7.6.1.3 Tarbat clay mould report
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1.0 INTRODUCTION

A total of 709 fragments of clay mould were recovered during excavation within Sector 1 and 2. Each fragment was individually recorded and the results form the catalogue. The moulds derive from the working of non-ferrous metal and glass. In the case of metal-working the moulds are characterised as bivalve and were recorded where possible as either lower (primary) or upper (secondary) moulds, lower or upper ingates or combinations of those. Where the fragment was not diagnostic it was recorded simply as a mould fragment. Many fragments were severely eroded and could only be broadly identified as undiagnostic clay, although the fabric and character was the same as identifiable pieces and the clay could be differentiated from unspecialised daub fabric. In 117 instances sufficient of the object matrix was preserved allowing a range of castings to be identified including dress pins, finger-rings, studs, discs, mounts, escutcheons as well as a range of newly identified objects.

2.0 BIVALVE MOULD FRAGMENTS

The technology of the bivalve mould is well understood and discussed in detail elsewhere (Curle 1982, 37-9; Lane and Campbell 2000, 201-2; Laing and Longley 2006, 32-35). The method of mould preparation did not differ at Tarbat from that identified at these sites (the Brough of Birsay, Dunnadd and the Mote of Mark).

At Tarbat the lower valve was prepared on a flat surface and the model impressed deeply into it. The valve was keyed, normally in opposed pairs and singly at the bottom of the valve, executed with the tip of a knife or with fingertips (fingernail impressions were noted) and a flat, comparatively shallow ingate formed. The upper valve was then formed over the lower valve and model producing a convex mould with positive keys and a wide-mouthed, funnel-like ingate. The model was then removed and the valves sealed with luting clay which appeared to have been applied in a wet or semi-liquid state as smears from smoothing were commonly noted often with sticky fingerprints. Once cast the mould was broken open resulting in higher fragmentation of the upper mould.

As a reflection of the breaking open of moulds, among the 709 fragments recorded only twelve complete lower valves and four complete or near-complete upper valves were recorded. A total of 137 lower valve fragments were recorded, of which 3 retained part of the ingate as well as 17 further lower ingates. Upper valves were identifiable in 114 cases of which 23 retained part or all of the ingate. Upper valve fragments are likely to account for the majority of the fragments recorded simply as mould and undiagnostic clay.

3.0 GLASS MOULDS

A total of nine glass moulds were identified in the assemblage. The moulds are distinguished from metal moulds as they are 'open' i.e. they do not show signs of uniting with another mould. Nor do the interiors of the moulds show signs of reduction which is common in moulds with have received molten metal. An example of a one-piece mould was recovered from Lagore, Co. Meath with a stud of pale green glass *in situ* (Hencken 1950, 129-132, Fig. 62).

Two glass stud moulds from Tarbat are very similar to that from Lagore and have elaborate cross-ornament on small circular studs (25/687 and 25/1431)(Illus *) and also find parallels with three stud moulds of identical design found at Iona (Graham Campbell 1981, 24, Fig.III.Ib). 25/1431 bears an interlace cross design which George and Isabel Henderson identify as so familiar as to 'go unremarked on Insular cross-marked stones' and which can also be found in repoussé form on the underside of Bowl nos 5 and 6 from the St Ninian's Isle treasure (Henderson and Henderson 2004, 109; Small, Thomas and Wilson 1973, Bowl Nos 5 and 6).

Two stud moulds appear to form a group, the best preserved is also elaborately decorated and bears the matrix of a small circular stud 12mm in diameter containing a tripartite Y-shape division and three pairs of stepped lines radiating from the centre (24/5520)(NO ILLUSTRATION). The mould reflects the decoration on two glass studs from Tarbat one with a diameter of c.12mm and both of which are paralleled on a number of finished composite items from Scotland and Ireland often used in conjunction with silver grilles and enamel. The bichrome glass and metal grille studs on the front of the Tara brooch, Co. Meath are almost an exact match in terms of ornament and size. The second mould is badly eroded and no more than a shallow, small oval matrix measuring 11 x 9mm can now be discerned (24/8208).

Four fragments of the same spiral-decorated disc mould were recovered from Sector 1 (25/1432 and 25/1496). The reconstructed diameter suggests the casting was of a flat, circular disc measuring c.44mm. The spiral and peltae decoration is partly legible (Illus *) and the disc would have been mounted onto a larger object probably in a metal setting. Here again the basal escutcheon from the St Ninian's Isle hanging bowl provides a close match. The escutcheon is similarly ornamented and the diameter only 10mm than the Tarbat mould, although the disc is *pressblech* not cast (Small, Thomas and Wilson 1973, Bowl No 8).

