clay mould for casting a penannular brooch. All that remains of the brooch is a portion of the hoop as it approaches the terminal.
HPO 58	Dunadd, Argyll	Penannular brooch Type H	Portion of a two piece-clay mould for casting a penannular brooch? Type H2? All that remains is a portion of the hoop and approximately one half of a squared terminal.

HPO 61	Dunadd, Argyll	Penannular brooch Type F3	Three quarters of a two-piece clay mould for casting a type F3 penannular brooch. A pouring channel leads from the casting surface and widens to form the funnel-shaped gate. The casting surface contains most of the hoop of a brooch and one half of a terminal. The terminal is squared with a groove at the junction of the hoop and the terminal. Two small circular depressions (2mm in diameter) form the remaining portion of the terminal.
HPO 63	Dunadd, Argyll	Penannular brooch misc	Portion of a two-piece clay mould for casting a penannular brooch. All that remains is the complete hoop of the brooch just approaching the, now broken off, terminals. The hoop is 2.5mm wide.
HPO 68	Dunadd, Argyll	Penannular brooch misc	Small fragment of a two-piece clay mould with what appears to be a curving channel (4mm wide) for a hoop of a penannular brooch.
HPO 79	Dunadd, Argyll	Penannular brooch misc	Small portion of a two-piece clay mould, no edges remain, with a curving channel, 5mm in width. Perhaps a portion of a penannular brooch.
HPO 80	Dunadd, Argyll	Penannular brooch misc	Portion of a two-piece clay mould with thick raised edges. with a curving channel, 5mm in width. Perhaps a portion of a penannular brooch.
HPO 82	Dunadd, Argyll	Penannular brooch Type D7	Portion of a two-piece clay mould for casting a small penannular brooch (Type D7?). A portion of the hoop and approximately one half of two terminals survive. The remaining portions of the terminals are squared and two bar-like depressions are visible on one terminal and one bar-like depression on the other.
HPO 83	Dunadd, Argyll	Penannular brooch Type H	Portion of two-piece clay mould, possibly for casting a penannular brooch. One key is visible on one edge. The lower portion of a hoop, approaching a disc-like terminal (H2?) remains on the casting surface. A circular depression is situated in the centre of the mould, serving as a key.
HPO 85	Dunadd, Argyll	Penannular brooch misc	Portion of a two piece clay mould with a worn channel leading to a curving channel (5mm in width) which is possibly part of a hoop of a penannular brooch.
HPO 130	Dunadd, Argyll	Penannular brooch Type G3	Portion of a two-piece clay mould for casting a type G3 penannular brooch. All that remains is one terminal and small section of the hoop. The terminal is squared with a sunken lozenge placed between two bar-like depressions.
HPO 147	Dunadd, Argyll	Penannular brooch misc	Portion of a two-piece clay mould. A channel (7mm wide) leads to a circular area. In the centre of this area is an arc-like ridge. Possibly the terminal and hoop of a penannular brooch.
HPO 177	Dunadd, Argyll	Penannular brooch misc	Portion of a two-piece clay mould. The surface is very worn but has a channel (2mm wide) which expands into a triangular area. Possibly a portion of a hoop and one terminal of a penannular brooch.
224	Dunadd, Argyll	Penannular brooch Type G	Small fragment of upper valve, front? face of Type G brooch. Part of one terminal and hoop, showing group of three transverse ribs.

225 Dunadd, Argyll	Penannular brooch Type G	Complete upper valve, front? face of Type G brooch. Sub-circular hoop, D. 31 mm., rounded cross-section, width 4 mm. Terminals bounded by single transverse ribs at both ends, with central lozenge bounded by four corner facets. Two faint raised ribs are present on the surface of the lozenge, running from the corners towards the centre. Ingate feeder semi-circular with rectangular runner to top of hoop.
297 Dunadd, Argyll	Penannular brooch Type G	Almost complete lower valve, back? face of Type G brooch. Hoop D. 32 mm., width c.5 mm., rounded cross section. Terminals bounded by single transverse ribs. Central lozenge and corner facets ill-defined and shallow.
658 Dunadd, Argyll	Penannular brooch Type G	Small fragment of lower valve of type G brooch. Ends of two terminals with transverse ribs. Traces of central lozenge.
668/2214 Dunadd, Argyll	Penannular brooch Type G	Large fragment of lower valve front? face of Type G brooch. Hoop D. 30 mm., width 5 mm., rounded cross-section. One terminal, showing single broad transverse ribs at both ends and shallow ill-defined lozenge and facets. Traces of a sunken lozenge. Ingate runner broad, tapering slightly towards ingate feeder which is flat sectioned.
760 Dunadd, Argyll	Penannular brooch Type G	Damaged fragment of lower valve, back face of Type G brooch. Edges of both terminals visible showing single transverse ribs and corner of lozenge. Hoop flat in section. Estimated D. c.30 mm. Much abraded.
837 Dunadd, Argyll	Penannular brooch Type G	Tiny fragment of upper valve, of Type G brooch. Part of one terminal showing single transverse ribs and ill-defined central lozenge. Much abraded.
840 Dunadd, Argyll	Penannular brooch Type G	Part of upper valve, front face of small Type G brooch. Hoop rounded in section, D. 22 mm., width 3 mm. Terminals with broad single transverse ribs. Corners faceted with central lozenge sunken, containing decoration of ring with central dot in relief.
841 Dunadd, Argyll	Penannular brooch Type G	About half of lower valve, back face of small Type G brooch. Hoop and terminals flat in section D. 18 mm., width 2 mm. Sub-rectangular terminals with ends of single transverse ribs protruding.
844 Dunadd, Argyll	Penannular brooch Type G	Almost complete front face of Type G brooch. Hoop rounded in section, D. c.36 mm., width c.5 mm. Terminals with broad transverse collars, each with two longitudinal grooves forming three ribs. Central lozenge ill-defined by corner facets, damaged, but may show sunken field with raised ring ornament
860 Dunadd, Argyll	Penannular brooch Type G	Part of an upper valve, front face of a Type G brooch. Hoop rounded in section, D. C. 34 mm. Terminals bound by broad transverse collars, each with two longitudinal grooves forming three ribs. Central lozenge plain, facets well defined.
863 Dunadd, Argyll	Penannular brooch Type G	Small fragment of lower valve, back? face of Type G brooch. Hoop elliptical in section. One terminal with faint single transverse ribs and ill-defined lozenge.
886 Dunadd, Argyll	Penannular brooch Type G	Large part of lower valve, front face of Type G brooch. Hoop rounded in section, D. 36 mm. Width c.6 mm. Terminals bounded by broad collars with traces of central groove forming two ribs on each. Central lozenge well defined, slightly sunken.

915	Dunadd, Argyll	Penannular brooch Type G	Small fragment of lower valve, front face of decorated Type G brooch. Hoop D. estimated c.45 mm. Terminals bounded by broad collars each with two longitudinal grooves forming three ribs. Lozenge well-defined, sunken field with raised circular pellet filling most of the area. One exterior facet is decorated with a simple double strand knot which is damaged but seems identical to those on 222. The other external facet is missing, but may have been similarly decorated.
927/1	Dunadd, Argyll	Penannular brooch Type G	Small fragment of lower valve, back? face of Type G brooch. Hoop D estimated C. 25 mm., section flat?. Terminals bounded by single transverse ribs. Lozenge and facets ill-defined and shallow.
1007/9	Dunadd, Argyll	Penannular brooch Type G	Small fragment of lower valve back? face of Type G brooch. Part of one terminal, bounded by single transverse ribs. Lozenge ill-defined.
1007/10	Dunadd, Argyll	Penannular brooch Type G	Almost identical to 1007/9, but the opposite terminal, possibly from same mould. Hoop rounded in section, estimated D. C. 32mm., width C. 6 mm.
1031/5	Dunadd, Argyll	Penannular brooch Type G	Small fragment of upper valve, front face of double mould for Type G brooches. One terminal, bounded by broad single transverse ribs. Central lozenge sunken with raised circular pellet filling most of field. Hoop D. small 25? mm. A feeder runs from one terminal rib to join the hoop of another brooch of similar size.
1066	Dunadd, Argyll	Penannular brooch Type G	Fragment of lower valve, back face of Type G brooch. Hoop and terminals flat in section, D. estimated 25 mm. One terminal damaged, other shows ends of transverse ridges and slight angling of facets.
1097	Dunadd, Argyll	Penannular brooch Type G	Large part of upper valve, back face of double mould showing one Type G brooch. Hoop elliptical in section, D. 22 mm., width 2.5 mm. Terminals bounded by single transverse ribs. Facets shallow and lozenge ill-defined. The brooch impression is orientated so that the feeder channel must have joined the side of the hoop, which lies perpendicular to the axis of the brooch. Although broken at this point, the shape of the mould suggests another brooch mould lay here originally by comparison with 1031/5
1117	Dunadd, Argyll	Penannular brooch Type G	Complete upper valve, back face of small Type G brooch. Hoop and terminals flat in half-section. Hoop D. 18 mm., width 2.5mm. Terminals square-ended with traces of angles showing facets and transverse ribs. Feeder channel irregular, roughly cut, ingate missing
1225/2	Dunadd, Argyll	Penannular brooch Type G	Part of upper valve, back face of Type G? brooch. Hoop and terminals flat in half section, only visible as reduction discolouration of mould fabric. Hoop D.24mm., width 3 mm. Terminals square-ended with traces of ends of transverse ribs. As feeder channel does not join top of hoop, this may be part of another multiple mould.
1225/3	Dunadd, Argyll	Penannular brooch Type G	Small fragment of upper valve, front face of Type G brooch. Only part of one terminal survives, bounded by transverse collar with two grooves forming three ribs. Facets well developed with sunken central lozenge containing raised ring with central dot ornamentation. From a brooch estimated D. 30A0 mm.

1407	Dunadd, Argyll	Penannular brooch Type G	Small fragment of lower valve of square-ended terminals of Type G? brooch. Single transverse ribs, one of which shows traces of what may be cable decoration as in 1799. Much abraded.
1505/1	Dunadd, Argyll	Penannular brooch Type G	Tiny fragment of upper valve of small Type G brooch. One terminal survives, damaged, but with single transverse ribs. Much abraded.
1536/6	Dunadd, Argyll	Penannular brooch Type G3?	Edge of upper valve with impression of two parallel curved bands about 4mm wide. Perhaps the terminals of a large type G£ brooch.
1675/1	Dunadd, Argyll	Penannular brooch Type G	Fragment of upper valve, front? face of Type G brooch. Hoop rounded in section, D. C. 34 mm., width c.4 mm. Terminal bounded by transverse collars with two longitudinal grooves forming three ribs. Lozenge and facets damaged, but lozenge may have been sunken. Abraded.
1675/2	Dunadd, Argyll	Penannular brooch Type G	Large part of upper? valve, front face of small Type G brooch. Hoop rounded in section, D. C. 24 mm. Terminals with single transverse ribs. Facets and lozenge well defined.
1793	Dunadd, Argyll	Penannular brooch Type G or H	Part of upper valve, back face of Type G or H brooch. One terminal, flat in section and square-ended survives as reduction impression on mould surface. Very abraded, possibly sub-rectangular type H brooch. D. estimated c.32 mm.
1799	Dunadd, Argyll	Penannular brooch Type G	Large part of lower valve, front face of decorated Type G brooch. Hoop rounded in section, D. 32 mm., width 5 mm. Terminals bounded by low transverse collars with two longitudinal grooves forming three ribs. The middle ribs are ornamented with cable decoration, each rib having opposite directions of twist (S and Z twist). The central lozenges are sunken. One has traces of a border with possible beaded decoration. The facets are shallow.
1805	Dunadd, Argyll	Penannular brooch Type G	Part of lower valve back? face of Type G brooch. Terminals with transverse single ribs at ends. The ribs are very close together compressing the facets and lozenges which are ill-defined. Two feeder channels lead into the terminal ribs from the top of the mould, the brooch being 'upside-down'.
1868	Dunadd, Argyll	Penannular brooch Type G	Tiny fragments of upper valve of Type G brooch. Part of one terminal showing transverse collar, possibly with three ribs. Lozenge possibly sunken.
164	Dunadd, Argyll	Type G brooch?	Very abraded brooch D.20 mm., possibly type G
615/5	Dunadd, Argyll	Penannular brooch bird head	Small fragment of lower valve, front face, showing ends of two terminals with opposed incurving beaks C. 10 mm. long. Edges of beaks raised, interiors sunken. Very abraded.
455	Dunadd, Argyll	Penannular brooch bird head	Small fragment of lower valve, front face, showing part of one terminal. The eye, D. 7 mm., fill the entire head and has a central boss D. 3 mm. surrounded by a beaded rim. The incurving beak is incomplete. Hoop width C. 3 mm. Estimated hoop D. 30mm

653 Dunadd, Argyll	Penannular brooch bird head	Almost complete lower valve, front face of small highly decorated bird-head brooch with square-ended hoop panel. The terminals have opposed incurving beaks with raised margins. The eyes, D. 6 mm., fill the entire head and have raised margins and sunken interiors. The hoop also has a raised margin and within the sunken field is a pattern of relief interlace decoration (Allen 1903, no.653). The hoop panel stands in relief above the hoop and is wider than the hoop. The sides of the hoop, the eye and the beak slope outwards at a steep angle and have milled decoration, but this does not extend onto the hoop-panel. . Mould thickness 7mm. Hoop D. 28 mm.,
757 Dunadd, Argyll	Penannular brooch bird head	One quarter of an upper valve, back face, of a small bird-head brooch. The surface is flat, showing two opposed incurving raptor beaks and the outline of one head. There are signs of a transverse rib at the junction of the head and hoop. Hoop D. 20 mm. Hoop width 2 mm. Size and design identical to 1098 but valves do not fit and fabrics differ.
1098 Dunadd, Argyll	Penannular brooch bird head	Virtually complete lower valve, front face of small bird-head brooch with square-ended hoop-panel. The terminals have opposed incurving beaks. The eyes are small, D. 2 mm., and stand in relief on the flat field of the head and beak. There is a raised transverse rib at the junction of the head and hoop. The hoop is rounded in section, D. 20 mm., width 2 mm., with a small rectangular hoop panel standing in relief. The ingate channel runs into the hoop panel. . Abraded. Size and form identical to 757, but valves do not fit.
1534/1 Dunadd, Argyll	Penannular brooch bird head	Small fragment of lower valve, front face of possible bird-head brooch. Two terminals apparently showing opposed incurving beaks and traces of an eye?. The mould has two layers, an upper buff clay and a lower orange/grey clay.
2215 Dunadd, Argyll	Penannular brooch bird head	Fragment of a lower valve, front face of a small bird-head brooch. One terminal survives with hooked incurved beak and large eye, D. 5 mm., occupying entire head and standing in relief. Hoop rounded in section D. 22 mm. Much abraded.
444 Dunadd, Argyll	Penannular brooch large dec	Small fragment of lower valve, front face of terminal from large penannular. The decoration consists of a series of recessed cells surrounded by an outer recessed border. Inside this border is a sub-rectangular panel with its inner edge curved to accommodate two circular panels, one of which is broken off in the mould. The decoration is part of a large terminal, presumably of triangular shape, similar to 1636. The diameter of the brooch is large, probably around 100 mm. The panels are 2 mm. deep.
807 Dunadd, Argyll	Penannular brooch large dec	Small fragment of lower valve, front face, of part of terminal from large decorated penannular. The decoration consists of recessed panels. The one nearer the hoop is a cusp, and the other is sub-rectangular with one edge concave and the other convex. The diameter of the brooch is large, probably around 90 mm. T. of brooch as cast C.4mm.

1636/1684/ 1725	Dunadd, Argyll	Penannular brooch large dec	Joining fragments of lower valve, front face, of terminal of large decorated penannular brooch. The terminals are triangular and separated by a gap of 4 mm. Not enough survives to indicate whether it was pseudo-penannular. The terminal is decorated with a series of recessed cells surrounded by a recessed border. At the junction with the hoop is a large cusp, separated from the rest of the terminal by a recessed border. In the centre of the terminal is part of a circular raised ring. The remainder of the terminal is divided into at least four cells by raised dividing lines. The surface is badly damaged. The terminal is 39 mm. wide at its maximum. The brooch would have been 3 mm. thick with the panels recessed by about 1 mm. Hoop diameter 95 mm.
Other fragments	Dunadd, Argyll	Penannular brooch large dec	Miscellaneous fragments (see Lane & Campbell 2000, 133)
151	Dunadd, Argyll	Penannular brooch misc	Large part of lower valve, back? face of penannular brooch. The mould is broken around the inside of the hoop. Traces of two oval or tear-shaped terminals with flat surfaces. Hoop diameter C. 50 mm., width 5-6 mm.
454	Dunadd, Argyll	Penannular brooch misc	Central part of lower valve, front face of penannular brooch. The terminals consist of a triangular group of three bosses linked by a simple single line knot motif. There is a small raised dot between the terminal and the hoop. There may be a raised rib at the hoop/terminal junction where the hoop expands. Hoop internal diameter 26 mm.
615/4	Dunadd, Argyll	Penannular brooch misc	Tiny piece of lower valve, front face of penannular brooch. Corners of two terminals, square-ended with circular bosses at exterior angle. The bosses have sunken centres, perhaps for insets. From a small brooch 30-40 mm. diameter.
676/680/ 833/835	Dunadd, Argyll	Penannular brooch misc	Large part of upper valve, back face of penannular brooch. The hoop and terminals are flat, surviving only as discolouration or slight impressions. Hoop D. 41mm., width 5 mm. Hoop panel, length 16 mm., form unknown. The terminal form is obscure, but seems to be square-ended with rectangular protrusions.
774	Dunadd, Argyll	Penannular brooch misc	Part of a lower valve, front face of penannular brooch. Almost half the brooch survives. Hoop D. estimated 30 mm., width 4mm., rounded half-section. Raised hoop-panel, square-ended, flat topped. The terminal is separated from the hoop by a cusp with raised border. The terminal is circular with raised border and sunken centre, possibly for inset. There is a trace of a projection from the outer edge of the terminal, suggesting a bird-headed terminal or other form rather than a simple circular terminal.
861/1	Dunadd, Argyll	Penannular brooch misc	Part of lower valve, front face of penannular brooch. Only the ingate and upper part of the hoop remain. Hoop D. C. 30 mm., width 4 mm., appears to have a recessed surface. There is a hoop panel with square ends, length 11 mm. In the centre is a boss 2 mm. square. The panel is recessed and appears to expand around the boss to a width of 6 mm. The feeder channel is crudely cut and the ingate flat sectioned. Badly abraded.

866	Dunadd, Argyll	Penannular brooch misc	Small part of terminals of large penannular brooch, back face. Only the ends of the terminals remain showing square ends with a central protrusion giving the terminal a frilled appearance. Width of terminal 15 mm.
1007/11	Dunadd, Argyll	Penannular brooch misc	Part of lower valve, front face of small penannular brooch. Hoop and part of hoop panel? remain. The hoop, D. 22 mm., width 3mm., has a stepped profile with raised borders. The inner border is higher than the outer. Within the recessed field is a raised longitudinal line. At one end of the hoop there is a raised semi-circular pellet D 3 mm. whose surface is level with the inner border of the hoop. This could be the end of a hoop panel or, less likely, a terminal, or merely a raised circular pellet.
1106	Dunadd, Argyll	Penannular brooch misc	Part of lower valve, front face of penannular brooch. Hoop D. c.42 mm., width 5 mm., rounded half-section. At one end is a trace of a rounded terminal end, possibly a cusp. At the other there is a hoop-panel, not central. A rectangular boss 2.5 x 4mm. separates this flat raised panel from the hoop. The panel is rectilinear and may have been decorated, but the surface is damaged.
1110	Dunadd, Argyll	Penannular brooch misc	Central part of upper valve, front face of penannular brooch. Hoop D. 50 mm., width 7 mm., rounded in half section. Central hoop-panel, square-ended. The panel is recessed with raised borders, width 8 mm., length 35 mm. The panel has not filled properly with clay giving it an irregular appearance. There may have been a raised rectangular boss at the junction with the hoop but the mould is damaged here (cf. 1106). The inner edge of both terminals are visible as semi-circular outlines with raised margins. The boss has been pushed through from the upper surface leaving an indentation
1436	Dunadd, Argyll	Penannular brooch misc	Part of upper valve, back face of large penannular brooch. Hoop D. 40 mm., width 8 mm., flat section. Hoop panel central, square-ended, slightly raised, width 8 mm., length probably 22mm. The hoop and terminals are only seen as discolouration of the mould surface. The terminal shape is indistinct, perhaps rectangular.
1455/4	Dunadd, Argyll	Penannular brooch misc	Small part of lower? valve, back face of large penannular brooch. Parts of two round terminals each 20 mm. D. Could be from circular or tear-shaped terminals. The central key shows that this is from a brooch and not a series of unconnected discs. Brooch D.estimated C.80 mm
1550/2	Dunadd, Argyll	Penannular brooch misc	Part of lower valve, back face of small penannular brooch. Only the square end of one terminal is visible.
1594	Dunadd, Argyll	Penannular brooch misc	About half of lower valve, front face of penannular brooch. Broken along inner hoop line. Hoop D. c.32 mm., width 5mm., rounded in half-section. No certain sign of hoop-panel. The terminals are teardrop shaped with raised margins and sunken, flat interiors. The point of the tear merges into the hoop. Attached to the margins of each terminal are three cusps, again with raised margins and sunken interiors. These are arranged one on each side of the terminal with the cusps pointing outwards.
1644	Dunadd, Argyll	Penannular brooch misc	Part of upper valve, back face of penannular brooch. Hoop is flat in half-section, D. estimated c. 55 mm., width 5 mm. Part of one expanded terminal, but the form is unclear.

