



Sylvie Odstrčilová

# Deciphering the pattern of the tablet-woven band on the tunic from Thorsberg

## Introduction

The textiles from Thorsberg moor (Germany) have excited archaeologists and textile experts since their discovery more than 150 years ago. Hundreds of pages have been written about the *Prachtmantel*, trousers, tunic and other textile fragments; yet the pattern of the tablet-woven band trimming the sleeves of the tunic has not been successfully described until now.

The previous researchers agreed that the band has warp-twined borders formed by six edge tablets on one side and seven tablets on the other side, and a double-faced twill section in the centre. However, this central part was considered woven with 12 (Stettiner 1911; Hansen 1990) or nine tablets (Schlabow 1976; Ræder Knudsen 2011), with four threads per tablet (Stettiner 1911) or three threads per tablet (Schlabow 1976). Hansen (1990) did not mention the number of threads but categorised the technique as 2/1 twill. None of the authors described the pattern in more detail. In the most recent paper, it was explicitly stated that the colours were too faded for the pattern to be seen (Ræder Knudsen 2011).

Nevertheless, some amateur tablet weavers have tried to reconstruct the pattern based on the available information and images, but none of these reconstructions published on the internet (Nigdziekolwiek 2019; Aislings Welt 2020) look accurate when compared closely with photographs of the original band.

## Methodology

The research presented here was based on the examination of two photographs (fig. 1a and fig. 2a) taken by Matt Bunker in the Schloss Gottorf museum, where the tunic is on display. Only one face of each

sleeve could be observed, as the tunic is mounted next to the wall.

The photographs were digitally adjusted to enhance subtle colour differences in the textile by increasing the colour saturation (fig. 1b and fig. 2b). However, more important for this research than observing the colours was the examination of the texture of the band.

There are many tablet weaving techniques that result in various textures on the surface of the woven band. For the current study, only two of those need be mentioned: warp twining and double-faced broken twill. In warp twining made by continuous turning of the tablets in one direction, threads threaded in one tablet form a cord, which can be diagonally striped, if the threads have different colours. This cord can be S-twisted or Z-twisted, depending on the direction in which tablets are turned, and on the direction of their threading (Collingwood 2002, 78–81). The twill texture is achieved by turning each tablet twice forward and twice backward, but the tablets are not all synchronised; neighbouring tablets are moving one step apart in this sequence (Collingwood 2002, 211, 214). It is important to note that there are two diagonal lines in the tablet-woven twill structure: the one lying at a near 45° angle and corresponding with the diagonal lines in the pattern is less noticeable on the surface than the other line lying at a 60° angle in the opposite direction. For this reason, the twill structure with the prominent lines in the Z-direction is called S-twill and vice versa (Collingwood 2002, 214–215).

## Findings

Most of the central part of the band is covered with

diagonal lines associated with the twill structure. But there are also areas displaying cords parallel to the warp-twined borders of the band, revealing not only that these sections are warp-twined, but also that the tablets used for weaving the pattern were threaded with four threads (the same as the tablets forming the borders) and not three, as suggested by Schlabow (1976).

Even without taking the colours into consideration, it is evident from the recurring sequence of areas with different textures that there are two repeats of identical

(or very similar) motifs in the band on the right sleeve, followed by a different motif near the fold of the sleeve (fig. 1c). Unfortunately, this last motif could not be analysed because of the distortion of the texture lines due to the curvature of the sleeve and a small damaged area where some threads are missing. The photograph of the left sleeve displays a section formed by diagonal twill lines, which is similar to the section on the right sleeve, but the areas of warp twining around it differ (fig. 2c). The details are not very clear because of the partially unfocused photograph due to the uneven

