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Samite silk in Viking Age Old Uppsala – A review on the finds in Boatgrave 36

Samitum-silkki viikinkiaikaisessa vanhassa Uppsalassa – Venehauta 36:n löytöjen tarkistus

Artikkeli tarkastelee vanhasta Uppsalasta (Gamla Uppsala) löytynyttä viikinkiaikaista Venehautaa 36 (Båtgrav 36, noin 900 eaa.) ja esittää uuden tulkinnan sen löydöistä. Kuten monissa muissa viikinkiaikaisissa korkea-arvoisten henkilöiden haudoissa, myös tässä vainaja on haudattu yllään samitum-silkikankainen asu, rinnallaan kaksi soikeaa solkea sekä kaulassaan nauha, jossa on islamilaisia kolikoita. Kaulanauhassa on myös niin kutsuttua valkyriaa esittävä pronssifiguriini. Niin silkkikangas kuin muut löydöt viittaavat Skandinavian viikinkiaikaisiin yhteyksiin itään Rusin alueelle sekä vielä kauemmas itään pohjoisen Euraasian silkkien varsille.

Samitumsiden i vikingatida Gamla Uppsala – en granskning av fynden i Båtgrav 36

Artikeln granskar en vikingatida kvinnograv från Gamla Uppsala – Båtgrav 36 (cirka 900 fvt.) – och framför en ny tolkning om dess fyndinnehåll. Liksom i många andra vikingatida högstatusgravar har den döda här ikläts en dräkt av samitumsiden, två ovala spännbucklor på bröstet, samt ett pärlhalsband med flera islamiska mynt. Halsbandet innehåller även en liten bronsfigurin, en så kallad valkyria. Sidenfynden berättar tillsammans med övriga fynd om dåtida förbindelser österut från Skandinavien, till Rus och ännu längre österut, till Sidenvägarna i norra Eurasien.

Introduction summary

During a two-year assignment as project manager to establish a new archive for the archaeological collections at Uppsala University (2012–2014), I had the privilege to deeply study their textile collections, focusing on the finds from the Viking Age boat graves in Mälardalen (the Swedish Mälaren Valley). Quite remarkable, the textile remains from these graves consist almost exclusively of silk – a material not produced in Scandinavia, or even in Europe at the time. In the article "Asian Silk in Viking Age Graves", I had

the opportunity to present the rich silk material from the Valsgärde boat graves – all male (Larsson 2020: 107–147).

However, there are also silk remains in the nearby female Båtgrav 36 (Boatgrave 36) at the well-known archaeological site Gamla Uppsala (Old Uppsala). The textile finds from this grave were previously published in "Båtgravar i Gamla Uppsala", edited by Else Nordahl in 2001. In my review, several misinterpretations from the results published in the book were discovered. This applies not only to a previously assumed horse grave in close connection with the

boat graves, which turned out to be a dead cow from later times, but also to interpretations concerning the silk weaving techniques, analyzed by Anita Malmius.

Based on the re-interpretations of the archaeological finds in Boatgrave 36 at Old Uppsala, my aim here is to highlight a considerable presence of samite silk among the burial costumes connected to Viking Age high status graves. An increased awareness of this undoubtedly long-distance import enables a shift in research concerning ceremonial burial customs of the time – from a focus on local Scandinavian traditions into much larger interdisciplinary Eurasian perspectives, where not only the ancient Rus' culture seems to be of interest for our understanding.

Background

The mythical site Old Uppsala is archaeologically best known for several large burial mounds from the 7th century, which belong to the so-called Migration Period. Less well known is that the place was also an important Viking Age necropolis site, although many smaller mounds from the time still remain in place. However, no traces can be seen of a Viking Age boat grave field situated between the large mounds and the medieval church – except for the grave plateau itself (Fig. 1). These graves were found as late as in the 1970s, when pipes were laid for some public toilets at the site. In addition to the boat graves, the

above mentioned “horse grave” was also found (Nordahl 2001).

The boat grave plateau is named *Prästgården 1:1* in the official antiquities register. Uppsala University is responsible for the archaeological collection from the site, including the textile finds. Boatgrave number 36 is dated to around 900 CE. In this grave a woman was buried in a 5.65-meter-long boat, followed by a dog and a hen (Fig. 2) (Nordahl 2001: 46–61). According to the museum in Old Uppsala, as many as 606 textile fragments were documented and registered from the grave.

