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EMBRACING THE PROVINCES

SOCIETY AND MATERIAL CULTURE OF THE ROMAN FRONTIER REGIONS

Essays in honour of Dr Carol van Driel-Murray

Edited by

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Chapter 8

Multi-functionality of a Romano-British glass bangle: Between theory and practice

Tatiana Ivleva

Introduction

Carol van Driel-Murray is a key figure in research pertaining to the presence of women and juveniles at Roman army forts in the north-western frontiers of the Roman Empire. Evidence for their co-habitation with soldiers in the *contubernia* of barracks rather than outside the forts, in *vici*, came from her work on the occurrence of children's- and women's-sized shoes in some barrack rooms at various military installations (van Driel-Murray 1995; 1997; 1998; cf. most recently Greene 2014). Following Carol's revolutionary interpretation, other female-associated artefacts and their distribution across forts were brought to attention as an indicator of the presence of women and children (Allison 2006; 2007; 2009; 2013). Among these objects, artefacts worn on wrists, such as bracelets and bangles made of a range of materials (e.g. bone, jet, metal, ivory, stone, and glass) have been classified as part of the female dress worn in the northern parts of the Roman Empire (Cool 2004, 390–1; 2016, 413; Allison 2013, 81–2). While some scholars have raised doubts to the purely female use of bracelets and bangles (Allason-Jones 1995, 27; Hodgson 2014), the question was not specifically pursued in any subsequent discussions (with notable exception Hunter 2014).

This contribution looks at a particular type of such wrist adornment – the glass bangle. These seamless objects composed of coloured glass are usually referred to as bangles or armlets, signifying their function as arm ornaments. The English language uses two different words to differentiate between types of wrist decorations: “bracelet” indicates loose, flexible jewellery, whereas “bangle” signifies a rigid ornament (Duckworth *et al.* 2016, 135). In spite of their relative uniformity in type and manufacturing technology, glass bangles from Roman Britain do not show a high degree of similarity in terms of

their sizes. They were not produced according to the “one size fits all” principle, and they vary considerably in size. Some could only fit a child's arm, while others, to prevent them from easily sliding off, could only be securely worn on the upper-arm of an adult. This paper scrutinises the variability in the size of Romano-British glass bangles to challenge the preconceived functional category into which these objects have been pigeonholed. Incorporating the evidence from experimental archaeology and ethnographic studies, this contribution suggests that glass bangles from Roman Britain were not only worn as personal adornments on wrists and arms, but also could have been used in many different ways by anyone, including animals. Ultimately, the paper aims to show that these objects should not be taken at face value, and their supposedly clear association with female users can and should be interrogated. This piece is offered as an appreciation to Carol, whose trail-blazing work battled against preconceived ideas, as in her work on the presence of females and juveniles in forts. Additionally, it acknowledges her numerous contributions to experimental research on leather items, and her never-ending enthusiasm and support for experimental research in general (cf. amongst others van Driel-Murray 1989; 1996; 2014; van Driel-Murray *et al.* 2004).

Times, places, types and problems

Glass bangles are quite common finds on military and indigenous sites in Roman Britain in the period ranging from the late first to the late second century AD. The main distribution area of these objects lies in the north of England, in particular in Yorkshire, Northumberland and Cumbria, as well as in the Borders and East Lothian regions in the southeast Scotland (Fig. 8.1).

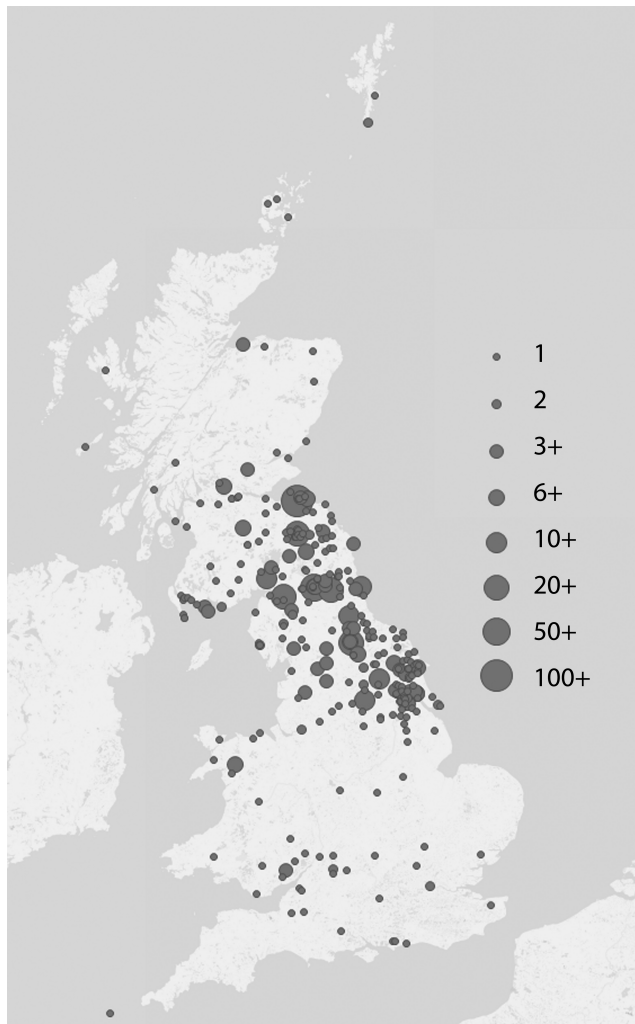


Figure 8.1 Distribution map of Romano-British glass bangles. Map made with © OpenStreetMap contributions software

Three types of glass bangles are known to have been in circulation in this period (Plate 6; Kilbride-Jones 1938; Price 1988). Type 1 is a heavy type that has a core of translucent blue-green or opaque milky white glass. The core was then covered by a set of obliquely laid bands of coloured glass, usually in opaque yellow and opaque red. Type 2 is a lighter type with a triangular- or D-shaped cross-section, and was mainly produced in translucent blue-green glass. The outer surface was decorated with one or more horizontally applied cords, made from two twisted rods of opaque white and cobalt blue glass. This type has been further subdivided into seven sub-types based on the number of cords and the patterns they create (Price 1988, 342). Type 3 is also light and is decorated by trails with curved terminals, sometimes called “pot-hooks.” The type is divided into ten sub-types based on the base colour and the colour of the applied decoration. Types 3A-B were undecorated and were made in opaque white and opaque yellow; types 3C-J were made in colours ranging from opaque white to sage green and were decorated with “pot-hooks” made in a variety of colours (Kilbride-Jones 1938, 376–90).