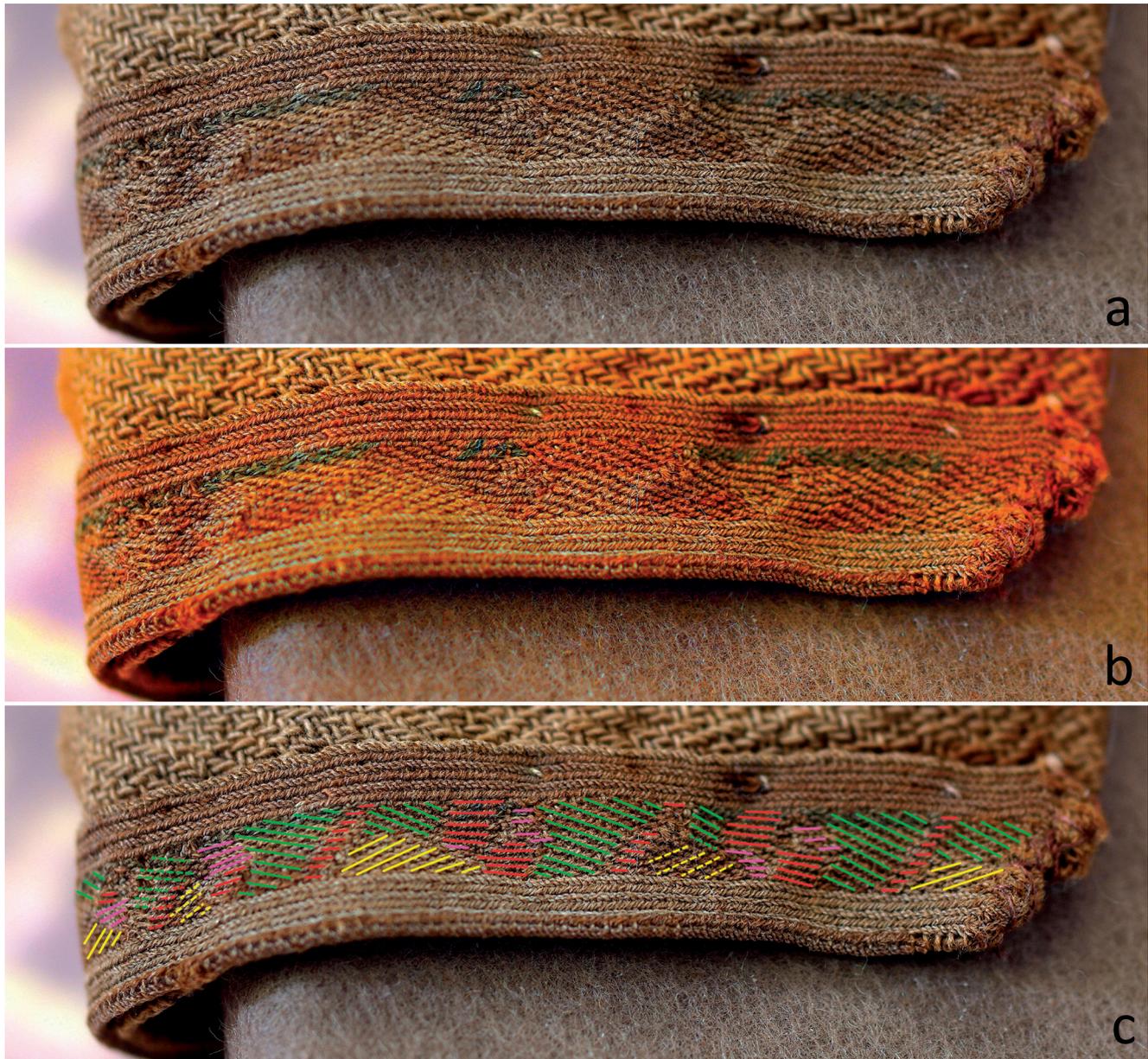


Fig. 1: Tablet-woven band on the right sleeve of the tunic: a – seen by the naked eye; b – with increased colour saturation; c – with lines showing the texture of the weaving (red: warp twining in S-direction; pink: warp twining in Z-direction; green: S-twill; yellow: Z-twill) (Image: Matt Bunker; edited by Sylvie Odstrčilová)



surface of the fabric. For this reason, the following part of the research concentrated on the two clearly visible repeats from the right sleeve only.

In contrast to the almost monochromatic band on the left sleeve, the band on the right sleeve clearly

shows that at least two tablets in the pattern contained two bluish and two reddish threads. The digital enhancement of the image revealed subtle colour differences in other parts of the band too. A reddish colour occurs across the whole width of the pattern,

