

[SUPPLEMENTARY material]

Viking warrior women? Reassessing Birka chamber grave Bj.581

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Introduction

This online supplement presents five sections of supporting data and discussion, as background for our main article on Viking Age chamber grave Bj.581 from Birka, Björkö, Sweden:

- 1) A detailed description of Bj.581 and its excavation.
- 2) A discussion of source-critical questions relating to the documentary integrity of the burial and its viability for analysis.
- 3) A brief review of the osteological and chromosomal sex determinations of the skeleton
- 4) A presentation of possible archaeological parallels from the Viking Age.
- 5) A discussion of medieval Old Norse textual sources that feature warrior women, with comparisons to Viking Age and near-contemporaneous sources from outside Scandinavia.

1) Chamber grave Bj.581 in its context

Inside a carefully constructed underground chamber built of logs and measuring 3.45×1.75 m and 1.8m deep, an individual had been interred in what the excavator Hjalmar Stolpe interpreted as a sitting position, perhaps on a low chair or stool (Stolpe 1889: 461; seated burial occurs in several of the Birka chambers, and his reading of Bj.581 was also followed by

Gräslund 1980: 37–39 and Robbins 2004: 7; Figure S1). The deceased person was surrounded by weapons, including a sheathed, edge-welded sword of Petersen Type E (listed as ‘missing’ in Arbman’s catalogue [1943: 189] though relocated in the early 2000s), a broad-axe of Petersen Type M, a fighting knife, two spears, two shields propped against the walls at the head and foot, and a quiver of 25 armour-piercing arrows of Wegraeus Type D1 (presumably accompanying a bow, though this would have been made of organic material and therefore not preserved). A small iron knife lay beside the sword, with a whetstone of grey slate on the opposite side of the weapon. A full set of 28 gaming pieces, including a king piece marked with an iron nail, had been bundled in a bag together with three antler dice, a polyhedral weight and two spheroid weights, all held in the lap of the dead person. What appears to be an iron-framed gaming board had been propped up beside the body.

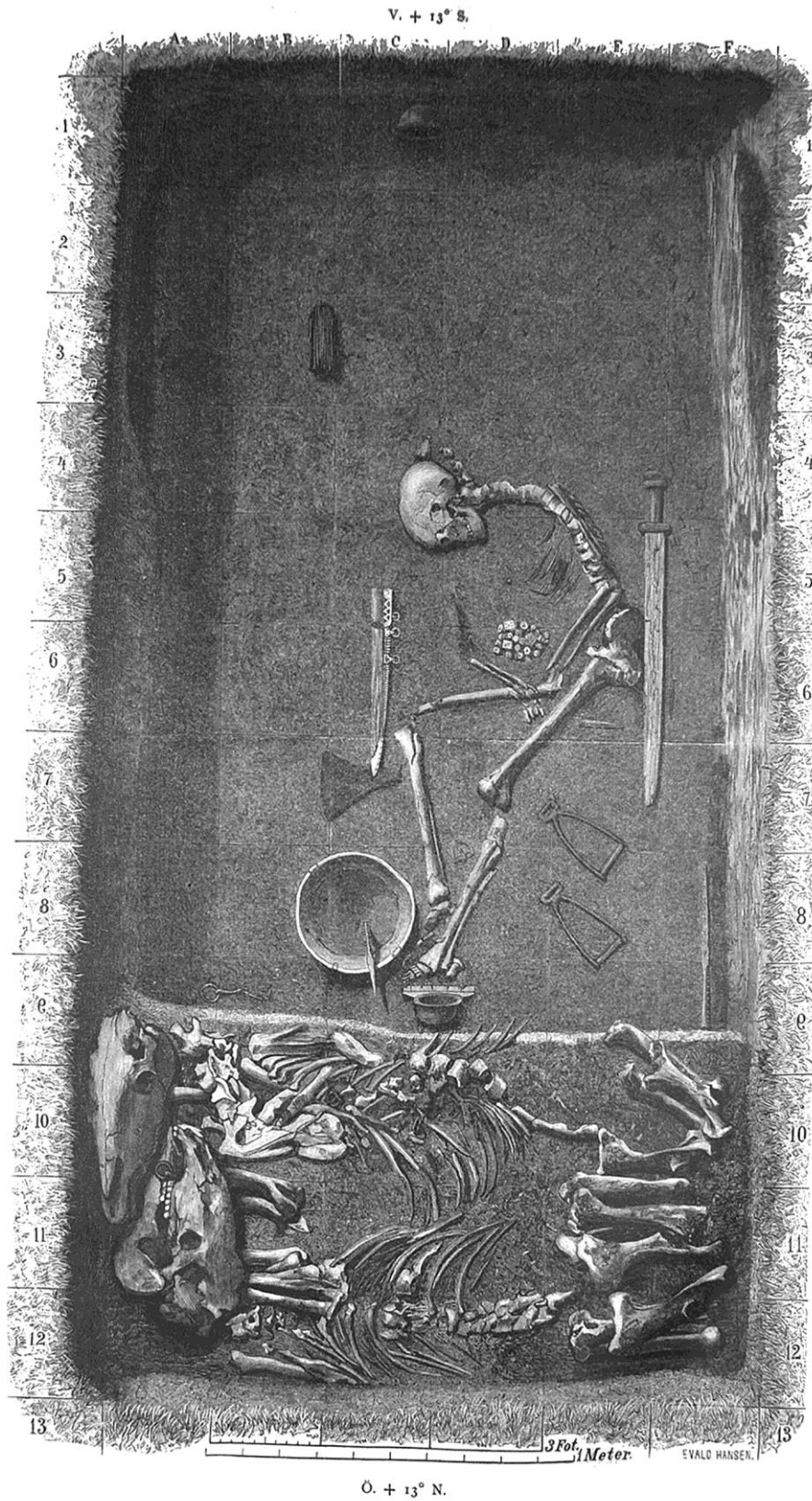


Figure S1. An engraving of Bj.581 made in 1889 by Evald Hansen, based on Stolpe's original site plans. Produced for an article in *Ny Illustrerad Tidning* (Stolpe 1889), the image gives a

lively impression of the grave but for close detail the original drawings must be used. In the public domain.

On a platform at the foot of the chamber, raised 0.6m up from the floor level, lay a stallion and a mare, one of them bridled for riding. Four ice crampons were found, for their hooves (was it a winter burial, or were the dead on their way to a colder place?). The horses had been arranged very close together with their legs folded under them. Just in front of the platform was a large comb of antler, that Stolpe felt was so big that it had to be a currycomb for the horses. As a related feature, it has been suggested that the deceased individual may not have been seated on a chair or similar, but perhaps perched on a saddle (Anneli Sundkvist *pers. comm.*).

