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Brocaded tablet-woven bands from Viking Age boat graves in Valsgärde, Sweden: Different techniques, similar appearance

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Abstract

Textiles are an important source material for cultural and social research, and as such can be approached in several different ways. This paper focuses on the technical aspects of tablet woven bands from the Viking Age boat graves in Valsgärde, Sweden. By detailed studies of the objects combined with craft research as a method, the weaving techniques are understood. All of the bands are made with reeled silk, and possibly also vegetable fibre, and are brocaded with silver thread. The result shows that the bands can be divided in three categories based on material and technique. Group 1 has geometric patterns made with lifted warp threads on a brocaded silver background made with spun silver thread. Group 2 is of a similar appearance, but the pattern is made with a silk weft in a mix of weft wrapping techniques, including soumak. Group 3 has a brocading weft of drawn silver wire, used single. The aim is to make the material known to a wider community of researchers so these results and questions can be further discussed.

Keywords: Soumak, tablet-weaving, textile archeology, Valsgärde, Viking textiles.

10.1. Introduction

Few if any of us are surprised by the fine textile works found in Viking age graves. Silk, fine accessories, and precious metals are not uncommon. Tablet-woven bands are part of this material and if brocaded with silver thread, they are often quite well-preserved.

First presented at NESAT XIV, this study examines an earlier unpublished set of tablet-woven bands from the grave field Valsgärde (Vgde) in Sweden. This has been possible due to the kind welcoming curators at the Uppsala University museum Gustavianum and the textile archaeologist Dr Annika Larsson. In 2015 when I first worked with these bands, Larsson had recently led the storage facility relocation project for the museum. Her familiarity with the material and willingness to share this has been invaluable for my research.

The Valsgärde grave field is situated on a hill, about 4 km north of old Uppsala, on the bank of the Fyris river. Here, fifteen boat graves have been excavated, as well as several chamber graves and cremation graves. The boat graves belong to both the Vendel and Viking eras, but the tablet-weaving found is from three Viking-era graves, grave numbers 3, 12, and 15. The textiles from the Viking boat graves were never published in connection to the excavations. In 2015 Larsson presented her research on Valsgärde silks at the symposium 'Asia and Scandinavia: New perspectives on the Early Medieval Silk Roads' held at the Museum of Far Eastern Antiquities in Stockholm. This was the first comprehensive summary of the silks from Valsgärde, of which the tablet-woven bands are part. In 2020 a comprehensive article about the Valsgärde silks (Larsson 2020: 107–148), building upon Larsson's earlier presentation, was published in the 'Bulletin of the Museum of Far Eastern Antiquities, no 84' (Myrdal ed. 2020). The bands, examined by myself, were the primary material for a smaller study in 2015 and then my Bachelor thesis in 2018 (Pallin 2018), on which this chapter builds. This chapter focuses primarily on analyses of patterns and weaving techniques in some of the bands from Boat grave 15. Some conclusions regarding technical differences in weaving techniques between the bands are also drawn.

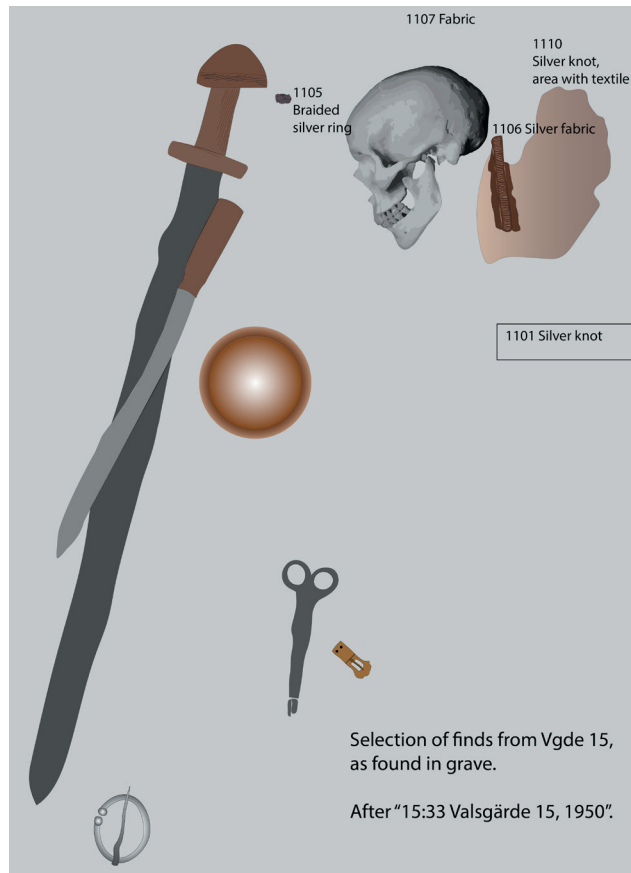


Figure 1. Image based on the original grave-plan. (Image adaptation by K. Pallin, courtesy of Museum Gustavianum, Uppsala University)

