APPENDIX F GLASS REPORT

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Vessel glass

Sherds from three very different types of vessel are present in the assemblage. The easiest to identify is 2885, decorated with a reticella glass rod of twisted opaque yellow and self-coloured glass. Vessels decorated with reticella rods are a hallmark of the eighth and ninth centuries, and are found distributed in Scandinavia and around the North Sea littoral, with a scatter further afield (Nasman 1984, 81-2, fig 9; Evison 2000a, fig 7). The place of manufacture has been widely debated (Evison 1988), and there may have been several production centres, but only *Hamwic* and Åhus have been fairly certainly identified as a source (Hunter & Heyworth 1998, 38, 61). Scottish examples are known from the Brough of Birsay (Campbell 2007, Pl 26; Hunter 1982, 47), Whithorn (Price & Hill 1997, 314-5, illus 10.12, no. 83), and Inchmarnock (Campbell forthcoming). These, and the English examples from Whitby, Monkwearmouth, Barking Abbey, Flixborough and Beverley, are mostly from ecclesiastic contexts, but more recently examples have turned up on secular settlements such as York, Trowbridge, and Wicken Bonhunt (Evison 2000a, 86-88). Unused reticella rods have also been found at western monastic sites such as Iona, Armagh and Movilla, as well as secular sites such as Dunnyneill Islands. However, these rods were also widely used in bead manufacture, so their presence does not necessarily imply vessel manufacture. The Tarbat sherd cannot be assigned to a form, as it is too small, but reticella trails were applied to a wide variety of forms, such as jars, bowls and funnel beakers. Of these, the curvature of the sherd suggests a jar or bowl as the most likely form. It has been suggested that the Scandinavian distribution of reticella-decorated vessels can be correlated with that of Tating ware and the wine trade (Gaut 2008, 35), but there is no way of confirming this suggestion at Tarbat, where no imported pottery was recovered.

The blue sherd, 11/1901, comes from near the base of narrow vessel, perhaps a cone or funnel beaker. This deep cobalt blue colour appears in Anglo-Saxon England in the seventh century, and was used in a restricted range of vessels associated with elite princely graves, possibly as diplomatic gifts (Campbell 1990). If the vessel was a cone beaker, it is likely to date to the seventh century. If it was a funnel beaker, an eighth- or ninth-century date would be appropriate, but this deep blue colour would be unusual at this period. The sherd is markedly abraded, and is not certainly ancient, so its status must remain equivocal.

The third sherd, 11/2471, is equally difficult. Decolourised glass with wheel-engraved decoration, was produced in Late Antique contexts in the Mediterranean (Price 2000, 24-26), and a few sherds have been found in fifth- to seventh-century contexts in Britain, including Whithorn (Campbell 2007, 56-58). However, the decorative technique of the Tarbat sherd differs from these imports in that the engraving has not been done with the edge of a wheel, but in ground-down patches and deep scores with a pointed tool, possibly diamond-tipped. It is therefore perhaps more likely that this sherd is post-medieval, but its antiquity cannot be ruled out.

24/2885 Bodysherd of decorated glass vessel. The glass is good quality, few bubbles, and a yellowish-green colour. The decoration is a single reticella trail, of opaque yellow and transparent yellow-green, partially marvered. The yellow trails have bled into the body of the vessel forming a row of spots along both margins. Trail 3mm wide. Diameter of vessel ?50-60mm; thickness 0.5mm, size 13 x 9 mm.

11/2471 Bodysherd of decorated glass vessel. The glass is of high quality, no bubbles, colourless (decolourised). The decoration is engraved, consisting of three deeply abraded sub-circular patches and three deeply incised lines, one with a series of deeper cross-hatches. Outer surface abraded. Size 15 x 8 x 1.5mm. Possibly modern

11/1901 Bodysherd. The glass is high quality, no bubbles, light cobalt blue. Sherd from near narrow base of ?cone or funnel beaker. Thickness 2-4 mm, size 16 x 7 mm. Heavily abraded edges. Not certainly ancient.

Glassworking debris

The collection of glass-working debris from Tarbat is the most extensive in Scotland for the entire medieval period, and is important in showing the range of glass-working processes which took place in the early medieval period as it includes raw glass, molten droplets and trails, crucibles and heating trays. Similar collections are known from contemporary monastic sites in England and Ireland at sites such as Glastonbury (Bailey 2000), but the same range of glass-working activities also took place on secular high status sites such as Lagore and Garranes (Henderson 2000, 144-147). Glass was almost certainly not made from its mineral constituents in North-west Europe at this period, but was manufactured in the Mediterranean on an industrial scale, and the raw material exported as lumps of cullett broken from massive slabs. The cullett was then melted down to make vessels or other items such as beads and inlays (Freestone et al 2008, 32-3). The material can be divided into two groups, one of deep blue glass, and the other of opaque yellow.