In a two-year project, 2012–2014, the Uppsala university collections were moved into new climate-adapted premises. This work included re-organization of the archaeological collections, based on modern premises. All objects were re-documented, digitally re-cataloged, and re-packaged. My responsibilities included leading and organizing the entire relocation process, which gave a unique insight into the Viking Age boat grave culture, using Boatgrave 36 as a starting point.

The skeletons

My colleague, osteologist Elinor Täng, began her re-documentation of the skeletal remains from the graves at the *Prästgården* plateau. Her first discovery was that the so-called “horse grave” (Nordahl 2001: *Hästgraven*; 62, figs. 53–54) did not contain any horse remains at all, but a well-



Figure 1. The Viking Age boat grave field *Prästgården 1:1* in Old Uppsala is not visible above ground, but located on the flat plateau between the large mounds and the medieval church. © Annika Larsson.



Figure 2. Reconstruction of Boatgrave 36. Painting by Vera Olsson after a schematic illustration according to Nordahl 2001. © Annika Larsson and Vera Olsson.

preserved cow skeleton dated to the 14–15th centuries (Fig. 3). The cow had likely died of natural causes and was then placed under heavy stones at a historic farm, situated at the boat grave plateau (<https://digitaltmuseum.se/011013975230/gamla-uppsala-fornlamningsomrade-arkeologi-gamla-uppsala>).

Täng also discovered that the earlier registered “hen”, placed at the feet of the dead woman in Boatgrave 36 (Nordahl 2001: Båtgrav 36:111; 57, 60), happened to be a young rooster. To be sure of the interpretation we compared the spurs with a slaughtered rooster of the supposed age, from which we boiled the legs clean from skin (Fig. 4).

Thanks to a well-preserved penile bone (Fig. 5a), it was also concluded that even the dog in Boatgrave 36 was male. This dog was of larger size than a German shepherd (Nordahl 2001: Boatgrave 36:125; 61, 94) and, compared to the dog skeletons from the Valsgårde boat graves, had exceedingly compact body construction (Fig. 5b). The death was caused by such a hard blow to the head that the skull burst. The executed “beast” was then placed just below the stern of the boat (Nordahl 2001: 56–57, Fig. 50) (Fig. 2).

What then did the skeletal remains (Nordahl 2001: Båtgrav 36: 161; 46–47, 61, Fig. 38) tell about the buried woman? Her breast-

bone (*sternum*) had underwent degeneration during her lifetime (Fig. 6), and showed that she reached death as an older individual. Even her jaw was well-preserved. All her teeth were taken for DNA analysis in connection to the excavation in the 1970s, but the results were never reported and unfortunately the material has now disappeared from the lab in question. Of great interest for understanding the costume, however, are the well-preserved human ribs and arm bones. Green color from copper on the dead woman’s chest and her left upper arm clearly shows the body position for the dress fibulas (Fig. 7a).

The grave costume

A pair of quite advanced oval brooches in bronze from Boatgrave 36, were of the less common type called P 41 (Fig. 7b) (Nordahl 2001: Båtgrav 36:161; 46–47, 61, Fig. 38). Although today green from verdigris, most oval brooches probably once shone as if made of gold. Analysis of a number of oval brooches by the Dept of Analytical Chemistry at Uppsala University showed that Viking Age oval brooches made of bronze were usually “gilded” with a surface of brass or lead (Fig. 7c). However, in Boatgrave 36 there was a separate sec-



Figure 3. The typical split hooves from the cow skeleton in the so-called “Horse grave” at Prästgården 1:1 in Old Uppsala. © Annika Larsson.



Figure 4. Legs from young roosters with growing spurs. Boatgrave 36 at the bottom. Photo: © Annika Larsson.



Figure 5a. The penile bone from the dog in Boatgrave 36. Photo: © Annika Larsson.



Figure 5b. The compact jaw from the broad head of the dog skeleton in Boatgrave 36 is well preserved. The skull was crushed by a hard blow, which caused the death of the dog. Photo: © Annika Larsson.



Figure 6. To the left the degenerated sternum of the in Boatgrave 36 buried woman. To the right the sternum of a younger individual from recent time. Photo: © Annika Larsson.