1727/1	Dunadd, Argyll	Penannular brooch misc	Small part of lower valve, back face of penannular brooch. Hoop flat in section, D. estimated c.45 mm. Only a small part of the hoop and part of one terminal visible, consisting of a protrusion on the inner edge of the terminal.
1803	Dunadd, Argyll	Penannular brooch misc	Part of lower valve, back face of penannular brooch. Hoop flat in half section, D. 70 mm., width 6 mm. The edge of a hoop panel survives, possibly square ended.
HPO 89	Dunadd, Argyll	Nail-headed pin	Portion of a two-piece clay mould for casting two stick pins. One half of a nail headed pin is visible along one edge. A second nail headed pin with a small section of its shaft remaining is visible.
HPO 94	Dunadd, Argyll	Nail-headed pin	Portion of a two-piece clay mould for casting a nail-headed stick pin. The complete head and a portion of the shaft remain.
HPO 96	Dunadd, Argyll	Nail-headed pin	Portion of a two-piece clay mould for casting two nail headed stick pins. The two heads and most of the shaft remain, their points have broken off.
882	Dunadd, Argyll	Nail-headed pin	Part of mould with tiny part of flat-topped? pin head.
HPO 97	Dunadd, Argyll	Disc-headed and nail-headed	One half of one face of a two-piece clay mould for casting two stick pins, one nail headed, the other disc headed. The heads of both pins and a section of both shafts remain.
HPO 98	Dunadd, Argyll	Disc-headed and nail-headed	Portion of a two-piece clay mould for casting two stick pins, one disc headed, the other nail headed. Both heads and portions of their shafts remain.
HPO 128	Dunadd, Argyll	Disc-headed and nail-headed	Portion of a two-piece clay mould with a curving edge. The casting surface has a portion of a disc-headed stick pin and the top of a nail-headed pin.
HPO 92	Dunadd, Argyll	Ball-headed	Portion of a two-piece clay mould for casting a round or ball headed stick pin. The head and portion of the shaft remain.
674	Dunadd, Argyll	Ball-headed	Faceted ball-headed pin mould. Part of lower valve for faceted head pins. The pin has a spherical head, D. 6mm. decorated with a series of rough facets. Part of a second pin survives on the edge of the mould. There are traces of silver? corrosion products in the pin heads. Shaft is of circular section, D. 3 mm., length greater than 12 mm. Site 3(64) SF222
764	Dunadd, Argyll	Ball-headed	Faceted ball-headed pin mould. Part of lower valve of multiple pin mould for faceted head pins. One pin has a flat-topped spherical head with two rows of eight facets. Max. width 6 mm. Pin shaft of circular section, D. 3mm. Traces of a second pin survives on broken edge. Probably the same pin type as 674 which is less well preserved.
1901	Dunadd, Argyll	Ball-headed	Small part of multiple? pin moulds. Part of one or two pin heads of spherical shape.
HPO 90	Dunadd, Argyll	Dome-headed	Portion of a two-piece clay mould for casting a plain dome-headed stick pin. two keys are visible along one edge. The domed head and a small section of the shaft remains.
HPO 91	Dunadd, Argyll	Inverted-dome-headed	Portion of a two-piece clay mould for casting two stick pins. The casting surface has one pin, with complete inverse domed head and a small section of the shaft, and approximately one quarter of a second pin head, also inverse domed head, and one side of its shaft.
HPO 93	Dunadd, Argyll	Thistle-headed	Portion of a two-piece clay mould for casting a thistle-headed stick pin. Complete head and a portion of the shaft remain.

HPO 95	Dunadd, Argyll	Thistle-headed	Portion of a two-piece clay mould. A section of a thin (2.5mm) casting channel widening at the top as it approaches the gate remains.
1804	Dunadd, Argyll	Lozenge-headed pin	Part of a lower valve, front face of multiple pin mould. Part of head and shaft of one pin and traces of another identical one. Pin shaft round, D. 3 mm., straight sided. Between the shaft and the pin head there are two narrow ribs and one broader one, width 1mm. The pin head is flat and expands rapidly with convex sides. Only the lower half remains but the indications are of a lozenge headed shape. Within the slightly sunken field of the pin head is a row of raised dots along the margin. There are traces of a central V-shaped design, perhaps part of a lozenge. Lower face of mould has wood impressions
HPO 88	Dunadd, Argyll	Pin?	Small portion of a two-piece clay mould with raised edge. The casting surface is flat and has two oval depressions, one with a broken edge, which appear to be the heads of stick pins. No shafts remain.
HPO 100	Dunadd, Argyll	Pin?	Portion of a two-piece clay mould for casting a stick pin, only a section of the shaft and the point remain.
HPO 101	Dunadd, Argyll	Pin?	Portion of a two-piece clay mould for casting a stick pin? A thin straight channel (2mm wide) remains, possibly the shaft of a stick pin.
HPO 102	Dunadd, Argyll	Pin?	Portion of a two-piece clay mould for casting a stick pin. A straight channel (3mm wide) remains and what appears to be a portion of a nail head.
HPO 103	Dunadd, Argyll	Pin?	Portion of a two-piece clay mould for casting stick pins? All that remains are two straight parallel channels (2mm wide).
HPO 104	Dunadd, Argyll	Pin?	Portion of a two-piece clay mould for casting stick pins. One narrow (2.5mm) straight channel remains, a further channel was perhaps near the broken edge of the mould, only one side remains of it.
HPO 106	Dunadd, Argyll	Pin?	Portion of a two-piece clay mould for casting stick pins. The surviving portion of the mould consists of three straight channels (for shafts) of 3mm, 4mm and 2mm width.
HPO 108	Dunadd, Argyll	Pin?	Portion of a two-piece clay mould consisting of one narrow straight channel (2mm wide) either for a shaft of a stick pin or a casting channel.
HPO 136	Dunadd, Argyll	Pin?	Portion of a two-piece clay mould with raised edge. One straight channel (2mm wide) possibly for the shaft of a stick pin.
1209	Dunadd, Argyll	Pin?	Part of upper valve of pin mould. Round sectioned shaft, D. 2mm., length greater than 23 mm.
1268	Dunadd, Argyll	Pin?	Part of mould of semi-circular section, cylindrical form. In the centre is a pin? shaft, D 2.5 mm. Length 30 mm. The mould fabric is coarse with fine organic temper. The form of the mould is unusual
1536/4	Dunadd, Argyll	Pin?	Part of pin shaft, D. 2mm
1719	Dunadd, Argyll	Pin?	Part of pin shaft, D. 2mm.
GP 171	Dunadd, Argyll	Ingot	Oblong, rectangular cross-sectioned stone with an elliptical hollow on both the obverse and reverse face. The interiors of both hollows are smoothed and polished.

GP 198	Dunadd, Argyll	Ingot	Incomplete bar mould of schist consisting of a long narrow channel with rounded ends. Similar to examples from Mote of Mark (NMS HH 289).
GP 199	Dunadd, Argyll	Ingot	Complete bar mould of schist consisting of a long narrow channel with rounded ends.
GP 200	Dunadd, Argyll	Ingot	Complete bar mould of schist similar in shape to GP199.
GP 201	Dunadd, Argyll	Ingot	Portion of a bar mould of schist consisting of a narrow channel with rounded ends.
GP 202	Dunadd, Argyll	Ingot	Double ingot mould of sandstone. the obverse face contains two moulds, one circular in shape, 25.5mm in diameter, 8mm in depth. The other is sub-rectangular with concave ends and sides and a rounded base.
GP 203	Dunadd, Argyll	Ingot	Bar mould of schist consisting of a narrow channel with rounded ends. The mould tapers at one end. Two sides of the stone are smoothed and polished suggesting subsequent use as a polisher. .
GP 204	Dunadd, Argyll	Ingot	Double ingot mould of schist. The mould is damaged but contains two depressions on its obverse face. One is for a bar type mould. The second mould appears to be a larger version of the sub-rectangular concave example on GP202.
GP 205	Dunadd, Argyll	Ingot	Incomplete double bar mould which has been re-used as a socket stone. The obverse face contains one complete bar mould which tapers towards one end and a portion of a second bar mould. In addition, approximately three quarters of an annular depression with a raised centre survives, estimated diameter 19mm. This perhaps served as a bearing on some form of rotating spindle. On the reverse face is a small, shallow circular depression, 18mm in diameter, and the remains of a second, larger and deeper circular depression, estimated diameter 36mm, which suggest that the stone was re-used as a socket stone.
HPO 33	Dunadd, Argyll	Ingot	Portion of a bar mould consisting of a long narrow channel with one rounded end surviving.
HPO 34	Dunadd, Argyll	Ingot	Incomplete bar mould of schist consisting of a narrow channel with rectangular ends.
HPO 35	Dunadd, Argyll	Ingot	Double ingot mould of sandstone. The obverse face has a bar mould with slightly swelling sides and rounded ends, length 79mm, width 13mm, depth 7mm. The reverse face has a slightly wider bar mould with rounded ends, length 80mm, width 15mm; depth 5mm.
210	Dunadd, Argyll	Ingot	Two fragments from a sandstone ?ingot mould. the stone is heavily burnt. One end of the hollow survives on one face.
212	Dunadd, Argyll	Ingot	Rectangular ingot mould or schist. The mould groove is 11mm wide, 11mm deep and at least 62mm long with a U-shaped section and rounded end. The mould is broken at one end and port of the top has flaked off. Traces of vitrified deposits exist at the end of the groove.
432	Dunadd, Argyll	Ingot	Fragment of a schist ingot mould. The lower part of the stone has flaked off. There are two parallel bar-shaped ingots, the larger is at least 85mm long, 16mm wide and about 12mm deep; the smaller is at least 20mm long, about 8mm wide and 5mm deep. Both are U-shaped with rounded ends. There is the base of a circular mould on the lower surface.
512	Dunadd, Argyll	Ingot	Large slab of schist with ingot mould on one face.

735 Dunadd, Argyll	Ingot	Rectangular block of unworked schist with a bar-shaped ingot mould. The mould has rounded ends and is 105mm long, 10mm wide and 5mm deep. Much of the upper surface has flaked away.
1132 Dunadd, Argyll	Ingot	Large unworked boulder of epidiorite with a circular conical depression in one face. The sides of the hole (D 30mm, depth 23mm), are smoothed and black deposits line the bottom. Possibly an ingot mould, not a socket stone.
1147 Dunadd, Argyll	Ingot	Fragment of large block of schist. There is a rectangular cut in one end. W 12mm. This may be part of a broken ingot mould.
1310 Dunadd, Argyll	Ingot	Broken block of unworked basalt with a bar-shaped ingot-mould. The mould is U-shaped with a rounded end. Length at least 120mm, W 15mm, depth 12mm. The mould is blackened.
298 Dunadd, Argyll	Buckle	Almost complete lower valve, back face of buckle plate and tongue. The buckle-plate is integrated with the tongue and is sub-rectangular and flat, narrowing towards the tongue in a series of two scallops. Overall dimensions of the plate are 17 x 25 mm. The tongue is 5mm. wide and 13 mm. long. The end of the tongue curves sharply downwards. In the middle of the plate is a sub-rectangular lug, 3 x 2 mm which extends perpendicular to the rear face of the buckle plate. The bar would have been 15mm long and reaches the lower surface of the mould where a small amount of the original silver metal remains from the casting. The plate would have been at least 2 mm thick.
1314 Dunadd, Argyll	Buckle	Part of upper valve, back face of buckle plate. Flat rectangular panel 23 mm. wide, with protruding strip perpendicular to face. The strip is 9 mm. long and 4 mm. wide and penetrates through the thickness of the mould. Identified by comparison to 298.
1432 Dunadd, Argyll	Buckle	Complete lower valve of mould for a hinged buckle. The buckle is oval-shaped, or rather rectangular with semi-circular ends, measuring 28 x 14 mm. The buckle loop is of circular section. On one side is a hinge attachment consisting of three protrusions. The buckle loop in the adjacent area is of square section. The protrusions are not perforated and would have to be drilled out after casting. There is no sign of the core for the holes being held in the mould as is seen at the Brough of Birsay (Curle 1982, illus 19,351). The feeder channel is roughly cut and expands to a flat ingate.
165 Dunadd, Argyll	Fragment of brooch or ring	Part of ring D. c.20 mm. Keying consists of stab marks (vertical) and cuts on edge of ring.
214/1 Dunadd, Argyll	Fragment of brooch or ring	Part of ring.
214/2 Dunadd, Argyll	Fragment of brooch or ring	Part of ring with three grooves - ? Part of type G terminal
282 Dunadd, Argyll	Fragment of brooch or ring	Part of a brooch hoop.
317 Dunadd, Argyll	Fragment of brooch or ring	Part of a brooch hoop
378 Dunadd, Argyll	Fragment of brooch or ring	Part of a ring.
383 Dunadd, Argyll	Fragment of brooch or ring	Two L-shaped grooves, perhaps part of square-ended brooch terminals.
397 Dunadd, Argyll	Fragment of brooch or ring	Part of back of brooch hoop.
446 Dunadd, Argyll	Fragment of brooch or ring	Very abraded brooch? D.20 mm.

659 Dunadd, Argyll	Fragment of brooch or ring	Part of ring. Very gritty mould fabric.
660 Dunadd, Argyll	Fragment of brooch or ring	Part of brooch hoop, flat back 8 mm. wide. Large D.
672 Dunadd, Argyll	Fragment of brooch or ring	Part of ring and ingate?.
722 Dunadd, Argyll	Fragment of brooch or ring	Very abraded brooch? with central key.
849/1 Dunadd, Argyll	Fragment of brooch or ring	Part of ring and ingate? or link channel
853 Dunadd, Argyll	Fragment of brooch or ring	Ingate, feeder and part of ring.
927/3 Dunadd, Argyll	Fragment of brooch or ring	Part of a ring.
947 Dunadd, Argyll	Fragment of brooch or ring	Part of a ring D. 20 mm.
1007/6,7.8 Dunadd, Argyll	Fragment of brooch or ring	Parts of three rings
1104 Dunadd, Argyll	Fragment of brooch or ring	Part of a ring.
1133 Dunadd, Argyll	Fragment of brooch or ring	Part of a ring, D. 16 mm., width 3 mm. and ingate channel.
1174 Dunadd, Argyll	Fragment of brooch or ring	Part of a brooch hoop?. D. 25 mm., width 3 mm
1296 Dunadd, Argyll	Fragment of brooch or ring	Part of brooch Type G?, with terminal at ingate end of mould
1317 Dunadd, Argyll	Fragment of brooch or ring	Part of brooch? hoop and edge of terminal, mould unused.
1370/1 Dunadd, Argyll	Fragment of brooch or ring	Part of flat back of brooch hoop
1370/2 Dunadd, Argyll	Fragment of brooch or ring	Part of brooch hoop with raised bar Type G?
1414 Dunadd, Argyll	Fragment of brooch or ring	Part of ring D. 20 mm.
1424 Dunadd, Argyll	Fragment of brooch or ring	Part of feeder channel and ring
1455 Dunadd, Argyll	Fragment of brooch or ring	Part of feeder channel and ring
1476/1 Dunadd, Argyll	Fragment of brooch or ring	Part of brooch hoop?
1505 Dunadd, Argyll	Fragment of brooch or ring	Part of ring.
1536/1 Dunadd, Argyll	Fragment of brooch or ring	Part of brooch hoop, flat back width 6 mm. D. c.40 mm.
1536/2 Dunadd, Argyll	Fragment of brooch or ring	Part of two brooch terminals? with beaded borders.
1536/3 Dunadd, Argyll	Fragment of brooch or ring	Part of ring of disc.
1551/1-2 Dunadd, Argyll	Fragment of brooch or ring	Parts of two brooch hoops
1578/1 Dunadd, Argyll	Fragment of brooch or ring	Part of ring.
1637 Dunadd, Argyll	Fragment of brooch or ring	Part of a brooch hoop, flat back, width 4 mm. D. 22 mm.
1675 Dunadd, Argyll	Fragment of brooch or ring	Part of ring.
1685 Dunadd, Argyll	Fragment of brooch or ring	Central part of large brooch with central boss for keying, D. c.60mm
1738 Dunadd, Argyll	Fragment of brooch or ring	Ingate and part of brooch hoop
1816/5 Dunadd, Argyll	Fragment of brooch or ring	Part of brooch. D. c.20 mm. very abraded
1840 Dunadd, Argyll	Fragment of brooch or ring	4 fragments of rings or brooch hoops
1855/2 Dunadd, Argyll	Fragment of brooch or ring	Fragments of ring

2071	Dunadd, Argyll	Fragment of brooch or ring	Central part of brooch. D.c.35 mm.
GP 372	Dunadd, Argyll	Miscellaneous	Portion of a clay mould; bi-valve mould with gate; mould below gate is flat, lacing all the edges
HPO 55	Dunadd, Argyll	Miscellaneous	Portion of the raised edge of a two-piece clay mould with three distinct keys visible and one quarter of a circular depression remaining along the broken edge.
HPO 56	Dunadd, Argyll	Miscellaneous	Portion of the raised edge of a two-piece clay mould with two keys visible. Most of the casting surface has broken off.
HPO 60	Dunadd, Argyll	Miscellaneous	Portion of the raised edge of a two-piece clay mould. Most of the casting surface has been broken off, a groove directly below the raised edge was perhaps a portion of a channel.
HPO 60	Dunadd, Argyll	Miscellaneous	Portion of a curving two-piece clay mould with four keys along the outer edge. The casting surface has a thin curving groove 1mm in width.
HPO 74	Dunadd, Argyll	Miscellaneous	Portion of a two-piece clay mould with slightly raised edge directly below which is a curving channel or border. Two thin concentric grooves seem to encircle a central circular depression.
HPO 75	Dunadd, Argyll	Miscellaneous	Small fragment of a two-piece clay mould with raised edge. Only a portion of the casting surface remains, showing one edge of a sharply curving channel.
HPO 77	Dunadd, Argyll	Miscellaneous	Small portion of a two-piece clay mould with a slightly raised edge below which is a straight channel, 2mm in width.
HPO 84	Dunadd, Argyll	Miscellaneous	Portion of a two-piece clay mould showing approximately one half of a funnel shaped gate and a pouring channel (5mm in width) leading off from it.
HPO 86	Dunadd, Argyll	Miscellaneous	Portion of a two-piece clay mould with a funnel-shaped gate and a pouring channel leading to a circular object.
HPO 87	Dunadd, Argyll	Miscellaneous	Portion of a two piece clay mould for casting multiple objects. The funnel shaped gate and three casting channels leading from the gate remain. The main casting channel appears to lead to a circular object.
HPO 99	Dunadd, Argyll	Miscellaneous	Portion of a two-piece clay mould, one key visible along the edge. All that remains of the casting surface is a thin (2mm wide) straight channel.
HPO 105	Dunadd, Argyll	Miscellaneous	Portion of a two-piece clay mould. The remaining portion consists of the funnel-shaped gate and three narrow channels leading off from it.
HPO 107	Dunadd, Argyll	Miscellaneous	Portion of a two-piece clay mould. The casting surface is very worn and contains two casting channels, one 2mm wide, the other 5mm wide, joined by a short diagonal channel.
HPO 109	Dunadd, Argyll	Miscellaneous	Portion of a two-piece clay mould consisting of two straight channels (4mm and 3mm wide).
HPO 110	Dunadd, Argyll	Miscellaneous	Portion of a two-piece clay mould. The mould consists of a straight channel (4mm in width). A second channel appears to have run parallel to this, but has broken off.
HPO 111	Dunadd, Argyll	Miscellaneous	Portion of a two-piece clay mould consisting of a small section of a funnel-shaped gate and the casting channel leading off from it.
HPO 112	Dunadd, Argyll	Miscellaneous	Portion of a two-piece clay mould consisting of a narrow (2mm wide) casting channel, expanding as it approached a funnel shaped gate.