No glass studs of similar composition and size survive on contemporary pieces of metalwork and it is difficult to assess exactly how they would have been used. It may be significant that the only other known Scottish parallels come from Iona particularly in light of the fact that access to glass-working including window glass is biased in favour of ecclesiastical sites in Britain. This reflects the high patronage enjoyed at sites such as Glastonbury, Whitby, Jarrow and Monkwearmouth, Whithorn and Iona. Glass-working from Early Medieval Ireland is also known from Early Christian sites at Dunmisk, Movilla Abbey and Cathedral Hill, Armagh, but has also been recovered from high status secular sites enjoying comparable patronage such as Lagore.

Four glass moulds form a clear group. Each mould appears to have been sliced off a rolled tube of clay and where the matrices survive small simple cells can be identified and the finished product appears to have been small domed square, circular or triangular glass studs (11/3576 conjoins 11/3651, 11/3447, 11/3448 and 11/3602)(Illus *). Similar moulds were recovered from the glass stud making workshop at Lagore where again simple circular, triangular, square and subrectangular studs were being produced (Hencken 1950, 129-132) and many items of high status insular metalwork are embellished with simple studs imitating semi-precious gemstones. No other examples of such moulds are known from Scotland, but glass studs of similar form and size can be identified on Pictish metalwork such as the glass studs on a number of silver and silver-gilt penannular brooches including from St Ninian's Isle treasure (Small, Thomas and Wilson 1973, Brooch Nos 10, 18 to 20, 23 and 24) Rogart, Aldclune and Clunie (Henderson and Henderson 2004, 99-105).

4.0 NON-FERROUS METAL CASTINGS

4.1 Dress pins (Illus *)

Twelve valves bore the impressions of dress pins or part pin shanks (25/708 and 908; 24/3479, 3486, 4030 (double) and 8225). Identifiable pins included that of a stick pin with a horned head and collar (25/1401). A further example was fragmentary and appeared to be a part pin head matrix of possible styliform type (24/5411). A near-complete lower valve missing the top end and ingate appeared to represent a stick pin with scooped head or a toilet implement such as an ear scoop (24/4020).

Three valves appear to relate to pins with zoomorphic heads. A near-complete lower valve retains a matrix of pin shank and irregular form head which is eroded but may have been zoomorphic (24/8138). A complete lower valve matches a lower valve fragment and both appear to have been impressed with the same model. The complete valve describes a short pin c.20mm long with zoomorphic head ornament, while the less complete example retains only part of the zoomorphic head (24/4574 and 4579)(Illus *).

4.2 Finger rings and other rings (Illus *)

Moulds for rings included five clear examples of finger-rings with integral cast bezels which formed simple decoration either as a small group of lobes (24/4573, 5410 and 8360) or triangular (24/8121 and 24/8342)(Illus *). The diameters of all rings fell close together and were recorded as between 20.5 and 22mm. All the Tarbat finger-rings are closely paralleled at the Brough of Birsay (Curle 1982, 32-33).

Eleven simple ring matrices were identified and probably belong to finger-ring moulds but not enough survived for clear identification (14/371 and 3736; 24/1310, 3850, 4734, 5440, 5770, 8107, 8219, 8236 and 8287). In support of this, where measurable ring diameters were recorded as 17, 19 and 20mm.

One exception was a fragment of mould in a distinctive pale-pink-firing, very fine clay which was unlike the clay used in the majority of moulds (24/8228). This fragment was very fragmentary but bore the part impression of three small possible ring or disc matrices and may be related to a possible brooch mould formed in the same distinctive clay fabric.

A further smaller valve appeared to be for the casting of a small ring or link, the cast object measuring c.10mm diameter.

4.3 Possible brooch mould (Illus *)

Four valve fragments were found to conjoin to form two valve fragments (24/8180 conjoins 8344 lower and 24/8176 conjoins 8383 upper) and also to unite with each other. The fragments were identified initially as a group by the unusual pale-pink-firing, very fine clay fabric and can be associated with a further valve fragment with three possible disc or ring matrices. The conjoining and uniting fragments appear to form part of a brooch hoop with possible facets and while it is not clear how valve fragment 24/8228 relates to the possible brooch mould the pieces form a distinct family. The unusual clay fabric and the care with which the mould was made suggest a fine and accomplished high-status product which may well have been composed from a number of separately cast elements.