10.2. The grave context, Boat grave 15

Most of the bands were found together in Boat grave 15. Of the three aforementioned graves, grave 15 has the most comprehensive documentation, and it is also in this grave a new type of patterning technique was found, making it the main focus of this study. I will start with a look at the grave context. According to a conservation note (Gustavianum), the band fragments were found in layers with black organic matter and hair fibre between and around them. The image in Figure 1 is based on the original grave plan (Gustavianum), where the bands and the organic matter found around them are called 'silver fabric'. Figure 2, also based on conservation documents (Gustavianum), shows how the layered band fragments were found. Fragments numbered Vgde015:T:1106:004 were sewn to each other, forming almost a triangle or a Y shape.

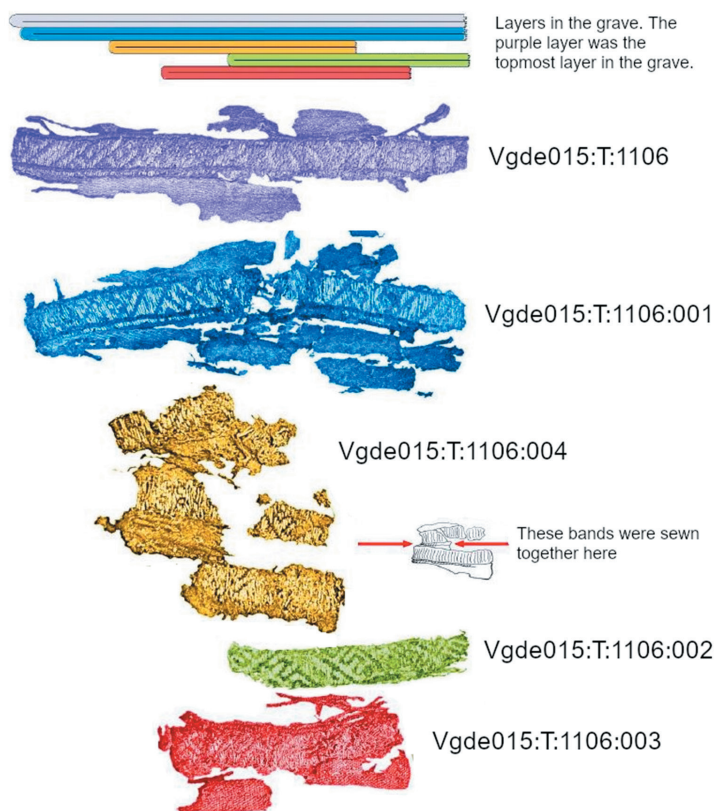


Figure 2. The bands were found layered, image based on original documentation. (Image adaptation by K. Pallin, courtesy of Museum Gustavianum, Uppsala University)

10.3. The bands

As mentioned, three of the ten Viking age boat graves contained tablet-woven bands. Boat graves 3, 12 and 15. Bengt Schönback has made a relative chronology of the graves, published in 'Valsgårde 1,2 & 4' (Schönback 2013: 99–107). In the same publication, an interpolated linear chronology composed of different sources is found in the chapter 'Leadership cult and burial practice' (Kyhllberg 2013: 111). In all of Schönback's object comparisons, Vgde 3, 12 and 15 are dated to the 10th century successively in that order (Vgde 3 oldest). In Kyhllberg's composite chronology, Vgde 12 and 15 are dated to AD 920 ± 20 years. In Vgde 12, an Arabic coin dated to 952/53 was found (Schönback 2013: 106; Kyhllberg 2013: 110).

