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Exploring a Medieval Patterned Silk Weaving in Honour of its Master Designer

Introduction

The Church of St. Bendt in the town of Ringsted, Denmark, dates back to about 1170 and was the preferred royal burial place until about the middle of the 14th century. During a renovation in 1858 of the floors of the church, some of these royal burials were examined by the National Museum of Denmark (NM) in Copenhagen and fragments of monochrome tabby woven silk textiles were found in several of them. From one grave, however, the fragments were of a delicate, double-faced patterned silk which, when it was received for conservation, initiated an interest in the elaboration of the patterning of silk weavings and the various creators of the fabrics who remain unknown. While the people who used these fabrics are often known by their names and through their deeds, we have to study the preserved fragments of the textiles to get acquainted with their unknown designers and reveal their ingenuity.

The fragments of the patterned silk were found in the grave of King Valdemar II, whose reign lasted from 1202 to his death in 1241. Denmark was at the time a great nation and King Valdemar II would have had access to precious fabrics through his political, ecclesiastical and marital connections with many areas south and east of Denmark. He had favoured the German King Otto of Brunswick against Philip of Swabin (King Otto became Emperor of the Holy Roman Empire in 1209) and he conquered Lübeck and Holstein in 1217. He engaged in a crusade against

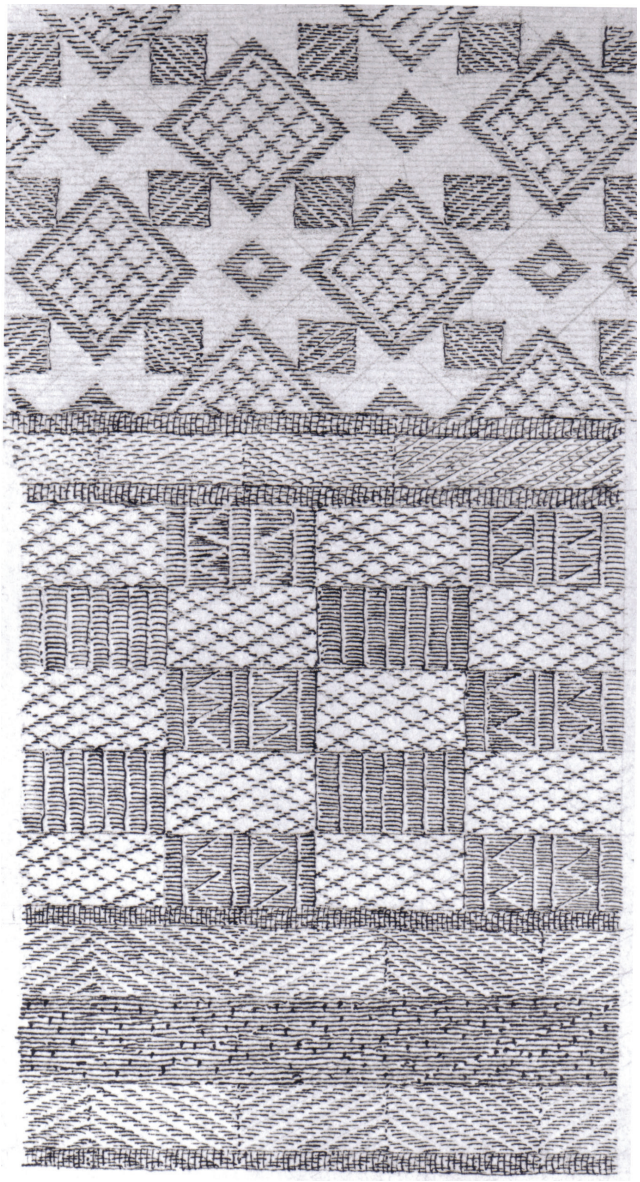

Fig. 1. A drawing was made at the time of excavation showing the different elements of the pattern consisting of stars and diamonds followed by different types of stripes, some of which also can be seen as a check pattern (After: Worsaae and Herbst 1855).

Fig. 2. Detail of a small fragment showing the selvedge. The black outline indicates the three bundles of fibres that have now disappeared (Photo: Irene Skals).