The range of sizes in which glass bangles were produced show three clear groupings based on their internal diameters: one around 40–45 mm, another around 55–65 mm, and a third group around 70–90 mm (Fig. 8.2). Similar groupings were also observed for the bangles made from black materials, such as jet and coal. Subsequently, these three groups have been interpreted as the bangle size-categories for children, women and men, respectively (Hunter 2014, 153 and fig. 19.2; Hunter *et al.* 2018, 211, 213, illus. 162). A more likely explanation is, however, that the glass bangles with the large diameters were worn on the upper-arm. This interpretation is based on the frequent discovery of complete glass bangles with an internal diameter between 70–90 mm

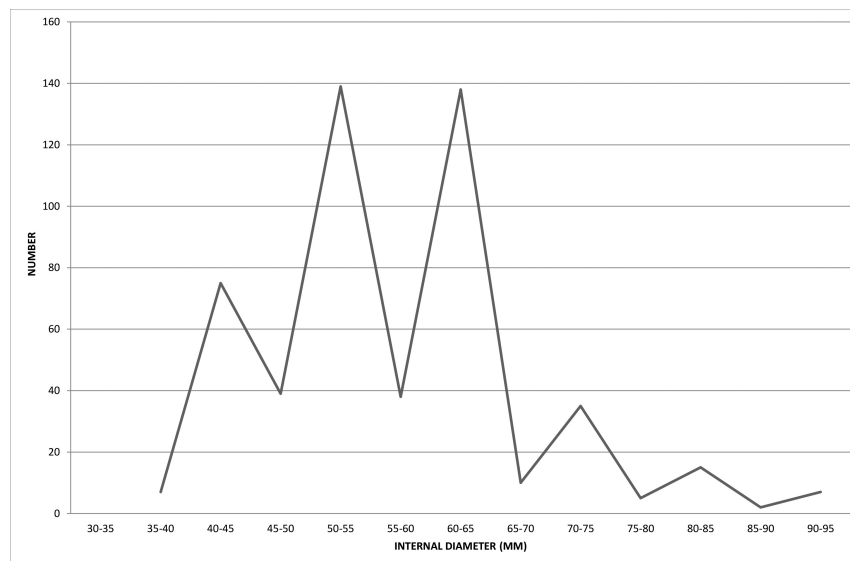


Figure 8.2 Internal diameter range of Romano-British bangles (sample size c. 600 fragments)

in osteologically sexed female graves dated to the Late Iron Age period on the continent (Krämer 1985; Gebhard 1989, 136–7; Johns 1996, 123). This does not mean, of course, that in Roman Britain bangles with a large diameter were only worn by women on the upper-arm as a direct continuation of the Later Iron Age continental custom. Yet, it already demonstrates that the earlier interpretation should be questioned: not all bangles were for female use and/or were used to decorate wrists.

A significant proportion of the British glass bangles have an internal diameter of c. 40 mm. One type of Romano-British glass bangle, type 3F, was consistently manufactured with that diameter. Most of the examples come from Traprain Law, a conspicuous hill-top indigenous settlement in the East Lothian region of Scotland, but outliers are known from Corbridge, Vindolanda, Binchester and Wallsend. Yet, this small diameter is not confined to one type: complete type 2Ai glass bangles have been found at York (Plate 7) and Vindolanda having internal diameters of 37 mm and 44 mm respectively. That some bangles were made to be approximately 40 mm implies intentionality, but why? Clearly size did matter, as the objects were consciously “scaled,” either for certain categories of users (e.g. children) or for specific uses. For the latter, various suggestions have been put forward, ranging from necklace pendants to hair-rings to decoration for horse equipment (Stevenson 1976, 53; Johns 1996, 123; Hoffmann 2003, 42). The wearing of glass bangles by children is usually met with reservation (Johns 1996, 123 but see Allason-Jones 1996, 24 and 35 on the finds of “small” jet-like armlets in children’s graves in York). Glass is usually viewed as a material that easily breaks if not properly cared for. Why would one wish to use objects made from such a delicate material for the decoration of horses or for active children?

No previous attempts have been made to test which of the many proposed functions glass bangles actually could have fulfilled. The starting point of this paper is the multi-functionality of material culture, whereby each artefact can be used in a number of different ways beyond the original use conceptualised by its maker or inventor (Derks 2009, 241; Allison 2013, 42–5; Hoss and Whitmore 2016, 2, and more recent concept of “affordance” in Swift 2017). I begin by evaluating the potential functional categories of glass bangles and introducing selected ethnographic case studies from other periods and regions where glass bangles were produced and worn. I then test these various functions through experimental research. Juxtaposing theory, ethnographic descriptions and experimental archaeology we can reconnect the size variability with actual use(s), and gain a more precise understanding of the bangles’ functions at a given time and place. At the same time, this diversity of approaches can assist us in dismissing or confirming previously unverified suggestions (Swift 2017, 8–10).

Function: theory

Armlets

In societies where a glass bangle craft exists, the objects are predominantly worn by women and young girls, either as a wrist ornament or on the upper-arm. For instance, Duckworth *et al.* (2016, 135–6, 144–5 and fig. 7) provide numerous examples of women and children wearing such objects in 19th century north Africa and modern India. In the modern day Muslim kingdom of Nupe (in west-central Nigeria), men manufacture the bangles to be worn by women and young girls. Sometimes, men also may wear bangles, but only on festive occasions (Lababidi 2015 and L. Lababidi pers. comm., who notes that during two of her visits to Nupe she did not see men wearing such bangles). European travellers to Syria in the eighteenth century indicate that bangles or bracelets were worn “*unter und über den Ellenbogen*”, i.e. below and above the elbow (Korfmann 1966, 50, n. 8). While it is unclear whether the European observers were discussing glass bangles or metal bracelets, it is noteworthy that the objects were given to the youths (*sic!* “*Jugend*”), when their arms were still thin. The objects were still worn even when the arm grew larger over time: the flesh would then swell under the bangles/bracelets, and the more the flesh bulged the more this was considered beautiful (Korfmann 1966, 50, n. 8).

The female use of armlets is known from objects that are chronologically and geographically closer to the Romano-British examples. During the Late Iron Age glass bangles were also produced on the continent, but they differed stylistically from the Romano-British ones. The technology first appeared in the third century BC and continued with little interruption until the Augustan period, after which production abruptly stopped (Haevernick 1960; Gebhard 1989; Wagner 2006; Roymans and Verniers 2013). It is generally accepted that the glass bangles were used by women in the Late Iron Age on the continent (Haevernick 1960, 72: “*ein ausgesprochener Frauenschmuck*”; Gebhard 1989, 135: “*unzweifelhaft reinen Frauenschmuck*”). This interpretation is supported by the frequent discovery of complete bangles in osteologically sexed female graves, where the objects are usually found on the upper left arm (Krämer 1985; Gebhard 1989, 136). Bangles were also found in some cremation graves, where the associated burial assemblages were “investigated anthropologically” and interpreted as belonging to females (Roymans 2004, 16–17 with further literature). A handful of bangles came from graves with “male” associated assemblages, but no information is available as to the sex of the deceased because of the poor preservation of cremated remains, modern disturbance to the grave, or because the objects came from antiquarian excavations (Dürrenberg bei Hallein (AT), Comacchio (IT) in Haevernick 1960, 72; Maňa (SK) in Gebhard 1989, 135; Giengen an der Brenz (DE), grave

2 in Jäger 2013, 397–8; Moos (DE), inhumation grave 2 in Schmotz and Schwartz 1987, 96–8).

Therefore, diverse strands of evidence from various chronological periods reflect the association of glass bangles with women and young girls, and their wearing on either the wrist or the upper-arm. So it comes as no surprise that the wearing of Romano-British glass bangles, or wrist ornaments in general, usually has been considered to be a distinctly female trait (Cool 2004, 391; Allison 2013, 82–3; Birley A. 2013, 93–7). Available pictorial evidence seems to support the view that anything suitable to be worn on an arm or a wrist was mostly reserved for women. For instance, the famous Catuvellaunian freedwoman Regina is depicted on her funerary monument found in South Shields, UK, as wearing two bracelets/bangles on her forearms (*RIB* 1065). The material from which these wrist decorations were made is definitely metal as the depiction clearly shows that the bracelets are made from three plaited strands (L. Allason-Jones, pers. comm.). The figure of Venus depicted on a mosaic at Rudston villa, N. Yorkshire, also wears two thin metal-like bracelets/bangles pushed well up on her forearms (Allason-Jones 2005, 118 and fig. 57).