By their technical properties, the band fragments can be divided into three groups (first in Pallin 2018). We find fragments with patterns made with lift warp technique in Group 1. In Group 2, we find fragments patterned with silk in weft wrapping techniques, including soumak, and in Group 3 we find fragments in several aspects different from the others. Group 2 is especially fascinating since this patterning technique is not described in detail in earlier literature. In the article 'Brocaded Tablet-Woven Bands: Same Appearance, Different Weaving Technique, Hørning, Hvilehøj and Mammen' (Raeder Knudsen 2015), Lise Raeder Knudsen describes a band which seems to be made in a similar way. However, the preservation status of this band makes it hard to analyse in detail (see the 'Fashioning the Viking Age' project webpage for more information about this and similar bands).

Before looking more closely at the bands, a terminology must be established. A detailed enough terminology seems to be missing in the textile research field. For this article, the terminology described in Figure 3 is used. A band's total width is composed of a pattern section in the middle and stave borders at the edges, or a pattern section and just outer border tablets. The stave border can be divided into outer border tablets, inner border tablets, and between them hidden border tablets. There is a brocading weft from metal thread and might be a pattern weft from silk. There might also be a ground weft.

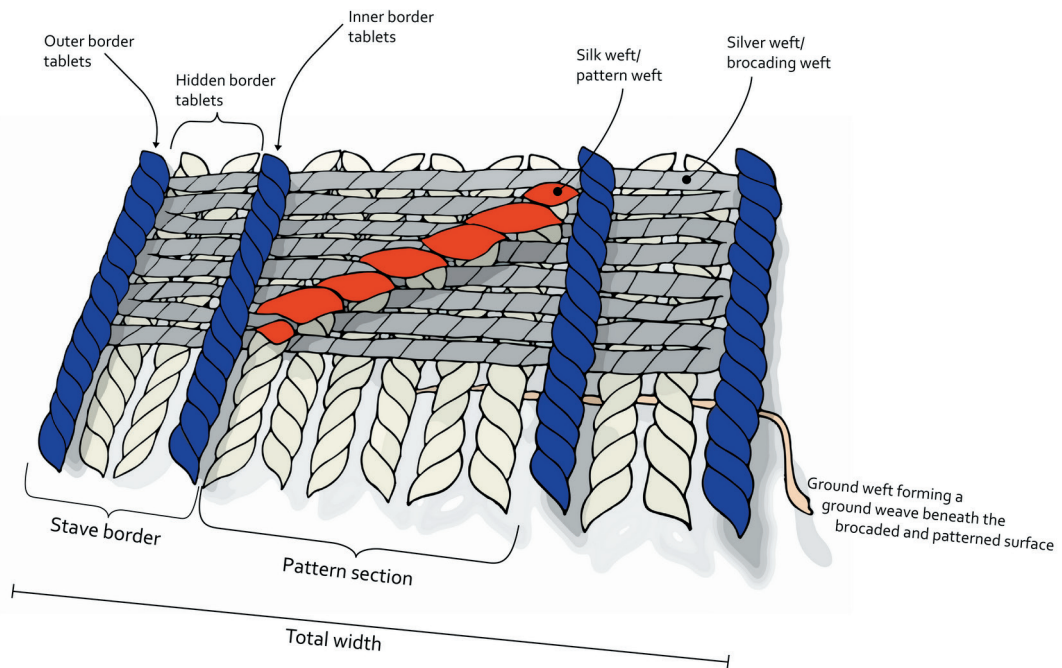


Figure 3. Terminology for tablet-woven bands, used in this article. (Image: K. Pallin)

10.3.1. Group 1

The bands fragments in Group 1 (Figure 4), are defined by the lifted warp patterning technique. The lifted warp makes a geometric pattern on the brocaded weft of spun silver thread. They are all found in Boat grave 15. Measurements, material, technique, and style makes it likely that all band fragments are from the same warp. They are made with eighteen tablets, mixing silk yarn and a now disintegrated yarn in the warp. The patterning technique is lifted warp and the piece has no stave borders, only double outer border tablets consisting of all silk. The silk warp has at least two different colours (Figure 5). This band is sewn to silk taffeta.