The body in Bj.581 wore clothing decorated with bands of imported silk that had been embroidered with silver brocade. On the basis of similar details from other Birka chamber graves with better textile preservation, and on the contemporary clothing excavated from Moshchevaya Balka in the North Caucasus (Knauer 2001), this is interpreted as a kaftan of eastern fashion, probably closed with cloth loops (no buttons were found in Bj.581).

Intriguingly, the grave also included more than 40 tiny fragments of mirrored glass—more than from any other Birka burial—and it seems likely that they were once sewn into the brocaded jacket in a manner familiar today from some Asian fashions (Lamm 1984). A simple ringed pin of iron lay at the shoulder, implying perhaps a plain travelling cloak worn over the expensive jacket. The deceased was also wearing a silver-trimmed cap of samite silk with an unusual granulated silver tassel, from which hung four plum-shaped, granulated silver balls (a similar item is known from one other Birka grave, Bj.644, and from a burial at Shestovytsya in the Ukraine; Duczko 1985: 98; Androshchuk & Zotsenko 2012: 335).

Near the foot of the chamber was a bronze vessel that had been much repaired, perhaps used for washing, and around it some buckles and straps that seem to be the remains of a belt set. The burial included a quarter-fragment of an Arab silver dirham of Nasr ibn Ahmad from the reign of al-Muktadir (AD 913–933), and the artefacts also typologically support a mid-tenth-century date for the grave. Three small rods of tin were found in the grave fill, of unknown function.

A miniature spearhead was also uncovered, pierced for suspension and presumably an amulet of some kind (similar objects are known from at least four other Birka graves; Arbman 1940: pl.103). The spear was a symbol of the war-god Odin, though of course, we do not know if this was a connection made by the person in Bj.581, but there may be such a link through the

actual spears in the grave. The larger example seems to have been thrust vertically down into the chamber floor by the left foot of the deceased, in front of the horse platform. The other spear, a lighter item for throwing, appears to have been cast into the raised front of the platform, probably by someone standing on the lip of the grave on the west side, behind the corpse (see Figure 3 in the main article). The act of throwing a spear over something appears in several medieval sagas and poems as an Odinnic dedication, and at Birka this is paralleled by a similar lance thrown over the bodies in chamber grave Bj.834 (Price 2002: 139, with references to *Völuspá*, *Ynglingasaga* and other Old Norse texts).

No mound construction was visible, and when excavated, the burial could be observed simply as a shallow depression in the soil, which proved to mark the collapsed roof of the chamber (Stolpe 1889: 461). However, as Gräslund notes (1980: 63), the lack of intercutting in the graves north of the hillfort suggest that they were marked out in some fashion. In the case of Bj.581, this seems to have taken the form of a granite boulder, more than 4m long, that had sunk down into the chamber as its roof caved in, almost filling the grave; the stone was so large that according to his 1879 report, Stolpe was forced to blast it apart in order to excavate. As well as being difficult to manoeuvre into position, the scale of such a marker is unusual on the island, and also suggests something particular about the occupant of the grave. If the stone had originally been raised as a standing memorial of the classic late Iron Age type known as a *bautastein* (Skjelsvik 1956), then the burial would have been the most dramatically marked in all of Birka, visible both from the town and the lake.

2) Reception and reaction

The results of the genomic analysis undertaken on the skeleton from Bj.581, related in our 2017 article, were both modest in nature but also potentially far-reaching. The occupant of a Viking Age burial, long assumed to be male, had been shown to in fact be biologically female (using a chromosomal definition of sex). Ever since its excavation in 1878, the burial had always been interpreted as being that of a high-status warrior, a conclusion that had been followed by generations of Viking scholars to the present day, and never challenged because it was both well-founded and justified by the context and contents of the grave. We also interpreted Bj.581 in the same way and for the same reason, our only modification being to argue that the new sex determination of the body clearly implied that the grave was therefore that of a *female* warrior of considerable social standing. In terms of sex, gender, and status, we do not find our suggestions about the nature of the person in Birka grave Bj.581 to be particularly challenging.

Many academics and members of the general public responded positively to what they saw as an interesting discovery, with lively discussion as to the pros and cons of our arguments.

However, as the ensuing conversation played out, a small number of highly critical pieces were posted online by Viking scholars (e.g. Androshchuk 2017; Jesch 2017a & b), leading to a new upsurge of more sceptical commentary.

Some of the objections seemed to derive from unfamiliarity with the conventions and mandated formatting of biological science journals. Beyond the culture clash of disciplinary norms, however, more specific issues were nonetheless raised. At the most fundamental level, the security of the osteological identifications and procedures were questioned: had we studied the right skeleton; could we be sure that it had actually come from Bj.581; could there have been a second body in the grave? On what grounds could we claim a warrior's status for the deceased? We were surprised by these reactions. The underlying theme seemed to be that a female warrior was somehow a contradiction in terms, and therefore reasons must be found why our analysis was incorrect, even at the most basic level of having studied the wrong bones.

Although we responded briefly in media enquiries and interviews, these naturally did not provide an appropriate forum for the necessary academic reply, and our main critic unfortunately refused to debate us in a peer-review journal (Jesch 2017b). We therefore take this opportunity to address the contextual integrity of the burial as the basis for our analysis.

How can we be sure that the analysed skeleton really came from grave Bj.581?

The object corpus from Stolpe's Birka excavations has loomed large in the study not only of Viking Age funerary ritual but also of the general material culture of the time. It forms an assemblage of unrivalled variety, complexity and breadth that is often used (sometimes unquestioningly) as the base-line reference for the Vikings' material world, especially in Sweden. The human remains are a different matter. As osteologist Anna Kjellström has explained (2012: 72–74), in the course of several moves between different storage facilities from the late nineteenth to the mid-twentieth centuries, some of the bones became commingled, seemingly separating them from the documentary record and context of the graves themselves. According to the unwritten folklore of Swedish osteology, it thus appeared that we had the Birka bones, often in excellent condition, but we could no longer tell which burials they came from.

This impression was both challenged and tested in 2011 when Kjellström began a long-term project called *Människor i brytningstid* ('People in Transition'), investigating the Viking Age

population of the Mälär Valley in eastern central Sweden. The human bones from Birka formed the largest sample from this area, so resolving their viability as study objects was a necessary first step. Over the course of several years, she examined the entire corpus of inhumations from the Birka cemeteries—the first osteologist to do so for more than three decades. As discussed in two overview articles on her project, Kjellström (2012, 2016) found that each grave was different in its chain of evidence: some were indeed anonymous bones without context as had been assumed, while many in fact retained a normal standard of documentary integrity (another, more recent, study arrived at the same conclusion, Price *et al.* 2018: 22). Ironically in the present circumstances, Bj.581 has proved to be among the best examples of a contextually secure burial from all of Birka.

