

ANOTHER LANDING

On 28 September 1066 the army raised by William, Duke of Normandy landed at Pevensey Bay on the Sussex coast. Nearly nine hundred years later, the Bayeux Tapestry—created to tell the story of that violent invasion—is returning to England for the first time. For many of us, the Tapestry is associated with history lessons at school from which memory has redacted pretty much everything apart from the image of Harold shot through the eye with an arrow during the Battle of Hastings and William the Conqueror's wife, Queen Matilda, and her ladies-in-waiting reputedly stitching the Tapestry for years thereafter. Neither is true. Nor is it a tapestry. It is an embroidery, worked in worsted wool yarn, so will be referred to as 'the Embroidery' ➡

RIGHT A detail from The Bayeux Tapestry Scene 38. Here Duke William in a great ship crossed the sea... and came to Pevensey. Note the intricate stitching of the yard (the horizontal bar that holds the sail) and the use of the base cloth as a colour in the shields, one of three ascertainable key stitching 'rules' applied during the making of the Tapestry.

IMAGE COURTESY OF THE BRITISH MUSEUM





for the remainder of this article.

The words 'opinions remain divided' appear frequently in the Embroidery's dauntingly vast bibliography, and over the next few months these opinions will doubtless be aired at length. In this article I want to imagine that the design has just been approved and to consider the steps involved in fulfilling the commission under eleventh-century conditions: the fabric, the wool yarn, the kit, the workroom, the embroiderers, the stitches.

In its current form, the Embroidery is worked on nine panels of fine, bleached linen stitched together to make a hanging nearly seventy metres long. The order for such a quantity of fabric was almost certainly given to a professional weaver whose responsibility it would have been to source the raw linen thread and organise the spinning. Linen is made from the fibres of flax, named *Linum usitatissimum*—'the most useful'—by the Romans. Only the inner fibres of the plant are sufficiently pliable to be transformed into thread and the several arduous processes by which ➤

LEFT Battle, Scene 51 (detail). The chaotic sounds and stench of it: whizzing spears, thundering hooves, eagles squawking in the borders, the groans of dying men, all conveyed through stitch. Note the use of contrasting colours for clarity, and of the base cloth as a colour, highlight even, in the shield and horses' manes. That the first four soldiers with shields appear to possess only seven legs between them matters not.

this transformation occurs have changed little over the centuries. Flax was sown in spring and the young plants pulled up some three months later to be left 'retting' in pools or ponds to absorb moisture. Sodden and rank-smelling, they were then dragged from the water, bundled into stacks and dried. After breaking down the stalks with mallets, the inner fibres were extracted and combed with metal-toothed combs ('heckling'), ready for spinning.

A distaff and simple weighted spindle were essential domestic equipment for women in the Middle Ages. The spinning wheel was not invented until the fifteenth century. The distaff was a pole about three feet long, which was held by the left hand and often tucked into a belt or waistband. The raw flax fibres were placed at the top of the pole and were teased out and guided with the right hand to the weighted spindle. It was important to keep the flax fibres wet or damp as they were spun, so the spinner would periodically dip her right hand in water. For such a quantity of thread, required to be of similar quality, it is likely that the spinning was carried out in a workshop.

The linen for the Embroidery was woven with single threads 'over-and-under' (known as a 'tabby' weave) with a thread count of roughly forty-five threads to the inch, which is considered fine for the period. Weaving such long lengths of fabric would have required



CLOCKWISE, TOP FROM LEFT

The stitching in the embroidery, while confined to the use of a limited number of stitches, is wonderfully inventive and inspiring for modern embroiderers. The depiction of chain mail, using small adjacent circles of outline stitch is one of the most striking features and is a stylisation ahead of its time. There are variations with the circles set inside individual squares. We will never know whether the variations in the shades between the horizontal and vertical laid threads in Bayeux stitch were intended (see the shields left), but the idea of using very subtly different shades or, conversely, brightly contrasting shades for each layer, results in some lovely effects. The overlapping ellipses appear several times and can be worked in outline or filled. The pattern of squares representing William's palace in Rouen could be reinvented as fabric print.

the setting of a long warp (the vertical threads) and therefore the use of a horizontal treadle loom. These had reached England from China—where they were used for weaving silk—earlier in the eleventh century and had been adapted for use with wool and linen. At the time the Embroidery was commissioned, these looms were still largely the province of male weavers in professional workshops.

Once woven, the earthy-brown linen panels were boiled in a solution of ash and water before being stretched out in daylight and kept damp for up to a fortnight to bleach them. After a rinse in a weak, neutralising acid solution, they were dried and pounded with polished marble or heavy glass to make them smooth and glossy.

A vast number of fleeces would have been needed to produce the forty-five kilograms of wool used in the Embroidery. Research indicates that the fleeces were dyed whole. Cleaning them was another exhausting and unsavoury task, involving removing the grease with a solution of wood-ash or stale urine. Once clean, they were soaked in an alum-based mordant to improve the fix of the dye before drying ready for spinning.