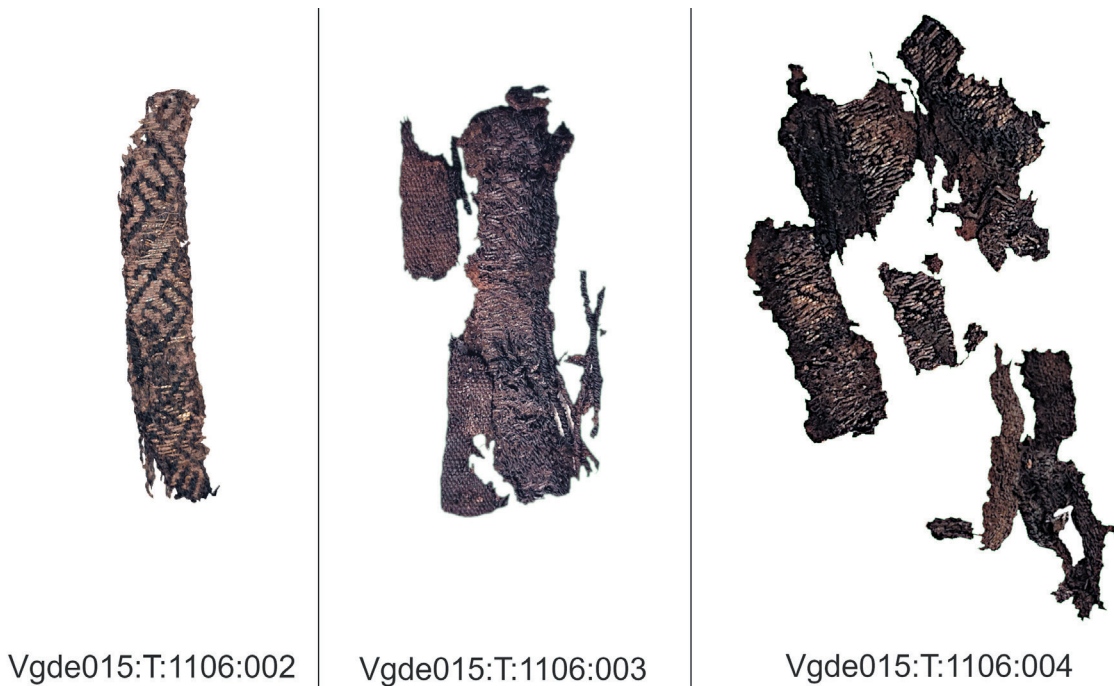


Figure 4. Band fragments in group 1, from Boat Grave 15. (Photographs: K. Pallin)

10.3.2. Group 2

The band fragments in Group 2 (Figure 6) are also defined by their patterning technique. Here a silk weft is used in weft wrapping techniques, including soumak, to make a geometric pattern on top of the brocaded weft of spun silver thread (Figure 7). Most of the fragments from Group 2 come from Boat grave 15 and are sewn to silk samite. Measurements, materials, technique, and style makes it likely that they are made on the same warp. Some fragments in this group come from Boat grave 12. The two boat graves are dated to the same period, but the band fragments in Boat grave 12 are not made on the same warp as those in Boat grave 15. This is clear since the fragments from Boat grave 12 use more tablets and are wider. This also affects the pattern, even if the geometric style is similar to the pattern on band fragments in Boat grave 15.



Figure 5. Band fragment Vgde015:T:1106:003 from group 1, with silk warp in two colours. (Photograph: K. Pallin)

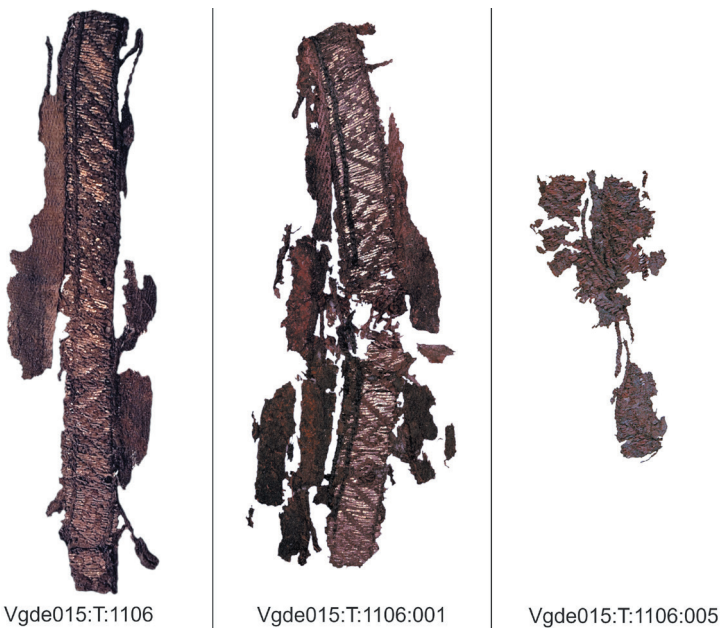


Figure 6. Band fragments in group 2, from Boat grave 15. (Photograph: K. Pallin)