Most importantly (as we state in the Online Supplementary Materials to our 2017 article), every bone in the analysed skeleton is individually labelled 'Bj.581' in ink (Figure S2). It is worth noting that this alone provides the same level of contextual provenancing as every cemetery excavation in the modern world.



Figure S2. A bone from the skeleton in Bj.581, clearly labelled with this provenance; all elements of the surviving post-cranial skeleton bear identical documentation. Photo by Ola Myrin, Swedish History Museum, used by kind permission.

Moreover, the same labelling is also present on the horse bones and most of the artefacts from grave Bj.581, including the weapons and gaming pieces (the numbers can be seen in Figure 5 in the main article). This makes an important documentary link between the human and animal remains, and the grave-goods; Bj.581 thus appears as an integral assemblage. Hjalmar Stolpe made detailed field drawings and extensive documentation in the course of his excavations (Stolpe 1870–1888). Grave Bj.581 appears very briefly in Notebook 8, and in his miscellaneous notes collected as ‘övriga anteckningar’, but is described at much greater length in one of his reports submitted to the Royal Academy of Sciences in Stockholm (Stolpe 1879). The portfolio of excavation plans includes two illustrations of the grave as a whole, one as a contextualising sketch and the other as a detailed drawing (Figure S3); the latter forms the primary visual reference for the disposition of the burial. All these materials have been scanned and are available online. An engraving of the excavation plan was later made by Evald Hansen for a popular magazine article (Stolpe 1889; Figure S1), and a redrawing of the original plan was also prepared by Harald Olsson for the formal publication of the grave (Arbman 1943: 189; Figure 2 in the main article).

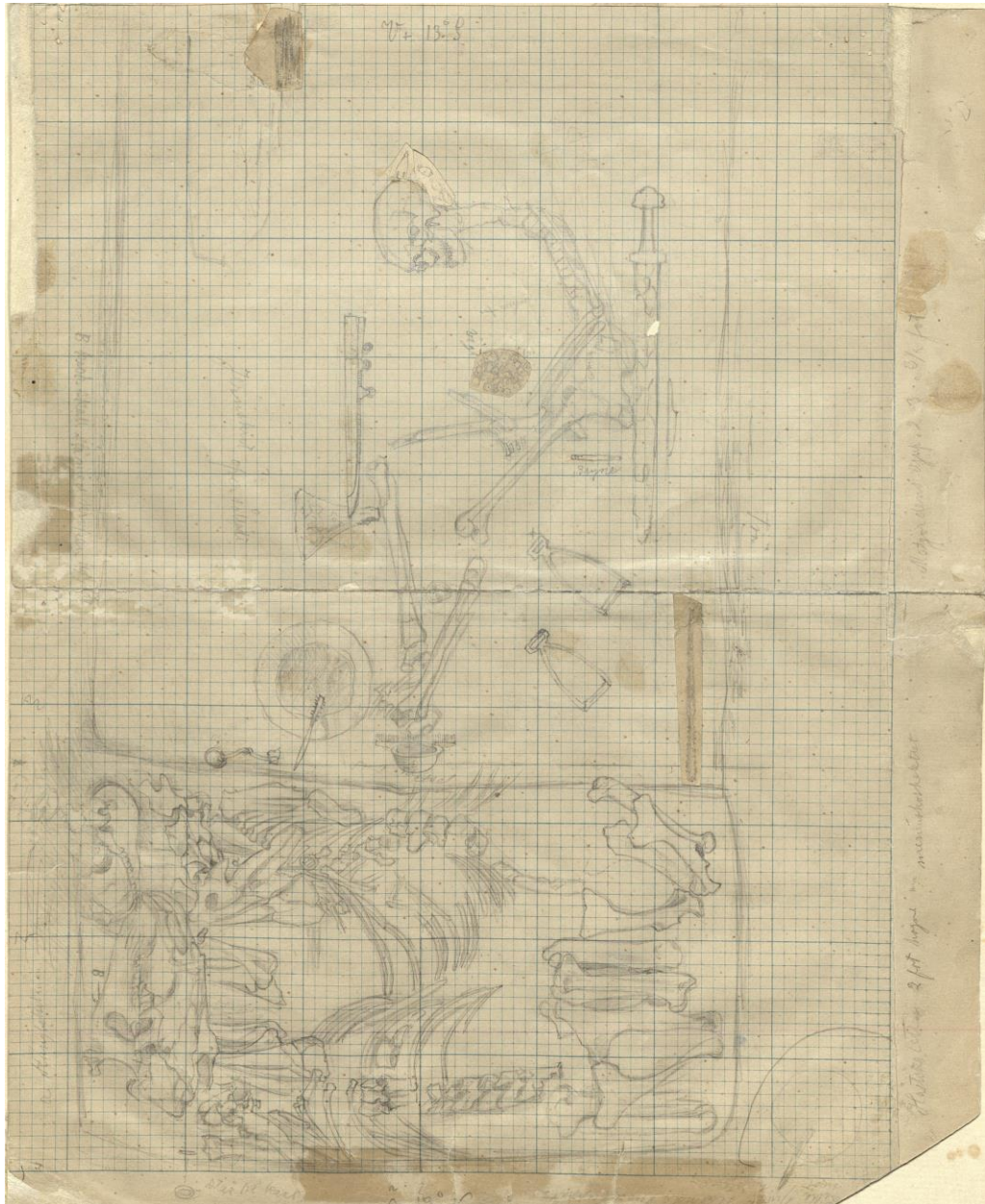


Figure S3. Hjalmar Stolpe's fine-drawn plan of Bj.581: this is the primary visual record of its disposition, made during its excavation in 1878. From the Birka papers in the Antiquarian Topographical Archive, Stockholm, in the public domain.

The elemental representation of the bones labelled 'Bj.581' was compared to the skeleton as shown in the original grave plans and later publication drawings. This procedure also allowed us to check for possible discrepancies, such as the depiction of degrees of preservation, between the original field drawings and the eventual published plan in Arbman's catalogue. On any excavation, there may also be small differences between a plan of a skeleton *in situ*, and the representation of elements in the recovered skeleton; smaller bones and parts of larger bones may be destroyed or disappear when the bone elements are extracted from the soil, and

single additional bone elements may be recovered when the excavation extends deeper or the soil surface is cleaned.