Only three known dyes produced the ten original colours of the Embroidery: madder, weld and indigotin (woad). This was proved conclusively only recently by the use of visible near-infrared ➡



Steps for using Bayeux stitch to fill each section



ABOVE There are so many ideas in *The Bayeux Tapestry* for embroidering clothes today. Here laid and couch or Bayeux stitch is used with different threads for each layer.

OPPOSITE A detail from *Scene 10 Where messengers from Duke William came to Guy of Ponthieu*. Guy is holding the large ceremonial axe. Note the use of laid and couch stitch for covering the cloth of the cape but worked in different directions to suggest folds. The tunic is an example of how laid and couch and outline stitch was not always used to cover the cloth quickly: this is fiddly work! We know that on the whole, the outline stitch was worked first and then filled.

hyperspectral scanning by scientists from the Sorbonne. A fourth organic material, producing a deeper brown colour, has yet to be identified.

In the early 1980s, the back of the embroidery was exposed and revealed that the original colours on the front had faded considerably over time and that there were subtle variations in each colour on the back which were no longer visible on the front.

Nobody knows for certain where the panels were embroidered. At one point it was thought that different panels may have been given to different convents in and around Canterbury. However, a large, clean space with plenty of light and room to store materials and accommodate the long wooden frame(s) set on trestles was more likely to have been found in a professional embroidery workshop. Anglo-Saxon women were renowned for their embroidery skills and study of the back of the Embroidery shows that it was stitched to a set standard requiring a high level of skill, something also more likely to have been found in a professional workshop. Examination of the order of stitching on the back shows that a team of women sat diagonally opposite each other on either side of the Embroidery, working it from left to right and top to bottom. The borders, for which it is believed the embroiderers were given more freedom to invent the content, were stitched at the same time as the main story. ➡



48.



LEFT Scene 48 (detail). Here the soldiers leave Hastings and came to join battle against King. This image has been brightened to try and show how it might have looked when first embroidered.

It is not known whether one small team worked on all the panels consecutively, or whether there was a huge and bustling workroom or a number of workrooms in different workshops with several teams working at once.

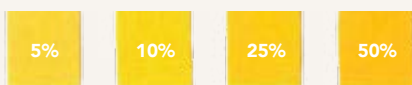
It is thought that professional Anglo-Saxon embroiderers probably used their own needles, scissors and thimbles. Needles for wool embroidery required a larger eye to create a big enough hole through which to pull the wool. The eye was made in a flattened circle at the top of the needle. Little baskets were attached to the frame for keeping kit and threads handy. Working days began at sunrise and ended with Vespers at sunset and work was paused during the winter months.

It is believed that, apart from the borders, the design was drawn onto the fabric for the embroiderers to work. One of the most striking features of the Embroidery is its cohesive aesthetic. How was this achieved when working over such a long stretch with a team or possibly teams of embroiderers? Did the designer perambulate around the trestles, micro-managing the choice of colours and stitching techniques as the embroiderers worked? Looking at community projects, you can always ➡

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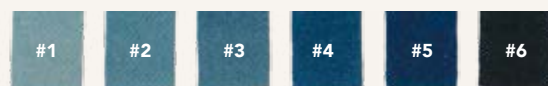
Madder: 5-100% ground root with alum mordant



Weld: 5-50% dried weld plant with alum



Weld + Indigo



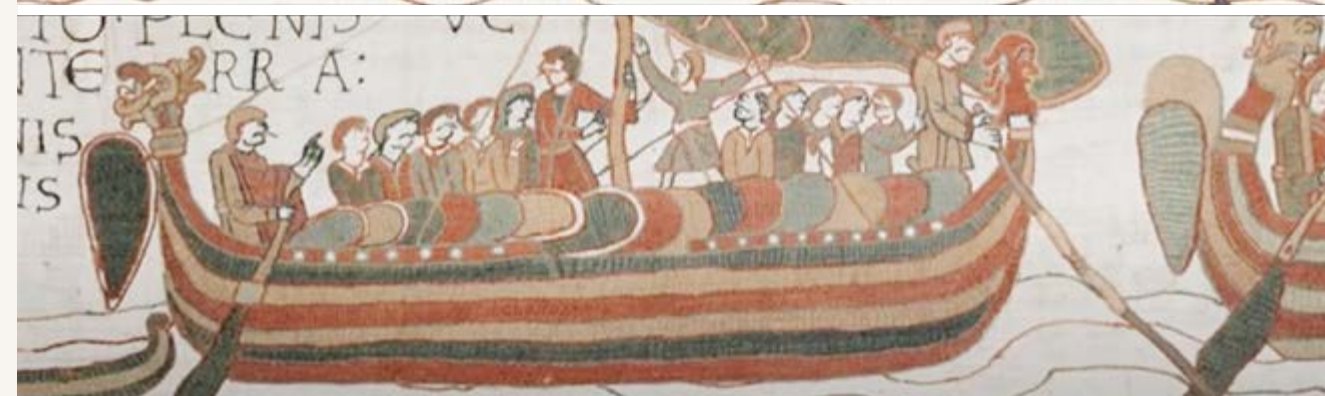
Six values of indigo

*The embroidery blues would have been derived from woad (*isatis tinctoria*), known as indigotin.