A further lower valve fragment was severely eroded but retained the deeper parts of a complicated, possibly bossed item (24/3598). The fragment bears four depressions one sub-oval with vestigial possible fine interlace and possible neck connecting to deeper sub-circular depression in turn connected by a collared neck to a smaller sub-oval depression with a further separate depression. The exact item intended cannot be clearly identified but the piece could represent an elaborate brooch terminal intended to be fastened to a hoop cast separately.

4.4 Buckles, belt fittings and strap-ends (Illus *)

Seven valves which may be related to the manufacture of buckles or belt fittings were identified in the assemblage. A small sub-rectangular hoop may represent a small buckle or link from Sector 1 (11/3546). A group of four similar lower valves from Sector 2 bear the impression of a possible small buckle plate and part tongue, a simple bar with projecting tab (24/3849, 8196, 8373 and 8295 conjoins 8374)(Illus *). Two further valves appear to bear the impression of small possible belt fittings (24/5348 and 8323)(Illus *).

A small group of valves which appeared to be related to the simultaneous casting of simple strap ends and links were identified (11/3643; 24/3575, 5417 and 8272)(Illus *).

A further valve bore a more complex impression of a tab with raised rim containing a series of lobate impressions and may represent part of a strap end (24/3416).

4.5 Escutcheons, discs and mounts (Illus *)

A total of 19 escutcheon or disc moulds were identified. Many were eroded but appeared to represent simple plain discs or the backs of escutcheons along with a smaller group of four highly decorative escutcheons and mounts.

Plain discs and escutcheons

Eleven plain discs or escutcheons were identified although some may have borne decoration now lost (11/3548, 3569; 25/759, 761, 899, 1433, 1486; 24/3850, 4062, 5932, 8197). A possible bossed disc valve was among the group (25/1433) and a further four fragmentary escutcheon moulds were concave suggesting they formed the back of a casting (24/5415, 8264, 8284, 8268 conjoins 8283).

Decorated escutcheons

Four fragmentary decorated escutcheons, discs and mounts were identified.

One example consisted of part of the upper mould of an escutcheon of possible sub-oval form impressed with the part matrix of a dragon-like creature including its head with open jaws and part spiral limb (24/8200)(Illus *). This animal form is already known in the Tarbat menagerie being represented on TR20 and TR205.

Two conjoining fragments of upper mould with part ingate derived from the casting of a small domed disc bearing an eroded geometric interlace pattern which would have resulted in a sunken grille-like pattern probably to receive an inlay (11/4269 conjoins 25/855)(Illus *).

Two zoomorphic mounts were suggested in the assemblage. Two conjoining fragments of upper valve bear the part matrix of a fish with symmetrical tail, part body and fin defined by parallel ridged decoration (24/8258 conjoins 8337). The cast item may have been three dimensional or flat-backed. As the former the complete item may have been mounted onto a large composite piece of metalwork, perhaps the interior of a hanging bowl, or as the latter as an appliqué mount. The ribbed style of decoration is similar to that employed on zoomorphic scutcheons on the hanging bowl from the St Ninian's Isle

treasure (Small, Thomas and Wilson 1973, Bowl no 8). The other zoomorphic mount consists of an upper valve with the impression of a tapering strip with gilled decoration from a central spine leading to possible animal-head terminal (24/8343).

4.6 Possible weights

A noteworthy group of moulds are unique in Scotland and are tentatively identified as for casting weights and fall into two types. A further lower valve with deeply impressed object appeared similar in overall form but was unique in the assemblage (24/8152)(Illus *). This valve bore the impression of an object with a squat sub-cylindrical shaft leading to a bulbous terminal with crude similarities to doorknob spearbutts but given the date and function of such objects is unlikely to be meaningful in the context of Tarbat.

Type A (Illus *)
Type A was represented in nine valves, both upper and lower (24/8195 conjoins 8221, 8086, 8273 and 8130) including four valves which unite to form two near-complete Type A matrices (24/8270 unites to 24/8172 and 24/8319 unites to 24/8292)(Illus *). Type A consists of a shape best described as acorn-like with a pyramidal lower half and small rounded knop, and in the case of Type A sometimes with a circular tab at the top of the knop which may have been drilled through following casting.