However, what women and men of the Roman Empire chose to wear on a daily basis, does not always correspond with our expectations. For instance, Cool (2004, 391) describing material from a Roman-period cemetery at Brougham, Cumbria, notes that “the occurrence of the [copper alloy beaded] bracelet in the burial of an adult male is of interest”. The Brougham example is not, however, something extraordinary: osteologically sexed male graves throughout Roman Britain contained (un)worn bracelets made from a range of materials, such as copper alloy, jet and shale (Allason-Jones 1995, 27 cites examples from Whitcombe, Dorset; Langton, N. Yorkshire; Cirencester and Oakley Cottage, Cirencester, Gloucestershire; Cool 2004, 391 cites examples from Catterick, N. Yorkshire and Ashford, Kent; cf. also Fasham 1985, 25–6, 84, Fig. 66, no 16 for the burial of a male adolescent with a bangle in Winnall Down, Winchester, Hampshire). That any type of wrist and arm decoration could have been worn by both sexes is further advocated by the wearing of gold bracelets by men in the Late Iron Age. In describing Gallic people, Strabo reports that they wear “golden ornaments – both chains round their necks and bracelets round their arms and wrists” (Strabo IV.4.5; Allason-Jones 2005, 118). Men wearing bracelets are also seen on Romano-Egyptian portraits from the Fayum, and are mentioned by Diodorus Siculus’s in his description of the customs of the Panchaeans (Allason-Jones 1995, 27 with further literature).

Does the large internal diameter of a glass bangle indicate that it was a male ornament to be worn on a wrist (Hunter 2014, 153 and fig. 19.2; Hunter *et al.* 2018, 211, 213, illus. 162)? Or does the size indicate it being worn on the upper-arm of a female, as the burial evidence from the

Late Iron Age on the continent suggests? Romano-British evidence for bracelets in other materials is inconclusive, even when these objects were properly recorded. The bronze bracelets and one jet bangle from the inhumation burial of a “powerfully built man” from Oakley Cottage, Cirencester, are all of different sizes. One bronze bracelet comfortably fits the wrist, another one is too large for this purpose and “must have been slipped on over the hand” (Reece 1962, 53–4). A bangle made of jet from the same burial is too small to fit the wrist, prompting the excavators to suggest that this belonged to a female relative of the deceased (Reece 1962, 53–4). A man buried at a Late Iron Age/Romano-British cemetery at Whitcombe, Dorset, wore “an iron bracelet on [the] left wrist”; another man buried at Tollard Royal, Wiltshire, had a Kimmeridge shale armlet on his left wrist (no internal diameter information was available for either armlet, Whimster 1981, 223–4; 261–2). The inhumation burial of a male, better known as the “Catterick Gallus”, had a complete shale bangle with a diameter of 100 mm on his left arm; a twisted copper-alloy bracelet of 95 mm was located on his right leg, possibly acting as an anklet (Wilson 2002, 176; cf. also Yorkshire Museum online catalogue, accession nos YORYM 1980.16.8111319 and 1980.16.8111321). When male graves contain dress accessories that are typically associated with women, they are usually classified as “deviant burials” or burials of “third sex” individuals (Swift 2011, 207). However, this one-dimensional interpretation does not take into consideration the chronological development of wearing bracelets/bangles. Swift (2011, 207) observes the gradual movement of some accessories from “non-gendered personal ornaments” to clearly belonging to specific genders. This has direct implications for our understanding of the changing nature and role of bracelets/bangles over time, as the objects could have moved from an ambiguous position to a strongly gendered association. Men buried with bracelets/bangles in earlier periods may not have been perceived by their society as “third sex”, as these objects could have been brief fashion trend. The wearing of large diameter bangles by men could also reflect regional fashion trends, as demonstrated by Hunter’s (2014, 153) evidence for large jet bangles from Roman Scotland. In contrast, in East Yorkshire, the large shale bangles occur predominantly in female graves (F. Hunter, pers. comm.). Moreover, objects made in particular materials (e.g. black jet), also could have been reserved for a particular “gender” (Allason-Jones 1996, 17 on the appeal of jet-like objects for women).

In the inhumation burials dated to the Late Iron Age in continental Europe there is no rule as to the position of a glass bangle: wrist, forearm, elbow or upper-arm positions all occur frequently, and no connection could be detected between the bangle’s internal diameter and its location on the arm (Gebhard 1989, 137). Moreover, further such evidence indicates that glass bangles of various sizes being worn at

the same time. The individual from an inhumation burial at Straubing–Alburg (DE) was laid to rest with two bangles on the left arm: one bangle of 85 mm was found near the elbow, and another of 69 mm was located near the wrist (Krämer 1985, 152; for other examples see Gebhard 1989, 136). It should be noted here that as this example comes from a burial context, it does not necessarily mean that the two objects were worn in a similar way when the individual was alive. It also raises the question if wearing bangles in pairs was the norm for everyday wear or just for ceremonial occasions. Taking all this into account, we must use caution in saying that the internal diameter of a glass bangle is indicative of the age and sex of its wearer (small for children, medium for women, large for men). The wearing of a bangle at different points of the arm (e.g. the wrist or upper-arm) has just as much relevance as the association with gender and age. In fact, one can propose yet another function for glass bangles with large internal diameters: a leg-ring.

Anklets

The occurrence of some bracelets/bangles with large internal diameters in a variety of materials in burials on the legs of the deceased suggests they may have been anklets (Johns 1996, 123). The wearing of anklets does not seem to have any gender specific association in this period. A few metal bracelets worn as leg-rings were found in male burials in Britain (above mentioned “Catterick Gallus”; also Philpott 1991, table A30: a burial in Albert Road, Dorchester). Anklets made of jet and iron have also been found in female graves (Allason-Jones 2005, 118–19 provides two examples). On a funerary relief from Neumagen (DE), a female hairdresser is seen wearing an anklet on her right ankle; the lady she is attending does not seem to wear any form of ankle decoration (Allason-Jones 2005, 87, 119 and fig. 29; also von Massow 1932, 158–63, pl. 31–4, abb. 106). Nearer the centre of the empire, one of the many mosaics from Piazza Armerina (Sicily), depicts two females exercising or dancing, informally known as the “bikini girls”: one wears two bangles/bracelets on her left arm (wrist and upper-arm) and two anklets on each ankle. The scarcity of anklets found in excavations or their depictions hint that it was fashionable only for a limited time. Alternatively, this relative absence may be indicative of a specific role such objects held – either having a religious significance or being status specific (Croom 2004, 294; Allason-Jones 2005, 119). Wearing anklets may have been seen as appropriate only for women and men of lower status, in servile occupations, and/or standing outside societal norms. A more prosaic explanation for their apparent scarcity could relate to the length of the gowns worn by women in this period in Roman Britain. Contemporary pictorial evidence suggests ankle- or calf-length coats were worn on top of similar-sized tunics (Allason-Jones 2005, 104–9). Therefore, anklets could not have been easily visible when worn (Croom 2004, 294).