The first stage in the glass-making process was the acquisition of cullett. Lumps of raw glass rarely survive from this period. There is one large block of red glass from near Tara, and a yellow one from Moynagh Lough crannog excavations, both in Co. Meath, Ireland (Youngs 1987, 201), and much smaller shaped slabs from Glastonbury Abbey (Bailey 2000, 171; Evison 2000b, 189), but all that is usually found are glass mosaic cubes and selected sherds of glass, collected and destined for melting down (Campbell 2007, 92-96; Hill 1997, 296). The large piece of blue cullett, 11/1000, is therefore an important addition to our knowledge of the raw materials available to early medieval Insular craftworkers. A small spall, 11/362, and a glass droplet 11/4136, are probably derived from melting down this cullett. The glass stud 25/686, may have been one of the products of this blue glass-working.

The other pieces are related to working of opaque yellow glass. The crucible fragment 11/3551 would probably have been used to prepare the opaque yellow glass by mixing lead-tin ores with raw glass, as was found at Dunmisk, Co. Tyrone (Henderson 2000, 144). There are traces of metal ore within the glass adhering to the crucible wall. The thickness and curvature of this crucible show that it would have been quite large - the ones from Glastonbury held up to two litres of glass (Bailey 2000, 170, fig 13). This is larger than the general metalworking crucibles of the period such as those from Dunadd (Lane & Campbell 2000, illus 4.40). The driblet of yellow and green glass, 25/1385, may have been associated with this stage of the process. The heating tray 11/3469, would then have been used to re-melt the prepared opaque yellow glass. The stirring marks where trails of glass have been lifted are still visible on the base of this tray. The eyed shape of this tray is unusual, though it is clearly related to 'dog-bowl' types found on many sites (ibid, 134, type B), and some of the Birsay and Clatchard Craig examples are oval (Curle 1982, illus 25; Close-Brooks 1986, illus 27, 107). The fragment of trail or rod, 25/1458, is a remnant of one the trails lifted from this type of tray, possibly used to create a reticella rod by twisting with another of natural-coloured glass.

11/362 Spall from lump of cullett. Pale blue transparent glass, surface opalescent. Size 20 x 6 x 3 mm.

11/1000 Large fragment from sub-spherical lump of cullett. Opaque blue glass, banded lighter and darker from turquoise to blueish white, very bubbly. Surface opalescent, devitrifying in places. Size 36 x 20 x 9 mm.

25/1385 Irregular dribble of molten glass. Colour varies from olive green to opaque yellow. Irregular lumps of opaque yellow inclusions. Size 30 x 4 x 4 mm.

25/1458 Irregular rod of opaque yellow glass, broken at one end, rounded at the other. Waste from trail production. Size

12 x 2 x2 mm.

11/3551 Crucible body sherd, with opaque yellow glass on interior surface. Fabric white, gritty, rather crumbly, wheel-thrown. Exterior grey/orange. Possible inclusions of metal ore in glass. Size 41 x 31 x 7 mm.

11/3469 Two-thirds of a low-walled heating tray. Eye-shaped heating tray with flat base. Patches of opaque yellow glass on interior surfaces, but also spreading to exterior in places. Stirring marks visible where trails have been lifted out. Fabric as 3551, hand-modelled. Size 62 x 45, Height 17 mm

11/4136 Droplet of molten glass, broken. Cobalt blue, very bubbly. Abraded. Size 3 x 3 x 4 mm.

Beads

The fact that only two beads were recovered from the extensive excavations might be seen as surprising, but given that beads were predominately female attributes this is understandable in a monastic context. Both beads from the site are in a bubbly blue glass, and it is possible they were manufactured on site, given the droplet of similar glass (11/4136). One of the beads, 14/3559, is tiny, of a type sometimes referred to as spacer beads for necklaces (Hunter & Heyworth 1998, 26). These are uncommon, presumably because they are so easily overlooked, but appear to have been made at *Hamwic* in the eighth/ninth centuries (ibid). The other bead, 24/4570, decorated with running swags, is a common type in both Anglo-Saxon and Scandinavian contexts over a wide time range. The marvered trail decoration has almost completely decayed, leaving a groove, which suggests it may have been in opaque white glass, which is prone to decay. There are traces of colourless glass at places within this groove, which might suggest that the decoration was originally a bichrome twisted reticella trail of white and colourless glass. If that was the case, it indicates a connection with a later tradition of reticella beads found in Ireland, Scandinavia and later Anglo-Saxon England (Brugmann 2004, 41) from the seventh to tenth centuries. Given that the trail is missing, there is little more specific that can be said.