Fig. 3. One of the largest fragments in the National Museum of Denmark collection with the pattern of stars and diamonds. Along the left side c. 6.5 cm of the selvedge is preserved (Photo: Roberto Fortuna).

the heathen Baltic countries and conquered Estonia in 1219. Through two marriages he had connections to first Bohemia and later Portugal and his six sisters were all married to European princes.

At the time of the excavation in 1885 it was noted that Valdemar's grave had already been disturbed and this had left the silk scattered around, a fact that might very well have been the cause for its rather poor preservation (Worsaae and Herbst 1855). The fragments were after the excavation placed between glass plates and two of these glass mounts containing three fragments measuring 19 x 10.5 cm, 14.5 x 8-15 cm and 7 x 9 cm respectively were kept in the church and can now be seen there, while more than 20 fragments measuring from 0.5 x 2 cm to 18 x 9 cm were brought to NM where they are now stored. Although the silk can be seen from both sides in the glass mounts, the glass is prone to breaking, which is what happened to some of the mounts in NM enabling a thorough investigation of the silk. It is a double-faced weave with a complex geometric pattern of diamonds and eight-pointed stars, alternating with stripes and checks (Fig. 1). The original colours have now disappeared but various shades of light and dark testify to the use of different coloured yarns and tiny traces of a gold thread can be detected in one area of the pattern.

The exquisite play with technique

The weaving has one warp and two wefts per pass. The yarn in the warp has a light colour with a z-twist and the two differently coloured wefts in each pass have no twist. The colour differences are visually determined as different shades of light and dark brown but the textile is very thin – almost transparent – and the silk so fragile that sampling for dye analyses was considered too destructive. The weaving technique is based on a 3/1 twill with different variations such as lozenge twill and chevron twill forming four different elements of patterning. The colours alternate so that the areas that are light on one side are dark on the

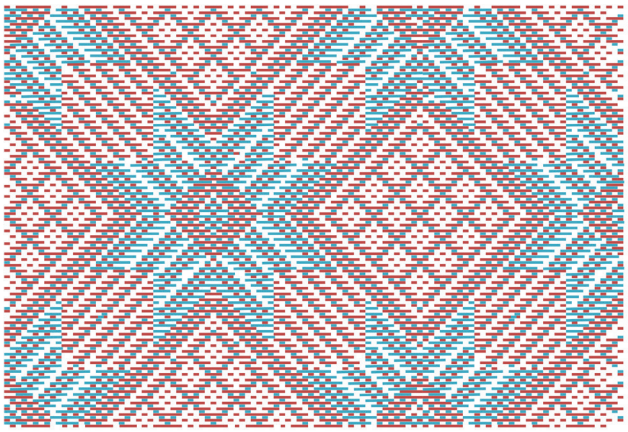

Fig. 4. A schematic drawing of the pattern of stars and diamonds. In this first element of the pattern the colours of the weft alternate so that the stars are light and the diamonds dark on one side and reversed on the other (Drawing: Irene Skals).