HPO 113	Dunadd, Argyll	Miscellaneous	Portion of a two-piece clay mould consisting of two narrow (1.5mm wide) channels which join together and then widen as they approach the gate.
HPO 114	Dunadd, Argyll	Miscellaneous	Portion of a two-piece clay mould consisting of a narrow channel (3mm wide) expanding to form a funnel-shaped gate.
HPO 115	Dunadd, Argyll	Miscellaneous	Portion of a two-piece clay mould consisting of a channel (4mm wide) expanding to form a funnel-shaped gate.
HPO 116	Dunadd, Argyll	Miscellaneous	Portion of a two-piece clay mould consisting of a narrow channel (2mm wide) expanding to form a funnel-shaped gate.
HPO 117	Dunadd, Argyll	Miscellaneous	Portion of a two-piece clay mould consisting of a funnel-shaped gate narrowing to form a short casting channel which leads to an oval depression.
HPO 118	Dunadd, Argyll	Miscellaneous	Portion of a two-piece clay mould consisting of one half of a funnel-shaped gate and one edge of a casting channel.
HPO 119	Dunadd, Argyll	Miscellaneous	Portion of a two-piece clay mould consisting of a funnel-shaped gate and two casting channels which intersect at the funnel but diverge as they approach the casting surface.
HPO 120	Dunadd, Argyll	Miscellaneous	Portion of a two-piece clay mould consisting of a funnel-shaped gate and three casting channels which intersect at the gate but diverge as they approach the casting surface.
HPO 121	Dunadd, Argyll	Miscellaneous	Portion of a two-piece clay mould consisting of a wide channel (8mm wide) leading to a funnel-shaped gate.
HPO 122	Dunadd, Argyll	Miscellaneous	Portion of a two-piece clay mould with raised edges which slope to form a wide channel (7mm wide).
HPO 123	Dunadd, Argyll	Miscellaneous	Portion of a two-piece clay mould consisting of a wide channel (12mm wide) leading into a funnel-shaped gate.
HPO 124	Dunadd, Argyll	Miscellaneous	Portion of a two-piece clay mould consisting of a funnel-shaped gate
HPO 125	Dunadd, Argyll	Miscellaneous	Portion of a two-piece clay mould consisting of a funnel-shaped gate
HPO 126	Dunadd, Argyll	Miscellaneous	
HPO 127	Dunadd, Argyll	Miscellaneous	Portion of a two-piece clay mould consisting of a funnel-shaped gate and two narrow concentric lines.
HPO 127	Dunadd, Argyll	Miscellaneous	Portion of a two-piece clay mould consisting of a funnel-shaped gate.
HPO 129	Dunadd, Argyll	Miscellaneous	Portion of a two-piece clay mould with raised edges. The casting surface has a concave curving channel (2mm wide) which intersects, near the top of its curve, with a slightly convex channel (2mm wide).
HPO 131	Dunadd, Argyll	Miscellaneous	Small fragment of clay mould, no impressions.
HPO 132	Dunadd, Argyll	Miscellaneous	Small fragment of clay mould, no impressions.
HPO 133	Dunadd, Argyll	Miscellaneous	Small fragment of clay mould, no impressions.
HPO 134	Dunadd, Argyll	Miscellaneous	Small fragment of clay mould, no impressions.
HPO 135	Dunadd, Argyll	Miscellaneous	Portion of a clay mould with a possible curving channel (5mm wide).
HPO 137	Dunadd, Argyll	Miscellaneous	Small fragment of a mould

HPO 138	Dunadd, Argyll	Miscellaneous	Portion of a two-piece clay mould, no edges remain. An oval shaped protrusion is situated in the middle of the remaining portion, on one side of which is a channel (7mm wide) of unknown purpose.
HPO 139	Dunadd, Argyll	Miscellaneous	Portion of a two-piece clay mould. The casting surface consists of two circular depressions (3mm wide) rather eye-like in appearance, contained by a V-shaped channel.
HPO 140	Dunadd, Argyll	Miscellaneous	Portion of a two-piece clay mould, no impressions remain.
HPO 141	Dunadd, Argyll	Miscellaneous	Portion of a two-piece clay mould with a raised edge and having one key visible. Below the edge is a concave incised line and on the casting surface is a circular depression (4mm wide). Purpose unknown.
HPO 142	Dunadd, Argyll	Miscellaneous	Portion of a two-piece clay mould, one key is visible on the outer edge. No impressions remain.
HPO 143	Dunadd, Argyll	Miscellaneous	Portion of a two-piece clay mould, no impressions remain.
HPO 144	Dunadd, Argyll	Miscellaneous	Portion of a two-piece clay mould. T-shaped bar in relief. Purpose unknown.
HPO 145	Dunadd, Argyll	Miscellaneous	Portion of a two-piece clay mould, the casting surface has two small, narrow grooves (1mm wide).
HPO 146	Dunadd, Argyll	Miscellaneous	Portion of a two-piece clay mould, raised edge which slopes down into a shallow scoop. No impressions remain.
HPO 148	Dunadd, Argyll	Miscellaneous	Portion of a two-piece clay mould consisting of a channel (5mm wide), which intersects a second channel at right angles. Possibly connecting channels between casting surfaces?
HPO 149	Dunadd, Argyll	Miscellaneous	Portion of a two-piece clay mould, No impressions remain.
HPO 150	Dunadd, Argyll	Miscellaneous	Portion of a two-piece clay mould. The edge slopes down to the casting surface which has been broken off.
HPO 151	Dunadd, Argyll	Miscellaneous	Portion of a two-piece clay mould, the casting surface is worn but appears to have some decoration in relief.
HPO 152	Dunadd, Argyll	Miscellaneous	Fragment of a clay mould for an indeterminate object
HPO 153	Dunadd, Argyll	Miscellaneous	Portion of a two-piece clay mould with a wide channel (12mm wide) leading to a funnel-shaped gate.
HPO 154	Dunadd, Argyll	Miscellaneous	Portion of a two-piece clay mould with a portion of a narrow channel (2mm wide). Possibly the shaft of a stick pin.
HPO 155	Dunadd, Argyll	Miscellaneous	Portion of a two-piece clay mould with two concentric incised lines.
HPO 156	Dunadd, Argyll	Miscellaneous	Fragment of a clay mould for an indeterminate object
HPO 157	Dunadd, Argyll	Miscellaneous	Fragment of a clay mould for an indeterminate object
HPO 158	Dunadd, Argyll	Miscellaneous	Portion of the raised edge of a two-piece clay mould. The edge slopes down onto a flat casting surface. No impressions remain.
HPO 159	Dunadd, Argyll	Miscellaneous	Portion of a two-piece clay mould with a raised edge. The surface has a narrow groove (2mm wide) which then expands, possibly into a casting surface.
HPO 160	Dunadd, Argyll	Miscellaneous	Portion of a two-piece clay mould, no impressions remain.

HPO 161	Dunadd, Argyll	Miscellaneous	Fragment of a clay mould for an indeterminate object
HPO 162	Dunadd, Argyll	Miscellaneous	Portion of a two-piece clay mould which has a narrow curving groove (1mm wide). No other impressions remain.
HPO 163	Dunadd, Argyll	Miscellaneous	Portion of a two-piece clay mould with raised edges and a flat casting surface. No impressions remain.
HPO 164	Dunadd, Argyll	Miscellaneous	Fragment of a clay mould for an indeterminate object
HPO 165	Dunadd, Argyll	Miscellaneous	Portion of a two-piece clay mould, no impressions remain.
HPO 166	Dunadd, Argyll	Miscellaneous	Fragment of a clay mould for an indeterminate object
HPO 167	Dunadd, Argyll	Miscellaneous	Portion of a funnel-shaped gate of a two-piece clay mould.
HPO 168	Dunadd, Argyll	Miscellaneous	Fragment of a clay mould for an indeterminate object
HPO 169	Dunadd, Argyll	Miscellaneous	Fragment of a clay mould for an indeterminate object
HPO 170	Dunadd, Argyll	Miscellaneous	Fragment of a clay mould for an indeterminate object
HPO 171	Dunadd, Argyll	Miscellaneous	Fragment of a clay mould for an indeterminate object
HPO 172	Dunadd, Argyll	Miscellaneous	Portion of a raised edge of a two-piece clay mould which slopes to a flat casting surface. No impressions remain.
HPO 173	Dunadd, Argyll	Miscellaneous	Portion of a raised edge of a two-piece clay mould. No impressions remain.
HPO 174	Dunadd, Argyll	Miscellaneous	Fragment of a clay mould for an indeterminate object
HPO 175	Dunadd, Argyll	Miscellaneous	Portion of a raised edge of a two-piece clay mould with one key visible on the edge. The edge slopes into a flat casting surface. A small circular depression (2mm wide) is located on a broken edge of the casting surface.
HPO 176	Dunadd, Argyll	Miscellaneous	Portion of a clay mould with a flat surface. No impressions remain.
222	Dunadd, Argyll	?Brooch	Part of an upper valve, front face of decorated object. The decoration consists of an incomplete circular boss, D. 12 mm., with two concentric grooves and a raised centre. On one side is a simple knot with a double outline, identical to the one on 915, of raised lines in a sunken field which outlines the decoration. Adjacent to this is about half of a semi-circular setting attached to the margin of the circular boss. No signs of any possible brooch hoop are preserved and there is certainly no hoop springing from the knot motif. If this is part of an elaborate disc-ended brooch, the hoop is not in the normal position. The mould has not been in contact with molten metal. The design has been raised above the general surface of the mould by removing clay from around the margins. This is highly unusual and produces the appearance on the cast of the entire object being sunken. As the fabric shows this piece to be unused, it may be some intermediary stage in the production of a complex object or even a clay model.
864	Dunadd, Argyll	Disc?	Part of upper valve of flat back? of object consisting of a circular disc and triangular attachment. Possibly a mount.

453/1839	Dunadd, Argyll	Decorated disc	Large part of upper valve, front face of decorated disc. The disc, D. 35mm., has a slight raised border 1.5 mm. wide. Within the sunken field is a tripartite system of decoration surrounding a central circular flat-topped boss, D.5mm. Three raised armed radiate from this boss forming a triskele. These are lunate in form with the concave edge being very steep and the convex much less so. Between these arms were three (one is missing) large spiral snail-like bosses almost filling the space between the central boss and the outer border. These spiral bosses, D. C. 10 mm., have a slight border near the base. All the decorative elements stand up to C. 3 mm. above the field of the disc, but vary in height. The mould has two diverging channels from the ingate.
HPO 62	Dunadd, Argyll	?Decorated disc	Portion of a two-piece clay mould. A thin raised edge remains, sloping steeply to the casting surface. Directly below the edge is a curving groove, 1.5mm in width. The enclosed circular appears to have been decorated. The mould is perhaps for a decorated disc.
1196	Dunadd, Argyll	Decorated disc	Small part of lower valve showing part of circular decorated disc D. c. 20mm. with raised border 2 mm. wide. In the centre of the sunken field is a raised boss 4 mm. high.
1293	Dunadd, Argyll	Decorated disc	Part of upper valve of decorated disc D. 27 mm. The disc has a raised border 2 mm. wide. Inside is another raised concentric ring D. 15mm., width 2 mm. The mould is unused.
673	Dunadd, Argyll	Disc	Small part of lower valve with part of large flat plain disc
223	Dunadd, Argyll	Disc	Small part of mould for circular plain disc, D. 16 mm., with round raised border 1 mm. wide.
HPO 53	Dunadd, Argyll	Disc?	Portion of a thick two piece clay mould. The mould is circular in, perhaps for casting a disc. There is a raised edge, below which is a groove, 2mm, enclosing a flat smooth surface.
HPO 64	Dunadd, Argyll	Disc?	Portion of a circular two-piece clay mould with raised edge. A thin groove encompasses a flat surface which has a circular depression near the centre. For a disc like object?
HPO 65	Dunadd, Argyll	Disc?	Portion of a circular two-piece clay mould with raised edge. Three concentric grooves, between 1mm and 2mm in width, are on the casting surface. For a disc like object?
HPO 66	Dunadd, Argyll	Disc?	Portion of a circular two-piece clay mould with raised edge, directly below which is a thin (2mm) groove bordering a flat casting surface. For a disc like object?
HPO 67	Dunadd, Argyll	Disc?	Portion of a circular two-piece clay mould with slightly raised edge and three concentric grooves on the casting surface. The reverse face of the mould has four thin (less than 1mm in width), faint concentric lines. For a disc like object?
HPO 69	Dunadd, Argyll	Disc?	Small fragment of a two-piece clay mould with a raised edge, directly below the edge is a curving channel, 3mm in width. For a disc like object.
HPO 70	Dunadd, Argyll	Disc?	Small fragment of a two-piece clay mould with two concentric channels, 2mm in width. For a disc like object.
HPO 71	Dunadd, Argyll	Disc?	Small fragment of a two-piece clay mould with two curving channels, the outer channel is 3mm in width, the inner is 2mm in width. For a disc like object.

HPO 72	Dunadd, Argyll	Disc?	Small portion of a two piece clay mould with a raised edge and a small portion of two thin channels or borders (less than 1mm in width) directly below the edge. For a disc like object.
HPO 73	Dunadd, Argyll	Disc?	Portion of a two-piece clay mould with raised edge. Directly below the rim is a curving channel or border (2.5mm wide). The casting surface is flat but has one small circular depression, 2mm in diameter. The mould is broken off here and the circular depression is 6mm in depth. Perhaps for a disc with a cast rivet for attachment?
HPO 76	Dunadd, Argyll	Disc?	Portion of a two-piece clay mould with a thin raised edge directly below which is a thin curving border or channel (1mm in width) enclosing a flat casting surface. For a disc like object?
HPO 78	Dunadd, Argyll	Disc?	Portion of a two-piece clay mould with a raised edge. A curving channel or border (2mm in width) occurs directly below the edge. For a disc like object?
HPO 81	Dunadd, Argyll	Disc?	Portion of a thick (18.25mm) clay mould with a curving raised edge. Directly below the edge the casting surface is flat and worn with a slight bulbous projection. For a disc-like object?
HPO 59	Dunadd, Argyll	Disc?	Raised edge and small portion of the casting surface of a curving two-piece clay mould. The edge raises steeply from a flat base. From the edge there is a steep slope to a flat casting surface which has one raised ridge running from the edge inwards. Possibly for casting a disc-like object with compartments.
291	Dunadd, Argyll	Disc or brooch	Fragment of flat disc? or brooch back.
318	Dunadd, Argyll	Disc?	Part of shallow disc?
301	Dunadd, Argyll	Ring	About half of a lower valve of mould for a small ring D. 15 mm. Flat section, width C. 2 mm. Roughly cut expanding feeder channel.
307	Dunadd, Argyll	Ring	About half of a lower valve of mould for a small ring D. 13mm. Circular section, D. 3 mm. Feeder channel roughly cut, expanding to ingate.
315	Dunadd, Argyll	Ring	Most of an upper valve for a ring D. 26 mm. Oval section, width 4 mm.
1816/6	Dunadd, Argyll	Ring	Part of a ring D. 15 mm., width 2 mm. of rounded section. Part of a feeder or link channel joins one side.
1522	Dunadd, Argyll	Ring	Upper valve with ring D. 15 mm., width 1 mm., of rounded section. On one side is a feeder link to another ring or else a straight attachment. A scar shows where a pointed instrument has been used to lever the cast out of the mould
960	Dunadd, Argyll	Ring or small brooch	Most of a lower valve of ring or small brooch. Ring is round sectioned D. 21mm., width 2 mm. The feeder channel is triangular in section and plan, knife-cut leading to a flat ingate.
827	Dunadd, Argyll	Bar?	Edge of lower valve for rectangular bar?, thickness 6 mm.
878	Dunadd, Argyll	Ring (annular)	Part of an upper valve for an annular ring with triangular attachment. The ring D. C. 14 mm. is 3 mm. wide with a flat section. Possibly a fastener.
959/1	Dunadd, Argyll	Plate	Fragment of mould showing re-entrant angle of flat plate. Just possibly a pin head c.f. 298.

1109	Dunadd, Argyll	?	Small part of large circular? object. Appears to be part of a ring of circular half-section, width C. 16 mm. There is a constriction reducing the width to C. 12mm. but retaining the annular form. Appears to be from a fairly massive annular object with a constriction at one point. Presumably this point represents an area of attachment and the object can be interpreted as a large buckle, terret or link-ring of some kind.
1483	Dunadd, Argyll	?	Part of an object of complex shape but heavily abraded. Appears to show two flat arms diverging at about 30 degrees and set on edge. The shape of the mould suggests this may have been a complex mould. One of the arms is about 6 mm. wide.
1578/1	Dunadd, Argyll	Penannular brooch large dec	Small part of mould, possibly a brooch. A tear-shaped sunken panel C. 20 x 13 mm. is bordered by a number of incomplete elements. One side consists of a rounded hoop? with a square-ended panel with sunken interior. There is an arc of a slightly bossed ring on the opposite side and traces of other features at the broad end. This could be part of the terminal of a large decorated, panelled brooch or a smaller brooch with a hoop panel and unique interior features. May be part of a large complex decorated brooch terminal with a large tear-shaped panel and a circular and a rectangular panel, but the mould is too fragmentary to be sure of this. Alternatively it could be interpreted as the central part of a small penannular brooch with a square ended hoop panel and a circular feature in the centre, or even some other complex decorated object.
1727/2	Dunadd, Argyll	Disc	Tiny part of object consisting of a disc, D. c. 12 mm with sunken interior and raised margin 1 mm. wide. Attached to the outer edge of the disc is a pellet composed of two small circular conjoined discs forming a figure of eight shape. There is the edge of another similar one. May be part of a circular brooch terminal surrounded by lobes. Although brooches of the Pictish series have a variety of lobe forms none matches this example and it cannot be definitely said to be a brooch.
1839/2	Dunadd, Argyll	?	Small part of lower valve, showing a disc D. 14 mm. with a raised border and sunken field containing a concentric raised ring D.8mm. There are traces of two other circular elements on either side of the ring. May also be from a brooch with a circular terminal but the traces of other elements close to the disc make it difficult to accept as a brooch terminal
1840/12	Dunadd, Argyll	Plate	Tiny fragment showing re-entrant angle of rectangular plate like 959/1.
224/1	Dunadd, Argyll	?	Fragments with rectangular raised panel 2 mm. wide on edge of irregular sunken panel.
504	Dunadd, Argyll	Penannular brooch large?	Fragment of very thick mould perhaps from large brooch
618	Dunadd, Argyll	Disc or pin head or rivet	Part of rounded mould with part of small disc, pin head or rivet
649	Dunadd, Argyll	Penannular brooch large dec?	Part of curving edge with recessed panel - perhaps edge of large decorated brooch.
722/2	Dunadd, Argyll	?	Ingate feeder and part of large object
772	Dunadd, Argyll	?	Part of semi-circular cylindrical mould with obscure circular impression linked by a channel to another worn feature
875	Dunadd, Argyll	Penannular brooch large?	Part of thick mould for large brooch?

940/1	Dunadd, Argyll	?	Part of mould showing curving edge with slight rectangular offset
988	Dunadd, Argyll	?	Edge of large object
1031/1	Dunadd, Argyll	Plate	Edge of rectangular plate with ingate?
1209/1	Dunadd, Argyll	Disc	Edge of flat disc
1209/2	Dunadd, Argyll	?	Edge of straight object
1225	Dunadd, Argyll	Disc	Edge of large flat disc
1353	Dunadd, Argyll	?	Edge of flat object.
1396/2	Dunadd, Argyll	Penannular brooch large?	Part of flat curving object 14 mm. wide. perhaps large brooch hoop
1396/3	Dunadd, Argyll	Ring	Edge of ring with panel on side
1476/3	Dunadd, Argyll	Disc	Abraded disc D. C. 16 mm.
1505	Dunadd, Argyll	?	Edge of flat object
1550	Dunadd, Argyll	Brooch?	Part of flat curving object, perhaps back of brooch hoop
1578	Dunadd, Argyll	Ring?	Part of ingate and ring?
1676	Dunadd, Argyll	Disc?	Back of large flat disc?
1675	Dunadd, Argyll	?	Edge of large object.
1677	Dunadd, Argyll	?	Part of flat object
1840	Dunadd, Argyll	Discs	2 fragments of flat circular discs
1855	Dunadd, Argyll	?	Edge of large complex object.
1987	Dunadd, Argyll	?	Part of flat object.
2301	Dunadd, Argyll	Disc	Part of large flat disc
	Dunadd, Argyll	?	30 indeterminate objects
	Dunadd, Argyll	?	72mould edges with key traces
	Dunadd, Argyll	?	23 ingates or feeder channels
	Dunadd, Argyll	?	594 unidentifiable fragments

BT A262	Dunagoil, Bute	Lisnacrogher spearbutt	Mould for a Lisnacrogher spearbutt. Lower valve fragment of spearbutt mould with in-gate. Broken at bottom, just above where the third bulbous terminal would have begun, and left-hand side. The fragment represents half of the bivalve mould. Circular in section. Fabric orange with little inclusions. Grey staining on internal where the mould has been in contact with the molten metal. Evidence of tool marks on mould and fingerprints on back. Almost half of the in-gate survives. Sub-rectangular in section. Made at the same time as the object pattern. The two mould halves would have been held together by a complex keying mechanism. First, a set of circular holes down the flat sides, either side of the object to be cast, would have held the two valves together. One mould would have had positive circular keys that would have fitted into corresponding negative ones on the other mould. The Dunagoil mould has the remnants of negative keys, 2 complete and part of another, which survive on the right hand side. The second keying mechanism is shown by 2 negative triangular notches also on the right hand side of the mould, one of which is partly filled in by clay binding. These notches would ei
BT A262	Dunagoil, Bute	Lisnacrogher spearbutt	Mould for a Lisnacrogher spearbutt. Lower valve fragment of spearbutt mould with in-gate. Broken at bottom, just above where the third bulbous terminal would have begun, and left-hand side. The fragment represents half of the bivalve mould. Circular in section. Fabric orange with little inclusions. Grey staining on internal where the mould has been in contact with the molten metal. Evidence of tool marks on mould and fingerprints on back. Almost half of the in-gate survives. Sub-rectangular in section. Made at the same time as the object pattern. The two mould halves would have been held together by a complex keying mechanism. First, a set of circular holes down the flat sides, either side of the object to be cast, would have held the two valves together. One mould would have had positive circular keys that would have fitted into corresponding negative ones on the other mould. The Dunagoil mould has the remnants of negative keys, 2 complete and part of another, which survive on the right hand side. The second keying mechanism is shown by 2 negative triangular notches also on the right hand side of the mould, one of which is partly filled in by clay binding. These notches would ei
BT A263	Dunagoil, Bute	Ingate	In-gate or pouring gate for unidentifiable object. Upper valve of a bipartite mould, broken at the bottom. Made from a fine brown oxidised clay with few inclusions, Both keying faces of the actual mould survive. Rather than having keys to hold the mould together, both faces are convex which would have slotted into the corresponding dished areas on the other valve. No sign of clay lining. In-gate sub-circular in section, surviving for 22mm. As in-gates vary in length the width cannot be taken as indicative of the object being cast. In-gate and rest of mould made as one.
BT A264	Dunagoil, Bute	Ingate	In-gate or pouring gate for unidentifiable object. Upper valve of a bipartite mould, broken at the bottom. Made from a fine brown oxidised clay with few inclusions. Although only part of the right hand keying face survives, enough remains to show that rather than having keys to hold the mould together, both faces were dished which would have enabled the corresponding convex areas on the other valve to register. No sign of clay lining. In-gate sub-circular in section, surviving for 29mm. As in-gates vary in length the width cannot be taken as indicative of the object being cast. In-gate and rest of mould made as one. Copper alloy. H 32mm. W 33 x 24mm.