THE COLOURS OF THE BAYEUX TAPESTRY

Although it has long been established that the colours in The Bayeux Tapestry were nearly all made from the dyes produced by madder, weld and indigotin—the latter extracted from woad—, various studies have resulted in different numbers of colours. The latest analysis (apart from anything the exhibition at The British Museum may reveal) yields the following ten colours:

- 1 Red, light, tending to pink-orange
- 2 Red, dark, tending to brown
- 3 Yellow, of a brown or mustard hue
- 4 Green, light
- 5 Green, olive
- 6 Green, dark
- 7 Blue, mid-toned
- 8 Blue, dark
- 9 Blue-black
- 10 Beige



THE SHOCK OF THE OLD The research and visible near-infrared hyperspectral scanning carried out by scientists from the Sorbonne is particularly exciting because not only were they able to confirm the plant material used to create the dyes, they were able to analyse these at a molecular level to establish the concentrations of each dye in each fibre of the hanging. This offers a first time look at how The Bayeux Tapestry might have looked when it was first made. There is a moment in Alexis de Favitski's documentary *Mysteries of the Bayeux Tapestry* when the scientists see the results of their findings applied to the Tapestry as a whole. "Etonnant!" "Stupéfiant" they whisper as technology affords a double-screen panorama of the Tapestry 'then and now'. Shocking might be another word for anyone attached to the sludgy, earthy colours with which we are familiar. While some colours such as the dark greens and reds have simply faded, the blues and yellows and beiges are dramatically different. One of the colours in the Tapestry is a pale sea-green as seen on the shield hanging over the back of the ship on the right (above); it appears often throughout the Tapestry and it is disconcerting to see the original colour. Beige is almost a unifying colour in the Tapestry we see today, yet in its fresh iteration this colour is a bright yellow, and sometimes a very light pea-green. There is an organic material in the Tapestry which remains unidentified which may account for some the shades. It is accepted that whoever designed the Tapestry was influenced by illuminated manuscripts known to have been available in Canterbury at the time, featuring the glowing blues derived from lapis-lazuli. The blues in the Tapestry are all derived from woad, which fades considerably over time.

‘To encounter the tapestry in person is to feel history in a way no reproduction or textbook can ever really quite capture, a sense of absolute awe.’

Dr Nicholas Cullinan OBE, Director of the British Museum

tell if one person has dictated the way certain elements will be stitched and in which colours, as opposed to those where a set of principles have been established within which the individual embroiderers are allowed a degree of creative input. Apart from the consistent use of laid-and-couch technique (now also known as Bayeux stitch) and the adjacent circles representing chain mail, certain stylistic ‘rules’ become evident as you examine the Embroidery. No two adjacent elements are stitched in the same colour. Stockings are striped, the planks of the bows of the ships are striped, the horses are different colours, sometimes even the legs of one horse are different colours. Another ‘rule’ seems to be that the base linen is often used as a colour—for example, in some of the horses’ manes, or a shield. These rules, together with the limited colour palette, contribute hugely to the aesthetic coherence and energy of the work.

There are too many unknowns to establish how long it took to complete the Embroidery. In 1885 Elizabeth Wardle and thirty five members of The Leek Embroidery Society stitched the replica now housed in Reading

Museum in just under a year. Currently, at least two people are stitching replicas without assistants. Both are working with colours closer to those now accepted to be the original colours. Towards the end of Alexis de Favitski's documentary, it is indeed extraordinary to watch the glowing colours of the original, clearly more akin to the those found in the illuminated manuscripts believed to have inspired aspects of the design, slowly overwrite the more familiar, faded colours. It is of interest historically, of course, but somehow one has 'become accustomed to the face' of the Embroidery we know. Seeking to replicate what was, rather than what is, seems rather like deciding to paint a very old lady, her face marked by time, as she looked in the bloom of youth. Perhaps it is best to stand in awe of the very fact of production of this work, of the history and the connection it affords to life in this country nearly a millennium ago and rather than replicate it, to try the stitching ideas in our own work, marvelling at how fresh and contemporary they seem. ❖

The British Museum has announced that public tickets to see the Bayeux Tapestry will go on sale on 1 July 2026.

The British Museum

IMAGE COURTESY OF THE BRITISH MUSEUM



RESOURCES

- Online high resolution scan www.bayeuxmuseum.com.
- *Mysteries of the Bayeux Tapestry*. A documentary for BBC Four by Alexis de Favitski (BBC iPlayer)
- Dr Makin's Bayeux Tapestry Recreation Project. alexandramakin.com
- *The Bayeux Tapestry: The Life Story of a Masterpiece* (p. 52). Hicks, Carola.
- *The Bayeux Tapestry* by Xavier Barrali i Atet and David Bates, which includes an invaluable scene-by-scene reproduction of the work with commentary.

- *Palette, Pigments and Pictorial Narrative in 11th-Century England* by Michael Lewis and Richard Gameson.
- *The Art and Science of Natural Dyes: Principles, Experiments, and Results* (right), and *The Studios Formula Set for the Arts and Science of*



Natural Dyes (left) are both by Jo Boutrup and Catharine Ellis, Schiffer Publishing Ltd.