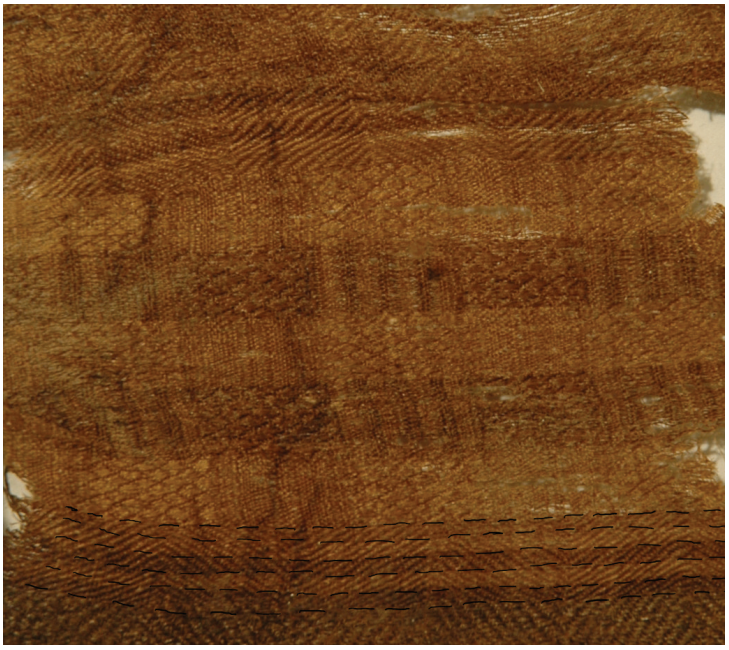

Fig. 5. The second element of the pattern consisting of five narrow stripes of alternating light and dark colours woven in chevron twill are repeated between every shift in the patterning. Each stripe measures c. 7-8 mm. The uppermost stripe appears slightly lighter than the two other dark stripes (Photo: Irene Skals).

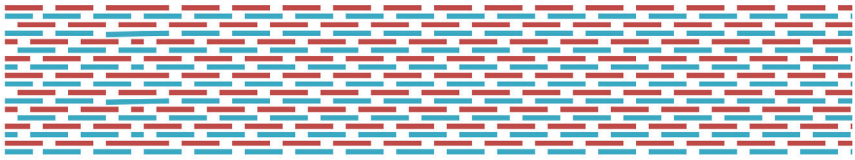

Fig. 6. A schematic drawing of the chevron twill with two wefts of alternating colours. The technique is not influenced by the shift in colours (Drawing: Irene Skals).

other and vice versa. Small parts of the selvedge are preserved making it possible to detect that it consisted of three bundles of yarn which have now disappeared and may therefore have been of plant fibres (Fig. 2).

The pattern of eight-pointed stars and diamonds are seen in most of the preserved fragments and this element might possibly constitute the ground pattern of the textile (Figs 3 and 4). The pattern unit consists of 36 warps measuring *c.* 1.2 cm (width) and 38 passes measuring *c.* 1.7 cm (height). The lighter weft is slightly finer than the darker. This part is followed by a second element consisting of a *c.* 2 cm wide striped pattern woven in chevron twill. This element is repeated between each shift in the pattern and appears to constitute a form of transition. The colour differences here are subtle and alternate to form two light and three dark stripes on both sides of the fabric, each of these being *c.* 7-8 mm wide (Figs 5 and 6). It has not been possible to discern whether the light and dark colours of the wefts are similar to the ones in the preceding pattern and one of the three dark stripes appears to be of a lighter shade, giving this pattern three different colours. The colour differences outlined above were not detected when the first drawing of the pattern was made (see Fig. 1).

The third element following the stripes consists of rows of checks, although in fact, depending on which side of the fabric is facing, it looks either checkered or striped (Fig. 7). Altogether, this part of the weaving measures 3.5 cm and consists of five rows of rectangles each measuring 7-8 mm by 11-14 mm. The pattern is nicely reproduced as rows of checks in the drawing from the time of the excavation (see Fig. 1) and is preserved in two of the fragments that can be seen in the church. These two fragments are mounted in the same frame with different sides facing making it possible to see the two different effects of the colour shifts. In a few tiny fragments in the NM collection, enough of these patterns remain to discern the course of the yarns. In three of the stripes the rectangles alternate between lozenge twill and chevron twill and the two wefts differ in colour but are both in light nuances (Fig. 8). In the remaining two stripes the rectangles alternate between lozenge twill and faced tabby and the wefts are clearly a light and a dark colour (Fig. 9).

The element of the narrow light and dark stripes in chevron twill are repeated again followed by the last element of the patterning consisting of yet another stripe, also woven in chevron twill (Fig. 10). This stripe measures 7-8 mm and has a gold thread as one of the wefts in the pass. The gold has now disappeared,