Type B (Illus *)
Type B was represented by 11 valves again both upper and lower although none could be united (24/8194, 8096, 8140, 8093, 8128, 8222, 8324, 8235, 8094, 8206, 8363)(Illus *). The objects cast in Type B valves clearly represent a very similar type of object with a pyramidal bottom half and a much taller knop without clear evidence for a tab.

4.7 Objects with tabs

A new group of 15 valves and fragments are grouped here by a distinctive trapezoidal tab integrated into the object matrix. The items being cast included small tabbed individual tapering strips (24/8106, 8169, 8174, 8240 and 8371) sometimes paired and united by a single trapezoidal tab (24/5371, 8153 and 8335), tabbed strips with spiral terminals (24/4581 and 8085), and a tabbed strip with T-bar (24/4582). A further three valves could be grouped here since they bore fragmentary trapezoidal tabs (24/4580, 5397 and 8203).

A valve fragment from the Brough of Birsay was identified as having a trapezoidal tab integrated into the matrix (Curle 1982, 35, No.374) and other examples of tabbed matrices can be identified from the site (Curle 1982 34, Nos 343 and 348). Curle suggested the tab was designed to be folded round another object which seems a reasonable suggestion, although it does not aid with deciding upon an identity for the Tarbat objects.

5.0 DISCUSSION

The deposits which yielded mould fragments from Sector 1 are assigned to Period 2 activity because of their position overlying the infilled enclosure ditch and their spatial association with Structure 1. In addition, the dating of two glass studs from the assemblage to the 8th century provides a date for the wider assemblage. The deposits which yielded assemblages of Period 3 were within Sector 2 where they were stratified above the ruins of Period 2 buildings, layers and features and were recovered along with fragmentary Period 2 sculpture.

Throughout both periods there are strong affinities with the technology and in some cases the products of the Pictish workshop at the Brough of Birsay. There are also artistic links with the St Ninian's Isle treasure along with a number of other high status composite objects from Pictland and beyond. There are distinct differences in the repertoire however and the emphasis at Birsay appears to have been the production of small items of personal display including small penannular brooches, stick pins, finger rings and small tacks or studs whereas in both periods at Tarbat highly accomplished craft-working is evidenced.

The Period 2 items at Tarbat included multiple examples of highly decorative castings in glass or non-ferrous metal with evidence for inlaid metal grilles of the kind that adorn contemporary masterpieces. There is a shift however in Period 3 where smaller commodities are also produced with the finger rings providing a close if not exact connection to the Birsay workshop. Nevertheless, more specialist work is also evidenced in this period and the possible large brooch mould with its distinctive fine fabric and the small glass stud mould which matches the Tara brooch suggest that a brooch of that calibre could have been made at Tarbat in Period 3. Notably, this is the only brooch represented within the assemblage and this marks the Tarbat workshops apart from those

at Birsay, Dunadd and Mote of Mark where smaller brooches were being produced and likely in some number. The same can be said of dress pin moulds. The ornament on the small Period 3 glass stud mould matches the glass studs from Period 2 very closely which is particularly noteworthy. Clearly something of the Period 2 repertoire if not the craftworkers themselves persisted into Period 3 and the production of fine mounts and escutcheons is equally accomplished. Newly identified items also make their appearance in Period 3 including possible standard weights and tabbed items again paralleled at Birsay but essentially unidentified in terms of purpose or function.

5.2 Period 2

Identifiable products from the Period 2 assemblage are dominated by the assemblage of seven glass stud moulds and nine decorative and plain escutcheons or mounts. The glass moulds belong with other forms of evidence for glass-working at the site which so far is unique in early medieval Scotland. The manufacture of small glass studs with metal grilles and enamel inlay are found on high-status insular metalwork, but the larger glass studs being produced are not so easily paralleled. The evidence for the casting of items of lesser status was indicated by the dress pin and buckle moulds but these are not numerous enough to constitute evidence for the mass production of small, low value items or commodities.

5.2 Period 3

A greater number of moulds were recovered from Period 3 deposits and the range of cast items was correspondingly more diverse. Items being produced clearly included finger-rings, dress pins, buckles, strap-ends and strips and in greater quantities by comparison with Period 2. In addition a number of highly decorative items were also being manufactured represented by the possible brooch mould, possible brooch terminal, small inlaid glass stud mould, the fish mount and items with tabs likely to belong to composite items. The possible casting of weights was also confined to this period.

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