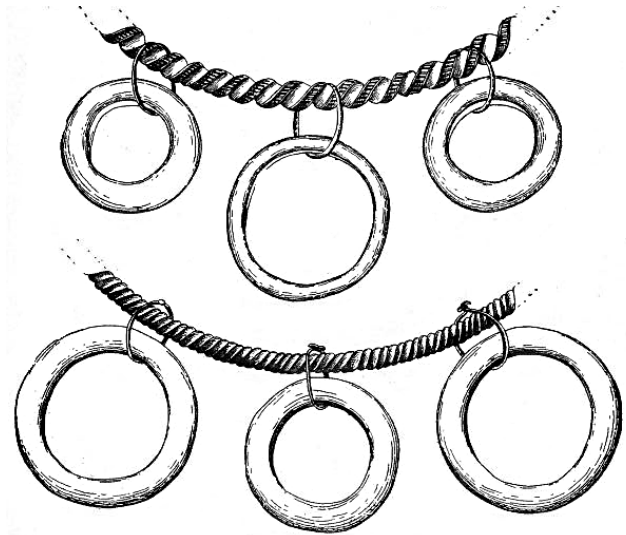


Figure 8.3 Glass bangles as pendants on necklaces from northern France. Adapted from Déchellette (1927, 828, fig. 578)

The burial evidence available from the Late Iron Age does not provide any indication that large diameter glass bangles were ever worn as anklets at that time in northwest Europe (Haevernicks 1960; Krämer 1985; Gebhard 1989). One exception to this is a glass bangle from Aosta (IT) found near the knee of a buried individual. However, there is a good chance that the object had actually fallen from the wrist, or had moved by post-depositional processes (Haevernicks 1960, 72 with further literature). From Islamic countries that do have clear evidence of the wearing of glass bangles, I am not aware of any ethnographic or burial evidence that these objects were worn as anklets (Daviau 2014; Duckworth *et al.* 2016).

Ring-pendants

The possible functions of large and medium diameter glass bangles were discussed above, and we now turn to bangles with small internal diameters, which are nearly impossible to push over the knuckles of an adult. A significant proportion of the glass bangles have an internal diameter of c. 40 mm (Fig. 8.2), and one type of Romano-British glass bangle, Type 3F (translucent natural blue-green glass with opaque white “pot-hook” decorations), was overwhelmingly manufactured in this diameter. Johns (1996, 123) notes that 30–40 mm bangles are “small even for a child’s wrist”, so one has to search for alternative uses. One possibility is that the smaller sized bangles were ring-pendants intended to decorate necklaces.

The idea of using glass bangles as pendants derives from 42 Late Iron Age examples of *halbgrosse Ringe* found in northern France, where the majority of the bangles was found complete and still attached by small bronze rings to torcs (Fig. 8.3; Déchellette 1927, 828–30; Haevernicks 1960, 66–7 and taf. 15, fig. 18, 2–5). These glass ring-pendants of

less than 46 mm internal diameter were found in inhumation graves, but, importantly, no information was available as to the sex of the deceased. These artefacts form a rather small regional group: all have been located in the region between Aisne and Marne in northern France. They all were of the same type, having a D-shaped cross section and made in translucent natural blue-green glass; only two were made from cobalt blue glass, and none of the examples had any decorations on the apex (Haevernick 1960, 66–7). No further examples are known to the author, so it seems that the habit of wearing smaller sized glass bangles on torcs was restricted to one area in Late Iron Age continental Europe.

In Britain some bangles made from jet-like materials could have been used as pendants. Also having a small internal diameter, a few of these black rings have abrasion marks, likely caused by a thong or bronze wire with which they were attached to necklaces; some have a groove made specifically for that purpose (Allason-Jones and McKay 1985, no. 101; Hunter 2014, 153). However, none have been actually found attached to necklaces and the suggestion was put forward that they may have acted as miniature substitutes for ritual purposes, especially when deposited in graves (Allason-Jones 1996, 35 on the finds of jet-like small armlets in graves in York, and L. Allason-Jones, pers. comm.). The use of these smaller sized bangles made of jet-like materials does not have a specific date range, nor were they confined to a particular region (Hunter 2004, 107).

The northern French *halbgrosse Ringe* described above and the jet-like bangles are all monochrome. In contrast, the small Romano-British glass bangles have a monochrome base colour, but also a decoration on their apex. If the rings were hung as pendants, the decorations would not show well, and the undecorated (and roughly worked) inner surface would have been visible. The opaque white “pot-hook” decoration on our Type 3F bangles, for instance, which is regionally specific to the frontier region of Roman Britain, would not have been visible on such necklaces. This eliminates the possibility that these smaller sized glass bangles acted as necklace-pendants. Only two types of glass bangles are known to have been produced as monochrome: type 3A, opaque white, and type 3B, opaque yellow (Plate 6). However, out of 235 fragments of Type 3A and Type 3B bangles known to the author, only 12 percent were made with a diameter of less than 45 mm. No regional pattern can be identified for small glass bangles in Roman Britain as was the case with the *halbgrosse Ringe* concentrated in northern France. If the small monochrome bangles were ever used as pendants, it was up to the individual agents rather than being a wide-spread regional habit.

Hair-rings for human and animal hair

How were the smaller sized glass bangles which were decorated on the apex used? Stevenson (1976, 50, n. 19) was inspired by the suggestion of the excavators of the late Roman cemeteries in York, where similar sized jet



Figure 8.4 Close-up of the tombstone of T. Flavius Bassus. © and drawing M. C. Bishop

bangles were found in several inhumation graves. While sceptical about the excavator’s interpretation that smaller sized bangles were worn by children and as pendants, Stevenson was positive of their suggestion that the smaller sized bangles were used as hair ornaments.

As most adult women in the Roman period had long hair, the basic female hairstyle would have been a bun wound around at the back of the head (Allason-Jones 2005, 130; Croom 2010, 114–15). A number of funerary tombstones from Roman Britain depict women’s hair parted in the centre and drawn back behind the ears, most likely into a bun (e.g. *RIB* 639, 688 and 692; Allason-Jones 2005, 130). Other sculptural examples from the province show women’s hair twisted into topknots (Allason-Jones 2005, 130). These buns and topknots were most commonly held in place by pins, ribbons, and sometimes covered with bonnets or secured with nets; in addition shale and jet rings were sometimes used as “ponytail restraints” (Allason-Jones 1996, 46, no 283; 2005, 130–6; Croom 2010, 123; Hunter 2014, 153). The use of rings as hair ornaments is of particular interest to the present study, as the objects made out of shale and jet with internal diameters of less than 40 mm were annular (Allason-Jones 1996, 46, no 283 – with internal diameter of 19 mm). Annular, smaller sized glass bangles with decoration on the apex could have fulfilled a similar role.

Other users of the smaller sized glass bangles have also been proposed. It has been suggested that the manes of horses and ponies, and some equine equipment such as a harness,

could have been decorated with glass bangles (Stevenson 1976, 53; Hoffmann 2003, 42; Ivleva forthcoming). However, if the bangles were indeed used in equine equipment, they were used in such a way as to display their applied decorations. If the rings were hung as pendants from a harness, the decoration on the apex would not be visible, as discussed in the previous section. Moreover, it seems quite unlikely that the highly decorated and colourful bangles were used to decorate ponies' tails, as speculated by Stevenson (1976, 53), because they would simply slip off and break.