Figure 7a. Green color from copper / bronze the left upper arm of the buried woman in Boatgrave 36 shows a bust height for the location of her oval brooches. Photo: © Annika Larsson.



Figure 7b. There is a hole for an attached bronze ring in one of the two oval brooches in Boatgrave 36. Photo: Mikael Wallerstedt, Uppsala University. © Annika Larsson and Mikael Wallerstedt.



Figure 7c. Chemical analyzes show that most oval brooches made of bronze in the Eastern Mälaren Valley, were originally gilded with brass or lead on the surface. © Annika Larsson.



Figure 7d. The oval brooches called P41 in Boatgrave 36 are made of two separate metal layers with a space filled with organic material in between. The lace-like upper layer is made of white metal, probably silver, contrasting to the gold-shining bottom layer. Drawing by Vera Olsson. © Annika Larsson and Vera Olsson.



Figure 7e. This knife was found with the bronze ring depicted in fig 7b. Boatgrave 36. The photo belongs to Museum Gustavianum, Uppsala University.

ond “laced” layer, produced in silver, attached on top of the base fibula (Nordahl 2001: Båtgrav 63:155/156; 48–49, Fig. 39). In the cavity between these two metal layers of gold-shining bronze and silver, respectively, remains of organic material were found. My hypothesis is that a beautiful fabric, possible in red, could have been placed here (Fig. 7d).

I claim the position for the two brooches can be compared to a statement made by the Arabic traveler *Ibn Fadlan*, who was a contemporary eyewitness to a boat burial among the Rus people in the Volga Bulgar area in 922 CE (Wikander 1978). He says that the Rus’ women wore a “bowl-shaped” buckle placed on each breast – at least during the funeral ceremonies. Ibn Fadlan also tells that there was a ring fastened in the buckles, where a knife was attached. (Larsson, 2020: 118. See also al-Dahhan 1959, Wikander 1978) In Boatgrave 36 this phenomenon is reflected with clarity. Except for the defined breast position for the two oval brooches, an attached ring with a knife is preserved (Figs. 7b, e) (Nordahl 2001: Båtgrav 36:153; 55–56, Figs. 46, 48–49).

An equal-armed fibula (Nordahl 2001: Båtgrav 36:147, 48–49, 54, Figs. 40, 46) was also found in the grave, which, together with a pair of silver rings, was placed on the body in a position below the oval buckles. It is assumed that these two silver rings were once intended to fasten one of the otherwise open garments of the costume with the equal-armed fibula at the front. (Nordahl 2001: Båtgrav 36:219/220; 53, 61, 77–78, Figs. 63–65)

The textile analyses connected to the excavation of the boat graves at Prästgården were made by Anita Malmius (2001: 75–92). Her schematic overview published in the report shows that the front of the woman's body in Boatgrave 36 was covered with only two layers of linen fabrics (Malmius 2001: 87, Fig. 74). Close to the body were a plain tabby, and a pleated tabby on top. Malmius refers to photographs from the excavation which show that the folds of the top fabric only lay along the dead woman's upper body. At the lower edge, however, this fabric turns 90 degrees across the body (Malmius 2001: 82). Concerning the rest of the garments, made of wool or silk, the overview shows that they were *all* open at front.

The many beads in Boatgrave 36, most of which were made of glass, measure approximately 45 cm when put on a string (Nordahl 2001: 50–51, Fig. 41). Based on the position of the beads, Nordahl suggest that the string could have been divided into two parts – if so, stretched out and worn horizontally across the woman's chest (Nordahl 2001: 50). The latter is consistent with my own interpretation about how also a female 10th century garment, largely sewn from samite silk and found in a chamber grave at Russian Pskov, was designed and cut. Shorter strings mean that the garment in question could be worn open at front (Fig. 8).

The silk

What then, is known about the silk remains in Boatgrave 36? Malmius claims that an outer silk 2/1 twill fabric was sewn together with a plain silk tabby lining using small, almost invisible stitches all over the open space between the two fabric layers – resulting in a “unique” cloth quality in an outer silk garment, probably a cloak or similar (Malmius 2001: 80, 81; Fig. 67). Despite years of research on silk production and trade during the Viking Age, I cannot find any parallels to her interpretation of such a silk weaving technique.