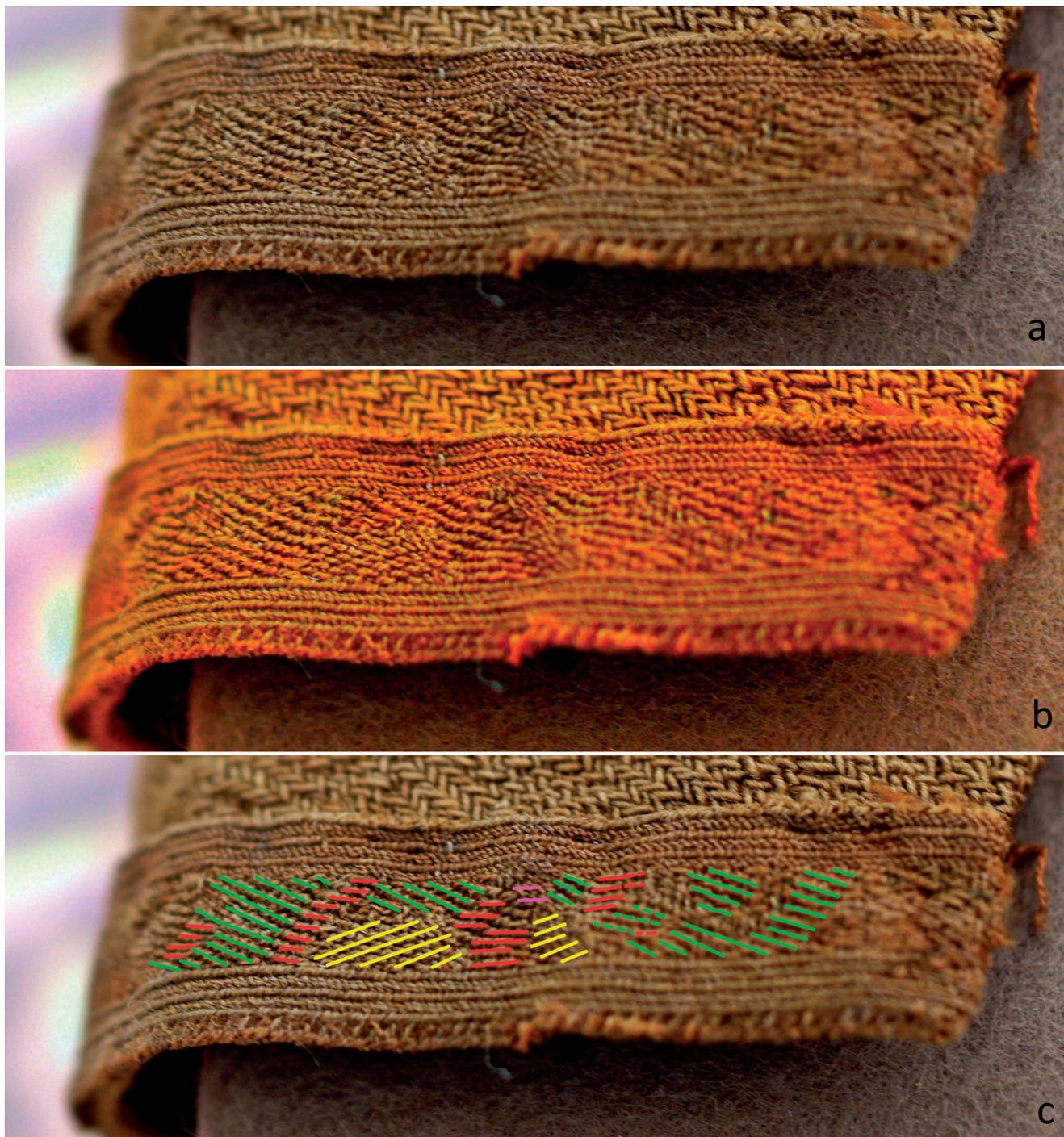


Fig. 2: Band on the left sleeve: a – seen by the naked eye; b – with increased colour saturation; c – with lines showing the texture of the weaving (red: warp twining in S direction; pink: warp twining in Z direction; green: S-twill; yellow: Z-twill) (Original image: Matt Bunker, editing: Sylvie Odstrčilová)



Fig. 3: Part of the pattern from the right sleeve: a – original band (see arrow for the frayed thread indicating a damaged long float and ellipses for irregularities in the pattern); b – reconstruction with regular quarter turns ( $90^\circ$ ); c – reconstruction with half turns ( $180^\circ$ ) at the reversal points (Image a: Matt Bunker; images b and c: Sylvie Odstrčilová)

while the bluish colour was replaced by a yellowish one. The larger warp-twined areas are striped in these two colours (red and blue/yellow). In other parts of the band, the colour changes follow the transitions between different types of weave. The only colour change not foreseen by the observation of the texture is the one in the middle of the S-twill section.

The pattern was charted according to the combined observations of the texture and colours. A sample was woven using this pattern and then compared with the original band. This process was repeated three times until they matched (fig. 3).

This demonstrated that the central part of the band was woven with nine tablets. The reconstructed part of the pattern shows two geometrical warp-twined motifs on the chequered background of 3/1 broken twill. Both repeats are almost identical, but in inverted

colours. The weaving was done from the right side of the photographs to the left, as indicated by the change of the direction of the twill lines.