BT A265	Dunagoil, Bute	Axe or spearbutt?	Mould for an axe or spearbutt?. Upper valve fragment of mould with in-gate. Broken at bottom, half way down where the butt would have been. Circular in section. Fabric orange with little inclusions. Grey staining in internal shape mould with partial greying throughout where the mould has been in contact with the molten metal. The complete in-gate for the half of the mould survives and is sub-circular in section and was made at the same time as the mould. The mould's keying mechanism is different to that of the Lisnacroggher mould, yet similar to the other 2 moulds described below. Both keying faces survive. Rather than having keys to hold the mould together, both faces are convex which would have slotted into the corresponding dishd areas on the other valve. There is also evidence of clay lining which would have bound the two halves together.
BT 267	Dunagoil, Bute	Core for a mould	Possible core for a mould. Broken on one side and top. Made from a clay with few inclusions. Lead traces within structure may be metal that has diffused into the core during casting. The object tapers suggesting that it may have been a core for a socket. Lead and zinc traces detected. H 44mm. W 17 x 9mm.
no no	Dunagoil, Bute	?	Possible lower valve of mould. Made from a fine brown oxidised clay with few inclusions. Some signs of grey buff on back. Although the front face, which would have all the diagnostic features of a mould is missing, the general shape and appearance of this object suggests that it may be the lower valve of a mould. The flat back, sub-rectangular section and fabric are typical for Iron Age moulds. No traces detected. H 48mm. W 52 x 24mm
CAT 39	Dundurn, Perthshire	Stick pin with ornate head	Mould fragment. Buff fabric which contains sand, mica and quartz. Surface is much abraded. Most probably an open mould for casting a stick pin with an ornate head in the form of a central oval with four projecting bosses in a square array. A broadly similar ornament is seen on the head of a gilt bronze pin from 8th century Coileagan an Udail (Crawford & Switsur 1977, 131, pl xiv a). The latter is a pin for a penannular brooch but there is no reason to believe that the Dundurn example is for anything but a simple stick pin. DN 425, SF 159
CAT 86 (DH 305)	Dunollie, Argyll	Nail-headed pin and ring	Mould for casting a nail headed pin and narrow ring. At least two keying projections are visible around the edge.
CAT 87 (DH 308)	Dunollie, Argyll	Ball-headed pin	Fragment of a mould for casting at least two stick pins, one ball headed.
CAT 88,89 (DH 114)	Dunollie, Argyll	Stick pin	Fragments of 2 moulds for casting stick pins.
CAT 90 (DH 114)	Dunollie, Argyll	Penannular brooch?	Fragment of a mould for casting a curved ring, probably the hoop of a brooch.
CAT 91 (DH 114)	Dunollie, Argyll	Disc?	Fragment of a mould. Unclear what was being cast, perhaps a flat disc about 140mm in diameter and at least 5mm thick.
CAT 92 (DH 110)	Dunollie, Argyll	Disc?	Fragment of a mould apparently for casting a slightly convex disk.

CAT 93 (DH 117)	Dunollie, Argyll	?	Part of the pouring gate and channel of a 2 piece mould. Comparable to Dunadd penannular brooch Class G.
CAT 117 (DH 214)	Dunollie, Argyll	Ingot	Elliptical ingot mould fashioned from a rectangular slab of sandstone. Length 32mm, width 13.5mm, depth 6mm. (DH 214).
CAT 132 (DH 100)	Dunollie, Argyll	Ingot	Circular ingot mould fashioned from a relatively thick piece of shaped stone of pentagonal cross-section. Diameter of mould 28mm, depth 9mm. Similar to examples from Lagore (Hencken 1942, fig 88, nos A, 1027).
HH 385	East Lomond Hill, Fife	Ingot	Sandstone ingot mould
CAT 163	Eilean Olabhat, Western Isles	Decorated disc	Two joining sherds of lower valve for decorated disc. The mould shows the shallow D-shaped ingate with two short V-shaped channels leading to the disc impression. The lower surface is slightly concave, with traces of luting clay from the join with the upper valve. The clay is oxidised bright orange-red around the ingate, but yellowish to grey elsewhere. Fabric gritty (grits up to 1 mm), with some fine organic stems. No visible key marks. About half of the circular disc is preserved, diameter about 45mm and a border 2 mm wide. The surface is partly damaged, but preserves one complete and one partial spiral boss. while a third can be assumed in the missing part by symmetry. Both bosses have shallow raised trumpet spirals expanding from them across the flat field. The complete boss has a central circular depression. 67 x 39 mm, T. 12 mm. 14,
CAT 164	Eilean Olabhat, Western Isles	Decorated disc	Two joining sherds of the upper valve of a disc. Concavo-convex section, with two positive V-shaped key marks at the margin. Fabric as No.163. The disc is plain, with a diameter similar to No.163, and almost certainly is the back face of the same object. 45x18mm.T. 9mm. 257&14, SF24
CAT 165	Eilean Olabhat, Western Isles	Handpin	Handpin mould. Lower valve fragment with impression of hand-pin. Valve cylindrical with flat to convex keying faces. Fabric gritty (up to 1 mm) with fine organic stems. Interior grey, with buff outer skin. No signs of keying. Appears to be that the flattish-convex keying faces would have been held together with clay and twine. This is different to the keying used at Berie (see above). A transverse groove on the outer surface retains traces of fine twine used to tie the two valves together. The pin impression has a circular section shaft, Diam4-5 mm, angled to about 80 degrees in relation to the head, which is set forwards some 5-6 mm. The 'palm' of the hand is semi-circular and undecorated, though with a transverse border below the fingers. There are four fingers projecting about 3mm from the palm, one outer one is circular, the two middle ones appear more oval, though this may be due to slippage of the matrixThe pin impression has a circular section shaft, Diam4-5 mm, angled to about 80 degrees in relation to the head, which is set forwards some 5-6 mm. The 'palm' of the hand is semi-circular and undecorated, though with a transverse border below the fingers. There are four fingers prc
CAT 166	Eilean Olabhat, Western Isles	Handpin	Fragment of valve with impression of a hand-pin? Valve of sub-rectangular section. Fabric gritty, grey with buff skin. Semi-circular impression, only 8 mm across, angled in relation to possible shaft. Traces of possible fingers above palm'.
CAT 167	Eilean Olabhat, Western Isles	Pin	Fragment of valve of semi-circular section, with impression of pin shaft of circular section. Similar to No.166, possibly same object

CAT 168	Eilean Olabhat, Western Isles	Ring	Two apparently joining valve fragment with impressions. Valve plano-convex, fabric gritty, grey to buff. The impression is of a sub-circular ring with a five or six protruding knobs.
CAT 169	Eilean Olabhat, Western Isles	Ring	Fragment of lower? valve with impression of ring or brooch hoop. Valve flat, with edge of shallow ingate leading directly to hoop. Fabric with fine grit and organics, highly micaceous, buff to grey-brown. Hoop circular section, about 5mm in diameter, hoop diameter estimated at about 50 mm.
CAT 169	Eilean Olabhat, Western Isles	Ring	Fragment of lower? valve with impression of ring or brooch hoop. Valve flat, with edge of shallow ingate leading directly to hoop. Fabric with fine grit and organics, highly micaceous, buff to grey-brown. Hoop circular section, about 5mm in diameter, hoop diameter estimated at about 50 mm.
CAT 170	Eilean Olabhat, Western Isles	Ring	Fragment very similar to No.169, showing only central part of ring, probably same mould.
CAT 171	Eilean Olabhat, Western Isles	Pin	Almost complete tiny valve, planoconvex, pear-shaped. Ingate and impression of two short pins? of length 10mm
CAT 172	Eilean Olabhat, Western Isles	Pin	Two joining fragments of valve with pin impression. Section plano-convex, fabric gritty, grey. Pin shaft impression circular, diameter 4 mm, length 41 mm.
CAT 173	Eilean Olabhat, Western Isles	Hour-glass object	Very abraded fragment with impression of hour-glass shaped object with concentric ribbing. Maximum diameter 30-40 mm. Possibly a one-piece mould. Fabric gritty, orange to grey
CAT 174	Eilean Olabhat, Western Isles	Ring	Edge of object. possibly circular ring or pin head.
CAT 175	Eilean Olabhat, Western Isles	Ingate	Possible ingate for large object, semi-circular section, fired grey on interior. Or perhaps base of small footed cup or crucible??. Similar to other fragments noted as ingates, but interior very large. Diam about 35 mm if circular
CAT 175	Eilean Olabhat, Western Isles	Ingate	Possible ingate for large object, semi-circular section, fired grey on interior. Or perhaps base of small footed cup or crucible??. Similar to other fragments noted as ingates, but interior very large. Diam about 35 mm if circular
CAT 176	Eilean Olabhat, Western Isles	Ingot?	Ceramic object similar to crucible No.221 in form, but not highly fired. Fabric gritty, grey-brown. Incomplete, sub-rectangular with rounded corners, asymmetrical long walls, and round ended slot. Possibly a bar ingot mould.
CAT 177	Eilean Olabhat, Western Isles	Ingate	Ingate and runner channel. Fabric finely gritty, hard, oxidised bright red. D-shaped ingate leading to channel of rectangular section 4mm wide. Traces of key marks. Section curved.
CAT 178	Eilean Olabhat, Western Isles	Ingot	Possible bar ingot mould. Fragment of thick mould with rounded end. Upper surface with slot surrounded by smooth flange. Surface blackened and reduced. Fabric gritty, red-brown.
CAT 179	Eilean Olabhat, Western Isles	?	Almost complete small valve with impression of rectilinear object.

CAT 180	Eilean Olabhat, Western Isles	Ingot	Part of rounded cylindrical mould for a single bar ingot. Fabric gritty (up to 2 mm), grey-brown with buff skin, smoothed. Ingot slot tapered with rounded end, reduced grey in bottom part.
CAT 181	Eilean Olabhat, Western Isles	?	Unidentifiable fragment in similar fabric to No.163
CAT 182	Eilean Olabhat, Western Isles	?	Ingate and runner channel. Channel 4mm wide, sub-rectangular section.
CAT 42A	Fairyknowe, Stirlingshire	Ingate	This is a mould fragment for an object of uncertain form with a casting gate and lead, either side of which are keying sockets. The mould is approximately concave and slightly uneven. No residues are visible. The core and exterior surface are pink and the interior surface is light grey. m 13 g. 4,55; Phase 3
CAT 42B	Fairyknowe, Stirlingshire	Ingate	Part of the lip and neck of an ingate. 1-6mm thick; longest dimension 22mm.
CAT 62	Fairyknowe, Stirlingshire	Ingate	This is a valve end with an apparent pouring gate. No residues are visible. m 13 g. Rubble in intra-mural chamber, 64; Phase 3.
CAT 249	Fairyknowe, Stirlingshire	?	Fragment, 0-16mm thick; longest dimension 23mm.
CAT 250	Fairyknowe, Stirlingshire	?	Fragment; 0-9mm thick; longest dimension 22mm.
256A, 470 & 500	Fairyknowe, Stirlingshire	?	Three fragments (48 g) from the same object, likely to be a mould. 256A was recovered from Layer 3B, area 64; 470 came from Layer 3c/4, area B3; and 500, from Layer 4, area 55. All three contexts are of Phase 3. 256A and 470 adjoin forming a section of a mould valve. They suggest that the fragments come from a quite roughly fashioned mould for a tapering artefact of some length, perhaps a bar or blade. The edges for the casting on either side are straight and regular but the surface for the width is somewhat uneven. 500 is evidently a casting gate. No residue is evident.
CAT 497	Fairyknowe, Stirlingshire	Ring	Assuming this was circular its outer diameter would be 110mm; the edges are rounded. It is possible this may be a ring, diameter 95mm.
CAT 498	Fairyknowe, Stirlingshire	?	This piece is also a mould valve fragment, though for an object of indeterminate form. A part of the pouring gate appears to be represented, adjacent to a projecting key. This piece is fairly flat with a seemingly irregular fashioned moulding. The interior surface has two faint concave oval impressions, presumably deliberate mouldings rather than finger pad impressions. m 14 g. 4, 55; Phase 3.
CAT 501	Fairyknowe, Stirlingshire	Ring	Assuming this was circular its outer diameter would be 110mm.
CAT 502	Fairyknowe, Stirlingshire	?	Fragment; 13mm thick; longest dimension 38mm.
CAT 62	Fairyknowe, Stirlingshire	Ingate	Fragment of unidentified object.
CAT 193	Fairyknowe, Stirlingshire	Heating tray?	Irregular form, the surface of its rim is noticeably smooth which suggests that it may have been pressed against another object.
HH 418	Finavon, Tayside	Ingot	Sandstone mould, yellow; part of bar matrix on top
EQ 624	Golspie, Sutherland	Ingate	Ingate

EQ 625	Golspie, Sutherland	Decorative plate?	Upper valve for the production of a decorative plate, now broken.
HD 657	Gripps, Rousay	?	Two small fragments of unidentifiable moulds
GA 3482.815B	Gurness, Orkney	Doorknob spearbutt	Part of back valve for casting a large object with part of the pouring gate preserved. On the left is a sunken key.
GA 3482.815B	Gurness, Orkney	Doorknob spearbutt	Part of back valve for casting a large object with part of the pouring gate preserved. On the left is a sunken key.
GA 3497.812	Gurness, Orkney	Doorknob spearbutt	Part of the valve for casting the knob of a knobbed spearbutt.
GA 3497.812	Gurness, Orkney	Doorknob spearbutt	Part of the valve for casting the knob of a knobbed spearbutt.
GA 35118.813B	Gurness, Orkney	Doorknob spearbutt	Doorknob spearbutt mould. Broken fragment, all that remains is the bulbous part of the butt-end.
GA 35118.813B	Gurness, Orkney	Doorknob spearbutt	Doorknob spearbutt mould. Broken fragment, all that remains is the bulbous part of the butt-end.
GA 35118.814B	Gurness, Orkney	Doorknob spearbutt	Doorknob spearbutt mould. Broken fragment, all that remains is the bulbous part of the butt-end.
GA 35118.814B	Gurness, Orkney	Doorknob spearbutt	Doorknob spearbutt mould. Broken fragment, all that remains is the bulbous part of the butt-end.
GA 816	Gurness, Orkney	Beaded pin / ibex-headed	One complete valve for casting the fronts of two pins with ring heads with beads at the vase. The larger pin has had three beads on the lower half of the ring; the head of the smaller pin is damaged but appears to have had two beads only on the lower half. The mould has a pair of projecting keys, and there may have been another at the bottom edge which is damaged. Length of pins:33mm; D (head): 7mm.
GA 817	Gurness, Orkney	?Beaded pin / ibex-headed	Complete valve for casting the back of a pair of ring-headed pins. No keys identified due to damage to the edges. Pin L: 48mm; D (head): 8mm.
GA 818	Gurness, Orkney	?pin	Very degraded mould, similar to 817, for casting the back of ring-headed pins.
GA 819	Gurness, Orkney	?Handpin	Part of a mould for a ?handpin with three fingers.
GA 820	Gurness, Orkney	Pin	Upper valve for a pin shaft. Joins 821. Three positive keys on each side.
GA 821	Gurness, Orkney	Pin	Lower valve for a pin shaft. Joins 820. Three positive keys on each side.
GA 822	Gurness, Orkney	Pin	Lower valve for the shaft of a pin.
GA 823	Gurness, Orkney	Pin	Lower valve for the shaft of a pin, neither end preserved. There are three negative keys on either side.

GA 824	Gurness, Orkney	Pin	Lower valve for pin shaft, broken at each end.
GA 825	Gurness, Orkney	?	Lower valve with gate for miscellaneous object, including part of a square plate with a round collar below.
GA 826	Gurness, Orkney	Ring	Lower valve of ring-shaped mould for a simple ring. Part of the outer surface missing.
GA 827	Gurness, Orkney	Penannular brooch Type F	Upper valve of a mould for casting the barrel-headed pin for a penannular brooch.
GA 827	Gurness, Orkney	?	Thirty-seven small fragments. Fourteen are recognisable as pin shafts; the others are unidentifiable. NB: Not all were located and noted by Close-Brooks (1987) so may not be in NMS.
unreg	Harray, Orkney	Ingot	Not available for study by the author. May be lost
unreg	Hawkhill, Perthshire	Ingot	Recent find (A. Reece pers.comm). Stone. Not available to study by author.
SF 4302	Howe, Orkney	Ring	Fragment of stone mould with ring cut into upper surface. May be a projecting-ring-headed pin, but unlikely. Ring broken just above where a shaft may have been
HTA 75	Hyndford crannog, Lanarkshire	Ingot	Sandstone mould
Cat 1-3	Iona, Argyll	Glass studs	Fragment of a circular mould of fine clay, now orange-red in colour. The upper and lower surfaces of the mould are for the most part preserved, but the side-walls are almost entirely missing so that the original height (and internal depth) cannot now be determined. The upper surface is slightly concave and is ornamented in relief. The pattern is symmetrical and compass-designed, consisting of a circle within which is arranged a band of six overlapping circles linked by arcs, giving the impression of a roundel filled with six contiguous triquetras. The two smaller fragments are identical in fabric and ornament to that described above (1) and must therefore represent the remains of two further such moulds (2 and 3).
303/1	Iona, Argyll (Reilig Odhrain)	Rings	Fragment of clay mould. Broken at top, bottom and right-hand side. Remains of two rings, one of which has a channel leading off from the top right hand corner.
304/1	Iona, Argyll (Reilig Odhrain)	Pin or rod?	Fragment of lower valve of mould. Broken at top and bottom. Negative keying in the form of triangular nicks on left and right hand side. That there is keying suggests that this is not an ingot mould. May be for a thick rod or pin.
-	Isbister	Ingot	Steatite mould for two-bar ingots
	Isle Head, Whithorn, Galloway	?	Mould. Reported in Radford (1956). Not studied by the author.
HSA 768	Jarlshof, Shetland	Pins or ingots	Broken steatite mould; Steatite; roughly rectangular section; six matrices on face, three or four pin shape, one for shallow bar, one for circular object; broken
HSA 769	Jarlshof, Shetland	Pins or ingots	Valve of a rectangular sandstone mould; four gates, each serving three or four moulds, for pins (probably); long edges reduced, by reuse as whetstone (possibly); from rectangular mould
HSA 770	Jarlshof, Shetland	Ingots?	Rim fragment of a steatite vessel, reused as a mould for two rectangular bars,

HSA 3956	Jarlshof, Shetland	Disc-headed pin	Most of a mould valve for the head of a disc-headed pin with central conical boss
HSA 3957	Jarlshof, Shetland	?Disc	Two pieces of a mould valve for a flat circular object with central boss
HSA 3958	Jarlshof, Shetland	?	Almost flat mould fragment with a straight narrow groove for a cast rib
HSA 3959	Jarlshof, Shetland	?	Mould fragment for a waisted object.
na	Keiss Harbour, Caithness	Ingot	Recorded by Anderson (1901) but not kept
na	Keiss Rood, Caithness	Ingot	Recorded by Anderson (1901) but not kept
unreg	Kildalton, Islay	?	Fragments of unidentifiable moulds, may be Late Bronze Age.
unreg	Kildonan Bay	?	The original report talks of clay moulds for casting metal objects. Sixteen fragments of baked clay, with smoothed shaped surfaces, forming parts of moulds, or the clay binding for the moulds and several fragments of baked grey clay, one resembling a nail head, possibly representing the manufacture of moulds and their patterns (Fairhurst 1956, 211). Apparently in the Hunterian, but no record of them there (E. MacKie pers. comm).
unreg	Lochlee, Ayrshire	Ingot or hone	Stone block with a groove on one side. Classed by Munro (1882, 105) as a sharpening stone, but may also be an ingot.
SF 656	Loch na Berie, Lewis	Doorknob spearbutt	One fragment of a doorknob spearbutt mould showing section of shaft, ridge and top of butt. . Broken at top and eroded on right hand side. Circular in section. Fabric coarse with black inclusions less than 1mm. Less grey buffing than other examples. No evidence of ingate due to the top being broken. Rather than having keys to hold the mould together, the left hand side is convex presumably to fit into the corresponding valve which would have been dished (for example SF 1329). There are no remnants of clay binding unlike on other moulds. The denuded nature of the right hand side makes it impossible to be certain of original shape, although it is noteworthy that there is no negative triangular key mark like that on the similar mould (SF1284). Possible that this part joins SF1284. Shaft length c45mm. Shaft width (at smallest point) 10mm. Ridge 1-2mm. Circular section. Thumb print visible on outside convex side. No evidence of design.

SF 656	Loch na Berie, Lewis	Doorknob spearbutt	One fragment of a doorknob spearbutt mould showing section of shaft, ridge and top of butt. . Broken at top and eroded on right hand side. Circular in section. Fabric coarse with black inclusions less than 1mm. Less grey buffing than other examples. No evidence of ingate due to the top being broken. Rather than having keys to hold the mould together, the left hand side is convex presumably to fit into the corresponding valve which would have been dished (for example SF 1329). There are no remnants of clay binding unlike on other moulds. The denuded nature of the right hand side makes it impossible to be certain of original shape, although it is noteworthy that there is no negative triangular key mark like that on the similar mould (SF1284). Possible that this part joins SF1284. Shaft length c45mm. Shaft width (at smallest point) 10mm. Ridge 1-2mm. Circular section. Thumb print visible on outside convex side. No evidence of design.
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SF 1122	Loch na Berie, Lewis	Doorknob spearbutt	One fragment to create bulb of a spearbutt mould.. Fabric gritty with inclusions of less than 1mm. Internal grey staining where object would have been cast. Grey buffing throughout. Width and shape similar to design on SF1284 and SF1329.
SF 1337 (joins 1124)	Loch na Berie, Lewis	Projecting pin - ?beaded or corrugated	Fragment of lower valve for beaded or corrugated pin. Subrectangular section. Fabric gritty. Inclusions of Lewis gneiss less than 1mm. Grey interior where object is cast. Top half of mould. Two negative V-shaped keymarks at bottom of fragment. Although this mould is for the back of a projecting pin enough characteristics survive to suggest that it was for the manufacture of a beaded or corrugated pin. First, the flat nature of the back of the piece suggests that the pin would not been rounded in section, like for example the projecting ring headed pin made at Sollas, North Uist or other actual pins of this type from Scotland. Also, the marked elliptical pin head, 14mm wide, 12mm high set forward some 3-4mm from the shaft, is not a common feature of the typical projecting ringheaded series. Indeed the uninterrupted elliptical nature sets it apart from the rosette and the proto handpins where the former have large beads all round the ring while the later have beads on the upper part only. Ephemeral marks on the top half of the mould do indeed suggest that the pin was decorated with some form of beaded or corrugated pattern. The pin shaft would have been circular (diameter 3 - .