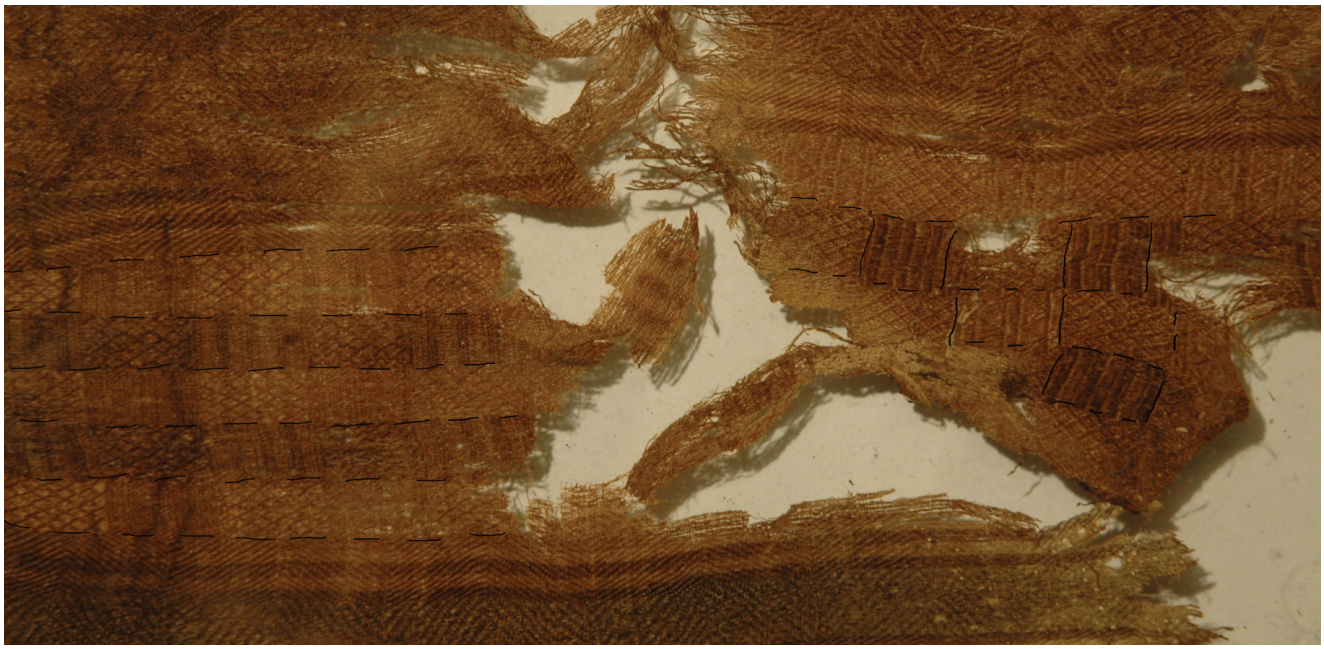

Fig. 7. Two fragments are placed side by side in one glass mount with opposite sides of the textile facing. Due to the colour shifts the stripes are accentuated on one side and the checks on the other side as indicated on the photograph (Photo: Irene Skals).

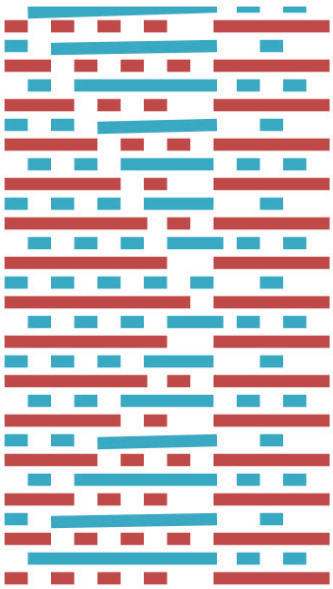

Fig. 8. A schematic drawing of the pattern unit for three of the stripes in the third element of the pattern. It is woven in lozenge twill alternating with chevron twill and the wefts consist of two different light colours that appear as light stripes on one side and as two differently light-coloured rectangles on the other side (Drawing: Irene Skals).

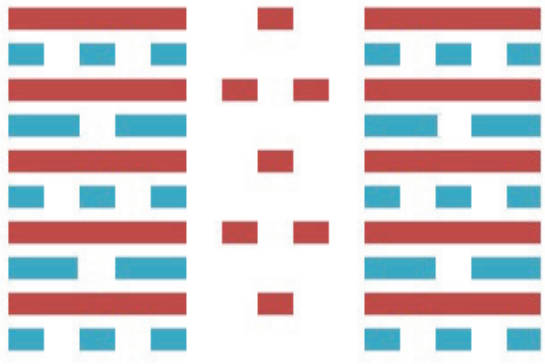

Fig. 9. A schematic drawing of the pattern unit of the two remaining stripes in the third element of patterning. They are woven in lozenge twill and faced tabby with a light and a dark weft. They appear as dark stripes on one side and as alternating light and dark rectangles on the other (Drawing: Irene Skals).