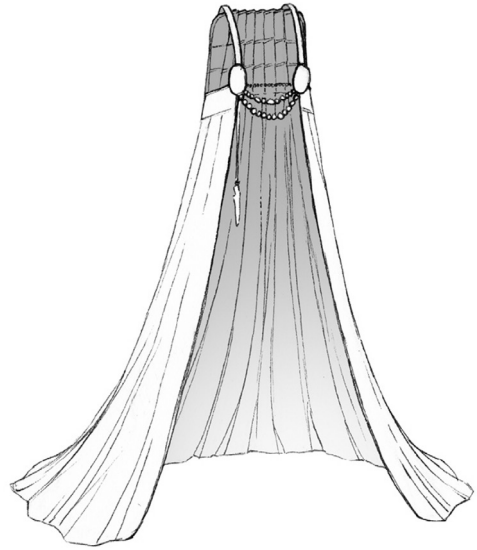


Figure 8. *Interpretation by the author on a Viking Age train-like garment for ceremonial use. The cut is reflected in contemporary textile grave finds, depicted costumes and textual descriptions as well as the function of various jewels. Drawing: Vera Olsson. © Annika Larsson and Vera Olsson.*

However, a closer look at the photos published in the book shows that the “lining” is not at all a tabby weave, but a typical reverse side of a silk fabric woven in *samite* technique, so-called *weft-faced compound twill*¹. This weaving technique has two warp systems and is thus easily for an untrained eye to mistake for “two fabric layers”. By empirical analysis of the fragments in question, I can state that we – instead of two different fabrics sewn together – see the right (Malmius 2001: 81, Fig. 67b) and the reverse (Malmius 2001: 81, Fig. 67c) side, respectively, of a typical samite silk² (Fig. 9a–e), in most English translations defined by the generalizing term “brocade”. The un-spun threads, floating on the upper side, make such fabrics shine, while the reverse side is matte. This technology



Figure 9 a-b. The reverse side of a typical samite silk fragment in Boatgrave 36 (previous published by Malmius 2001: 81 Fig. 67c). Notice the folded hem to the left, which shows the right side of this samite silk. Photo: © Annika Larsson.

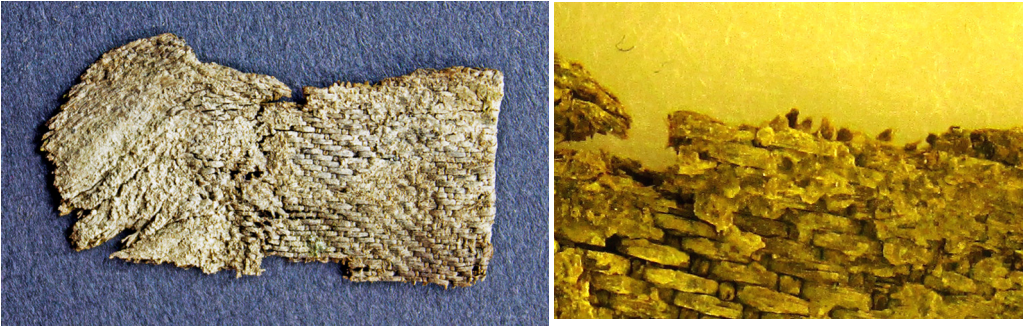


Figure 9c-d. The right side of a typical samite silk fragment in Boatgrave 36 (previous published by Malmius 2001: 81 Fig. 67b). Notice the front hem, which shows that the garment in question was open at front. Photo: © Annika Larsson.



Figure 9e. Cross-section of the fragment depicted in fig 9a-d shows that the samite weaving technique gives the fabric a clear right respectively reverse fabric layer. Photo: © Annika Larsson.

allows advanced patterns in several colors to be highlighted in detailed perfection on the right side of the cloth (Fig. 10) (Larsson 2020: 113–114).

Numerous archaeological grave finds of samite silk, as well as post-Sasanian *pearl roundel patterns* – consisting of repeated circle motifs, in which the circles are built up of a number of smaller dots (Larsson 2020: 123)³ – depicted in costume images from the time (Fig. 11), indicate that samite silk was very common for ceremonial dress during the late Birka period (ca. 850–970 CE)⁴ (Larsson 2020: 115–116), at least as far as grave costumes are concerned. In the Viking Age boat and chamber graves the number of silk finds exceeds both wool and linen fabrics. The same phenomenon is noted among the Birka finds (Geijer 1938: tab.