SF 1337 (joins 1124)	Loch na Berie, Lewis	Projecting pin - ?beaded or corrugated	Fragment of lower valve for beaded or corrugated pin. Subrectangular section. Fabric gritty. Inclusions of Lewis gneiss less than 1mm. Grey interior where object is cast. Top half of mould. Two negative V-shaped keymarks at bottom of fragment. Although this mould is for the back of a projecting pin enough characteristics survive to suggest that it was for the manufacture of a beaded or corrugated pin. First, the flat nature of the back of the piece suggests that the pin would not been rounded in section, like for example the projecting ring headed pin made at Sollas, North Uist or other actual pins of this type from Scotland. Also, the marked elliptical pin head, 14mm wide, 12mm high set forward some 3-4mm from the shaft, is not a common feature of the typical projecting ringheaded series. Indeed the uninterrupted elliptical nature sets it apart from the rosette and the proto handpins where the former have large beads all round the ring while the later have beads on the upper part only. Ephemeral marks on the top half of the mould do indeed suggest that the pin was decorated with some form of beaded or corrugated pattern. The pin shaft would have been circular (diameter 3 - .
SF 1337 (joins 1124)	Loch na Berie, Lewis	Projecting pin - ?beaded or corrugated	Fragment of lower valve for beaded or corrugated pin. Subrectangular section. Fabric gritty. Inclusions of Lewis gneiss less than 1mm. Grey interior where object is cast. Top half of mould. Two negative V-shaped keymarks at bottom of fragment. Although this mould is for the back of a projecting pin enough characteristics survive to suggest that it was for the manufacture of a beaded or corrugated pin. First, the flat nature of the back of the piece suggests that the pin would not been rounded in section, like for example the projecting ring headed pin made at Sollas, North Uist or other actual pins of this type from Scotland. Also, the marked elliptical pin head, 14mm wide, 12mm high set forward some 3-4mm from the shaft, is not a common feature of the typical projecting ringheaded series. Indeed the uninterrupted elliptical nature sets it apart from the rosette and the proto handpins where the former have large beads all round the ring while the later have beads on the upper part only. Ephemeral marks on the top half of the mould do indeed suggest that the pin was decorated with some form of beaded or corrugated pattern. The pin shaft would have been circular (diameter 3 - .
SF 1124 (joins 1337)	Loch na Berie, Lewis	Projecting pin - ?beaded or corrugated	Fragment of lower valve for beaded or corrugated pin. Subrectangular section. Fabric gritty. Inclusions of Lewis gneiss less than 1mm. Grey interior where object is cast. Top half of mould. Two negative V-shaped keymarks at bottom of fragment. Pin shaft survives for 32mm; width irregular (top: 3mm; bottom: 4mm); circular in section. 23mm x 38mm x 13mm. Context 501.
SF 1153	Loch na Berie, Lewis	Pin shaft	Valve of mould for tapering ?pin shaft. Possible that it forms part of the mould to make the handpin of SF 1622. Subrectangular in section. Broken at both ends. Partial remains of clay binding on back of object. Fabric pale orange with only tiny inclusions visible of gnessic minerals up to less than 1mm. Grey buffing on upper faces of mould and through the section of the mould. Negative V-shaped, pyramidal keymarks although they are not parallel to one another: the right hand side is 3mm lower than the right. Pin shaft diameter tapers (4-6mm). Shaft circular in section.

SF 1153	Loch na Berie, Lewis	Pin shaft	Valve of mould for tapering ?pin shaft. Possible that it forms part of the mould to make the handpin of SF 1622. Subrectangular in section. Broken at both ends. Partial remains of clay binding on back of object. Fabric pale orange with only tiny inclusions visible of gnessic minerals up to less than 1mm. Grey buffing on upper faces of mould and through the section of the mould. Negative V-shaped, pyramidal keymarks although they are not parallel to one another: the right hand side is 3mm lower than the right. Pin shaft diameter tapers (4-6mm). Shaft circular in section.
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SF 1154	Loch na Berie, Lewis	?Doorknob spearbutt	Fragment of doorknob spearbutt mould?. Very denuded. Fabric pale orange with small inclusions of less than 1mm. Grey staining on mould where object has been in contact with the metal. Although the mould is badly denuded part of the left hand face of the mould survives as well as part of the ingate and the actual top of the mould. A small notch is visible in the mould matrix perhaps suggestive of the beginnings of the top of a spearbutt. This hypothesis is supported by the technological similarity to other doorknob spearbutt moulds inherent within the partly surviving left hand side of the mould, the fabric, clay binding and XRF results. No keying mechanisms survive.
SF 1184	Loch na Berie, Lewis	Hand pin mould	Upper valve of half of a mould for the front and projecting fingers of a handpin. Sub circular in section. Broken at top, bottom and right hand side where the centre of the shaft and pin face would have been formed. Although no keying notches survive on the edge of the mould the raised edge on the left hand side, coupled with a negative pyramidal notch to the left of the pin's face suggests a complex keying mechanism to allow manufacture. Slight remnants of clay binding on left hand side. Regards the pin half of the bottom semi-circular face survives, the face is undecorated and likely to be c20mm wide. The impression of the left hand 'finger' is the best preserved and is 3-4mm in circular dimension when reconstructed and projects 4mm. In plan it appears to slightly taper towards the point of the finger. The slight impression of a second finger to the right of this pin also survives, being higher, forming an arc. Reconstruction suggests that the handpin would have had four fingers. There is a slight impression of a shallow hollow in the centre that may represent the 'key' for the other half of the mould which must have produced the central hole that is characteristic of many handpins. The shaft of
SF 1211	Loch na Berie, Lewis	?Pin shaft	Fragment of valve of mould showing clay ridge and binding for the joining of the mould and positive keymark in shape of a pronounced triangular notch. Sub circular in section. Fabric pale orange with small inclusions less than 1mm. Grey buff on interior. No diagnostic features survive to suggest object cast.

SF 1230	Loch na Berie, Lewis	?Doorknob spearbutt	Fragment of top of mould showing partial ingate and ?top of doorknob spearbutt shaft. Sub circular in section. Fabric pale with inclusions of less than 1mm. Partial greying on mould where object has been in contact with metal. No keying visible.
SF 1283	Loch na Berie, Lewis	Pin shaft	Fragment of mould, for ?pin shaft. Broken at both ends. Slight evidence of clay binding on both sides. No evidence of keying. Fabric is pale orange with only tiny inclusions visible of gnessic minerals up to less than 1mm. Rectangular in section, probably the lower valve. Shaft circular, diameter 3mm. 38mm x 22mm x 13mm.
SF 1284	Loch na Berie, Lewis	Doorknob spearbutt	One fragment of a doorknob spearbutt mould showing section of shaft, ridge and a small part of the bulb. Possible remnants of ingate at top, although the broken nature makes interpretation difficult. Broken at top, bottom and left hand side denuded. Fabric pale orange with small inclusions (less than 1mm). Grey internal staining. Negative V-shaped keymark on right of mould to act as keying mechanism, the denuded nature of the left-hand side makes it impossible to be sure of original nature although it is possible that it may also have been concave in a similar fashion to SF 656. Although the negative keymark differentiates the find from SF656, at least in one technological aspect, every other attribute is similar (shape of object cast, clay, size etc. Possible that this part joins SF656. Shaft length c44mm. Circular in section. Shaft width (at smallest point) 10mm. Basal width of butt impossible to ascertain. No evidence of design. Ridge approx. 1-2mm high. 33mm x 57mm x 22mm.
SF 1284	Loch na Berie, Lewis	Doorknob spearbutt	One fragment of a doorknob spearbutt mould showing section of shaft, ridge and a small part of the bulb. Possible remnants of ingate at top, although the broken nature makes interpretation difficult. Broken at top, bottom and left hand side denuded. Fabric pale orange with small inclusions (less than 1mm). Grey internal staining. Negative V-shaped keymark on right of mould to act as keying mechanism, the denuded nature of the left-hand side makes it impossible to be sure of original nature although it is possible that it may also have been concave in a similar fashion to SF 656. Although the negative keymark differentiates the find from SF656, at least in one technological aspect, every other attribute is similar (shape of object cast, clay, size etc. Possible that this part joins SF656. Shaft length c44mm. Circular in section. Shaft width (at smallest point) 10mm. Basal width of butt impossible to ascertain. No evidence of design. Ridge approx. 1-2mm high. 33mm x 57mm x 22mm.

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SF 1294	Loch na Berie, Lewis	?Handpin	Fragment of lower valve for back of projecting pin; ?handpin. Sub rectangular in section. Broken on left side and bottom. Fabric pale orange with slight gnessic inclusions and grey buffing on interior. Although the impression of the cast pin is very slight the straight edge for the top of the pin sets the pin aside from a rosette, beaded or proto handpin. There are also faint impressions of curves on the top line, perhaps representing the 'fingers'. It is possible that the straight edge is, therefore, representational of the back of a handpin. The technology is similar to the other handpins with a positive pyramidal notch. Evidence of clay binding on back of mould. Regards the pin only half of the back impression survives. The pins face is likely to have been c16mm wide. The shaft of the pin, of which 9mm survives, projects 3mm rising slightly from bottom to top. Not enough of the shafts cross section survives to suggest shape although it is likely to be around 4mm wide.

SF 1295	Loch na Berie, Lewis	?Pin shaft	Lower valve of mould for ?pin. Broken at bottom and left hand side. Fabric pale with small inclusions less than 1mm. Subrectangular section. A negative V-shaped keymark in the top middle of the mould survives. Ephemeral impression of the top of a curved pin survives. Surviving remnants suggest that the object's top was constructed of a thin hooped ring, thus the object was not a rosette, proto- or handpin. Possible that it may be a beaded pin or a general ring headed pin.
SF 1309	Loch na Berie, Lewis	?	Fragment of mould with diagnostic face removed. Curved. Fabric pale orange with small inclusions. Grey staining. 22mm x 27mm x 12mm
SF 1327	Loch na Berie, Lewis	?	Valve of mould for tapering ?pin shaft. Possible that it forms part of the mould to make the handpin of SF 1622. Subrectangular in section. Broken at both ends. Partial remains of clay binding on back of object. Fabric pale orange with only tiny inclusion
SF 1327	Loch na Berie, Lewis	?	Valve of mould for tapering ?pin shaft. Possible that it forms part of the mould to make the handpin of SF 1622. Subrectangular in section. Broken at both ends. Partial remains of clay binding on back of object. Fabric pale orange with only tiny inclusion
SF 1328	Loch na Berie, Lewis	?	Lower valve mould fragment, for ?pin shaft, with surviving ingate. Broken at lower end. Remains of clay binding on right hand side. Fabric is pale orange with only tiny inclusions visible of gneissic minerals up to less than 1mm. Partial grey buffing on upper faces of mould, although cleaning has removed much evidence. Semi circular ingate becoming more flat further down object. No signs of keying on the surfaces preserved. Ingate formed at same time as the object mould. Joins 1640. Shaft of object 5mm wide. Object created would be circular in section.
SF 1329	Loch na Berie, Lewis	Doorknob spearbutt	Three fragments joined to form almost complete shaft area of spearbutt mould with ingate. Only part of the butt section survives. Circular in section. Broken at bottom and left hand bottom corner. Fabric orange with little inclusions. Grey staining in internal shape mould with partial greying throughout. Rather than having keys to hold the mould together, the face is dished on the right hand side to act as keying for corresponding convex area on the other valve. The remnants of clay binding on the back shows that the convex and concave bivalve mould pieces were then joined with a coat of clay. Regards the spearbutt produced, it would have been a doorknob spearbutt. Shaft length 44mm. Ridge joining shaft and butt visible. Ridge 1-2mm. Very similar mould object design to SF1284. Basal width impossible to ascertain. Shaft funnel shaped and circular in section.

SF 1329	Loch na Berie, Lewis	Doorknob spearbutt	Three fragments joined to form almost complete shaft area of spearbutt mould with ingate. Only part of the butt section survives. Circular in section. Broken at bottom and left hand bottom corner. Fabric orange with little inclusions. Grey staining in internal shape mould with partial greying throughout. Rather than having keys to hold the mould together, the face is dished on the right hand side to act as keying for corresponding convex area on the other valve. The remnants of clay binding on the back shows that the convex and concave bivalve mould pieces were then joined with a coat of clay. Regards the spearbutt produced, it would have been a doorknob spearbutt. Shaft length 44mm. Ridge joining shaft and butt visible. Ridge 1-2mm. Very similar mould object design to SF1284. Basal width impossible to ascertain. Shaft funnel shaped and circular in section.
SF 1329	Loch na Berie, Lewis	Doorknob spearbutt	Three fragments joined to form almost complete shaft area of spearbutt mould with ingate. Only part of the butt section survives. Circular in section. Broken at bottom and left hand bottom corner. Fabric orange with little inclusions. Grey staining in internal shape mould with partial greying throughout. Rather than having keys to hold the mould together, the face is dished on the right hand side to act as keying for corresponding convex area on the other valve. The remnants of clay binding on the back shows that the convex and concave bivalve mould pieces were then joined with a coat of clay. Regards the spearbutt produced, it would have been a doorknob spearbutt. Shaft length 44mm. Ridge joining shaft and butt visible. Ridge 1-2mm. Very similar mould object design to SF1284. Basal width impossible to ascertain. Shaft funnel shaped and circular in section.
SF 1364	Loch na Berie, Lewis	Doorknob spearbutt	One fragment to create bulb of a spearbutt mould. Fabric orange in colour although stained grey. Mould shape 28mm x 27mm. Actual mould size 44mm x 38mm.
SF 1364	Loch na Berie, Lewis	Doorknob spearbutt	One fragment to create bulb of a spearbutt mould. Fabric orange in colour although stained grey. Mould shape 28mm x 27mm. Actual mould size 44mm x 38mm.
SF 1364	Loch na Berie, Lewis	Doorknob spearbutt	One fragment to create bulb of a spearbutt mould. Fabric orange in colour although stained grey. Mould shape 28mm x 27mm. Actual mould size 44mm x 38mm.
SF 1368	Loch na Berie, Lewis	Pin shaft	Fragment of mould showing ingate, and shaft for object as well as part of the face and ridge / clay binding for the joining of the moulds. Fabric pale with small inclusions less than 1mm thick. Broken on right hand side and bottom. Sub circular in plan. No keying survives although there is a pronounced ridge of the left hand side to aid registration of the two pieces of mould, similar to other moulds for the various pin types. Unidentifiable but similarity in design and shape suggest it may have been involved in the manufacture of a pin.
SF 1606	Loch na Berie, Lewis	Doorknob spearbutt	One fragment to create bulb of a spearbutt mould.. Fabric coarse but only small inclusions of less than 1mm. Grey staining where object would have been cast.
SF 1606	Loch na Berie, Lewis	Doorknob spearbutt	One fragment to create bulb of a spearbutt mould.. Fabric coarse but only small inclusions of less than 1mm. Grey staining where object would have been cast.

SF 1607	Loch na Berie, Lewis	Doorknob spearbutt?	One fragment to create bulb of a spearbutt mould? Fabric coarse but only small inclusions of less than 1mm. Grey staining where object would have been cast. Fabric coarse but only small inclusions of less than 1mm. Grey staining where object would have been cast 31mm x 24mm x 15mm
SF 1620	Loch na Berie, Lewis	?	Fragment of mould? Fabric pale with small inclusions of less than 1mm. Grey staining on shaft. Only surviving face suggest use as a mould. 31mm x 42mm x 18mm.
SF 1622	Loch na Berie, Lewis	Pin - possibly a handpin	Two joining pieces of the upper valve of half of a mould for the front of a ?handpin. Sub rectangular in section. Broken at top and bottom. Fabric pale orange with slight gneissic inclusions and grey buffing on interior. Although no visible impressions for the 'fingers' of handpin survive the similarity in design, technology and general shape of the surviving pin to SF 1184 suggests that the mould is indeed for the manufacture of a handpin. The technology is similar to SF1184 with the raised edge of the mould on both sides coupled with a negative pyramidal notch on both sides of the pin's face suggesting a complex keying mechanism to allow manufacture. Positive keymarks in the form of triangular notches survive on the lower section of both sides of the mould. Evidence of clay binding on left hand side of object. Regards the pin the bottom semi-circular face survives, the face is undecorated. The mould is, unfortunately, broken just below where the impression of any fingers would have been, making further discussion difficult. The pins face is 17mm wide. The shaft of the pin, of which 25mm survives, projects 4mm rising slightly from bottom to top.
SF 1638	Loch na Berie, Lewis	Doorknob spearbutt	Fragment of top of mould showing partial top of doorknob spearbutt shaft and ingate. Sub circular in section. Fabric pale with inclusions of less than 1mm. Partial greying on mould where object has been in contact with metal. No keying visible, but evidence of clay binding. Surviving shaft 23mm long.
SF 1638	Loch na Berie, Lewis	Doorknob spearbutt	Fragment of top of mould showing partial top of doorknob spearbutt shaft and ingate. Sub circular in section. Fabric pale with inclusions of less than 1mm. Partial greying on mould where object has been in contact with metal. No keying visible, but evidence of clay binding. Surviving shaft 23mm long.
SF 1640 & 1713	Loch na Berie, Lewis	Pin shaft	Two fragments joining to construct the upper valve and ingate of a ?pin shaft. Evidence of clay binding on both sides. Broken at lower end. Fabric is pale orange with only tiny inclusions visible of gneissic minerals up to less than 1mm. Partial grey buffing on upper faces of mould, although cleaning has removed much evidence. Semi-circular ingate. No signs of keying on the surfaces preserved. Ingate formed at same time as the object mould. Joins SF (SF 1328).
SF 1641	Loch na Berie, Lewis	?	Fragment of ?mould with diagnostic face removed. Sub rectangular. Fabric pale orange with small inclusions. Signs of grey buffing on damaged internal face. 27mm x 29mm x 04mm.
SF 1651	Loch na Berie, Lewis	Doorknob spearbutt	One fragment to create bulb of a spearbutt mould... Grey stain on mould impression. Fabric coarse but inclusions less than 1mm. Grey stain on mould impression.
SF 1651	Loch na Berie, Lewis	Doorknob spearbutt	One fragment to create bulb of a spearbutt mould... Grey stain on mould impression. Fabric coarse but inclusions less than 1mm. Grey stain on mould impression.