On cavalry tombstones from across the European northwest provinces dating to the late first century AD, horses were often depicted "with their manes gathered into knots along the neck, with one large poll-knot between the animals' ears" (Fig. 8.4; Bishop 1988, 111). To create these poll-knots, it is likely that the forelocks were wrapped with ribbons (Junkelmann 1992, 88). This kind of mane-decoration can be loosely reconstructed with the help of two/three ring-shaped objects placed on top of each other; one option is that these objects may have been our small glass bangles. However, one should keep in mind that the use of glass bangles to decorate manes may have been an uniquely Romano-British phenomenon. There is no direct evidence from the continent that glass bangles were ever used this way in the Late Iron Age. Also important to note in this context is that in the Roman Empire depictions of horses with their manes gathered into knots occur mainly in Rhineland and Mauretania (Bishop 1988; Bishop and Coulston 2006, 131, cf. also LUPA 24492), with none in Britain, as far as the author is aware. Therefore, if the small Romano-British glass bangles were indeed used for the decoration of horses' manes, there is no local pictorial evidence to support it.

Purse-stiffeners

There are multiple ways in which glass bangles could have been used, in particular if we take into consideration the evidence on the multiple uses of bangles made from shale, jet, and jet-like materials. It is clear that one can do a lot with a ring-shaped object (cf. Allason-Jones 1996, 35 on the further purposes of jet-like "small" armlets such as belt dividers and even teething rings), but we should also limit ourselves somewhere. This section discusses a final possible function glass bangles could have had: a purse-stiffener.

This function has never been discussed by previous scholars, who have limited their interpretations to the purely ornamental roles: to decorate various parts of the human or animal bodies (Johns 1996, 123). The previous section demonstrated that glass bangles could also be used in composing hair styles. The purely practical potential of objects is sometimes overlooked, and this section aims to bring a bit more balance to the debate.

The idea that glass bangles were used as purse-stiffeners derives from finds of these objects in cremation graves. Two complete bangles of type 2Ai from York (int.D: 37 mm on Plate 7 and 44–6 mm) were found in association with

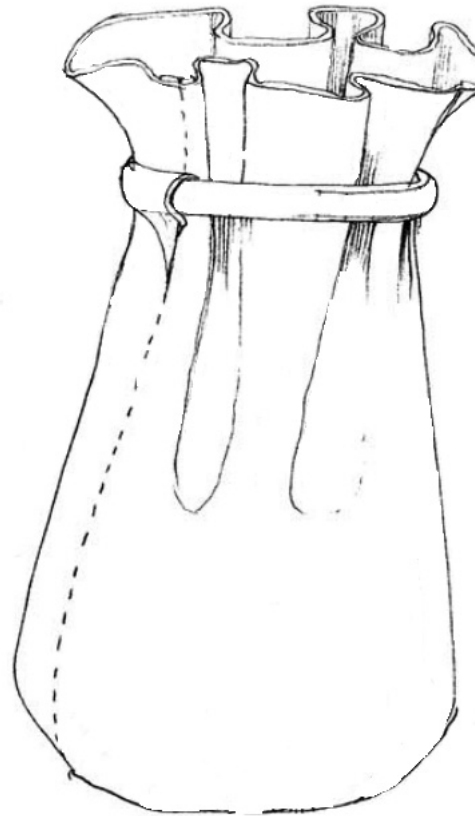


Figure 8.5 Leather pouch with a ring used as a closure. Adapted from Crowfoot *et al.* (2005, fig. 2)

a cemetery: one was found in an urn placed on top of cremated remains (Wellbeloved 1881, 91). There is no further information on any other grave goods accompanying this cremation. A number of type 3A glass bangles were also found in association with burials from the excavations of the Corbridge Bypass road. However, the artefacts were scattered across the excavated part of the cemetery (Price and Cottam 1995). The internal diameter of these fragments varied between 45 mm and 60 mm (Corbridge Museum, accession nos 32987–9). The pins or fibulae that were usually used to fasten the bag or cloth that contained the cremated bones were absent from the assemblage, and the excavators suggested that this may "indicate that the cremated bones were deposited directly into the ground, rather than being wrapped" (Casey and Hoffmann 1995, 22). An alternative interpretation is that the cremated bones, in both Corbridge and York, were wrapped in a cloth which was then closed by glass bangles in combination with leather strings.

Many leather purses in early Anglo-Saxon inhumation burials were found together with ivory rings made from a single seamless piece of elephant ivory (Crowfoot *et al.* 2005, 7). The rings themselves were sometimes covered in leather, but one cannot be sure why, as the ivory was imported to Britain and would have been costly (Haughton and Powlesland 1999, 267 on small bits of leather still

attached to an ivory ring found in a cemetery at West Heslerton, N. Yorkshire). Rings made out of other materials, such as copper-alloy and iron, are also known. Purses with rings are usually associated with women as they were found in osteologically sexed females graves or graves with a “female” associated assemblages. The main purpose of these rings remains unclear. The purses could have been simply closed with a leather string as in drawstring pouch, and the rings were put into the purse for an unknown purpose. Alternatively, the rings may have been used to fasten the purses to belts. It is also possible that the rings were used in combination with the leather strings to facilitate the opening and closing of a bag or as pouch frames (Fig. 8.5; Crowfoot *et al.* 2005, 7–8 and esp. figs 1–3). The internal diameter of such rings is usually large, more than 55 mm, and if they were used as purse-stiffeners, this size would allow the hand to pass easily to reach the contents, but this would provide no security at all.

The basic Roman-period purse or money-bag was a drawstring pouch made of a one-piece circle of leather which was gathered together by a leather string, as found at Vindolanda (van Driel-Murray 1993). Alternatively, two pieces of leather were stitched together and secured with strings, as found in Bargercompascuum, Valkenburg, and De Peel (all NL), the Cave of Letters in Israel, and two from Vindonissa (CH) (Schlabow 1956; Yadin 1963; Groenman-van Waateringe 1974, 76–8; cf. also Andrews 2012, 88–92 and “Leatherwork through the ages” <https://sutor.jimdo.com/> accessed on 04.04.2018). The known examples suggest that these pouches were attached to belts by means of leather strings (Schlabow 1956, 84–6, esp. abb. 21).

Convincing experimental research by Colin Andrews (2012) showed that small leather sacks in the Roman-period that contained valuables were sealed with leather strings which passed through objects sometimes referred to as seal-boxes. These seal-boxes facilitated the sealing and closure of small sacks but also provided extra security. These objects acted as a “tamper-evident” device: any evidence that the contents had been tampered with would be easily visible because the seal-box would be opened and the seal underneath would be broken (Andrews 2012, 1–2, 97, 109). Seal-boxes were highly decorated, with some having apotropaic symbols, “to protect the contents from a malevolent and envious gaze”, but some were only plainly decorated with a monochrome silvery finish (Andrews 2012, 99, 103).

In addition to the use of a simple leather string or a seal-box, glass bangles could have been used as a third alternative for fastening or “sealing” the small bags and sacks of valuables. This could have been done for several purposes, the first of which would be to facilitate the closure of the pouch in a situation when a leather string was not strong or good enough and other stiffeners and pins were unavailable. Also, the bangles could have been used not in a functional but in a decorative way. A third option is that the glass bangles

“symbolically” protected the pouch’s contents. For this final possible purpose, Stevenson’s (1976, 50) observation on the protective and possible apotropaic powers of glass bangles is compelling, albeit tenuous. Type 2 bangles were sometimes decorated with a series of “oval eyes,” made from twisted cords and applied onto the edge of the bangles. These eyes may have held “magical” and protective powers, rather than just being decorative (Stevenson 1976, 50). Other types of decoration on Type 3 bangles, such as “pot-hooks,” resemble the form of a snake and may have also had some symbolic meaning (Stevenson 1976, 50). These bangle decorations may have acted in a similar way to the apotropaic symbols on seal-boxes. The finds of small bangles in association with graves could then also be interpreted as a form of protection, to (meta) physically secure the remains of the deceased wrapped in a cloth or leather bag.