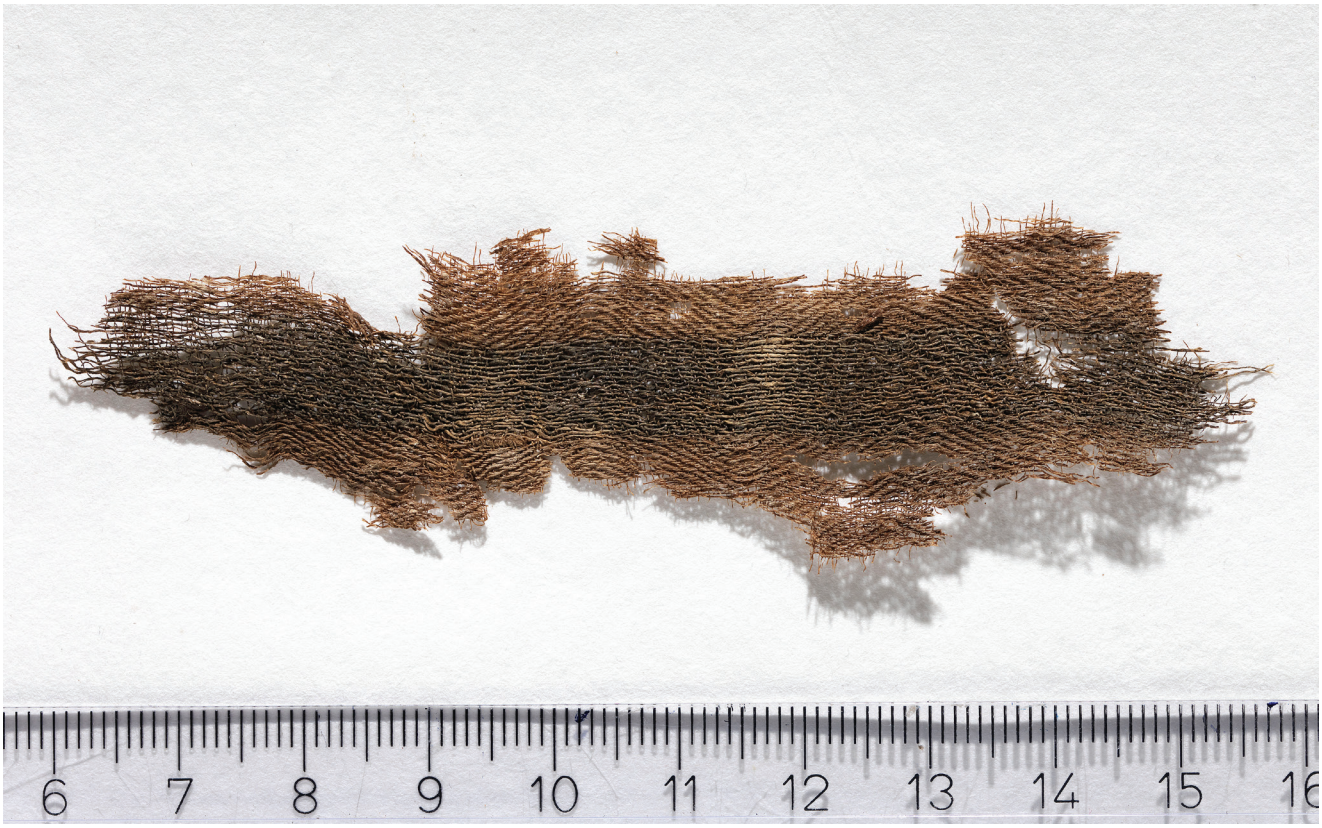

Fig. 10. The stripe with the gold thread is preserved in one small fragment and appears dark because silver corrosion has discoloured the silk yarns (Photo: Roberto Fortuna).