14/3559 Tiny blue spacer bead. Wound, bubbly glass, opalescent decay. 3mm diameter, hole 2mm diameter.

24/4570 Decorated wound glass cylinder bead. Glass cobalt blue, very bubbly and streaky. Decorated with single marvered running swag trail, now completely decayed, but with traces of colourless glass, perhaps indicating original reticella twisted trail. Height 7mm; diameter 8mm; hole diameter 4mm.

Studs

The two decorative domed glass studs from the site are the most spectacular glass finds, and are important in showing the type of material that was produced at Tarbat. The similarities in design of the two studs suggest they derive from, or were intended for, a single composite piece of metalwork. Both designs are based on a tri-partite division of the circular stud using a combination of arcs and straight lines to form pseudo-cloisons which would have been filled with silver. The smaller of the two, 25/1452, in opaque white glass, has grooves for silver wire decoration, but this is now lost or had not been applied, while on the larger, 25/686, the wire survives and can be seen on X-ray to be almost complete. The pattern of decoration, a doubly-tripartite division, one of arcs and one of straight lines, sometimes stepped, is paralleled in more elaborate versions on some of the smaller studs from the Derrynaflan patten (Ryan 1993, 30, pl 14; Ryan & O' Floinn 1983, Pls 55, 57, 59, 61), and the same decorative elements are used in other studs. While the some of these studs have a quadri-partite decorative scheme, many others are tri-partite. The central triangle with concave sides, which is so prominent in the Tarbat stud, is a particular feature of the Derrynaflan studs on Frames 1, 12 and 5 (ibid). These studs use blue and red for the decorative scheme, and this may have been the original colour scheme of 25/686 (as red enamel often fades to white),

but blue and yellow is another possibility. The larger stud, 25/686, is similar in size to the Derrynaflan studs, and the Tarbat stud is clearly in the same workshop tradition, if not from the same craftworker. Very similar studs are seen on secular metalwork on the back of the 'Tara' brooch from Bettystown, a piece conventionally dated to the early eighth century, but otherwise most surviving artefacts with these studs are ecclesiastical, such as the Ardagh chalice, Moylough belt-shrine, and the Derrynaflan wine-strainer.

The smaller Tarbat stud has a similar decorative scheme, but in its most simplified form without any stepped elements. The small size would seem to preclude its use on large items like a patten or chalice, but slightly smaller studs almost identical to those on the Derrynaflan patten are seen on the rear of the 'Tara' brooch (Youngs 1989, Pl. on 77 upper), though it is difficult to find a parallel for such a small stud. It may have been from a small brooch such as that from Co. Westmeath (Youngs 1989, 206, no. 211) which has small studs of about seven millimetres in diameter on its front face, or may have been a subsidiary stud like those on a possibly ecclesiastical mount also probably from Westmeath (Youngs 1989, 147, no. 141). Most of the parallels quoted above probably date to the eighth century. The only piece from a well-dated archaeological context is a detached stud with gold wire inlay which was found in an early eighth-century deposit at Deer Park Farms, Co. Antrim (Youngs 1989, 206). An eighth-century date is the likely for both the Tarbat studs.

The production of inlaid glass studs is attested at a number of secular and monastic sites, including Lagore and Iona, where moulds have been found, and at Garryduff and Dunmisk where unfinished studs were found (Henderson 2000, 146). Thus it seems that this type of stud was not made in an exclusively ecclesiastic milieu, but was also produced on high status secular sites.

25/686 Decorative glass stud with silver wire inlay. Main body of stud is of cobalt blue bubbly transparent glass, with a Y-shaped inlay formed by three arcs of silver wire, filled with opaque whitish glass now discoloured by corrosion, possibly originally red or yellow. Between the arms of the Y is another tripartite division formed by three zig-zags, also filled with silver wire. The circular border also holds silver wire. On the upper surface, the glass is decayed and devitrified in places, particularly the white, probably due to contact with the metal. The upper surface is convex, with vertical sides. The rear surface is not flat, and has part of a flange and indentations showing where the soft glass was pushed into the mould. There is a small flake missing from one edge. Diameter 11mm, thickness 4mm.

25/1452 Tiny glass stud with moulded decoration on upper face. Opaque white glass, with a few bubbles. The grooved decoration, 0.3mm wide and intended for silver wire inlay as in 686, consists of a Y-shape overlain by three curved lines forming a triangle with concave sides, all lying within a circular border. Upper surface convex, lower uneven with flange on one side. Diameter 5mm, thickness 1mm.

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