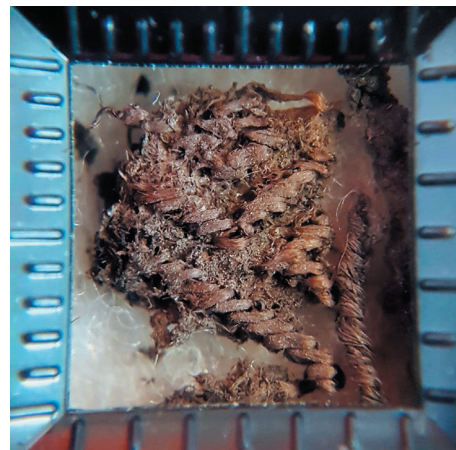


Figure 7. Weft-wrapping and soumak on band fragment Vgde015:T:1106:005, where no silver thread is preserved. (Photograph: K. Pallin)

10.3.3. Group 3

The band fragments in Group 3 (Figure 8) are all found in Boat grave 3, the oldest of the three graves. They are all probably fragments from the same band. This band is in several aspects different from the others. It is brocaded with a silver thread, but this is drawn and not spun. The silver weft turns at the outside of the outer border tablets, which means that even if there was (a now disintegrated) ground weft, the band's width is still held together by the silver weft (Figure 9). This differs from the bands in Boat graves 12 and 15. There the silver thread is dropped before the outer border tablet(s), meaning that the warp from those tablets separates from the rest of the band when the ground weft disintegrates. The band fragments in Group 3 are preserved together with other organic material, brought to the museum not fully excavated. The box label indicates both textile and leather, but it also contained hair fibres. Style-wise there is not much to say. The band is almost disintegrated, and where the warp is still preserved, the fragments seem to have the reverse side up. In some places, it also lies in double layers. It is possible to see single lifted warp threads, so it is likely it was patterned with this technique, but as mentioned, on drawn silver thread as opposed to the spun thread in Group 1 and 2. The band was probably made with 20 to 22 tablets, mixing silk yarn and a now disintegrated yarn in the warp.



Figure 8. Band fragments in group 3, from Boat grave 3. The band fragments are preserved together with organic material. ID number for all material in the box: Vgde3;5903:758 (Photograph: K. Pallin)



Figure 9. Band fragment from Boat grave 3. The silver weft holds the band together, and no other weft is preserved. ID number for all material in the box: Vgde3;5903:758. (Photograph: K. Pallin)

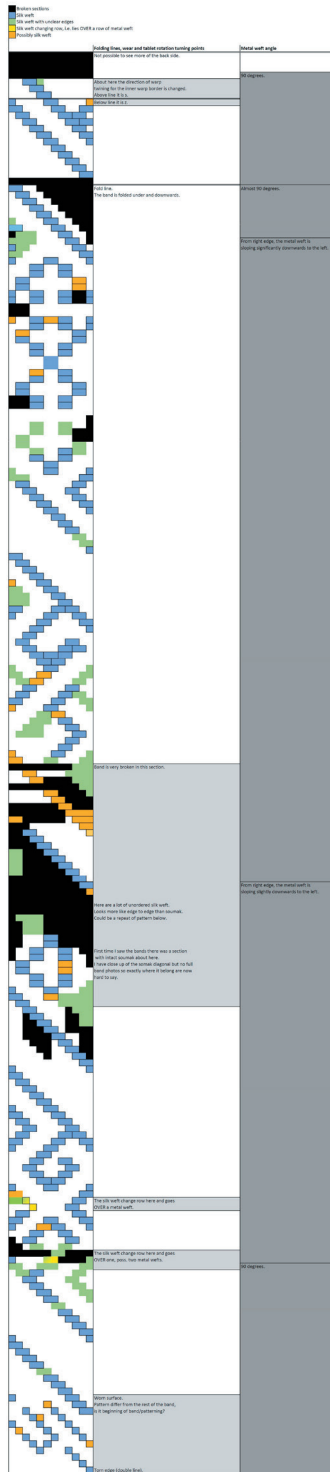


Figure 10. Pattern analysis of band fragment Vgde015:T:1106:001 from group 2, Boat grave 15. First version 'as it is'. (Image: K. Pallin)