In the case of the labelled 'Bj.581' skeleton, all major elements, except for the cranium and some small bones from the feet, were present in accordance with the original drawings (Figures S4 & S5; again, as stated in the Online Supplementary Materials to our 2017 article). Furthermore, no bones are present in the labelled remains that are not recorded on the field drawings. The separation of the cranium from the post-cranial elements sadly reflects a rather common antiquarian practice; several other crania from the Birka excavations are similarly missing, as are examples from other contemporary investigations. It is possible that it may one day be found in an anatomical collection.

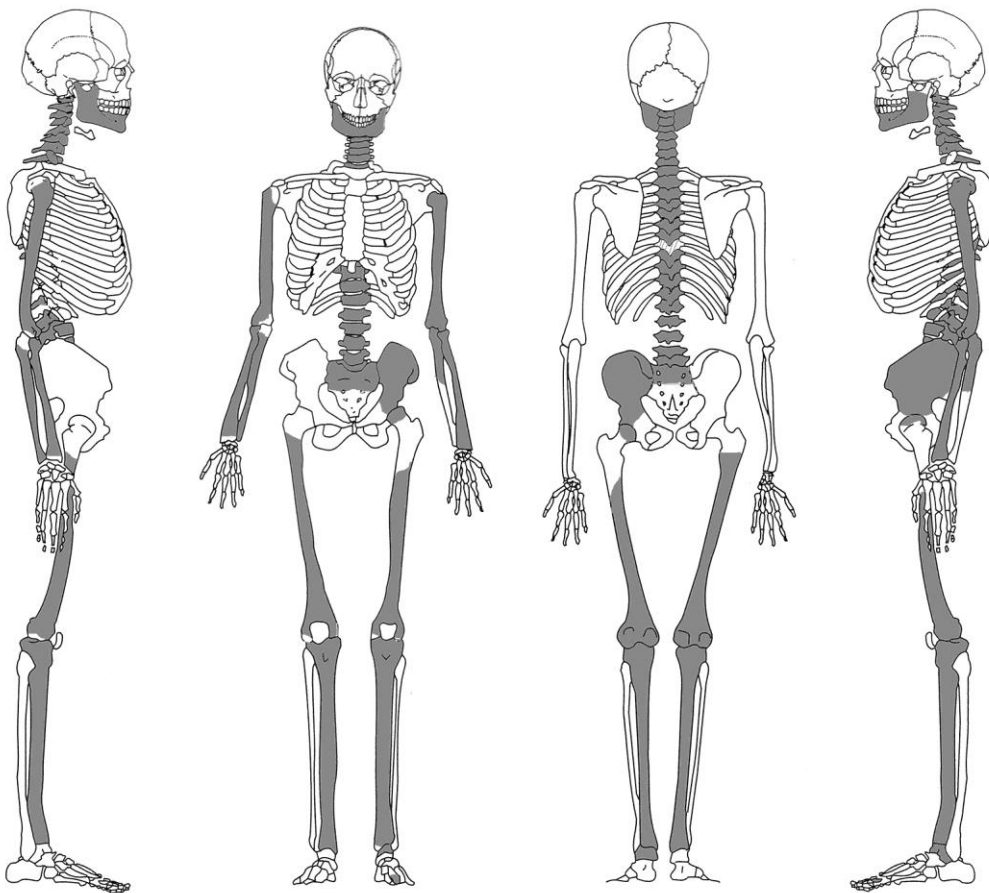


Figure S4. A skeletal chart of Bj.581, showing the surviving bones. Original illustrations by Buikstra & Ubelaker (1994), modified by Anna Kjellström.



Figure S5. The Bj.581 skeleton, positioned as found; the cranium is missing. Photo by Ola Myrin, Swedish History Museum, used by kind permission.

The bones labelled 'Bj.581' were also checked against the records of other Birka inhumations. An additional study by Kjellström and Storå noted that besides Bj.581 there are several more chamber graves, and other burials of both sexes, with detailed correlations between the labelled bone material and the written descriptions and drawings (e.g. Bj.627, Bj.712, Bj.855, Bj.893, Bj.1013, to cite just a few). None of these match the Bj.581 bones. In some other

cases, the excavation plans show well preserved human remains, but we do not have any bones labelled as coming from those graves (e.g. Bj.176, Bj.560, Bj.567, and others). However, in the drawings of these burials, the skeletons either show obvious damage patterns different to those labelled 'Bj.581', or clearly exhibit a different level of preservation; we can therefore exclude the possibility that the skeleton we analysed could have originated from any of these inhumations with 'missing' bones.

In summary, the bones in the analysed skeleton are all labelled as coming from Bj.581, matching the labels on the horse bones and artefacts. The labelled bones match Stolpe's excavation records, and they do not match any other grave known from Birka. This level of correlation would be more than acceptable in any ordinary circumstances, and considerable intellectual contortions are required to reject it in this case. For Bj.581, the integrity of the link between bones and grave is secure, and we therefore consider the matter resolved: the skeleton we analysed is the one that Stolpe found when he excavated the burial.

Was there more than one body in Bj.581?

Double burials of males and females interred together in chamber graves are uncommon, but are known in ten or eleven examples from the Birka cemeteries (Gräslund 1980: 74–75), and from grave-fields along the eastern trade routes into European Russia (see examples in Androshchuk & Zotsenko 2012). Could Bj.581 have been a double burial of this kind?

As ever, it is important to begin with the primary record. No bones other than those in the labelled 'Bj.581' skeleton are drawn or mentioned anywhere in Stolpe's documentation of the grave—indeed in his 1879 report he explicitly writes that it contained a single body. In addition, even if one were looking to spatially associate the contents of the grave with a somehow 'missing' corpse, all the weapons, riding equipment and items of apparel are either grouped around or actually worn by the occupant whose bones we have; the two shields are also positioned directly in front of and behind this body. In short, there is nothing whatsoever in the original descriptions of the grave to suggest a double burial, which is why in the formal reports of the Birka excavations Bj.581 was published as containing only one individual (Arbman 1943: 188–90; Gräslund 1980: 37–39, 74–75).