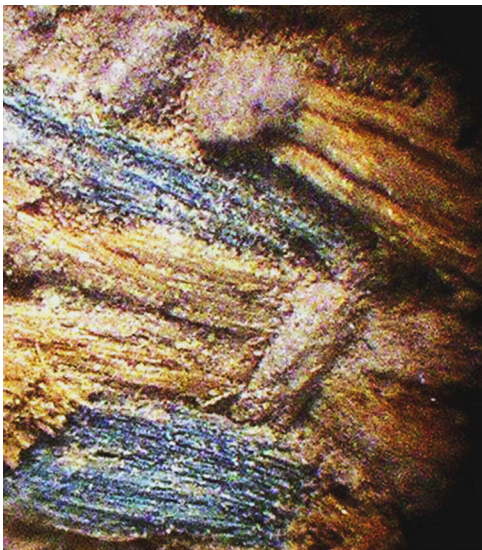


Figure 10. Microscope photo of the right side of a samite silk from the Viking Age female boat grave at Turinge in Södermanland. Different colors of each individual pattern thread appear. Each one of these threads consists of about 20 parallel fibers, which are reeled directly from the silkworm cocoons. The unspun floating weft threads give the right side of the fabric a shiny impression. Photo: © Anika Larsson.



Figure 11. Viking Age Valkyrie figurine from Nygaard, Bornholm in Denmark, depicted in clothing sewn of samite silk. The pearl roundel motifs are typical for the Post-Sassanian samite silk production in Central Asian areas. The original gilding of the pearl roundel dots is here reinforced by the author (object number C32009, the National Museum in Denmark. Photo Roberto Fortuna and Kira Ursem, CC-BY-SA). <https://samlinger.natmus.dk/DO/as-set/2378>

on pages 176–179). Ibn Fadlan names samite silk (“brocade”) used in the Rus’ grave costume and bedding, *debadj*, in Arabic language (Arne 1947: ”Austr i Karusm” och Särklandsnamnet; 295; Hitti 1970: 345).

The Pskov find

In September 2019 my colleague Karolina Pal-lin and I were well received at the Department of Archaeology in Pskov, with the aim to study the well-preserved and unusually large (100 x 40 cm total) piece of the above-mentioned Viking Age samite silk garment (Zubkova et

al. 2010: 291–298. See also Pskov 2016: 162, 387–389). I have suggested that this wide piece of samite silk depicting the Persian king Bahram Gur on hunt was worn open at the front and also folded at the wearer's neck. Furthermore, I propose that a train fell out from the upper folds on the back⁵ (Figs. 8, 15a–b). This interpretation implies that the two oval brooches in this grave belong to the actual garment, and that, as both Ibn Fadlan and Amin Razis claim, these are placed on each one of the woman's breasts (Larsson 2008: 4–7). Such a design fits not only the many costume silhouettes depicted at the time, but is also supported by the archaeological textile fragments and jewelry from Boatgrave 36; additionally other contemporary female boat graves in the Eastern Mälaren Valley, including the nearby Boatgrave 75 at Tuna in Badelunda (Nylen & Schönback 1994b: 119, Fig. 148) and the boat grave at Turlinge (Fig. 12).

However, I could initially not prove that the wide piece of silk from Pskov was originally folded, as I suggested. Luckily, I finally happened to find a photo online from the conservation process of the Pskov silk (Fig. 13a) (<http://sofyalarus.info/russia/Garb/PskovTranslation.html>). If the photo is correct, this wide piece of silk was clearly longitudinally folded along the body before it was smoothed out by conservators (Fig. 13b). Furthermore, a couple of blue linen loops from the Pskov find (Fig. 14) in close context with the two oval brooches correspond to the linen loops in Boatgrave 36 (Malmius 2001: 82: fig. 70). Some of the many loop finds in the contemporary Birka graves (Geijer 1938: taf. 1) are proven to be in blue color as well (Geijer 1938: 14). *Amin Razis* mentions, in his version of the Ibn Fadlan journey, that the Kiev area was particularly known for its fine linen fabrics at the time (Wikander 1978: 74, §10). This area is still well known for blue-dyed linen and so-called blue-print. Interestingly, Razis' version of the text also describes the Rus' boat burial and claims that roosters as well as a dog were companions to the deceased (Wikander 1978: 75, §17).