Function: practice

In order to test the various theories described above on possible uses of glass bangles (bar pendants), the author, with help of a few volunteers, used and abused a couple of recreated replica glass bangles. The replicas were hand-made by the glass artisans Stéphane Rivoal and Joël Clesse from Silicybine Verre (France), and by Connor Garton from Gartonglass (UK) in a technique reconstructed through historical, archaeological and ethnographic sources (Rolland *et al.* 2012; Rolland and Clesse 2014; Ivleva 2018; videos of the technique can be viewed at <https://youtu.be/IoW19SkpxLY> or at <https://youtu.be/P9M3TjD4fgI>). The resulting bangles were authentic-looking and resembled the original, Romano-British ones, in style, thickness, width and weight as closely as possible (Plate 8). A thing to keep in mind is the difficulty in assessing the validity of experiments performed in a modern environment. For example, wearing a glass bangle on the wrist while washing hands or kitchen utensils in a ceramic sink was challenging: danger of the bangle accidentally hitting the ceramic surface and shattering was never too far away. The same can be said about wearing a bangle on the wrist while typing: the activity was accompanied by the glass bangle constantly clinking against the table, to the annoyance of office colleagues. For the most authentic experience, one would need to wear garments made in textiles and styles similar to those known from the Romano-British period, and perform a set of activities that we assume would have been performed on a daily basis by members of Romano-British society. Unfortunately, at the time of writing this was not possible, but it is hoped that the experiments will provoke re-enactors to pursue these tests. The descriptions below should be seen more in line with the personal feelings of the author and volunteers, and the visual experience of seeing a glass bangle worn or used in one way or another. Because in contemporary Western society a glass bangle is not something that is worn or used



Figure 8.6 The author wearing two bangles, one on the wrist and another on the upper-arm. Photo: J. van Rijn

on a daily basis, I hope these observations and feelings will be useful to others who study similar objects in different cultures and chronological periods.

First, I wore a 63 mm diameter monochrome translucent glass bangle on my left wrist for a period of two consecutive months and I shall continue to wear it for the purpose of analysing the subsequent use-wear marks (Plate 8, bangle A). I have only taken the bangle off for washing as described above. While it was a daily struggle to push a bangle of this diameter up over the knuckles (and I have a small hand), once it passed them, it sat rather comfortably on the forearm, in a similar manner as depicted on Regina's funerary monument. When walking around, the bangle, naturally, slid down to the wrist area but it was never in danger of completely sliding off the hand, due to its small size. Because of the bangle's lightness, I was not aware of the object for most parts of the day, even when sleeping, and it brought no disturbance or physical annoyance. The daily wearing of the recreated bangle has shown that the most natural way of wearing it when performing various (modern) activities like cooking, cleaning, reading, is actually on the forearm instead of the wrist. It did not matter whether the bangle was positioned on

a bare forearm or on top of a garment's sleeve: it sat tightly enough and did not provide any disturbance. Therefore, it is not surprising that Regina is depicted with her bracelets/bangles on her forearms as they would have been neither in the way nor sliding off while performing various activities.

Next, I attempted to wear a slightly larger and heavier bangle of 67 mm in internal diameter (Plate 8, bangle B). This was less successful, and it could only be worn for half a day, partially because the bangle refused to sit on my lower arm and in contrast to the 63 mm bangle it was constantly sliding off. Moreover, the object felt heavy and I always felt the weight on my wrist.

It was equally challenging to wear a bangle on the upper-arm and another on the wrist, in the similar manner as in the example from the Straubing-Alburg grave (Plate 8, bangles A and C, and Fig. 8.6). When I wore the bangle on the upper-arm on top of a garment's sleeve, it was constantly sliding off when I was in motion and as a result, bumped continually against the smaller bangle on the wrist; it was even difficult to hold the upper-arm bangle in place when I was sitting. Only when my elbow was bent did the object sit more or less securely. However, when I wore the large one on a bare upper-arm, it sat tightly enough for a length of time. But wearing two bangles did not feel natural and brought physical annoyance, albeit it is possible that this is because glass bangles are not something normally worn on a daily basis. It should be noted that the upper-arm bangle replica used in the experiment was different to those from Late Iron Age continental Europe and from Roman Britain. The continental bangles that have large internal diameters have a rather flat external surface and are slim: their height usually varies between 2 and 8 mm depending on the apex decoration (cf. for instance series 4, 14 and 27 in Gebhard 1989, 191–3, 207–8, 216–17). The Romano-British bangles of large diameters do not exceed 9 mm in height (cf. for instance examples from Usk, Gwent: Price 1995, 104; or Fishbourne, Sussex: Harden and Price 1971, 366–7). These objects feel slender and light. The bangle used in the experiment has an internal diameter of 85 mm and varied in height between 12 and 18 mm due to the manufacturing technique. The replica felt heavy even when held, let alone when worn on the upper-arm. From the Romano-British period, there are four examples of bangles of similar size: one from Shepton Mallet, Somerset, with an internal diameter of 60 mm and a maximum height of 13 mm (Hoffmann 2011, W16–18); one from Vindolanda Roman fort with an internal diameter of 92 mm and 14 mm in height (Birley B. 2006, 148, SF 1038); one from Kenchester, Herefordshire, with an internal diameter of 90 mm and 12 mm in height (unpublished); and one from Dun Beag Struan on the Isle of Skye in Scotland with an internal diameter of 80 mm and 16 mm in height (Kilbride-Jones 1938, 367, 369 and fig. 1.7). It is clear that if these bangles were ever worn on top of a garment's sleeve, it would have been nearly



Figure 8.7 Glass bangle worn by a 3-year-old child. Photo: T. Ivleva

impossible to keep them in place on the upper-arm unless the person wearing them was sitting with their elbows bent and motionless. The wearing on a bare upper-arm is better, but it is, nevertheless, uncomfortable to wear for any length of time. As a result of their slimness, slenderness, and lightness, the glass bangles with lower heights may have behaved similarly to the forearm bangles described above: sitting tightly on the upper-arm with little or no disturbance. It is interesting to note that a thin decorated iron bracelet was found just below the upper-arm glass bangle in the Straubing-Alburg burial. This may have provided additional support to prevent the glass bangle from sliding off, acting as an extra security measure (Krämer 1985, 152; other examples include Manching-Steinbichel (DE), grave 12: Krämer 1985, 77–8).