However, osteological work undertaken in the 1970s complicated this picture. In 1975, in the aftermath of the evident commingling of (some of) the Birka bones as described above, the osteologist Berit Vilkans compiled an inventory of the storage boxes where the bones were kept, listing their contents together with results of the standard examinations to determine sex, age, stature and basic pathology. In her description of the Bj.581 box contents (Vilkans 1975:

12, 54–55), like us she noted that the osseous material fitted the original excavation descriptions, and—significantly—that the Bj.581 skeleton was biologically female. Due to the nature of her inventory format, this was never linked with the long-standing interpretation of the funerary context until Kjellström's fresh look at the Birka bones more than 30 years later (as stated in the Online Supplementary Materials to our 2017 article). However, Vilkans also noted the presence in the Bj.581 storage box of a third femur, which obviously does not come from the same skeleton. In addition, she performed age estimations on the mandible and the proximal humeri (all labelled 'Bj.581') which produced two slightly different age intervals (Vilkans 1975: 54). It is these observations that led two archaeologists to claim that Bj.581 in fact contained two bodies, which they interpreted as a man and a woman (Arwidsson 1989: 144; Androshchuk 2014: 386). It may be relevant to note that one of these scholars has previously proposed something similar for the richest Viking Age grave ever discovered—the Oseberg ship burial, containing two females—arguing again that it was actually made for a somehow missing male (Androshchuk 2005).

In fact, the notion of a double burial in Bj.581 is easily disproved, beginning with the extra femur. The problem here is simple, in that both Arwidsson and Androshchuk read Vilkans' report as an inventory of the *actual grave assemblages* rather than the *contents of the storage boxes*: the two things are very different. When one examines the bones (as Arwidsson and Androshchuk did not) it becomes quickly apparent that the extra femur is labelled 'Bj.854', designating a different grave (Figure S6). In contrast to Bj.581, the integrity of Bj.854 was found by Kjellström to be deeply compromised. It is therefore not difficult to understand that a bone from Bj.854 found its way into the wrong box, the possibility of which is precisely why bones and artefacts are labelled in the first place. Bj.854 also dates from perhaps a century earlier than Bj.581 (Gräslund 1980: 27), and ironically the size of the extra femur suggests that it too comes from a female, or possibly a teenager of indeterminate sex.



Figure S6. The third femur present in the storage box for grave Bj.581, clearly labelled 'Bj.854' showing that it has been misplaced from a different burial. Photo by Charlotte Hedenstierna-Jonson.

Can the two different age intervals from Vilkans' study be used as an argument for the presence of a second individual? This is a possible conclusion, but need not necessarily be the case, since the diet and pathology of an individual can affect the dental wear (e.g. Lynnerup *et al.* 2008); crucially, this was also mentioned by Vilkans herself (1975: 2). To make doubly sure for Bj.581, the two elements that Vilkans used to make this suggestion, the left humerus and the left canine from the mandible she examined, were selected for DNA testing in our study with results that were consistent with them belonging to the same person (as presented in our 2017 article and its Online Supplementary Materials).

Finally, we can briefly note that Vilkans also listed some fragments of human ribs in her Bj.581 box inventory, which are not shown on Stolpe's plans. On closer analysis, these proved to in fact come from the horses, which are depicted in the drawings. When the erroneous age differentiations and the banality of a misplaced bone are discounted, any rationale for a second body in Bj.581 disappears—as we stated with concise precision in our 2017 article (Hedenstierna-Jonson *et al.* 2017: 3). On the basis of an unprecedentedly detailed study of the Birka human bone assemblage and its relationship to the excavated graves, closely correlated with all extant documentation, there is no doubt that Bj.581 only contained a single human body.

3) Determining the sex of Bj.581

Given that any issues about the integrity of Bj.581 have been resolved, the actual sex determination of the skeleton—as reported in our 2017 article—is uncontroversial. As we have seen, the bones were osteologically determined as female first by Vilkans (1975: 54), and again by Kjellström, who presented the basis for the age estimate and sex in our earlier article (Hedenstierna-Jonson *et al.* 2017: 3). The epiphyseal union was completed on all preserved bones, and the appearance of the auricular surface of the left ilium meets the morphologic criteria for phase 3 according to methods by Lovejoy *et al.* (1985) and Meindl & Owen (1989). Furthermore, the dental wear of the lower molars was clear but moderate (stage 2–4; Brothwell 1981). In all, this suggests that the individual was 30–40 years of age at death. The greater sciatic notch of the innominate bone was broad, and a wide preauricular sulcus was present. This, together with the lack of projection of the mental eminence on the mandible, assessed the individual as female. Additionally, the long bones are thin, slender and

gracile, which provide further indirect support for the assessment. No significant skeletal alterations have been documented, though degenerative changes were noted in the form of minor osteophytes on the ventral bodies of the thoracic vertebrae, and marginal lipping and surface pitting of the apophyseal facet joints of the third to fifth lumbar vertebrae were observed. Furthermore, the distal part of the medial side of the diaphysis of the tibiae exhibited mild periosteal new bone formation (striae; Weston 2008). No traumatic injuries were observed.

Prior to the genomic analysis, two other osteologists at the Osteoarchaeological Research Laboratory at Stockholm University—Petra Molnar and Elin Ahlin Sundman—were also invited by Kjellström to conduct informal blind examinations of the Bj.581 bones. They came to the same conclusion (Kjellström 2012: 76). Four independent osteological analyses (Vilkans, Kjellström, Molnar, Sundman) therefore all suggested that the skeleton from Bj.581 was female. Since the burial had always been held up as a type example of a male warrior grave, this was clearly an intriguing result.

However, osteological sex determination is not completely reliable, which is why we decided to undertake a genomic study of the Bj.581 individual, to definitively confirm or refute what the osteology appeared to be indicating. This DNA analysis has been fully presented in our 2017 article and we will not repeat the details here, but its results were conclusive: the Bj.581 individual has XX-chromosomes and is thus biologically female.

4) Are any other female warriors known from the Viking Age archaeological record?

Unsurprisingly, given the enormous quantities of excavated Viking Age burials, several other graves have previously been identified as containing women interred with weapons, with obvious implications as to their possible interpretation. They have been explored in a number of recent studies, notably a series of important works by Leszek Gardela (2013, 2017a & b, 2018, in press a–b). He locates several ostensibly female graves which include a single weapon—almost always an axe but occasionally a spear or some arrows (Gardela 2013: 279–99). While these burials vary considerably, it must nonetheless be said that none of them would be conventionally interpreted as 'warrior' graves were their occupants to be male: there are only single weapons present, and the axes may well have been tools. A separate group of graves in Gardela's lists comprises double burials of males and females, in which it is naturally impossible to state with whom—if either—the weapons are associated.

Two Norwegian graves stand out from the rest as being of a different character, in part resembling what we have found in Bj.581. As with the others mentioned above, the sex of

both bodies has been determined through osteology alone, and there may also be issues of intersectionality and morphological change (cf. Walker 2005). It could be that future biological sex determination will show that these individuals were indeed female, but it is equally possible that one or both will prove to be male. Alternatively, the burials may emerge as more osteologically complex funerary assemblages, especially given the largely uncontrolled circumstances of their excavation.