SF 1712	Loch na Berie, Lewis	Doorknob spearbutt?	One fragment to create bulb of a spearbutt mould? Fabric coarse but only small inclusions of less than 1mm. Grey staining where object would have been cast. Greying throughout fabric. Fabric similar to other moulds. Similar in appearance to SF1607. Sub circular impression on mould, suggestive of bulbous object
SF 1896	Loch na Berie, Lewis	Doorknob spearbutt	Fragment of doorknob spearbutt and small part of ingate. Very denuded. Fabric pale orange with small inclusions of less than 1mm. Grey staining on mould where object has been in contact with the metal. Although the mould is badly denuded a faint shaft impression is visible in the mould matrix, similar to the other, better preserved doorknob spearbutts. Bottom appears to break off prior to ridge and butt. This hypothesis is supported by the technological similarity to other doorknob spearbutt moulds inherent within the partly surviving left hand side of the mould, fabric and XRF results. No keying mechanisms survive. Shaft survives for 37mm. Shaft width (at smallest point) 10-12mm.
SF 1896	Loch na Berie, Lewis	Doorknob spearbutt	Fragment of doorknob spearbutt and small part of ingate. Very denuded. Fabric pale orange with small inclusions of less than 1mm. Grey staining on mould where object has been in contact with the metal. Although the mould is badly denuded a faint shaft impression is visible in the mould matrix, similar to the other, better preserved doorknob spearbutts. Bottom appears to break off prior to ridge and butt. This hypothesis is supported by the technological similarity to other doorknob spearbutt moulds inherent within the partly surviving left hand side of the mould, fabric and XRF results. No keying mechanisms survive. Shaft survives for 37mm. Shaft width (at smallest point) 10-12mm.
SF 1928	Loch na Berie, Lewis	?	Fragment of mould? Fabric pale with small inclusions of less than 1mm. Grey staining on shaft. Only surviving face suggest use as a mould. 39mm x 31mm x 15mm.
SF 2000	Loch na Berie, Lewis	?	One large piece of vitrified material. Large inclusions 2mm. Very vitrified at one end. Reconstructed it may be sub circular. Internal surviving face suggests possible use as a mould. 73mm x 51mm x 38mm.
SF 2040	Loch na Berie, Lewis	?pin shaft	Fragment of upper valve of mould showing clay ridge and binding for the joining of the mould and positive keymark in shape of a pronounced triangular notch. Broken at top and bottom and right hand side. Fabric pale orange with small inclusions less than 1mm. Grey buff on interior. No diagnostic features survive although the straight nature of the break down the right hand side and similar nature to other pin moulds suggests that the object cast had a shaft and may have been a pin

SF A140	Loch na Berie, Lewis	Rosette or proto-handpin	Top left upper valve of mould either for rosette or proto handpin. Fabric pale orange and gritty with interior buff grey. No surviving evidence of keying although there are remnants of clay binding. Although the is very fragment and the surviving cast impression is very ephemeral there are enough characteristics to suggest that it was for the manufacture either of a rosette or proto-handpin. In particular there is at least one impression of a bead surviving and perhaps a second one at the break of the right hand side. Beads on the upper part of a pin are a feature both of rosette and proto handpins. The epehemeral nature of the lower half, however, makes differentiation difficult. The pin shaft survives for 15mm with projection c3-4mm. 32 (estimated width) x 38mm x 13mm.
H 413	Loch na Berie, Lewis	?	Fragment of mould? Curved. Fabric pale orange with small inclusions. Grey staining. 28mm x 24mm x 17mm.
CM 34	Loophill, Evertown, Dumfries & Galloway	Ingot	Stone ingot mould, for bar and disc (mirror). Possibly Bronze Age?
GAM 161a	Midhowe, Orkney	?	Fragment of ingate for casting two objects. The objects are unidentifiable, possibly could be for casting two rings round a slightly curved cylindrical object
GAM 161b	Midhowe, Orkney	Disc or ring	Lower valve of a broken mould for the production of a ring or disc?
	Mine Howe, Orkney	Doorknob spearbutt	Twenty fragments of moulds for the production of doorknob spearbutts. Not fully catalogued by author.
	Mine Howe, Orkney	Pins	Various fragments of moulds for the production of pins, including corrugated and proto-handpins. Not fully catalogued by author.
1136	Mote of Mark, Kirkcudbrightshire	Circular bosses	Pair of circular domed bosses. One has a well-defined flange, the second has a less well-defined flange with scroll work in relief on the boss above. V profile key on primary mould. Diameter of complete boss 20mm.
1206	Mote of Mark, Kirkcudbrightshire	Circular bosses	Circular domed boss and ingate. The boss is 10mm diam and carries tight, three strand, interlace decoration.
1208	Mote of Mark, Kirkcudbrightshire	Circular bosses	Pair of circular, slightly domed, discs or bosses. V profile key on edge of mould. Diameter of disc 20mm.
1215	Mote of Mark, Kirkcudbrightshire	Circular bosses	Stud or boss with oval depression or recess, offset in one curved face. Primary mould.
1216	Mote of Mark, Kirkcudbrightshire	Circular bosses	Step-sectioned circular boss. Rectangular depressed key on edge of primary mould.
1221	Mote of Mark, Kirkcudbrightshire	Circular bosses	Stepped circular boss with herringbone rib protruding from one side. Possible angle boss and herringbone border to decorative curvilinear plate
1226	Mote of Mark, Kirkcudbrightshire	Circular bosses	Flanged, circular boss. Total diam. 35mm.
1093	Mote of Mark, Kirkcudbrightshire	Decorated, curvilinear panels with interlace	Triangular panel defined by two concave sides and one convex side. The panel is filled with tight, three-strand interlace. One of the convex sides is decorated with a border of raised pellets with sunken centres.

1094 Mote of Mark, Kirkcudbrightshire	Decorated, curvilinear panels with interlace	Panel filled with tight, three-strand interlace, defined on one side by a curvilinear border of plaitwork and an outer border of ropework and on another side by a straight- edged border of the same decoration. The completed design may have represented a roundel divided into four segments (projected diameter of roundel: 72mm).
1096 Mote of Mark, Kirkcudbrightshire	Decorated, curvilinear panels with interlace	Triangular panel defined by one concave and one convex side. The panel is filled with three-strand interlace; the borders are raised ribs. Possible axe-shaped plate.
1098 Mote of Mark, Kirkcudbrightshire	Decorated, curvilinear panels with interlace	Mould fragment for interlaced plate with curved raised edge and small boss towards centre of surviving fragment
1099 Mote of Mark, Kirkcudbrightshire	Decorated, curvilinear panels with interlace	Possible roundel. Interlaced decoration, not 3-strand but similar to inner circuit on 2273, within curvilinear, raised border . Some of the facets are quite sharply defined.
1100 Mote of Mark, Kirkcudbrightshire	Decorated, curvilinear panels with interlace	Possible roundel. Tight, single strand interlaced decoration, within curvilinear raised border.
1101 Mote of Mark, Kirkcudbrightshire	Decorated, curvilinear panels with interlace	Narrow triangular panel defined by two concave raised borders. The panel is filled with tight, three-strand interlace. Secondary valve with raised key.
1103 Mote of Mark, Kirkcudbrightshire	Decorated, curvilinear panels with interlace	Roundel comprising, originally, four panels of tight, single strand, interlaced decoration disposed around a central boss. The panels are T, or axe-blade, shaped; the interstices are marked by concentric circles. The border of the roundel is defined by pellet and tramline decoration.
1104 Mote of Mark, Kirkcudbrightshire	Decorated, curvilinear panels with interlace	Axe-shaped plate defined by one long convex side, two equilateral concave sides and, in place of an apex, a short blunted straight side. The panel is filled with tight, three-strand interlace and the sides of the panel are bordered by raised dots within parallel raised bands and, on the outer edge, a cable design. One corner of the panel is missing, the remaining sharp angle is now damaged but may have held a boss.
1105 Mote of Mark, Kirkcudbrightshire	Decorated, curvilinear panels with interlace	Curvilinear panel of tight, three-strand interlace; edged on one side by raised pellets within a frame of parallel raised bands. The pellets have sunken centres.
1106 Mote of Mark, Kirkcudbrightshire	Decorated, curvilinear panels with interlace	Triangular panel filled with tight, three-strand interlace, bordered by a thin raised rib.
1107 Mote of Mark, Kirkcudbrightshire	Decorated, curvilinear panels with interlace	Curvilinear panel of tight, three-strand interlace, bordered by raised ribs
1109 Mote of Mark, Kirkcudbrightshire	Decorated, curvilinear panels with interlace	Curvilinear panel of tight, single strand interlace, bordered by raised ribs.
1110 Mote of Mark, Kirkcudbrightshire	Decorated, curvilinear panels with interlace	Round-ended panel with tight, three strand interlace defined by raised border. Secondary valve.
1118 Mote of Mark, Kirkcudbrightshire	Decorated, curvilinear panels with interlace	Circular roundel with three strand interlace, bordered by raised rib. Surface of mould abraded and design indistinct.
1133 Mote of Mark, Kirkcudbrightshire	Decorated, curvilinear panels with interlace	Single strand interlaced panel with curving edge defined by raised border. Prominent raised triangular key on secondary mould.
1134 Mote of Mark, Kirkcudbrightshire	Decorated, curvilinear panels with interlace	Fragment of a mould for a roundel decorated with unusual, tight, three-strand interlace pattern, bordered by raised band (projected diameter of roundel c.41mm).

1135 Mote of Mark, Kirkcudbrightshire	Decorated, curvilinear panels with interlace	Fragment of a mould for a roundel decorated with unusual, tight, three-strand interlace pattern, bordered by raised band (projected diameter of roundel c.41mm).
1139 Mote of Mark, Kirkcudbrightshire	Decorated, curvilinear panels with interlace	Small, circular, slightly dished object (diameter 10mm) with remnants of interlace decoration on surface. The object was bordered by a raised rim.
1190 Mote of Mark, Kirkcudbrightshire	Decorated, curvilinear panels with interlace	Roundel with slight trace of tight, single strand, interlace decoration.
1211 Mote of Mark, Kirkcudbrightshire	Decorated, curvilinear panels with interlace	Raised rib defining curved border to panel of tight, single strand, interlace decoration. This mould appears to have been built up from two layers of clay, or possibly strengthened or enclosed within thick envelope.
2273 Mote of Mark, Kirkcudbrightshire	Decorated, curvilinear panels with interlace	Roundel comprising two concentric panels of decoration around a central circular boss. The inner panel, 9mm wide, is a complex interlace design; the outer panel, also 9mm wide, has the appearance of interlace but is, in fact, composed of numerous interlinked circles. The roundel is bordered by a raised rim. Fine hair lines on outer face. Diameter of roundel: 67mm
1119 Mote of Mark, Kirkcudbrightshire	Other decorated curvilinear panels	Lozenge shaped panel defined by raised ribs enclosing a circular depression with raised centre. ? Possible terminal of penannular brooch.
1120 Mote of Mark, Kirkcudbrightshire	Other decorated curvilinear panels	Cusped panel defined by raised ribs enclosing a circular motif.
1188 Mote of Mark, Kirkcudbrightshire	Other decorated curvilinear panels	Curvilinear plate bordered by raised rib. The fragmentary mould appears to be for a roundel, perhaps compartmentalised into segments in a similar way to item 1094. The only visible decoration is the curvilinear and straight line ribbing which appears to define the segments. Secondary valve.
1212 Mote of Mark, Kirkcudbrightshire	Other decorated curvilinear panels	Bird or animal head with beak or gaping jaw and large eye and body defined by ribbed outline in a manner reminiscent of the serpentine on Durrow fol.192v. Secondary valve.
1217 Mote of Mark, Kirkcudbrightshire	Other decorated curvilinear panels	Complex design, object uncertain. Raised key on secondary mould.
1218 Mote of Mark, Kirkcudbrightshire	Other decorated curvilinear panels	Abraded decoration bordered by a raised rib comprising two bands of cabling arranged in herringbone pattern either side of a central rib.
1222 Mote of Mark, Kirkcudbrightshire	Other decorated curvilinear panels	Curvilinear ribbed decoration, possibly related to 1117.
1225 Mote of Mark, Kirkcudbrightshire	Other decorated curvilinear panels	Circular disc defined by two concentric ribbed circles enclosing a flat central boss. The beginning of a raised lunate expansion appears on the circumference of the disc; a bowed (looped?) bar protrudes diametrically opposite. Possible loop and attachment for belt or strap? Diameter of disc 8.25mm.
2060 Mote of Mark, Kirkcudbrightshire	Other decorated curvilinear panels	Rectangular plate, bordered by raised rim enclosing recessed or openwork design comprising two confronted D-shaped panels. Possible strap fitting?
2378 Mote of Mark, Kirkcudbrightshire	Other decorated curvilinear panels	Diagonally hatched area of decoration bordered by raised rib. Mould is damaged.

2750 Mote of Mark, Kirkcudbrightshire	Other decorated curvilinear panels	Complex design comprising curvilinear plate with raised edge and adjacent curvilinear ribbing.
2776 Mote of Mark, Kirkcudbrightshire	Other decorated curvilinear panels	Curvilinear plate defined by grooved parallel lines.
2778 Mote of Mark, Kirkcudbrightshire	Other decorated curvilinear panels	curvilinear ribbed decoration.
3043 Mote of Mark, Kirkcudbrightshire	Other decorated curvilinear panels	Mould fragment with two thin concentric recessed lines but no other detail visible. Soapy feel.
3124 Mote of Mark, Kirkcudbrightshire	Other decorated curvilinear panels	Abraded design within circular setting - part of outer envelope of mould survives. Primary mould.
1176 Mote of Mark, Kirkcudbrightshire	Other curvilinear panels	Fragmentary mould for flat base of plate with rounded acute angle. Unusual keying comprising a shallow depression bearing parallel longitudinal striations on the angle of a primary valve .
1186 Mote of Mark, Kirkcudbrightshire	Other curvilinear panels	Base of plate with curvilinear edge; oval indented key on edge of primary valve. The mould fabric is laminated and appears to have been built up in layers.
1189 Mote of Mark, Kirkcudbrightshire	Other curvilinear panels	Plain circular plate; funnel shaped ingate visible. Diameter of plate: c.30mm.
1191 Mote of Mark, Kirkcudbrightshire	Other curvilinear panels	Plain base of axe-blade shaped plate with one concave and one convex side. Projected maximum width across blade: 72mm. Primary mould
1195 Mote of Mark, Kirkcudbrightshire	Other curvilinear panels	Flat surfaced plate with slightly curved edge.
1205 Mote of Mark, Kirkcudbrightshire	Other curvilinear panels	Curvilinear panel . Raised key on secondary valve.
1207 Mote of Mark, Kirkcudbrightshire	Other curvilinear panels	Curvilinear object (concave side). Positive triangular key on secondary valve.
2101 Mote of Mark, Kirkcudbrightshire	Other curvilinear panels	Curvilinear plate defined by raised rim. Shallow dished profile with slight step 6mm from rim. Diameter of plate: 84mm. Secondary valve.
2194 Mote of Mark, Kirkcudbrightshire	Other curvilinear panels	Curved-edged, flat surfaced object. Primary valve.
2265 Mote of Mark, Kirkcudbrightshire	Other curvilinear panels	Edge of curvilinear object. Secondary valve.
2266 Mote of Mark, Kirkcudbrightshire	Other curvilinear panels	Curve-sided, possibly convex object. Indication of hair lines on casting face. Secondary valve.
2314 Mote of Mark, Kirkcudbrightshire	Other curvilinear panels	curved-sided plate. Primary valve.
2747 Mote of Mark, Kirkcudbrightshire	Other curvilinear panels	Slightly convex or dome-headed curve-sided object. Secondary valve.
2751 Mote of Mark, Kirkcudbrightshire	Other curvilinear panels	flat base of object with both straight and convex sides. Primary valve.

2754 Mote of Mark, Kirkcudbrightshire	Other curvilinear panels	Flat base of curvilinear object. Primary valve.
2763 Mote of Mark, Kirkcudbrightshire	Other curvilinear panels	Curvilinear object; V-profile key appears to be cut with knife. Primary valve.
1117 Mote of Mark, Kirkcudbrightshire	Decorated rectilinear panels	Design of spirals and trumpet scrolls. Secondary valve.
1149 Mote of Mark, Kirkcudbrightshire	Decorated rectilinear panels	Unusual design for plate perforated or recessed with circular and triangular holes or depressions.
2509 Mote of Mark, Kirkcudbrightshire	Decorated rectilinear panels	Decorated mould. Three possible grooves on one face; ribbing on edge of design.
2135 Mote of Mark, Kirkcudbrightshire	Decorated rectilinear panels	Fragment of mould, possibly for base of plate with shaped rim; narrow slit key or fingernail impression on side of primary valve.
1095 Mote of Mark, Kirkcudbrightshire	Decorated rectilinear panels	Tight, single strand interlace decoration bordered by straight edged running scroll within two raised bands. Secondary mould.
1097 Mote of Mark, Kirkcudbrightshire	Decorated rectilinear panels	Tight, single strand interlace decoration bordered by straight edged running scroll within two raised bands. Secondary mould.
1102 Mote of Mark, Kirkcudbrightshire	Decorated rectilinear panels	Panel defined by a rectilinear and curvilinear raised border. The panel is filled with tight, single strand interlace decoration . Possible cross arm. Secondary mould. Width of cross arm 27mm, length 42mm.
1108 Mote of Mark, Kirkcudbrightshire	Decorated rectilinear panels	Tight, three-strand interlace design with straight-edged border defined by two parallel raised bands confining a running scroll effect of two ribbons interlacing around a series of raised pellets.
1111 Mote of Mark, Kirkcudbrightshire	Decorated rectilinear panels	Round ended, straight-edged, panel with tight, three strand interlace defined by raised border with cable design
1214 Mote of Mark, Kirkcudbrightshire	Decorated rectilinear panels	Panel defined by a rectilinear and curvilinear raised border. The panel appears to be filled with interlace decoration but less distinct than the similar mould, 1102. Possible cross arm. Secondary mould.
1600 Mote of Mark, Kirkcudbrightshire	Decorated rectilinear panels	This mould is now broken but may represent one side of a ribbed object with slightly convex panels flanking the rib. The panels were decorated with tight single strand interlace.
2374 Mote of Mark, Kirkcudbrightshire	Decorated rectilinear panels	T-shaped panel; indistinct interlace. ?Possible cross-arm.
1114 Mote of Mark, Kirkcudbrightshire	Decorated rectilinear panels	Rectangular plate with, originally, four rectangular panels arranged around a central circular element. The edges of the plate are defined by a raised rim indented by peltas. The ingate is visible on the mould. Projected dimensions: 60mm by 28mm.
1115 Mote of Mark, Kirkcudbrightshire	Decorated rectilinear panels	Small rectilinear panel, bordered by raised ribs, containing sunburst design of six spokes radiating from a central circle.
1213 Mote of Mark, Kirkcudbrightshire	Decorated rectilinear panels	Trapezoidal plate bordered by parallel raised ribs.

2745 Mote of Mark, Kirkcudbrightshire	Decorated rectilinear panels	Straight-sided plate with raised pendant 'pear drop' design enclosing triangular motif with concave sides. Secondary mould.
1144 Mote of Mark, Kirkcudbrightshire	Other rectilinear panels	Abraded mould for rectangular plate or setting. Width of cast object 13mm.
1198 Mote of Mark, Kirkcudbrightshire	Other rectilinear panels	Trough-shaped ingate and run-in to rectangular plate. Primary valve.
1202 Mote of Mark, Kirkcudbrightshire	Other rectilinear panels	Plain flat metal strips. Widths: 8.5mm; 7.25mm. Secondary valve.
1220 Mote of Mark, Kirkcudbrightshire	Other rectilinear panels	Rectilinear panel
2117 Mote of Mark, Kirkcudbrightshire	Other rectilinear panels	Straight edged, flat surfaced object. Primary valve.
2264 Mote of Mark, Kirkcudbrightshire	Other rectilinear panels	Straight-edged, flat-surfaced object. Primary valve.
2342 Mote of Mark, Kirkcudbrightshire	Other rectilinear panels	Narrow flat-faced strip. Width: 1.5mm
2764 Mote of Mark, Kirkcudbrightshire	Other rectilinear panels	Straight edged object
2765 Mote of Mark, Kirkcudbrightshire	Other rectilinear panels	Straight edged object
2775 Mote of Mark, Kirkcudbrightshire	Other rectilinear panels	Straight-edged, flat-surfaced object.
2777 Mote of Mark, Kirkcudbrightshire	Other rectilinear panels	Straight-edged object.
1121 Mote of Mark, Kirkcudbrightshire	Penannular brooch Type Ja	Circular terminal of penannular brooch with lunate expansion between terminal and hoop. The central portion of the terminal is raised within a sunken field, for enamel?.
1131 Mote of Mark, Kirkcudbrightshire	Penannular brooch Type Ja	Penannular brooch with circular terminals defined by raised border enclosing sunken panel containing arrangement of four raised dots. Secondary valve.
1116 Mote of Mark, Kirkcudbrightshire	Circular bosses - may be a type Jb brooch	Circular boss, defined by concentric ribbing and a ring of pellets or beading around a centrally raised setting - for a precious stone? There are traces of a possible second element at the fractured edge of the mould. This mould may be for a larger, more complex, decorative casting or may possibly represent the terminal(s) of a penannular brooch.
1128 Mote of Mark, Kirkcudbrightshire	Penannular brooch type G2	Penannular brooch with lozenge terminals. Diameter of hoop c.26mm. The terminals are decorated with four raised dots in a sunken field delineated by a raised border. A raised band separates the hoop of the brooch from the terminals. Secondary valve.
1129 Mote of Mark, Kirkcudbrightshire	Penannular brooch type G2	Plain underside of lozenge-shaped terminal for penannular brooch. The terminal has well defined facets running parallel with the straight edges. Primary valve.

1130 Mote of Mark, Kirkcudbrightshire	Penannular brooch type G2	Plain undersides of two penannular brooches cast in the same mould. Diameters of hoops: 23mm, 24mm. The brooches have lozenge-shaped faceted terminals. Irregular depressions at the corners of both terminals of one brooch may be too consistent to be entirely the result of damage. Primary valve.
2248 Mote of Mark, Kirkcudbrightshire	Penannular brooch type G2	Plain base of penannular brooch with square or lozenge terminals. Hoop cross-section: 4.75mm; external diameter of hoop: 24.5mm. Primary valve.
1150 Mote of Mark, Kirkcudbrightshire	Nail-headed pin	Three nail-headed pins. Diameter of shafts 3mm.
1151 Mote of Mark, Kirkcudbrightshire	Nail-headed pin	Two nail headed pins. Diameter of shafts 3mm. Secondary valve.
1152 Mote of Mark, Kirkcudbrightshire	Ball-headed with collar	Two pins, one of which has knobbed head with collar between head and shaft. Diameter of shaft 2.5mm. Primary valve.
1153 Mote of Mark, Kirkcudbrightshire	Ball-headed pin	At least two pins, both with cylindrical knobbed-heads. Diameter of shaft 3mm. Primary valve.
1154 Mote of Mark, Kirkcudbrightshire	Hippo-camp' stick pin	Disc-headed pin with two opposed 'sea-horses' flanking the raised decorated disc. Both 'sea-horses' have curling tails and gaping jaws. Diameter of shaft 3.5mm. Sharp V-notched keys on primary valve.
1155 Mote of Mark, Kirkcudbrightshire	Disc-headed and collar	Pin with disc head and collar. The shaft of the pin has flattened sections. Diameter of shaft 3mm. Primary valve.
1159 Mote of Mark, Kirkcudbrightshire	Nail-headed pin	Nail-headed pin with slightly skewed head. Shaft (2.5mm diameter) has faceted cross-section as if the model was carved from bone or wood. Primary valve.
1160 Mote of Mark, Kirkcudbrightshire	Nail-headed pin	Nail-headed pin. Diameter of shaft 2.5mm.
1161 Mote of Mark, Kirkcudbrightshire	Nail-headed pin	Three nail-headed pins. Diameter of shafts 3mm. Primary valve.
1168 Mote of Mark, Kirkcudbrightshire	Nail-headed and ball-headed	Two pins of different character. One has a conventional flat nail head; the other has a slightly domed head. Shaft diameter not measurable.
1169 Mote of Mark, Kirkcudbrightshire	Disc-headed and collar	Disc-headed pin with pelta collar below disc head. Shaft diameter 2mm, disc diameter 8.5mm. Primary valve.
1170 Mote of Mark, Kirkcudbrightshire	Disc-headed pin	Pin shaft with convex-faced disc head. Diameter of shaft 3mm.
2302 Mote of Mark, Kirkcudbrightshire	Thistle-headed pin	Thistle headed pin. Diameter of pin shaft: 2.75mm. Secondary valve.
2603 Mote of Mark, Kirkcudbrightshire	Nail-headed pin	Three nail-headed pins. Diameter of shafts: 2.5mm. Primary valve.
3200 Mote of Mark, Kirkcudbrightshire	Nail-headed pin	Two, possibly three, nail-headed pins. Diameter of pin shafts: 3.25mm. Secondary valve.
1156 Mote of Mark, Kirkcudbrightshire	Pin shafts	Three pin shafts towards their bases. The mould displays diagonally impressed narrow keying and the ingate is present at the pin ends. Diameter of shafts 3mm. Primary valve.