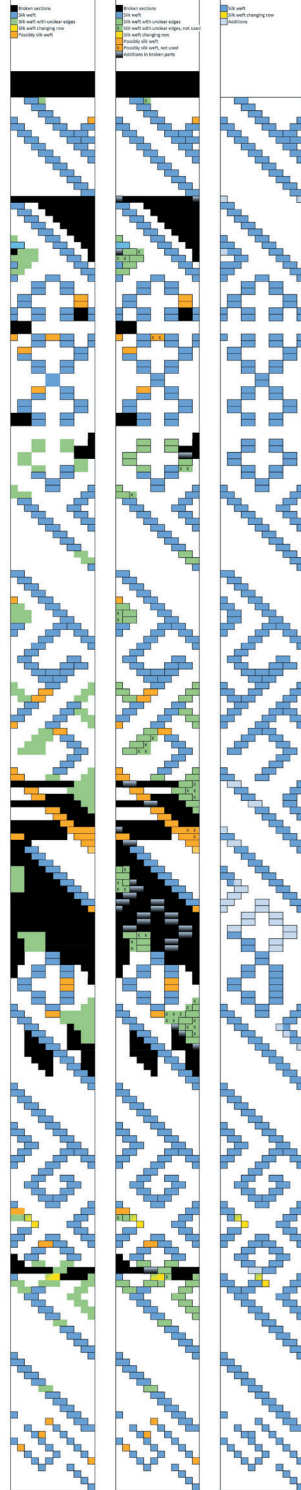


Figure 11. Pattern analysis of band fragment Vgde015:T:1106:001 from group two, Boat grave 15. Versions for 'as it is', 'interpretation' and 'weaving pattern' side by side. (Image: K. Pallin)

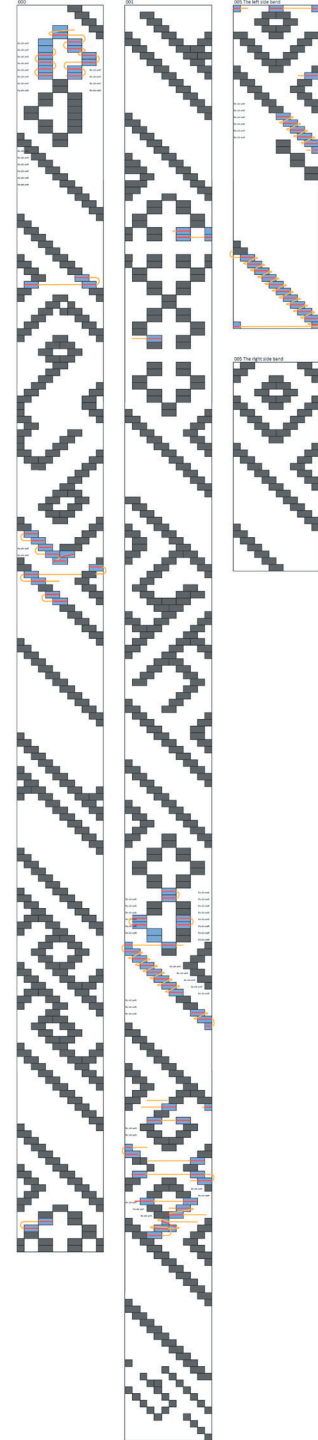


Figure 12. Analysis for pattern weft for band fragments Vgde015:T:1106, Vgde015:T:1106:001 and Vgde015:T:1106:005. All from group two, Boat grave 15. (Image: K. Pallin)

10.4. Analysis of the pattern on band Vgde015:T:1106:001

For pattern analysis, a practical test often is not necessary but being detailed is a must. The pattern analysis in Figure 10 is based on band fragment Vgde015:T:1106:001 from Group 2. The analysis is worked in three steps, first a version 'as it is', which shows the band as it is preserved (Figure 10). The blue sections are well-preserved pattern weft. The black sections are very broken or missing parts of the band. The orange marks possible pattern weft, usually dark sections with well-defined edges. The green also marks possible pattern weft but is much more uncertain than the orange. The green also means undefined edges, often a blurry mess of dark weft-like shapes. To the right are notes for folding lines, wear, tablet rotation turning points, and angles of the metal weft since this changes considerably on the same band.