The first is grave C22541 from the Nordre Kjølén farm at Åsnes, Solør in Norwegian Hedmark, a mound burial excavated in 1900 (Hernæs 1984). A supine body lay with a double-edged sword of Petersen type M by the left side, its hilt by the hip and the point near the face (an unusual position). Arranged around the body lay an axe of type G, a shield boss, five arrowheads, a bent lancehead, a whetstone and an iron file. A bridled horse had been placed at the foot of the grave. The artefacts suggest a typological date of the mid-900s, similar to Bj.581. The skeleton was immediately assessed as biologically female (Guldberg 1902), and interpreted as the first excavated example of a shield maiden, hitherto only known from the medieval texts (Mørck 1900). A later osteological report by Per Holck (in Hernæs 1984: 37–38) also supported the sex determination and concluded that this was a woman who had been of very slight build, about 1.55m tall and 18–19 years of age when she died.

A second Norwegian grave is also of interest here—an unmarked burial at Aunvollen, near Snåsavattnet in Nord-Trøndelag (Stenvik 2005; Norderval 2006: 52, 144). A person around 20 years old, osteologically determined as female, had been laid on a bed of textiles and down feathers (perhaps a quilt?), with a scabbarded, damascened sword of type H or I by the left side, together with a sickle. Eight gaming pieces and a quartzite stone had been placed by the head, with a whetstone, comb, scissors, and 120 iron fragments mostly of nails and rivets, perhaps implying some kind of small chests or boxes. The grave was originally discovered during machining and the contents were partially disturbed, with the result that some objects from the burial were recovered afterwards from the spoil heap. These included a spearhead, a bead and more iron fragments. In addition, the scattered bones of a dog were found here, which had clearly also lain in the grave.

Although we do not discuss them in detail here, it is worth noting that there has also been extensive debate as to the possible presence of female warrior burials in the Iron Age cemeteries of Germany—a different context, but ultimately belonging to the same wider cultural sphere (Schneider 2011; Gärtner *et al.* 2014; Wahl *et al.* 2014).

In addition to the rather meagre funerary evidence, we should also note the presence in the Scandinavian Viking Age archaeological record of large numbers of armed figures portrayed

in metalwork, and interpreted as women on the basis of gendered conventions in the depiction of hairstyle and clothing (see general discussion in Göransson 1999; Back Danielsson 2007; and Helmbrecht 2011 for these figures specifically). These include the dramatic three-dimensional figurine from Hårby in Denmark (Henriksen & Vang Petersen 2013; Figure S7) but also numerous mounts depicting individuals both on horseback and standing, bearing shields, swords, and lances (no systematic survey of these finds has yet been published, but see Helmbrecht 2011: 65–74, 127–28; Pentz 2017; Gardela 2018, in press b; Figure S8).

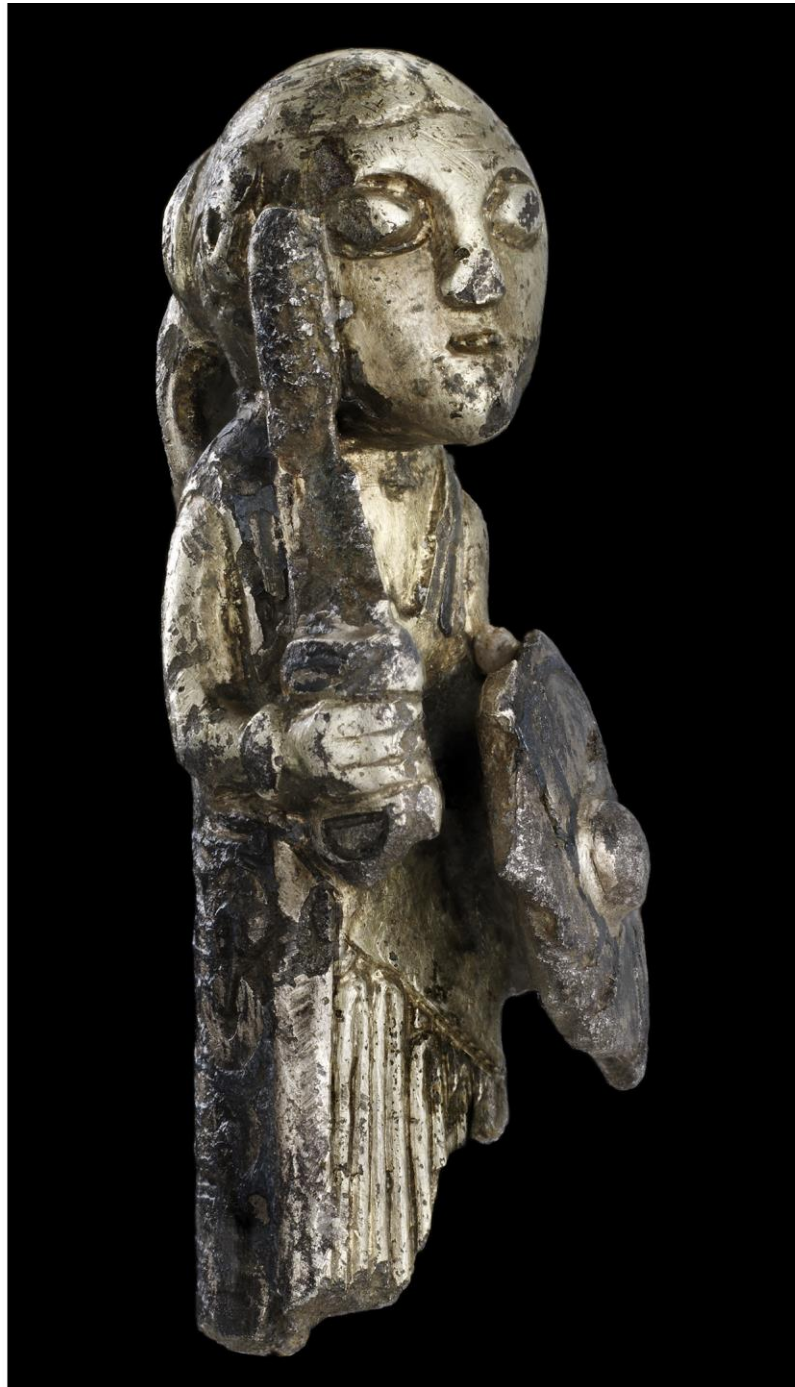


Figure S7. A gilded silver figurine of ninth-century date, 3.4cm tall, found by metal detector in 2012 at Hårby, near Roskilde, Denmark. Photo: John Lee, National Museum of Denmark, used by kind permission.