1157 Mote of Mark, Kirkcudbrightshire	Pin shafts	Two pin shafts towards their bases. Diameter of shafts 3mm. Ingate present on mould at pin ends. Primary valve.
1158 Mote of Mark, Kirkcudbrightshire	Pin shafts	Pin shaft near base. Ingate present on mould at pin end. Diameter of pin shaft 3.5mm. Primary valve.
1162 Mote of Mark, Kirkcudbrightshire	Pin shafts	Pin shaft with angular cross-section. Diameter of shaft 2.5mm. The impression of a lightly grained piece of organic material rests transversally across the line of the pin on the mould, as though a fragment of straw or grass had been accidentally pressed into the clay beneath the model for the pin. Ingate present. Secondary valve.
1163 Mote of Mark, Kirkcudbrightshire	Pin shafts	Three pin shafts; 2mm diameter. Secondary valve.
1164 Mote of Mark, Kirkcudbrightshire	Pin shafts	Two pin shafts; 3.5mm diameter
1165 Mote of Mark, Kirkcudbrightshire	Pin shafts	Two pin shafts; diameter 3mm. Primary valve.
1166 Mote of Mark, Kirkcudbrightshire	Pin shafts	Two pin shafts; diameter 3.5mm. Primary valve.
1167 Mote of Mark, Kirkcudbrightshire	Pin shafts	Three pin shafts at pin ends and run-in from ingate. Diameter of shafts 2.5mm.
1201 Mote of Mark, Kirkcudbrightshire	Pin shafts	Pin shaft(s).
2072 Mote of Mark, Kirkcudbrightshire	Pin shafts	Pin shaft.
2084 Mote of Mark, Kirkcudbrightshire	Pin shafts	Shallow funnel ingate, run-in and mould for pin shaft.
2119 Mote of Mark, Kirkcudbrightshire	Pin shafts	Pin shaft.
2257 Mote of Mark, Kirkcudbrightshire	Pin shafts	Four pin shafts, facettled, sharply tapering points. One run-in channel intercepts a pin-point at an oblique angle. Shaft diameters: between 2.5mm and 3mm. Primary valve.
2316 Mote of Mark, Kirkcudbrightshire	Pin shafts	Two pin shafts with facettled cross-section. Diameter of shafts: 2.25mm.
2360 Mote of Mark, Kirkcudbrightshire	Pin shafts	Pin shafts; facettled cross-section. Shaft diameter 2.25mm.
2439 Mote of Mark, Kirkcudbrightshire	Pin shafts	Pin shaft
2461 Mote of Mark, Kirkcudbrightshire	Pin shafts	Pin shaft?
2480 Mote of Mark, Kirkcudbrightshire	Pin shafts	pin shafts.

2677 Mote of Mark, Kirkcudbrightshire	Pin shafts	Pin shafts. Diameter of shafts: 1.5 to 2mm; key formed by pressing round sectioned tool. Primary valve.
1112 Mote of Mark, Kirkcudbrightshire	Buckles and strap fitments	Rectangular panel with serpentine motif on plate. Probable buckle. Width of plate: 11mm.
1113 Mote of Mark, Kirkcudbrightshire	Buckles and strap fitments	Buckle loop with circular hole below loop for pin-swivel. Rectangular panel with serpentine motif on plate. Width of plate: 8.5mm.
1122 Mote of Mark, Kirkcudbrightshire	Buckles and strap fitments	Buckle loop. The loop is defined by raised dot decoration between two bands and, at the apogee, by the heads of two opposed gaping jawed beasts. Diameter of loop: 20mm; strap opening: 8.5mm. Secondary valve.
1123 Mote of Mark, Kirkcudbrightshire	Buckles and strap fitments	Buckle loop defined by raised dot decoration in sunken panel between border of raised bands. Secondary valve. Diameter of loop: 21mm; strap opening: 11mm. Secondary valve.
1124 Mote of Mark, Kirkcudbrightshire	Buckles and strap fitments	Buckle loop defined by raised dot decoration in sunken panel between border of wide raised bands. Diameter of loop: 23mm; strap opening: 11mm. Secondary valve.
1125 Mote of Mark, Kirkcudbrightshire	Buckles and strap fitments	Mould for plain underside of buckle loop. Projected diameter of loop: 22mm; strap opening: 11mm. Primary valve.
1126 Mote of Mark, Kirkcudbrightshire	Buckles and strap fitments	Mould for plain lower surface of buckle loop. Projected diameter of loop: 21mm; strap opening: 10.5mm. Primary valve.
1127 Mote of Mark, Kirkcudbrightshire	Buckles and strap fitments	Buckle loop with raised dot decoration in sunken panel bordered by raised bands. Abraded secondary valve.
1132 Mote of Mark, Kirkcudbrightshire	Buckles and strap fitments	Delta shaped buckle loop with slightly curved sides. Mushroom and rectangular shaped notches define the swivel bar for a pin. Projected diameter of loop: 25mm; strap opening: 12.5mm.
1137 Mote of Mark, Kirkcudbrightshire	Buckles and strap fitments	Flat-sectioned oval loop. Probable buckle. Projected diameter of loop: 24mm; strap opening: 16.5mm. Primary valve.
1138 Mote of Mark, Kirkcudbrightshire	Buckles and strap fitments	Damaged and abraded mould for flat sectioned hoop. Projected strap opening: 16.5mm.
1141 Mote of Mark, Kirkcudbrightshire	Buckles and strap fitments	Two fragments of same original mould for rectangular strip or plate with expanded end. Rectangular hole at one end, circular hole at the other identifies the item as a probable buckle plate or strap fitting. Width of object at waist: 8.5mm; maximum width: 13mm. Ingate present on primary valve.
1142 Mote of Mark, Kirkcudbrightshire	Buckles and strap fitments	Rectangular plate with slightly expanded terminal and square hole. The hole is bordered by interlace decoration which extends down the length of the plate. Probable distal end of buckle plate. Maximum width of plate at expansion: 16mm. Secondary valve.
1143 Mote of Mark, Kirkcudbrightshire	Buckles and strap fitments	Rectangular strip or plate (width 9mm) with rectangular slot in the centre. Deep funnel ingate present on primary valve.
1145 Mote of Mark, Kirkcudbrightshire	Buckles and strap fitments	Plain lower surface of buckle loop with mushroom and circular shaped openings defining the loop and swivel-bar for a pin. Projected diameter of loop: 22mm; strap opening: 12.5mm. primary valve.

1146 Mote of Mark, Kirkcudbrightshire	Buckles and strap fitments	Blade shaped object or plate with central raised rib. The faces of the blade would have been slightly dished near the rib. The mould is in a distinctive hard sandy fabric. Secondary valve.
1147 Mote of Mark, Kirkcudbrightshire	Buckles and strap fitments	Blade shaped object or plate with central raised rib. More blunt and smaller than 1146 but similar in that the faces of the blade would have been slightly dished near the rib. Width of cast object: 11mm
1148 Mote of Mark, Kirkcudbrightshire	Buckles and strap fitments	Underside of blunt ended, parallel sided dished object. Width of cast object: 19mm. Primary valve.
1210 Mote of Mark, Kirkcudbrightshire	Buckles and strap fitments	Base of elongated object (c.21mm wide) tapering to blunt point; slightly concave on underside. Keys visible on mould as oval depression. Primary valve.
1219 Mote of Mark, Kirkcudbrightshire	Buckles and strap fitments	Flat base of rectangular plate with rectangular slot; possible strap fitment. Projected width of plate: 13mm. Primary valve.
1224 Mote of Mark, Kirkcudbrightshire	Buckles and strap fitments	Possible strap end.
2000 Mote of Mark, Kirkcudbrightshire	Buckles and strap fitments	Buckle plate with square hole or recess at one end above rectangular panel with serpentine motif. Width of plate: 110mm. Deep funnel ingate. Secondary valve.
2260 Mote of Mark, Kirkcudbrightshire	Buckles and strap fitments	Plain base of rectilinear plate with expanded end and rectangular slot. Faint indication of hair lines. Buckle plate or strap fitment. Maximum width of plate at expansion: 13mm. Sharply defined narrow, V-profile key on primary valve.
2261 Mote of Mark, Kirkcudbrightshire	Buckles and strap fitments	Base of rectangular plate with square hole. Neat, narrow, V-profile keys on primary valve. Possible strap fitment. Projected width of plate: 21mm.
2262 Mote of Mark, Kirkcudbrightshire	Buckles and strap fitments	Possible funnel-shaped ingate and primary valve for small strap end or strengthening strip. Width of plate: 10mm.
1172 Mote of Mark, Kirkcudbrightshire	Studs	This primary valve fragment joins 1175. Three strips of circular-headed studs or rivets; six studs in total visible on mould. Diameter of heads c.10mm; length of shafts 9.5 to 10mm; diameter of shafts, tapering, mean 2mm.
1173 Mote of Mark, Kirkcudbrightshire	Studs	Circular headed studs or rivets; two studs visible. Diameter of heads 9mm; length of shanks 9mm; diameter of shanks 2mm. The base of this primary valve has dense, fine, quartz grits.
1174 Mote of Mark, Kirkcudbrightshire	Studs	Primary valve for two strips of studs or rivets; four studs in total visible. Diameter of heads 8mm to 9mm; length of shafts 7 - 7.5mm; diameter of shafts, tapering, mean 2-2.5mm
1175 Mote of Mark, Kirkcudbrightshire	Studs	This fragment of a primary valve for studs joins 1172.
1177 Mote of Mark, Kirkcudbrightshire	Studs	Primary valve for circular headed stud or rivet. Diameter of head 10mm; length of shaft 5mm; diameter of shaft 1.75mm.
1179 Mote of Mark, Kirkcudbrightshire	Studs	Damaged primary valve for stud or rivet; details uncertain.

1180 Mote of Mark, Kirkcudbrightshire	Studs	Primary valve for at least two strips of circular headed studs or rivets; five studs per strip visible. Diameter of heads c.5mm; length of shafts c.8mm; diameter of shafts, tapering mean 2.25mm
1181 Mote of Mark, Kirkcudbrightshire	Studs	Primary valve for two strips of circular headed studs or rivets; five studs per strip visible. Diameter of heads 5.5mm; length of shafts 6mm; diameter of shafts, tapering mean 1.5mm.
1182 Mote of Mark, Kirkcudbrightshire	Studs	Primary valve for strip of circular headed studs or rivets; four studs visible. Diameter of heads c.6mm; length of shanks 6.25mm; diameter of shanks, tapering, mean 1.75mm.
1183 Mote of Mark, Kirkcudbrightshire	Studs	Primary valve for strip of circular headed studs or rivets; part of four studs visible. The underside of the stud heads would be dished. Diameter of heads 7mm; length of shanks uncertain, greater than 8.5mm; diameter of shanks, tapering, mean 1.75mm.
1184 Mote of Mark, Kirkcudbrightshire	Studs	Secondary valve for strip of domed heads for studs or rivets; four heads visible on strip. Diameter of heads c.7.5mm; height of dome 1.25mm.
1196 Mote of Mark, Kirkcudbrightshire	Studs	Strip of flat heads for studs or rivets The centre of the stud head protrudes above the circular head of the rivet. Diameter of circular heads: 8.5mm. Secondary valve.
1203 Mote of Mark, Kirkcudbrightshire	Studs	Secondary valve for three strips of circular flat-topped rivet or stud heads; up to four heads visible per strip. Diameter of heads 6.5mm to 7.5mm.
1204 Mote of Mark, Kirkcudbrightshire	Studs	Secondary valve for three channel run-in and three strips of circular flat topped rivet or stud heads. Up to three heads visible per stud. The central portion of each head would be raised slightly in the cast, above the shank. This possibly indicates that the original model was forged or brazed. Diameter of heads 7mm to 8mm.
1223 Mote of Mark, Kirkcudbrightshire	Studs	Secondary valve for at least two strips of circular, flat-topped heads for studs or rivets; three heads visible per strip. Diameter of heads 6mm to 7mm.
2037 Mote of Mark, Kirkcudbrightshire	Studs	Secondary valve for at least two strips of domed heads for studs or rivets; up to five studs visible per strip. Domes do not extend to full circumference of stud heads. Diameter of stud heads: 6mm; diameter of domes: 4.5mm; height of domes: 1.5mm.
2159 Mote of Mark, Kirkcudbrightshire	Studs	Primary valve for shanked object (extant length of shank 12mm; diameter of shank 2.75mm).
2247 Mote of Mark, Kirkcudbrightshire	Studs	Trough-shaped ingate and run-in channels for two strips of studs, rivets or similar attachment incorporating stud-like shanks. Only one stud-shank survives at each channel. The head of the best preserved appears to be rectilinear in plan with a shank length of 5.5mm and a shank diameter of 2.5mm. The other shank is 7.5mm long and 1.75mm in diameter. Primary valve.
2263 Mote of Mark, Kirkcudbrightshire	Studs	Pin shaft (diameter: 3mm) and strip of circular headed studs or rivets; three studs visible. Diameter of heads: 10mm; length of shanks 8.5mm; diameter of shanks: tapering, mean 2.75mm. Shallow V-profile key on primary valve.
2451 Mote of Mark, Kirkcudbrightshire	Studs	Primary valve for round-headed stud. Diameter of head: 7mm; shank length: 3mm; diameter of shank: 2.5mm.
2472 Mote of Mark, Kirkcudbrightshire	Studs	Abraded fragment of mould, possibly for stud.

2710 Mote of Mark, Kirkcudbrightshire	Studs	Primary valve for strip of circular-headed studs or rivets. Diameter of shanks 2mm; shank lengths 8.5mm.
2746 Mote of Mark, Kirkcudbrightshire	Studs	Primary valve for circular-headed studs; V-profile key cut or pressed with knife or flat tool. Diameter of head: 17mm.
2748 Mote of Mark, Kirkcudbrightshire	Studs	Probably for strip of circular-headed studs; three stud heads visible. Abraded. Secondary valve.
3127 Mote of Mark, Kirkcudbrightshire	Studs	Secondary valve for two strips of domed heads for studs or rivets. Three heads visible on one strip; two heads on the other strip. Diameter of domes : 4mm; height of domes: 1mm.
3147 Mote of Mark, Kirkcudbrightshire	Studs	Primary valve for at least three strips of circular headed studs or rivets; up to five studs visible per strip. Diameter of heads: 6.5mm; length of shanks: maximum 14mm; diameter of shanks: tapering, mean 2.25mm.
3173 Mote of Mark, Kirkcudbrightshire	Studs	Secondary valve for three strips of domed heads for studs or rivets; up to five heads visible on each strip. The domed head does not extend to the circumference of the circular stud heads. Diameter of circular stud heads: 6mm; diameter of domed heads: 3.5 - 4mm; height of domes: 1.25mm.
1171 Mote of Mark, Kirkcudbrightshire	Studs	Flat tapering strip, constricted towards one end where the strip terminates as a circular stud or rivet head. The shaft of the stud is off centre at the point of constriction. Possible triangular buckle plate or strap fitment. Length of shaft 9.5mm; diameter of shaft, tapering, mean 2mm. Primary valve.
1178 Mote of Mark, Kirkcudbrightshire	Studs	Two circular conjoined plates or rings. Mould too fragmentary for secure identification.
1187 Mote of Mark, Kirkcudbrightshire	Miscellaneous	Plain base of circular plate with rectangular loop attachments and shank projecting from the centre. Diameter of plate: c.38mm; diameter of shank c.6mm. Primary valve.
1192 Mote of Mark, Kirkcudbrightshire	Miscellaneous	Plain base of shanked object with curving sides. Diameter of shank c.2.75mm; depressed key visible on primary valve.
1193 Mote of Mark, Kirkcudbrightshire	Miscellaneous	Cylindrical shaft (mean diameter: c.14mm) tapering towards bulbous terminal. Small ferrule or possible drinking horn terminal.
1197 Mote of Mark, Kirkcudbrightshire	Miscellaneous	Flat base of small horseshoe shaped object. Primary mould. Diameter of loop: 23mm.
1199 Mote of Mark, Kirkcudbrightshire	Miscellaneous	Trough/funnel ingate leading immediately to elongated attachment with raised stud central to a circular expansion of the attachment and blunt shank at point of constriction. Diameter of stud: 4.5mm; diameter of shank 2.75mm; length of shank 6.25mm. Primary valve.
1209 Mote of Mark, Kirkcudbrightshire	Miscellaneous	Deep funnel ingate and mould for hoop (of pennanular brooch?) Thick envelope of coarser clay around probable primary mould. External diameter of hoop; c. 45mm.
2761 Mote of Mark, Kirkcudbrightshire	Miscellaneous	Flat base of large circular plate (diameter: c.34mm) with central pin (diameter: 2mm); shank length 14mm. Primary valve.
2767 Mote of Mark, Kirkcudbrightshire	Miscellaneous	Curvilinear round-sectioned object.

1185 Mote of Mark, Kirkcudbrightshire	Miscellaneous	Mould incorporating ingate and run-in for unusual round-sectioned curvilinear or D shaped object. V profile key on primary mould.
1194 Mote of Mark, Kirkcudbrightshire	Ingate	Trough shaped ingate and run-ins for indeterminate object.
1200 Mote of Mark, Kirkcudbrightshire	Ingate	Fragmentary ingate and three-channel run-in.
2181 Mote of Mark, Kirkcudbrightshire	Ingate	Fragmentary ingate.
2282 Mote of Mark, Kirkcudbrightshire	Ingate	Ingate
2284 Mote of Mark, Kirkcudbrightshire	Ingate	Shallow-funnel shaped ingate and run-in.
2382 Mote of Mark, Kirkcudbrightshire	Ingate	Ingate
2612 Mote of Mark, Kirkcudbrightshire	Ingate	Trough-shaped ingate
2755 Mote of Mark, Kirkcudbrightshire	Ingate	Ingate
2757 Mote of Mark, Kirkcudbrightshire	Ingate	Ingate
2759 Mote of Mark, Kirkcudbrightshire	Ingate	Deep-funnel ingate with clay envelope.
3055 Mote of Mark, Kirkcudbrightshire	Ingate	Ingate
3171 Mote of Mark, Kirkcudbrightshire	Ingate	Ingate
1289 Mote of Mark, Kirkcudbrightshire	Ingot	A rectangular block of fine-grained sandstone. A U-profile rectangular groove, 16mm wide by 10mm deep has been made into the upper surface of the block. The block has been truncated across the axis of the groove and now measures 45.0mm in width and 31.0mm in depth. The actual groove has a surviving length of 24mm. Although the stone is grey in cross-section, much of the upper surface is dark orange in colour. The sides of the ingot groove are buff and the lower surface is grey. (HH289)
1901 Mote of Mark, Kirkcudbrightshire	Ingot	A coarse grained rectangular sandstone block, 38mm in depth and 50mm in surviving width with a rectangular groove, 9.5mm deep, worked in the upper face. The sandstone block is truncated across both the axis and along the length of the groove. The surviving length of the groove is 47mm; the surviving width is 12.5mm. The core of the stone is discoloured to a dark brown in the area of the groove

2996	Mote of Mark, Kirkcudbrightshire	Ingot	A roughly rectangular sandstone block, 93mm x 85mm x 45mm, with an elongated oval depression, 60mm by 20mm, and 7mm deep, in one face. The stone is buff-pink in colour; slightly darker red in the depression.
	Mote of Mark, Kirkcudbrightshire	Ingot Undiagnostic	In addition, a total of 291 mould fragments have been recorded which bear no diagnostic features indicative of the objects cast. A small number provide an indication of whether they might be from a primary or secondary valve or have formed part of an ingate. These moulds include four fragments from the 1913 excavations. Including 13 ingates: (1200, 1194, 1185, 2382, 2755, 2757, 2759, 2612, 2282, 2181, 3171, 3055, no no)
GA 683	Nybster, Caithness	Ingot or pin?	Lower half of a mould, broken at one end. The lack of completeness makes it impossible to be sure what the object cast was, it may be a pin or an ingot
HD 740	Olnefirth, the Cumlins	Ring	Steatite mould; for a ring
RF 36	Orphir, Orkney	Ingot	Part of steatite ingot mould. Rectangular in shape originally with deep groove with rounded end. Traces of burning and tooling on opposite face. 54mm x 2mm x 18mm.
HR 816	Reay, Caithness	Ring-headed pin	Mould for ring headed pin
SF 178	St. Boniface, Orkney	Pin-head or decorative boss	Three fragments of moulds, two lacking diagnostic features. The larger fragment has the impression of a pin-head of a decorative boss.
CAT 1127	Scalloway, Shetland	Ring or brooch	Fragment of mould with impression of circular setting. As cast, this would have consisted of a raised hemispherical boss D 5 mm, encircled by a band of raised circular pellets set in a shallow groove c 3 mm wide, with linear borders. As the fragment is abraded and incomplete it is impossible to be sure whether it was part of brooch terminal or a separate fitting. However, enough of one edge of the mould survives to suggest that the mould was fairly large and that the setting lay at the edge of a large object, which could have been a brooch terminal. The valve is flat on the rear and of rectangular section, showing that it is a lower valve of a two-piece mould. The fabric is surprisingly coarse, with abundant quartz and mica. It is reddish orange with grey areas where molten metal has reduced the surface colour. L 21 mm; W 14 mm; T 7 mm; external D setting 11 mm.
CAT 4584	Scalloway, Shetland	Ingot	Steatite mould for casting bars and discs. Well-shaped rectangular block with worn, rounded corners. There are mould cavities on all four long faces. Most of the upper wide face is occupied by a disc mould, D 52 mm: D 8 mm, with a slightly concave lower surface crudely incised with radial grooves (possibly to help with extraction of disc). At one end there is a small bar mould with rounded ends, L 34 mm; W 6 mm; D 3 mm. The other wide face has three parallel bar moulds, all with slightly rounded ends: i) L 63 mm; W 9 mm; D 8 mm, ii) L 54 mm; W 8 mm; D 6 mm, iii) L 41 mm; W 5.5 mm; D 6 mm. These are blackened through use. The two long narrow faces each have a single bar mould: i) L 66 mm; W 13 mm; D 11 mm, ii) L 53 mm; W 8 mm; D 5 mm. The object shows considerable signs of wear and use.