After making this first 'as it is' pattern, one version with interpretations is made and then as a third version is the final interpreted weaving pattern. In Figure 11 all three stages are seen next to each other. The X-marked ones in the second version are deleted in the final pattern and all the blue-black ones are added. This method is used because it makes the preservation status of the band and the interpretations to reach a final weaving pattern visible. Analysis and interpretation of the pattern weft are made on top of the interpreted weaving pattern. Figure 12 shows all band fragments in Group 2. The wrapping technique can be seen only in a few places, this is marked with red (weft wrapped over) and orange (weft hidden under) lines on top of blue squares. The grey squares mark pattern where the wrapping technique cannot be seen. Several different pattern interpretations are possible in the most broken parts of the band. The final weaving pattern shown here is therefore only a suggestion.



Figure 13. Preserved warp in the pattern section of band fragment Vgde015:T:1106:001. (Photograph: K. Pallin)



Figure 14. Silk in the border tablets of band fragment Vgde015:T:1106:001 looks like a darker coloured yarn than in the rest of the band. (Photograph: K. Pallin)

10.5. Analysis of the weaving technique

Visual analysis is often not enough to fully understand the weaving technique when working with tablet-woven objects. Therefore, practical tests are often necessary. The weaving test here is based on band fragment Vgde015:T:1106:001 from Group 2.

The band is woven with twelve tablets in the pattern section and four for each stave border, twenty tablets in total. The warp threads in the pattern section and the hidden border tablets are in a poor state (Figure 13). The state of preservation and the appearance under a microscope makes it plausible that it is a vegetable fibre yarn. However, this is not certain. To get the correct width-to-thickness ratio of the band in the weaving test – each tablet in the pattern section and hidden border sections carries two threads – flax thread is used. The inner and outer border tablets carry reeled 2-ply silk. Under a microscope, the original thread looks like it has a dark colour (Figure 14). The dimension is approximately similar to a spun 60/2 silk.

The silver thread is spun and the metal strips vary in width (Figures 15 and 16). It is used single and there are 18–21 wefts per cm. The silver covers the pattern section, passes through the shed of the inner border tablet, and covers the hidden border section, then it is dropped below before the outer border tablet and picked up after turning the tablets. This is a common way to handle a brocading metal weft in tablet-woven bands, and the test weave is done in the same way as the original. The modern spun silver thread (passing thread) is however much more even.

The pattern is made with reeled silk with almost no twist. Under a microscope, it looks like this has been of another colour than the darker, more blueish silk warp (Figure 17). The silk weft is worked in several weft wrapping techniques. Soumak is present, but it is also wrapped in different ways and moves back and forth when this is more convenient. The silk weft makes the pattern visible, but the flax warp is lifted in the same pattern to hold down the silver weft (Figure 18). This is how the original is made and the test weave shows that this is a very time-consuming weaving and patterning technique.

Using practical methods in academic research is an established method. However, discussing the level of understanding and the researcher's limitations is vital since this can make significant



Figure 15. The silver thread is spun and the metal strips are of a varying width. This is true for all of the band fragments with preserved silver weft. (Photograph: K. Pallin)



Figure 16. The silver thread is spun and the metal strips are of a varying width. This is true for all of the band fragments with preserved silver weft. (Photograph: K. Pallin)



Figure 17. Under a microscope it looks like the silk pattern weft has been of another colour than the darker more blueish silk warp. The original colour is however not known. (Photograph: K. Pallin)

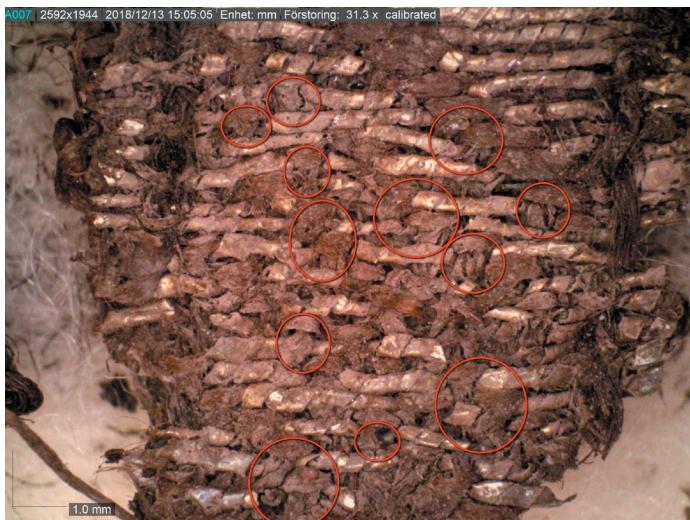


Figure 18. To hold down the warp thread where the silk weft is used to make the visible pattern, the flax warp is lifted and the silver thread passes under it. (Photograph: K. Pallin)

differences in what understandings can be reached. In this case, it is essential to note that I – who made the practical weaving tests – am not a professional or especially skilled weaver. I am an academic using practical methods to understand an object and its story. This must be taken into consideration when drawing conclusions.