Figure S8. A Viking Age gilded silver mount from the manor at Tissø on Sjælland, Denmark. Photo: National Museum of Denmark, used by kind permission.

These pieces present an interesting mixing of gender codes, especially relating to dress. The mounted, armed figures clearly bear the knotted hairstyle that seems to be the single most prominent feminine marker in Viking Age iconography, but they also wear trousers, which were arguably a normative attribute of men according to later, medieval sources. In ch. 35 of the mid-thirteenth-century *Laxdæla saga*, for example, there is extensive discussion of what can happen “if women go about dressed as men”, and later a man divorces his wife, “on the grounds that she had taken to wearing breeches [...] like a masculine woman” (Kunz 2000: 333f). On the metalwork, the figures standing in front of the horses wear the long, sweeping gown that, besides the hair-knot, is the other key feminine marker; both mounted and standing figures are armed, and the latter appear to be helmeted. There is no reason why these figures all have to represent mythical Valkyries, the interpretive fallback that is usually brought into play, rather than actual women.

5) From 'female warriors' to 'shield maidens'?

Is there textual support for the existence of female warriors in the Viking Age? It is well known that the Old Norse corpus contains numerous descriptions of 'shield maidens' and similar figures—indeed they have become one of the more prominent features in the popular perception of the period. However, while these stories are undoubtedly compelling, they also date very firmly to the centuries after the time that they claim to describe, and largely derive from legendary tales or literary genres of Romance and the fantastic.

A separate, but related, question concerns the Valkyries—the mythical female spirits of carnage who appear in Old Norse poetry and prose, usually as violent servants of the war-god Odin. In many of the sources, these beings are also envisaged as armed and armoured women, and there is a significant degree of overlap with the literary image of the shield maiden. Our articles on Bj.581 concern humans in death and life, and we will not explore the supernatural Valkyries further here, but they are clearly relevant to the 'woman with weapons' in the Viking Age mind (the literature on them is considerable, but for useful overviews and comments see Ström 1954; Andersson 1980; Damico 1984; Price 2002: 331–46; Quinn 2005, 2007; Näsström 2009: 153–74; Egeler 2011; Bek-Pedersen 2011: 14–55; Murphy 2013; Boyer 2014; Self 2014). Similarly peripheral to the figure of the shield maiden, but nonetheless connected, is the *meykongr*, the 'maiden king' who appears in a number of Romances and courtly narratives of the Nordic Middle Ages (e.g. Kalinke 1986; Præstgaard Andersen 2002: 293–99; Fríðriksdóttir 2012).

The shield maiden trope itself has attracted an appropriately extensive literature, and this too can only be briefly touched upon here. Several works have considered these sources either as part of larger discussions of women in the Viking and early Middle Ages (e.g. Jesch 1991: 176–80; Clover 1993; Jochens 1996: 87–112, a particularly detailed treatment; several papers in Anderson & Swenson 2002; Fríðriksdóttir 2013: 10–11, 114–16, 120–27) or in a more specific context (e.g. Clover 1986; Præstgaard Andersen 1982, 2002; Sawyer 2003; Ney 2004; Klos 2006; Self 2014; Kjesrud 2014; Jesch 2015: 104–107; Redon 2017: 27–40; Gardęła 2018, another comprehensive analysis); full references to the sources mentioned below can be found in these works.

Shield maidens, Valkyries and other female warriors appear several times in the heroic poems of the Eddic tradition, notably in *Helgakviða Hundingsbana* and the various episodes of Brynhildr's story. Valkyries (though not human female warriors) are also found in skaldic poems such as *Haraldskvæði* and *Hákonarmál*, and they occur with some frequency in the poetic citations of Snorri's *Edda*. In the Sagas of Icelanders, by contrast, armed women are

not encountered at all, other than in isolated contexts of self-defence, momentary rage or planned revenge. The single exception would seem to be a sorceress described in *Ljósvetninga saga* (ch.20), who is dressed in trousers (conventional male attire, as we have seen), wears a helmet and holds an axe, which she uses in a violent ritual. However, shield maidens appear frequently in the *fornaldarsögur* or legendary sagas, such as *Hervarar saga ok Heiðreks*, *Ragnars saga loðbrókar*, *Sögubrot af nokkrum fornkonungum*, *Hrólfs saga Gautrekssonar*, *Hrómundar saga*, in tales such as *Þáttr af Ragnars sonum*, as well as in the chivalric sagas and elsewhere (including texts that locate them in non-Nordic pseudo-historic contexts). Saxo's *Gesta Danorum*, begun in the late twelfth century, also includes many descriptions of shield maidens, operating in different contexts throughout the early parts of the work (especially in book VII). In several of these sources, the action is set not just in the Viking Age, but also in the centuries preceding it as far back as the Migration Period. To summarise these texts briefly, such women appear singly or in small bands, the latter sometimes specifically composed of female warriors, and at other times more integrated into general fighting forces. In individual cases, they may lead armies and direct campaigns, assuming positions of command. Occasionally these women are described as having different - and sometimes transgressive - attributes of appearance (wearing male clothing, for example). They fight both with and without armour. For some of these women, the process of taking on this identity involves a change of personal name. The tales adopt a variety of moral and social viewpoints, sometimes framing the women as rare exceptions to their sex, and in other instances giving little sign that they were regarded as out of the ordinary. The descriptions are often laconic but also vivid, and contain startling imagery, contributing to their long legacy in the Northern imagination down to the present. Thus, the moment in *Völsunga saga* (ch.9) when a troupe of warrior women take the field:

Fundust þeir þar, er heitir Frekasteinn, ok tókst þar hörð orrosta. Helgi gengr fram í gegnum fylkingar. Þar varð mikit mannfall. Þá sá þeir skjaldmeyjaflokk mikinn, svá sem í loga sæi. (They met at the place called Frekasteinn and a savage battle ensued. Helgi pushed forward through his opponents' ranks. A great many men fell there. Then they saw a large band of shield maidens - it was like looking into flames). Translation Jesse Byock 1990: 50, with an amendment by Neil Price

For all their literary qualities, however, it is clear that none of these sources represent anything close to a faithful historical record. The *fornaldarsögur* are particularly problematic

(e.g. Lassen *et al.* 2009, 2012), and with a few exceptions the saga specialists cited above are dismissive of the notion that the textual shield maidens relate to real female activities in the period that the sources claim to describe. Instead, it is argued, the emphasis is on idealised images of women within an array of other, related and socially-situated constructs, or else a deliberate, retrospective reference to Classical motifs of Amazons and the like. Although the figure of the female warrior has been subject to considerable gender critique (e.g. Layher 2007; Self 2014), this research has focused on her liminal nature, 'caught between' more normative masculine and feminine roles, and perhaps even constituting a discrete gender in her own right. While the rejection of simplistic gender binaries is to be welcomed, it must nevertheless be stressed that nowhere in these studies is there any hint that the shield maidens and their kind are anything other than products of medieval literary discourse, developed within narratives that reflect social preoccupations of the time.