There are several places in the pattern that a modern weaver would not find pleasing and consider mistakes. However, they were probably not errors because they recur in both warp-twined motifs (fig. 3a).

In contrast to numerous long floats (warp threads passing over four wefts) visible at the transition from the twill background to the warp-twined motif in the original band, there are almost no warp floats longer than two weft picks inside the motif. It indicates that half turns ( $180^\circ$ ) were probably used at the reversal points (fig. 3c), as was the case in bands from the Finnish Iron Age (Karisto and Pasanen 2021). However, a similar appearance might be the result of the long floats having been damaged, as suggested by



Fig. 4: Final reconstruction including borders and in 1:1 scale (Image: Sylvie Odstrčilová)

one frayed yarn end (fig. 3a). Half turns were probably used in the middle cord too. If the middle tablet was regularly turned 90°, the colours at the beginning and at the end of the motif would not match. Idling, or turning this tablet back-and-forth, which would solve this problem, would result in a long float, which is again absent here. Therefore, the most likely solution is two half turns either in the same or in the opposite direction. The details and colour changes are too difficult to see in the centre of both motifs to be sure about this.

#### A question about the colours

An earlier dye analysis detected red and blue dye in the band and therefore its original colour was interpreted as purple (Fischer 1997). However, the current study shows that the band contained threads of at least two colours, so it is possible that the red and blue dyes belonged to different threads, and they were detected in the same sample only because the dyes bled one into another. But were there only two colours or three? There are many tablet-woven bands with the background striped in two colours – from early iron age Hallstatt to medieval Arlon. On the other hand, the dark stripe is visible only on the right sleeve, although originally the trims on both sleeves probably formed one band, which was cut in two (Stettiner 1911, 51; Ræder Knudsen 2011, 181). There are a few small bluish spots in the band on the left sleeve, not only in the same place as the blue threads in the band on the right sleeve, but also in other parts of the pattern and in the border. Therefore, it is possible that the whole band was woven in red and blue (fig. 4). However, only a microscopic examination and new dye analyses can resolve this question.

#### Conclusion

Even though only a short section of the pattern was reconstructed, this study offers significant progress from the earlier research into the Thorsberg textiles.

Based on the texture visible in the black and white photograph of the sleeve end lying flat (Stettiner 1911, Tafel IX), the whole pattern probably comprised various geometrical motifs on the chequered background of 3/1 broken twill. If more high resolution photographs are available in the future, it may be possible to reconstruct the full length of the pattern. More importantly, the method of study based on textural differences may be applied also to other tablet-woven bands, which have lost their colours due to being buried in the earth for a long time.

#### Acknowledgements

Thank are due to Matt Bunker for taking and sharing the photographs of Thorsberg finds and to Celia Elliott-Minty and Jane Malcolm-Davies for proofreading and improving the English.

#### Bibliography

- Collingwood, P. (2002) *The Techniques of Tablet Weaving*. McMinnville: Robin & Russ Handweavers Inc.
- Fischer, C.-H. (1997) Historische organische Farbstoffe. *Spectrum der Wissenschaft* 10, 104–108.
- Hansen, E. (1990) *Tablet Weaving – History, Techniques, Colours, Patterns*. Højbjerg: Hovedland Publishers.
- Karisto, M. and Pasanen, M. (2021) *Tablet-woven Treasures: Archaeological bands from the Finnish Iron Age*. Helsinki: Mythologia Fennica.
- Ræder Knudsen, L. (2011) The tablet-woven textiles from 3rd and 4th century AD weapon deposits in Denmark and northern Germany. In S. Möller-Wiering (ed), *War and Worship*. Oxford: Oxbow Books, 163–198.
- Schlabow, K. (1976) *Textilfunde der Eisenzeit in Norddeutschland*. Neumünster: Wachholtz.
- Stettiner, R. (1911): Brettchenwebereien in den Moorfunden von Damendorf, Daetgen und Torsberg. *Mitteilungen der Antropologischen Vereins in Schleswig-Holstein* 19, 26–56.

#### Internet sources

- Nigdziekolwiek (2019) Krajka z Thorsberg Mose. Między interpretacją a rekonstrukcją <http://nigdziekolwiek.com/2019/12/krajka-z-thorsberg-mose-miedzy-interpretacja-a-rekonstrukcja/> (accessed 24 June 2022)
- Aislings Welt (2020) Die Borte vom Thorsberg-Kittel <https://aislingde.blogspot.com/2020/06/die-borte-vom-thorsberg-kittel.html> (accessed 24 June 2022)

Author:  
sylvie.odstr@gmail.com