CAT 5400	Scalloway, Shetland	?	Fired clay, probably a mould fragment. One flat surface has traces of an edge at one point. The other surface is broken and abraded. Fabric as 5454. L 25 mm; W 19 mm; T 8 mm
CAT 5454	Scalloway, Shetland	Hand pin	Part of mould for hand-pin. Upper valve of two-piece mould, upper surface convex, luted over lower valve. Lower surface flat with two V-shaped positive keys and the impression of the rear face of a hand-pin. The shaft of the pin, of which 14 mm length survives, is c 4 mm in diameter and projects slightly to the rear at the top end. The head has three co-joined 'fingers' or circular protuberances in a horizontal row. Beneath and to one side are traces of what is either another finger or the edge of the front plate. The area of the pin impression is fired grey indicating contact with molten metal. The fabric is orange and fine-grained with no visible inclusions. L 34 mm; W 27 mm; T 12 mm
unreg	Scatness, Shetland	Ingot	Ingot mould. Not available to study by the author.
unreg	Scatness, Shetland	Hand pin	Handpin. Not available to study by the author.
unreg	Scatness, Shetland	Penannular brooch	Penannular brooch. Not available to study by the author.
unreg	Sheep Hill, Argyll	?	Clay mould fragments reported coming from the site. Not available to study by the author
	187 Skaill, Orkney	Ingot	Sandstone beach cobble used as a mould. 'Nail' shaped groove pecked into one face.
	188 Skaill, Orkney	Ingot	Sandstone beach cobble used as a mould, broken. Single bar on one face.
	189 Skaill, Orkney	Ingot? or spearbutt?	Sandstone beach cobble used as a mould. Butt-shaped object on one side, circular mould on the other.
	199 Skaill, Orkney	Ingot	Sandstone beach cobble. Bar mould on one side. Broken. One other face is a roughly pecked semi-circle.
	186 Skaill, Orkney	?Ingot mould	Sandstone cobble. Used as a rubbing stone and net weight. Possible that it may have been used for an ingot or the manufacture of an adze like object.
	Skaill, Orkney	Ball-headed pin with collar / elliptical headed	Upper valve for the production of a ball-headed or melon-headed pin. Now in two pieces. Almost all of the mould survives, lacking shaft tip and ingate.
	Skaill, Orkney	Decorative plate?	Valve, broken one two sides making recognition of object cast difficult. Surviving casting surface suggests a rectangular bar with expanding semi-circular central portion. Series of three small dots arranged lengthways along the centre.
CAT 498	Sollas, North Uist	Projecting ring-headed pin	Mould for a projecting ring-headed pin. Lower valve of a two piece mould, broken at both ends. Flat lower surface and convex upper surface. Upper surface has the impression of a pin with a shaft of sub-rectangular section, 4mm wide, L more than 20mm. The ring head projects 5mm outwards from the shaft and is circular (incomplete). D c22mm with rounded section D 3mm. No signs of keying on the surfaces preserved. Mould T c15mm. Fabric is pale orange, with abundant inclusions of gneissic minerals up to 2mm
GQ 39	St Blane's, Bute	Ingot	Ingot mould found in 1896. Readily paralleled on Early Christian period sites such as Dunadd (Craw 1930, fig 6.8) and the Mote of Mark (Laing & Longley in prep).
	11046.1 St Columba's Cave, Argyll	?	Lower valve of a broken fragment. Not enough survives to be sure of original object cast.
	11046.2 St Columba's Cave, Argyll	?	Lower valve of a broken fragment. Not enough survives to be sure of original object cast.

11046.3	St Columba's Cave, Argyll	?	Lower valve of a broken fragment. Not enough survives to be sure of original object cast.
11047	St Columba's Cave, Argyll	?	Lower valve of a broken fragment. Not enough survives to be sure of original object cast.
11048	St Columba's Cave, Argyll	?	Lower valve of a broken fragment. Not enough survives to be sure of original object cast.
	Stannock, Whithorn, Galloway	Ingot	Granite ingot mould for two discs and two short bars. Late Bronze Age of Iron Age?
	Tarbat, Ross & Cromarty	Various	Assemblage not fully studied yet by the author. Initial analysis suggests that a range of objects were made, including ingots, pins, ?brooches and a glass stud
GVM 547	Traprain Law, East Lothian	Beaded or rosette	Fragment of mould for the head and upper portion of the stem of a beaded-headed pin. Lower valve. For the back of the pin. Either a rosette. A proto-handpin or a handpin. Not enough survives to be sure. Negative V-shaped keymarks on top and sides.
GVM 547a	Traprain Law, East Lothian	Pin shaft	Lower valve for the production of a pin shaft. Broken at top. Ingate survives at bottom.
GVM 548	Traprain Law, East Lothian	? Projecting pin of some sort	Lower valve for the production of the back of a projecting ring-headed pin. Not enough survives to be sure of original shape or type of pin. Similar to GVM 555.
GVM 549	Traprain Law, East Lothian	Beaded?	Lower valve for the production of the back of a projecting ring-headed pin. Very ephemeral remains of pin at top, making recognition of what object was made very difficult. Possibly beaded. Remnants of V-shaped negative keymarks.
GVM 550	Traprain Law, East Lothian	? Projecting pin of some sort	Lower valve for the production of the back of a projecting pin. The actual casting surface is now badly damaged and the shape of the cast pin can no longer be made out. Classed by Burley (1955, 219) as a rosette/ beaded pin. There may be slight evidence of beading surviving on the top half. Evidence of clay binding and negative key marks.
GVM 551	Traprain Law, East Lothian	Beaded or rosette	Complete lower valve for the production of the back of a projecting ring-headed pin. Ingate survives at bottom of shaft. For a beaded or rosette headed pin. V-shaped negative key-marks on top and sides.
GVM 552	Traprain Law, East Lothian	Proto-handpin	Fragment of mould for the top portion of a proto-handpin. Upper valve for the production of the front face of a proto-handpin. Pin would have a plain crescent lower half and six beads on top. Only the top and left hand side of the mould survives.
GVM 553	Traprain Law, East Lothian	Rosette	Lower valve for the production of a rosette headed pin with five petals. Mould almost intact. Ingate survives. Negative keymarks on top and sides.
GVM 554	Traprain Law, East Lothian	Proto-handpin	Upper valve for the production of the front of a projecting ring-headed pin. Classed but Burley (1955, 219) as a handpin but more likely to be a proto-handpin.
GVM 555A1	Traprain Law, East Lothian	Pin shaft	Lower valve for the production of a pin shaft. Part of ingate survives. Broken at top and right hand side. Evidence of clay binding.
GVM 555A2	Traprain Law, East Lothian	Pin shaft	Lower valve for the production of a pin shaft. Broken at top and bottom.
GVM 555A3	Traprain Law, East Lothian	Pin shaft	Lower valve for the production of a pin shaft. Broken at top and bottom.

GVM 555 A4	Traprain Law, East Lothian	Pin shaft	Lower valve for the production of a pin shaft. Broken at top. Ingate survives at bottom. Evidence of clay binding.
GVM 555 A5	Traprain Law, East Lothian	Pin shaft	Lower valve for the production of a pin shaft. Broken at top and bottom, although part of the ingate appears to survive. Positive V-shaped keymarks on left hand and right hand, not parallel to each other.
GVM 555 A6	Traprain Law, East Lothian	Pin shaft?	Miscellaneous fragment. Possibly a pin shaft.
GVM 555 A7	Traprain Law, East Lothian	Beaded pin	Fragment of a mould for a beaded pin
GVM 555 B1	Traprain Law, East Lothian	? Projecting pin of some sort	Fragment. Broken at top, bottom and right hand side. Lower valve for the back of a projecting ring-headed pin. Not enough survives to be sure of original form of pin.
GVM 555 D1	Traprain Law, East Lothian	Pin shaft	Lower valve for the production of a pin shaft. Broken at top and just below the ingate. Clay binding survives on one side.
GVM 555 E1	Traprain Law, East Lothian	Pin shaft	Lower valve for the production of a pin shaft. Broken at top and bottom. Two negative key marks survive on either side.
GVM 570	Traprain Law, East Lothian	? Projecting pin of some sort	Portion of lower half of a mould for the back of a projecting ring-headed pin. Has previously been called a hammerheaded pin although not enough survives to be sure of pinheads original shape, the top carrying the design no longer surviving. destroyed. Ingate survives on bottom.
GVM no no	Traprain Law, East Lothian	Pin shaft	Lower valve for the production of a pin shaft. Broken at top and bottom.
GVM no no	Traprain Law, East Lothian	Pin shaft	Lower valve for the production of a pin shaft. Broken at top, bottom and left hand side. Only half of the shaft remains. Evidence of clay binding.
GVM 556	Traprain Law, East Lothian	Dress fastener	Ovoid mould, probably for a square-headed dress fastener. Possibly unused.
GVM 557	Traprain Law, East Lothian	Dress fastener	Two valves for the production of a dress fastener. Joining pieces in very good state. Surviving keying marks on both objects and surviving ingate.
GVM 565	Traprain Law, East Lothian	Mount of dress fastener	Lower valve, almost intact for production of a rectangular object. Possibly a mount or a buckle? Keymarks on side and centre. Ingate survives also.
GVM 558	Traprain Law, East Lothian	Ring / annular object	Broken valve for the production of some form of annular object. Not enough survives to be sure of original shape.
GVM 559	Traprain Law, East Lothian	Ring / annular object	Lower valve for the production of an annular object. Probably a ring. Half of a ring which may have been cast in the mould also survives. Almost complete. Ingate survives and negative keymarks on side around the side and top of mould.
GVM 559a	Traprain Law, East Lothian	Ring / annular object	Lower valve for the production of an annular object. Probably a ring.
GVM 561a & GVM 563A	Traprain Law, East Lothian	Doorknob spearbutt	Upper valve for the production of a doorknob spearbutt; projecting triangular keys on either side. Fragment of another mould, now joined to GVM 561A.

GVM 561b	Traprain Law, East Lothian	Doorknob spearbutt	Half of a mould for a globular butt; doorknob spearbutt
GVM 561c	Traprain Law, East Lothian	Doorknob spearbutt	Half of a mould for a globular butt; doorknob spearbutt
GVM 562	Traprain Law, East Lothian	Doorknob spearbutt	Fragment of a large mould for a hemispherical object - possibly a doorknob spearbutt
GVM 570b	Traprain Law, East Lothian	Doorknob spearbutt	Upper valve for the production of a doorknob spearbutt. Only the shaft and part of the bulb to be cast survives. Positive V-shaped keys. Broken on left, top and bottom.
GVM 570C	Traprain Law, East Lothian	Spearbutt?	Fragment of mould for a portion of a hemi-spherical object, probably the butt of a spearbutt.
GVB 56C	Traprain Law, East Lothian	Spearbutt?	Fragment of mould for a portion of a hemi-spherical object, probably the butt of a spearbutt.
GVM 561	Traprain Law, East Lothian	Spearbutt?	Three mould fragments for the production of a hemi-spherical objects, probably the butts of spearbutts.
GVM 567	Traprain Law, East Lothian	Spearbutt?	Part of a waterworn oval fragment of sandstone with half of a hollow on the upper surface possibly for casting a knobbed ferrule
GVM 564	Traprain Law, East Lothian	Fitting (corrugated)	Lower and upper valve for the production of a corrugated fitting. Very good preservation showing surviving ingate, keymarks and binding.
GVM 567A	Traprain Law, East Lothian	Ingot?	Mould with a 'm-shape' matrix.
GVM 568	Traprain Law, East Lothian	Ingot or disc?	Mould with a circular mould on one surface for a disc
GVM 571A	Traprain Law, East Lothian	Ingot	Block of sandstone with a mould for an ingot cut in the middle of one face
GVM 571C	Traprain Law, East Lothian	Ingot	Oblong piece of sandstone with a mould for an ingot cut on one face
GVM 571D	Traprain Law, East Lothian	Ingot	Block of sandstone with a mould for an ingot on the upper surface
GVM 572A	Traprain Law, East Lothian	Ingot	Half of a pebble with a mould for an ingot cut on one surface and another for a round-ended object on the opposite
GVM 572B	Traprain Law, East Lothian	Ingot	Block of sandstone with portions of two matrices for ingots
GVM 572C	Traprain Law, East Lothian	Ingot	Block of sandstone with a mould for an ingot in the centre of the polished upper surface
GVM 573A	Traprain Law, East Lothian	Ingot	Mould of sandstone with a mould for a bar on the top
GVM 573B	Traprain Law, East Lothian	Ingot	Mould of sandstone with a mould for a bar on the top
GVM 573C	Traprain Law, East Lothian	Ingot	Large block of sandstone with two ingots moulds
GV 1310	Traprain Law, East Lothian	Miscellaneous	Fragment not enough survives to be sure what was cast.

GVB 47 A2	Traprain Law, East Lothian	Miscellaneous	Fragment not enough survives to be sure what was cast.
GVB 47B 1	Traprain Law, East Lothian	Miscellaneous	Fragment not enough survives to be sure what was cast.
GVB 47B 2	Traprain Law, East Lothian	Miscellaneous	Fragment not enough survives to be sure what was cast.
GVB 50 A 1	Traprain Law, East Lothian	Miscellaneous	Fragment not enough survives to be sure what was cast.
GVB 50 A 2	Traprain Law, East Lothian	Miscellaneous	Fragment not enough survives to be sure what was cast.
GVB 50 A 3	Traprain Law, East Lothian	Miscellaneous	Fragment not enough survives to be sure what was cast.
GVB 50 A 4	Traprain Law, East Lothian	Miscellaneous	Fragment not enough survives to be sure what was cast.
GVB 50 A 4	Traprain Law, East Lothian	Miscellaneous	Fragment not enough survives to be sure what was cast.
GVB 51 A 1	Traprain Law, East Lothian	Miscellaneous	Fragment not enough survives to be sure what was cast.
GVB 51 A 2	Traprain Law, East Lothian	Miscellaneous	Fragment not enough survives to be sure what was cast.
GVB 51 A3	Traprain Law, East Lothian	Miscellaneous	Fragment not enough survives to be sure what was cast.
GVB 51 A4	Traprain Law, East Lothian	Miscellaneous	Fragment not enough survives to be sure what was cast.
GVB 51 A5	Traprain Law, East Lothian	Miscellaneous	Fragment not enough survives to be sure what was cast.
GVB 52	Traprain Law, East Lothian	Miscellaneous	Fragment not enough survives to be sure what was cast.
GVB 53	Traprain Law, East Lothian	Miscellaneous	Fragment not enough survives to be sure what was cast.
GVB 53A	Traprain Law, East Lothian	Miscellaneous	Fragment not enough survives to be sure what was cast.
GVB 54A	Traprain Law, East Lothian	Miscellaneous	Fragment not enough survives to be sure what was cast.
GVB 55	Traprain Law, East Lothian	Miscellaneous	Fragment not enough survives to be sure what was cast.
GVB 56	Traprain Law, East Lothian	Miscellaneous	Fragment not enough survives to be sure what was cast.
GVB 56A	Traprain Law, East Lothian	Miscellaneous	Fragment not enough survives to be sure what was cast.
GVM 555 A4	Traprain Law, East Lothian	Miscellaneous	Fragment not enough survives to be sure what was cast.
GVM 555 C1	Traprain Law, East Lothian	Miscellaneous	Fragment not enough survives to be sure what was cast.

GVM 555 C2	Traprain Law, East Lothian	Miscellaneous	Fragment not enough survives to be sure what was cast.
GVM 555 C3	Traprain Law, East Lothian	Miscellaneous	Fragment not enough survives to be sure what was cast.
GVM 560	Traprain Law, East Lothian	Miscellaneous	Fragment not enough survives to be sure what was cast. Three fragments
GVM 566 A	Traprain Law, East Lothian	Miscellaneous	Mould for casting an irregular curved oval shape
GVM 566 B	Traprain Law, East Lothian	Miscellaneous	Mould for casting an irregular curved oval shape
GVM 569	Traprain Law, East Lothian	Miscellaneous	Mould for casting an object with oblique angled sides
GVM 571B	Traprain Law, East Lothian	Miscellaneous	Triangular block with a harp-shaped mould on the upper surface.
CM 10	Trochrigg, Ayrshire	Ingot	Mould of stone, for casting 5 bronze objects of various shapes on one side: one circle; one oval, two triangular shaped hollows, one larger than the other and a handle shape. The longest triangular hollow may have been designed for the blade of a dagger; the shorter perhaps a chisel. The opposite side has formed a half mould for casting an irregular oval mass of metal. Green serpentine. May not be Iron Age.
HD 1985	Uig, Traigh na Berie, Lewis	?	Valve of a clay mould showing H-shaped object
1	Whithorn, Galloway	Stick pin	Fragment of mould, probably bi-partite used to manufacture at least one stick pin. Only a section of the shank remains. Interior analysis revealed copper with some zinc and lead. Exterior analysis showed some lead and very small zinc, not copper.
4	Whithorn, Galloway	Stick pin	Fragment of bi-partite mould for at least four stick pins. The four shanks taper towards each other.
8	Whithorn, Galloway	Stick pin	Fragment of bi-partite mould for six stick pins. The six shanks taper towards each other and emerge into a single pouring mouth.
2	Whithorn, Galloway	Nail-headed pin	Half of bi-partite mould for casting of at least five (probably 6) nail-headed pins. Head and upper shank portions survive. The pins are aligned tapering towards each other at the point, possibly to allow for a single pouring mouth. Transverse grooves cut in the upper edge of the mould do not penetrate, and are probably alignment marks for keying in the upper half of the mould
3	Whithorn, Galloway	Penannular brooch?	Possible mould fragment. One surface has part of a curved groove, of shallow U section. Two even more shallow broad grooves converge to one side of the curved groove. Preserves the matrix of a curved object with a raised central ridge conforming in size to contemporary penannular brooches. Not enough survives to be sure.
6	Whithorn, Galloway	Stick pin or spearbutt?	Fragment of mould with a single narrow groove nearly parallel with the outer edge. Possibly for the manufacture of stick pins.

7 Whithorn, Galloway	Stick pin?	Fragments of bi-partite mould for at least two stick (~5.) pins, evidencing pouring mouth and terminal points of shanks. Two perpendicular grooves in the broken upper edge are of unknown purpose, appearing too deep for keying points, but not functioning as vents as they do not penetrate the fabric.
5 Whithorn, Galloway	Stick pin?	Fragment of (?)bi-partite mould, with three parallel grooves. This contrasts with the moulds for stick pins, where the grooves converge.
9 Whithorn, Galloway	Miscellaneous	Fragment of mould, two U-sectioned converging grooves, much larger than those associated with stick pin moulds. (Bronze Brass).
10 Whithorn, Galloway	Miscellaneous - ingate?	Possible gate fragment
1 Whithorn, Galloway	Ingot	Trapezoidal-section sandstone fragment. Broken across slightly curving, deep U section bar mould.
2 Whithorn, Galloway	Ingot	Fractured sub-rectangular slab. Smooth upper surface includes the right angled corner of a pecked, flat-bottomed depression and a roughly chipped bar mould.
3 Whithorn, Galloway	Ingot	Sandstone slab. Four of the moulds are in a rough line along one edge. A fifth is set at 90 degrees to the line. Incised design of at least five small overlapping compass-drawn circles on surface between moulds.
4 Whithorn, Galloway	Ingot	Broken slab with three parallel channels, possibly bar moulds. Moulds have convex-shaped sides and flat base.
5 Whithorn, Galloway	Ingot	Ingot mould; two rectilinear bar moulds. Flat-bottomed with inwardly sloping sides. Pecked lentoid mark on upper surface is not a mould.
1 Whithorn, Galloway	Mount?	Flat sandstone pebble with roughly incised X on one face. Opposed face with carved rosette mould centrally placed. The design consists of a conical centre enclosed by a circle from which eighteen grooves radiate. The sides of the mould slope in slightly to facilitate removal of the cast object, At the upper edge of the mould two opposed channels are cut into the surface, becoming deeper as they progress away from the centre. These grooves terminate prior to reaching the edge of the mould, and are thus not necessarily to allow the egress of air. If the mould were an open mould these two projecting elements of the finished object could have been bent at their narrowest point, adjacent to the rosette, to form a mount or ring. Adjacent to the terminus of one groove is a shallow depression, and it could be that this is a keying point, indicating that the original mould was bi-partite an unusual feature in this medium, more commonly found on ceramic moulds.