In line with this, whenever these textual figures are matched by potential material correlates—*actual* Viking Age females buried with weapons, revealed through archaeology—a literal reading of what this might mean is rejected by most literary scholars. As Jesch puts it (2015: 107), “that the very few women buried with weapons were warrior women in life seems the least likely explanation of all”. This is puzzling for several reasons, and surely tends towards confirmation bias. Why *must* these people be merely symbols, allegories, and idealised images? The shield maidens are for the most part not described in especially unlikely ways, or at least no more so than their male counterparts in the same tales, and they are much more fully developed than the rather two-dimensional Valkyries (Self 2014). If we are rightly concerned about exact terminologies, it is also worth asking why these women were specifically called *shield* maidens; why not invoke other weapons, as can be found in the names of the Valkyries? This is interesting in view of the prominent presence of the shield in the metalwork figures noted above, alongside the numerous finds of miniature shields in female burials (cf. Gardęła & Odebäck, in press).

Similarly, the textual warrior women are always in a minority: they are clearly exceptions to a generally masculine martial norm, and there is nothing in the sources to imply that they should ever have been particularly numerous (and therefore archaeologically prominent). Above all, they are *there* in the Old Norse corpus, with all its ambiguous antecedents, and they will not go away.

Seen in this light, the central conclusion that can be drawn from Bj.581 is that this burial is decidedly not medieval saga, legend or poetic licence, but empirically testable Viking Age reality. The exceptional nature of the Old Norse stories naturally does not prove that they

must ultimately have had some basis in real-life individuals, at however great a remove (and in fact they are quite unnecessary for the interpretation of the excavated data). Nevertheless, when such people potentially appear in the archaeological record, simply dismissing this possible connection in the name of scepticism and some extraordinary diachronic coincidence is not a viable position. Not least, in focusing on the textual shield maidens as transgressive figures constructed as literary motif, this would seem to deny the agency of real, living Viking Age women, who might simply have decided to choose a different path in life.

Interestingly, these literal 'shield maidens', or some convincing analogue of them, do actually appear in the near-contemporary written record of the peoples the Vikings encountered. There are two clear examples, the earliest coming from the Byzantine world. Probably towards the end of the eleventh century, John Skylitzes compiled the records of Imperial military campaigns from earlier times, including an account of a war with the Scandinavian-dominated 'Rus that took place in 971 (Wortley 2010: 290; see Duczko 2004 and Androschuk *et al.* 2016 for context). Following a 'Rus defeat, the Byzantines are looting the enemy corpses on the battlefield when they find the bodies of women "equipped like men", who they are quite clear had been fighting them together with the male warriors. Despite being couched in terms of Classical allusion (the Byzantines are 'Romans', the 'Rus are 'Scyths'), the information is given matter-of-factly as part of the general account, and is not elaborated in any way; in particular, the fallen female fighters are *not* glossed through Antique analogies (see Kaldellis 2013 for a discussion on the reliability or otherwise of Skylitzes' sources).

The second example comes from the *Cogadh Gaedhel re Gallaibh* ('the War of the Irish with the Foreigners'), a twelfth-century text that is generally considered trustworthy. In its relations of the Viking attacks on Munster in the mid-tenth century (Todd 1867: 41), no less than 16 raiding flotillas are listed with their commanders' names, the last of which is given as 'the fleet of the Inghen Ruiadh', translating as the 'Red Girl' (or 'Red Daughter') and apparently referencing her hair colour. In a single, brief note this woman thus appears not only as a Viking herself but also a ship's captain and a fleet commander. A later entry (Todd 1867: 207) ostensibly records that her two sons died in combat at the Battle of Clontarf in 1014. The sixty years or so between these events make it hard to see them as relating to the same individual, but perhaps two women have been conflated with similar names as in the *Annals of Ulster* below. Further support for the existence of this female war leader is also provided by the *Annals of Clonmacnoise*, a difficult seventeenth-century English translation of a now-lost medieval Irish original. Its entries are hard to date, but they include a list of Viking fleets very similar to that of the *Cogadh* in which one raiding force is commanded by the 'Read

Daughter' (the *Annals* are copied in Jacobean spelling; Murphy 1896: 134). In a link to the more critically problematic sources, there has also been a suggestion that the Red Daughter is the same person as the warrior woman Rusila or Rusla, meaning 'Red', in Saxo (Books IV, VII and VIII; Davidson & Fisher 1996, vol. 2: 71).

Two other Irish sources are also of relevance, though more ambiguous. The *Annals of Ulster* twice refer to individual female military commanders by the descriptor 'the Maid', first in 881 in battle against the Irish and then in 1098 while fighting 'foreigners' (Mac Airt & Mac Niocaill 1983: 339, 533). Given the time gap they are clearly not the same person and the ethnic context perhaps shifts, but women are explicitly described as leading Viking Age military forces. In addition, the *Annals of Inisfallen* for 905 mention a vaguely-defined army of barbarians who are probably Vikings, plundering along the northern Mediterranean shore. Part of the force is made up of "close-cropped women", not specifically described as warriors but clearly understood to be unconventional and noted in a warlike context (Mac Airt 1944: 143).

Finally, 'Danish' women are explicitly mentioned as being part of the Viking besieging army at Paris in late 885. In Abbo's eye-witness account (Book I, v. 124–34; Dass 2007), the women are clearly present on the ships, physically very close to the fighting but not obviously part of it, though they aggressively encourage the Viking men in combat (and thereby interestingly provide a real correlate to another prominent female trope from the Old Norse corpus, that of the 'whetter'; cf. Jochens 1996: ch. 7 & 8).

If we compare these kinds of sources with the literary motifs of the shield maidens, as interpreted by textual scholars, are the Inghen Ruaidh and the two 'Maids' all symbols too, and were the female 'Rus dead nothing but a Byzantine fiction? If so, what purpose did they serve, since no broader narrative is spun from their presence? Removed from the genre of literary invention, and couched instead in war reportage and ethnic propaganda, they are harder to ignore. Whatever one's position, it is clear that the genomic reinterpretation of Bj.581 is but the beginning of a new debate.

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Material from the graves at Nordre Kjølén, Solør (C22541) and Aunvollen (T20248) can be found under those code numbers at UNIMUS, the online database of Norwegian university museum collections. Available at: <http://www.unimus.no> (accessed 7 January 2019).