Further experiments included the wearing of a glass bangle by a child on the arm. My 3-year-old daughter was given a cobalt blue bangle with an internal diameter of 63 mm (Plate 8, bangle E). The object slid nicely up to her upper-arm, where it stayed in place because it was prevented from falling by the ruffles on the sleeves of her pullover (Fig. 8.7). Without ruffles the bangle unavoidably fell down to her wrist and from there to the floor, luckily without breaking. I also measured the diameter of her hand (including the knuckles) to determine which bangle size would hypothetically be suitable for her to wear, resulting in a measurement of 35–45 mm. As mentioned above, the wearing of bangles by children has usually been met with reservation, and I have been able to find only one image showing a child adorned with multiple glass bangles. In 1949, *Nigeria Magazine* published a collection of photographs of an author, whose name only survived under initials W. H. L., who travelled

from Lagos to the Nupe kingdom's capital, Bida (W. H. L. 1949). The image shows a Bida girl, aged between 5 and 10, wearing multiple glass bangles on her upper-arms: it is clear that they are too large for her and are in danger of slipping, as her elbows are bent (image can be accessed at <https://nomad4now.com/articles/bida-glass-bangles-and-beads>). The caption informs us that the little girl is “showing off her prettily coloured glass ornaments”, reminding us that the wearing them was, most likely, not habitual, but rather only done for ceremonial or very special occasions. Of course, she could have been simply dressing up as most children do (Allason-Jones, pers. comm.).

One of the largest bangle replicas created as part of this research had an internal diameter of 85 mm and it was considered suitable to test this object as an anklet (Plate 8, bangle C). The tests failed because it was not even possible to get this bangle over the heel of an adult. If bangles of this size were ever used as anklets, they either had an internal diameter greater than 95 mm or must have been added to the ankle when the foot of the wearer was small enough to allow the object to pass freely over the heel. It should be mentioned in this regard that a bangle as small as 65 mm cannot pass over the heel of a 3-year-old child with a shoe size of 8.5 (25). We struggled to put one on of 70 mm in diameter, but when we did, it sat just below the knees. However, it was in danger of sliding off, so my daughter wore it only for few minutes.

Moving on from hands and feet, the glass bangles were tried as hair ornaments, to restrain hair gathered into a ponytail and fixed with hairpins. From the large number of hairpins found on road surfaces, in bath houses and in public buildings in Roman Britain, scholars have deduced that the pins easily slid off, because they fixed buns low at the nape of the neck (Allason-Jones 2005, 134). Our tests witnessed the same process in action: a bun fixed only with hairpins was insecure and a volunteer made numerous attempts to arrange her hair and pins in such a way as to allow the bun to stay fixed. However, when we added a slender blue-green bangle with green wavy lines with an internal diameter of 60 mm as a restraint (Plate 8, bangle D), the bun stayed in place very well and, according to the volunteer, felt strong, solid, and fixed. A bun fixed with three pins and the glass bangle did not require any additional support or extra help: the volunteer learned the craft within a couple of minutes and could repeat the process unaided. Then I asked the volunteer to shake her head a couple of times to check the strength of the hairstyle: the bangle did not produce any sound, stayed still and the bun did not fall apart (Plate 9). Subsequently, the volunteer wore this hairstyle for 3 hours and, according to her, it felt comfortable and firm. Every exercise described above was filmed and the short videos can be viewed at <http://www.romanglassbangles.com/videos.html>. These exercises have suggested that if our objects were indeed used as hair restraints, they performed most

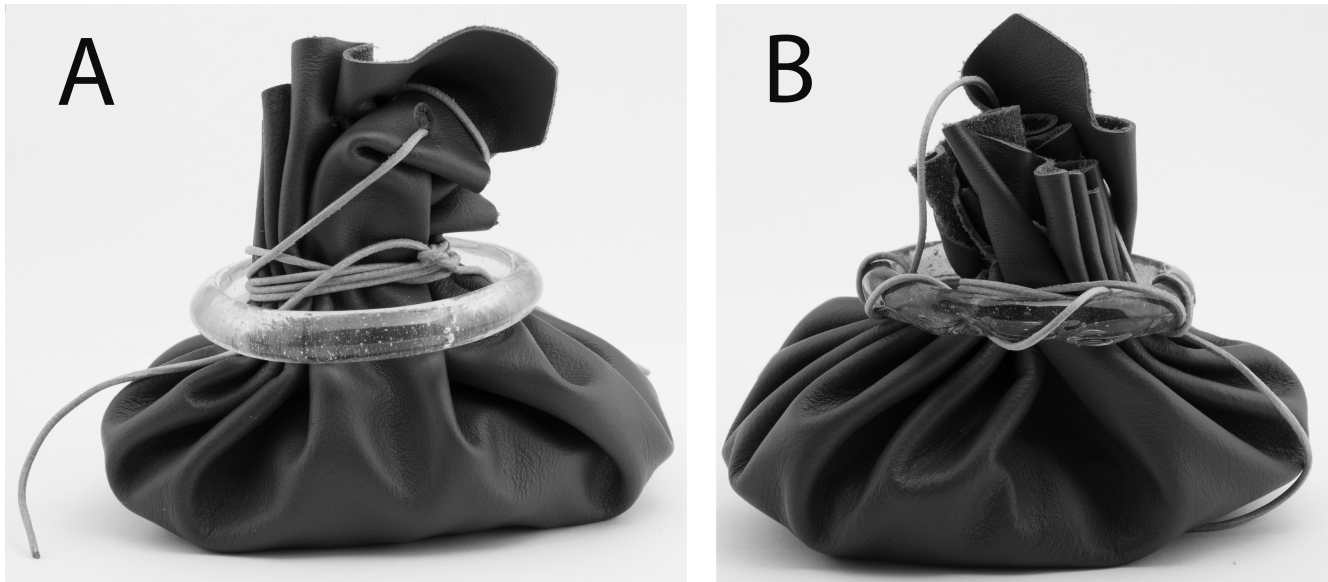


Figure 8.8 The use of the glass bangle as a purse-stiffener: a) used as a closure; b) used as a closure in combination with leather strings passed through the bangle loop. Photos: T. Ivleva

likely a double role: to fasten and to decorate. Combined with a pair of hair pins they had the useful, practical, and necessary function of holding the hair in place, but they also enlivened the auburn hair of my volunteer.

In addition to their use of holding in place human hair, the bangles may have been used to decorate animal manes. To test this hypothesis, first one, and then two glass bangles were put onto a horse's mane that had been gathered into a knot between the animals' ears, to form a poll-knot (for more details see Ivleva forthcoming). The horse was the Royal Dutch Sporthorse black gelding called Amazing Boy. One bangle was blue-green with light green wavy lines (60 mm), and the second was a monochrome undecorated cobalt blue bangle (63 mm) (Plate 8, bangles D and E). The preceding tests showed that the bangles would not hold onto the manes without the additional support of a cloth or a leather ribbon (Ivleva forthcoming). The first attempt was to position one bangle of 60 mm in diameter directly on the wrapped ribbon (Plate 10, a). The bangle sat comfortably without sliding or falling off, even when the rider was putting the halter on. Boy allowed himself to be walked (four-beat gait) for about 5 minutes from one side of the stable to the other (50 m length). Because this part of the exercise was successful, we added a second bangle of 63 mm on to the poll-knot (Plate 10, b). Boy walked at a four-beat gait pace from one side of the stable to the other, shook his head and picked up some sweets from the ground (Plate 10, c). In all cases, the bangles sat comfortably and produced no sound; nor was there a moment when we thought that one or both of them would fall off. The decorations and bangles themselves were clearly visible and gave a vibrant appearance to Boy's forelocks, shining

lustrously on his dark mane. These exercises were filmed on a hand-held camera and can be viewed at <http://www.romanglassbangles.com/videos.html>.