Figure 12. A snapshot from the excavation of the 10th century female boat grave in Turlinge, Södermanland, shows the location of the fibulas and jewelry used in the grave costume. Photo: © Sten Tesch.



Figure 13a. Before the conservation process there were clear traces of folds on the wide piece of samite silk from the female 10th century chamber grave in Pskov. Drawing: Vera Olsson. After a photo of the original find. © Annika Larsson and Vera Olsson. <http://sofyalarus.info/russia/Garb/PskovTranslation.html>

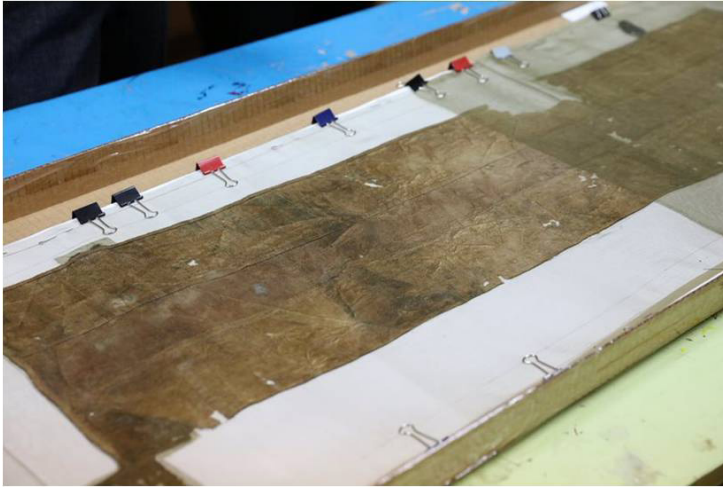


Figure 13b. The original piece of samite silk from the female 10th-century chamber grave at Pskov, measures approximately 100 x 40 centimeters in total. The folds, seen in fig 12b, were by the conservation process smoothed out. Photo: © Karolina Pallin 2019.



Figure 14. One of the two blue linen loops in the 10th-century female chamber grave at Pskov. Drawing: Vera Olsson. After a photo of the original find. © Annika Larsson and Vera Olsson.

Eurasian integration

Almost 100 000 Islamic coins from Central Asian areas are hitherto found from sites dating to the Viking Age in Swedish soil. The predominant portions were minted in Iraq, Iran, Afghanistan, and Uzbekistan and were imported to Scandinavia between the first half of the 9th century and the end of the 10th cen-

tury (Kilger 1995: 27). The samite silk dressed woman in Boatgrave 36 had at least two and possibly three Islamic coins in her necklace, from Tabaristan and Bagdad respectively (Nordahl 2001: 50, Fig. 43). In the above mentioned female Boatgrave 75 at Tuna in Badelunda, fourteen copies of Islamic coins from Wasit in Iraq – each one surrounded by post-Sassanian pearl roundel patterns – were found as part of a necklace, placed on the dead woman's chest (Nylén & Schönback 1994a: 60, Fig. 55). The samite silks in the Viking graves are likely of the same origin. Around year 1000 CE, the import of coins and silks from these areas ceased.

I decided to make the Persian Bahram Gur pattern on the Pskov silk in a screen print reconstruction (Fig. 15a), and present a more sustainable proposal on ceremonial Viking Age train garment than earlier suggested. The suggested cutting was based on the female costume remains in Boatgrave 36 (Fig. 15b) in comparison with the Russian Pskov dress find, as well as the position of the costume fibulas in the female boat graves at both Tuna in Badelunda and Turinge. The resulting costume silhouette that comes out of this specific cut is clearly in accordance with a number of

Valkyrie images and figurines from the time. It is also in accordance with the position of the oval brooches that were described by the Arabic eye-witness Ibn Fadlan concerning the burial habits of the Rus' people in the Volga Bulgar area, just north of the Caspian Sea.