10.6. Conclusions

Since I am as familiar with weaving the lifted warp technique as I am with the weft wrapping technique, it is possible to compare the techniques and the skill and time it takes to weave them (Figure 19).

The weft wrapping technique is more challenging to weave than the lifted warp technique. It is harder to achieve an even and neat pattern with weft wrapping than with lifted warp. It also takes both some skill and patience to weave with several ends of reeled floss silk, since these tend to tangle. Also, the warp in the band fragments of Group 2 did pose a difficulty. The test weave is done with a 100 % flax warp in the pattern section. These threads get worn quickly and break much more easily than a warp with half silk, half flax, as in the lifted warp bands in Group 1. The flax warp was treated with linseed infusion, which did help but not as much as needed. Beeswax was also tested, with a

much better result. The wax also made it easier to weave a tighter band. In this type of weaving, it is hard to keep the number of wefts per cm high enough, and the beeswax helped with this. To further minimise the wear of the material, the free warp would probably benefit from being longer than in the test, at least 2 metres before the knot in the opposite end. Weaving with weights was tested, but due to the high force needed to beat the weft, it was an unsuitable method.

Material, patterning, number of tablets, measurements etc. gives a framework to search for comparison objects. In this case, these would be bands from Hvidehøj, Mammen, and more bands from Danish Viking Age graves. From the practical understandings, it is concluded that even if this does not have to be a professional workshop production, the high quality of for example materials, weaving technique, and space requirements, signals that the production place and the weavers would have been somehow specialised. This study cannot conclude whether the bands were made in Scandinavia, somewhere else in Europe, or in Asia.

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Figure 19. To the left is a band patterned with the lifted warp technique (Birka pattern). To the right is a band patterned with weft wrapping and soumak technique, as in Vgde 15, group 2 (pattern from Vgde015:T:1106:001). (Weaver and photograph: K. Pallin)

References

Fashioning the Viking Age. Project webpage at the Centre for Textile Research, University of Copenhagen, <https://ctr.hum.ku.dk/research-programmes-and-projects/previous-programmes-and-projects/fashioning-the-viking-age/>. Accessed 5.9.2023.

Kyhlberg, O. 2013. Leadership cult and burial practice. In Museum Gustavianum Archaeological Research Group (ed.):

Valsgärde 1,2 & 4, pp. 111–144. Uppsala University.

Larsson, A. 2020. Asian Silk in Scandinavian Viking Age Graves: Based on the Boat- and Chamber Graves in the Eastern Mälaren Valley. In E. Myrdal (ed.): *Asian and Scandinavia – New Perspectives on the Early Medieval Silk Roads*, pp 107–148. The Museum of Far Eastern Antiquities Bulletin No. 84. Stockholm: The Museum of Far Eastern Antiquities.

Myrdal, E. 2020 (ed.). *Asian and Scandinavia – New Perspectives on the Early Medieval Silk Roads*. The Museum of Far Eastern Antiquities Bulletin No. 84. Stockholm: The Museum of Far Eastern Antiquities.

Pallin, K. 2018. Vikingatida brickväv från Valsgärdes båtgravar: En teknikbeskrivning samt några tankar [Viking age tablet-weave from the boat-graves in Valsgärde: a technical description and some thoughts]. Kandidatuppsats, Uppsala universitet. <http://urn.kb.se/resolve?urn=urn:nbn:se:uu:diva-395879>. Accessed 23.11.2022.

Raeder Knudsen, L. 2005. Brocaded tablet-woven bands: Same appearance, different weaving technique, Hørning, Hvilehøj and Mammen. In F. Pritchard and J. P. Wild (eds): *Northern archaeological textiles: NESAT VII: textile symposium in Edinburgh, 5th–7th May 1999*, pp 36–43. Oxford: Oxbow books.

Schönbäck, B. 2013. The relative chronology of the Viking period boat graves at Valsgärde. Museum Gustavianum Archaeological Research Group (ed.): *Valsgärde 1,2 & 4*, pp 99–107. Uppsala University.