Experiments were also carried out to test the use of the bangle as part of a pouch. This involved a simple drawstring purse made from a circle of leather with a diameter of 300 mm (made from real leather by Pera Peris House of History re-enactment retail), and a monochrome cobalt blue glass bangle of 63 mm in diameter (Plate 8, bangle E). This was done to explore the practicalities of closing the pouch by means of a string and a glass bangle. Attempts to add the bangle directly onto the pouch without a string were completely unsatisfactory. The purse contained a small quantity of coins to test whether the bangle fulfilled any practical purpose. It turned out that to complete the closure no other objects were required apart from the string (and seal-boxes as discussed above). The bangle neither facilitated the closing of the purse nor fulfilled any practical role. When the purse was closed the bangle did not act as an extra security measure and sat rather uncomfortably on top of the knotted string (Fig. 8.8, a). The drawstring was then passed through the bangle loop multiple times, wrapped around the top of the purse, tightened and knotted. Again, the bangle did not fulfil any decisive function, and it even made the closure of the pouch more difficult as it did not fasten properly (Fig. 8.8, b).

Discussion

The experiments described above have shown that it is in fact plausible to link glass bangles with wear on the arms

of an adult (on the wrist, forearm, or upper-arm) and as ornaments for human and animal hair. It is less likely that glass bangles were worn by children or as anklets by adults. We cannot, however, be certain whether the objects were indeed used in the ways tested, as experimental archaeology only points us in the direction of possibilities rather than realities. The experiments only offered a partial picture of how the rigid ring-shaped adornments made of coloured glass may have functioned. The most important factor to consider is the context in which these artefacts were found. Keeping in mind that “the meaning of objects is never fixed but context dependent” (Pitts 2015, 71; cf. also Swift 2017, 5–10 on the correlation between function and context), it is essential to explore these contexts in greater detail. Unfortunately the available contextual information could only provide some circumstantial evidence regarding the object’s potential function. The point of this discussion is to raise a warning and awareness of the uncritical attribution of one function and one gender to such objects. For instance, it has been suggested to the author that the common occurrence of glass bangle fragments on military sites in northern England was a clear indication of female presence within the forts, and my bangles were the only artefacts that could confirm this (!). While ethnographic evidence and finds of bangles in other periods seem generally to support that bracelets/bangles were worn by women and young girls on their lower and upper-arms, the uncritical and unequivocal attribution of any single bangle/bracelet with female use is not sensible. From the evidence gathered in this contribution, the section on armlets has demonstrated that armlets, bangles, and bracelets could have been worn by men. Unless supported by clear contextual information, one should avoid unnecessary and hasty labelling regarding the gendered labels for glass bangles in Roman Britain.

Because the use of glass bangles in Roman Britain is confined to the period when cremation burial rites were dominant, there are simply no available grave assemblages that can confirm who could wear and/or use these artefacts, as well as clarifying where on a human body the bangles were positioned. In fact, the total number of bangles found in burials is surprisingly small. Apart from the above-mentioned fragments from the Corbridge Bypass and York, and two pieces found as secondary deposits in Bronze Age cairns in Scotland (Boghead and Monquhitter, Aberdeenshire, in Kilbride-Jones 1938, 370 and 382), the remaining 600 glass bangle fragments catalogued up till now (2018) have been recovered in deposits associated with occupation and refuse contexts. They were also found in topsoil, backfill trenches, and levelling layers associated with the later rebuilding of a site. These contexts do not provide any relevant evidence as to how bangles were used, beyond offering some insight into the deposition practices of broken glass bangles. Considering the scarcity of glass in some parts of Roman Britain (e.g. the northern frontier

zone), these contexts force us to ask why some pieces were not recycled.

There are further variables that should also be considered, such as regionality and time-limited fashion. The above-mentioned example of Type 3F bangles, produced no larger than 50 mm, and confined to southern Scotland, is a case in point. The high number of the same kind and size of bangles found at Traprain Law, implies that these objects may have been used there in a completely different way than the expected norm, or they could have been worn by a particular group (e.g. children). Unfortunately, the contextual information from the antiquarian excavations of Traprain Law is virtually non-existent. Bangles of this type have also been found on various sites in northern England and southern Scotland, but also in these examples fragments have been found in occupation, refuse, and levelling deposits (cf. Barrasford, Middle Gunnar Peak, Northumberland: found in a disturbed area of the wall core of a house in a rectangular stone-built enclosure (Jobey 1981, 70); Vindolanda: floor material (Birley, B. 2006, 147, SF8958); Rough Castle: from *lilia* spoil heaps (Charlesworth 1978–80, 269)). This leaves us without any comparative analysis as to the (possible) difference in the use of the same bangle type between various areas.

Regionality and time-limited fashion seem to be a factor for the glass bangles of large internal diameter. The majority of these bangles were found in the southern counties of Sussex and Gloucestershire, and Gwent in Wales (Crew 1989; Price 1995). They are all Type 2, having multiple twisted cords of opaque white and cobalt blue decorating the apex. It is commonly assumed that Type 2 glass bangles were the first bangles to be produced in Britain and were already in circulation before the Roman military advanced into northern Britain c. AD 60s (Price 1988, 353; 1995; Crew 1989; *contra* Kilbride-Jones 1938). The earliest evidence for their occurrence comes from pre-Flavian military sites in southern Britain, where they were already produced, traded, and worn during the late Claudio-Neronian period (Price 1988, 353; 1995; Crew 1989, 51). In northern Britain, nearly 90 percent of the discovered glass bangle fragments have internal diameters between 55 and 65 mm, with few exceptions. Considering that the southern pieces are of earlier date, it is plausible that they represent the continuation of a continental Late Iron Age practice of being worn on the upper-arm. When the bangle craft moves north with the army, the fashion changes: the diameter shrinks to accommodate the customers’ wish to wear them on the forearm and/or wrist. As a side note, no bangles with an internal diameter of 50 mm or less have been found at present in the south of Britain (Carmarthen in Wales, and Whittington Court in Gloucestershire are the only sites that contained smaller sized bangles of 50 and 55 mm diameter respectively; for Carmarthen see Boon 1978, 85 and fig. 9.39 and Price 1988, 344; the Whittington Court fragment is unpublished).

The experiments carried out in this research have shown that there is no size-dependent function: bangles as large as 60 mm could have been used to restrain human hair, decorate horses' manes, but also could be worn on the thin wrist of an adult. This leads us to human agency, whereby a person can use any object in a variety of ways, and consciously can move away from its intended purpose. It may be that glass bangles were simply used to decorate human arms. Yet, rather than conforming to one rigid function, it is the fluidity of an artefact's purpose and its multi-functionality that allow it to acquire new functions within new contexts (cf. Ivleva 2016 on the multi-functionality of Romano-British brooches and Swift 2017 on the "affordance" of functions for various Romano-British artefacts such as spoons, rings and shears).

Given the near absence of contextual evidence, what other sources can inform us as to the multiple functions of glass bangles? The way forward is to analyse the use-wear patterns on the inner and outer surfaces of glass bangles, and to determine how bangles break. The variety of fractures on glass bangles that are visible with the naked eye points to them being broken in a variety of ways, rather than from a simple fall onto a hard surface. This requires further investigation and the application of scientific techniques on the fragility and fragmentation patterns of glass and what various breakage fractures can signify.

Research on glass bangles has benefitted greatly from combining various strands of evidence, such as ethnographic and experimental research. These complimentary approaches allow us to reconsider the commonly held assumptions of these artefacts as female objects. By running a series of simple experiments, research can move away from speculations to the realm of possibilities. The tests and evidence presented here allows us to appreciate more fully the many facets of glass bangles and Romano-British artefacts more generally.

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