but traces of it are visible on the silk threads as discolouration from silver corrosion. Additionally, traces of membrane can be discerned which indicates that the thread was membrane gold, a type of gold thread consisting of strips of gilt animal gut wound around a core of silk thread. Further, an s-twist can be deduced in the silk core (Fig. 11). The second weft in each pass is silk with no twist indicating that the gold was only visible on one side. Possibly the silk weft was yellow and appeared golden.
After the gold stripe the light and dark chevron stripes are repeated again but unfortunately the continuation of the pattern from there is lost.

Conclusion: Where was the anonymous master from?
Due to the double-faced geometric pattern of diamonds and eight-pointed stars and the combination of a ground pattern and stripes, this silk was once assumed to be of Spanish/Moorish origin (Geijer 1979). However, after thorough analyses of these textiles, two groups have been distinguished, one to the north and the other to the south of the Pyrenees (Desrosiers 1989; 1994; 1999; Desrosiers and Bedat 1992). In spite of the incomplete pattern, the degraded colours and the very fragmented material, the silk from the grave of Valdemar II shares several technical characteristics with the group created to the north of the Pyrenees. The technique of 3/1 twill and the three cords of plant fibres for the selvedge are standard factors as is the s-twist of the gold thread. The variable factors comprise the number of wefts per pass which can be between two or three and the number of weft passes per cm which may vary from 24 to 40. Colours are preserved in several of the textiles from this group found elsewhere in Europe and are vivid: white, yellow or green contrasted with blue, red or black (Desrosiers 1999) but as dye analyses were not possible in this case one can only guess at the subtlety of the colour shifts from the variations in shades of light and dark.
Textiles with similar characteristics have been preserved as relics or grave textiles in many different places in Europe but none of the ones that were made south of the Pyrenees seems to be preserved outside Spain (Desrosiers 1999). It is therefore not

surprising that the textile found in Denmark should belong to the group from north of the Pyrenees and our fragments only form an addition to these. In medieval inventories these textiles are described as cloth 'de Areste', 'de Arista' or 'de Larest', in modern French and English labelled 'Draps d'Areste' and 'Cloth of Aresta' (Desrosiers 1989). Because the Latin term 'Arista' means fish bone the term is thought to be related to the herringbone patterning of many of these weavings (King 1968; Crowfoot *et al.* 1992; Desrosiers 1999). However, it has been suggested that Areste/Arista/Larest are misspellings of 'de Alesto', a term which also appears in medieval inventories, signifying an origin in Alès, which seems a very likely interpretation (Desrosiers 1999). Alès is situated in the south of France and was earlier in its history called Arisitum. It is not unlikely, that our master designer earned his living there. The textiles he created were popular and used as royal burial clothes or wrappings. Through this analysis of a patterned silk weaving it has been possible, in spite of its degradation, to gain an impression of the creativity, skill and ingenuity needed to calculate how the loom should be set up in order to weave this kind of intricate pattern. It cannot be done just by intuition. Aside from detailed knowledge of the properties of the available materials, both artistic and mathematical skills would have been needed to get from the idea of the pattern to the setting up of the loom. These important silk producers were artists unknown to us now and often neglected in favour of the knowledge of the people who ultimately used the textiles. The materials used in silk weavings are so fine that many of the nuances only become apparent when they are viewed through the lenses of a stereo microscope. In the case of this particular weaving it is the colour shifts and the exquisite use of the twill techniques that are especially noteworthy. Numerous other examples can be seen of patterns made by subtle differences in materials such as the thickness or the twist of the yarns, as colour differences in the core of the gold threads or in the tightness of the yarn twist. These details bear witness to a creativity and playfulness on the part of the industrious people behind medieval silk textiles. Although anonymous today, they made their living creating fantastic textiles with subtle effects that were valued by the contemporary elite and this study should be seen as a tribute to their creative genius.

Fig. 11. In this detail traces of the membrane gold is visible in some places as a semi-transparent dark coating of the silk yarn. An s-twist of the silk core is discernible (Photo: Irene Skals).

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