I find it likely that the woman buried in Boatgrave 36 was dressed like the small figurine made of bronze which she, together with the Islamic coins, carried as a pendant on her bead necklace (Fig. 16) (Nordahl 2001: 52, Fig. 44). Such small "Valkyries" made of silver or bronze are found not only in Scandinavia, but – alongside Viking Age oval dress brooches – also in the Rus' area. Judging from the typical post-Sassanian pearl roundel ornaments from Central Asian areas, several of these figurines were depicted wearing costumes sewn from silk fabrics produced using the samite technique. A good example of a cloak with such pearl roundel ornaments can be seen on



Figure 15a. The Persian Bahram Gur pattern on the Pskov silk in a screen print reconstruction made by Annika Larsson and Vera Olsson. From an exhibition about female Viking dress shown at Uppsala University Museum Gustavianum in 2014. Photo: © Annika Larsson.



Figure 15b. In autumn 2017, the author presented a museum exhibition entitled *Viking Couture*, based primarily on the archaeological finds from Boatgrave 36 in Gamla Uppsala. The extensive finds of samite silk in many similar Viking Age high-status graves formed the starting point for considering a Eurasian perspective. Painting: Vera Olsson. © Annika Larsson and Vera Olsson.



Figure 16. The three-centimeter Valkyrie figurine made of bronze from the bead necklace belonging to the buried woman in Boatgrave 36. Photo: Mikael Wallerstedt, Uppsala University. © Annika Larsson and Mikael Wallerstedt.

the small Valkyrie figurine from the island of Bornholm, now housed at the National Museum in Denmark (Fig. 11) (<https://samlinger.natmus.dk/DO/asset/2378>).

Conclusion

Despite the large amount of silk from the Scandinavian Viking Age, mostly in colorful patterns woven in samite technique, this material is only found in graves. Based on the fact that the Scandinavian grave clothing seems to have its counterpart in Russian grave finds, and that the silk finds in samite technology at that time were typical for Central Asian silk production, I suggest that the representation of silk in graves from the late Birka period (ca. 850–970 CE) will be better understood by studying not only the ancient Rus' heritage, but also other eastern cultures along the northern Eurasian Silk Roads. I further conclude that the Viking burial costume, especially in the context of boat and chamber graves, rather represents ideologies of higher values than everyday clothing for work. I suggest that these ideologies were spread over a fairly large Eurasian cultural area. With this said, I claim that the Viking Age textile grave finds must be studied interdisciplinary from broad cultural and geographical perspectives instead of repeating national romantic narratives about the Vikings, originally created to legitimize a “pure” Scandinavian identity. Such fabricated ancestry will in long term exclude foreign cultural influences. I find it high time to seriously look eastward when interpreting the Scandinavian Viking Age burial customs. The silk samite in the grave costume worn by the buried woman in Boatgrave 36 in Old Uppsala is the starting point for a forthcoming book, *Viking Bliss*, where a Eurasian perspective will be taken into serious consideration when trying to understand the East Scandinavian late Birka period, ca. 850–970 CE (Larsson & Guennoun *manuscript*).

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Endnotes

- 1 These are the scientific terms for the weaving technique: *samite* = Latinized, *weft-faced compound twill* = *standard English*. For other languages see Strömberg et al. 1974[1967]: 37.
- 2 I have continuously, during the years 2012–2014, discussed my revised textile analyzes with the authors of the book *Väv gamla och glömda tekniker*: Mariana Eriksson is university lecturer in weaving at the Department of Textile Science, Uppsala University. Kerstin Lovallius teaches weaving at the vocational weaver training in Upplands Väsby. Lovallius regrets that the silk reconstruction that was woven in monochrome twill for the museum exhibition in Gamla Uppsala was based on incorrect analyses.
- 3 *Pearl roundel patterns* originated in the Sassanid silk culture and remained in the post-Sassanid silks, woven in samite technique in damask looms.
- 4 About the pre-Christian dating see also "Analytic discussion and summary" in Larsson 2007: 352–354.
- 5 The Russian reconstruction is built on earlier Swedish interpretations of Viking female dress, which I claim are hypothetical proposals without any deeper scientific basis and thus not sustainable from either an archaeological perspective or contemporary images – not even from social or economic perspectives at the time. (see <http://sofy-alarus.info/russia/Garb/PskovTranslation.html>)