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Viewing the Bayeux Tapestry, Now and Then

CHRISTOPHER NORTON

Plans to redisplay the Bayeux Tapestry raise anew the questions as to where and how it was originally intended to be displayed. Analysis of the linen fabric provides new insights into the tapestry's design and manufacture, and enables its original length to be calculated. Re-examination of the (largely destroyed) 11th-century cathedral at Bayeux and of its liturgical layout demonstrates that the tapestry would have fitted neatly into the nave west of the choir screen. Its narrative falls into three discrete sections that reflect the way in which it would have been hung within the building, and the arrangement of the scenes takes account of the uneven bay-spacings of the nave arcades and the positions of the doorways. It can therefore be concluded that the tapestry was designed for a particular location within the nave of Bayeux cathedral. The cathedral's liturgical traditions shed light on the way in which the tapestry would have been viewed in the Middle Ages, and the wider implications for the way in which it could and should be viewed today are briefly considered.

KEYWORDS: Bayeux Tapestry, textile history, Bayeux cathedral, architectural history, liturgy, narrative, Norman Conquest

ABOUT twenty years ago I mentioned to a friend that I was planning to write an article about the Bayeux Tapestry. He replied that thinking one had anything new to say on the subject was the first sign of senility. Another colleague ventured that it was a symptom of insanity. Duly chastened, I set the matter to one side.¹ The difficulty is obvious. After almost three centuries of scholarly endeavour, the fundamental questions concerning the patronage and date of the tapestry, its designer and place of creation, its materials and techniques, its intended location, viewers and message have been endlessly debated. It is impossible not to repeat analyses and interpretations that have been made before, often many times. On the other hand, the search for novelty may lead down paths that have previously been left untrodden, perhaps for good reason. The bibliographical challenge has become even more severe over the last twenty years. Hundreds of new publications have appeared, including whole books at the rate of more than one a year. All the while, mistakes and misconceptions accumulate as rapidly as new insights.²

I have been prompted to return to the topic by President Macron's announcement that the tapestry was to be loaned for exhibition in Britain prior to being redisplayed in Bayeux. This gives a new urgency to the question of how best to display it. At the moment, it is hung at eye level in a long, dark, U-shaped tunnel, in such a way as to allow the visitor to examine each scene closely in detail. However, the one-way

circulation makes it difficult to revisit earlier scenes, the narrow space makes it impossible to stand back and view the larger narrative, and there is no way of seeing it in its entirety. Until the early 1980s it was displayed around the walls of a large rectangular room. The layout of the tapestry was determined by the shape of the room, and not the other way around; the environmental controls were doubtless inadequate; and the space would have been insufficient for the vast numbers of people who now come to see it each year. But the arrangement did at least enable the visitor to stand back from the scenes, to view the narrative in its entirety, and to observe the relationships between different sections from various viewpoints.³

Apart from the many political and financial, technical and practical issues involved, a redisplay raises the historical question as to how the tapestry was originally intended to be seen. Broadly speaking, there are four main hypotheses. The traditional view is that it was made for Bayeux cathedral. The earliest definite mention of it is in a cathedral inventory of 1476, which records that it was hung round the nave on the Feast of the Relics (1 July) and the octave following. It was still being exhibited in much the same way three centuries later, and this could have been the intention from the outset.⁴ This is still the favoured view of much of the French literature. Some commentators accept that the tapestry was intended for an ecclesiastical context, but propose that it was made for another of the Anglo-Norman cathedrals or great abbey churches of the period. Various candidates have been suggested. Others, however, are of the view that the tapestry was not appropriate for an ecclesiastical context but was instead destined for display in one of the great halls belonging to one of the leading Norman magnates or prelates, whether in Normandy or in England. There have been speculations as to how it might have been hung around the walls of a rectangular or square room. The secular hypothesis has found considerable favour in recent decades, particularly in the English-language literature, to the extent that it has sometimes assumed the status of dogma. Finally, it has been argued that the tapestry was not designed for any particular location, but was intended to be moved around from place to place as a kind of travelling picture show.

In addition to its relevance to the display of the tapestry, the issue of its intended location is inseparable from questions of patronage and date, function and meaning. It is therefore fundamental to any interpretation of the tapestry. In the following discussion, I shall attempt to navigate a route between the Scylla of stale repetition and the Charybdis of implausible novelty. I shall present a radically old interpretation, on the basis of what is, to the best of my knowledge, a new line of argument, leading to an unambiguous conclusion.

DIMENSIONS AND PHYSICAL STRUCTURE

HOW long is the Bayeux Tapestry? A banal question, but with the potential to unlock some of the mysteries of the tapestry. It is by no means easy to answer. The tapestry's size and materials make it very difficult to measure accurately, and few attempts have ever been made to do so. However carefully done, measurements are bound to vary, depending on whether it is displayed vertically or horizontally; whether it is measured along the top, or the bottom, or in the middle; how taut it is; and so on. It should therefore occasion no surprise that the published figures do not exactly agree, either as regards the overall length of the tapestry or the lengths of the individual pieces of linen which, joined end to end, form a continuous whole. What is remarkable is the large number of inaccurate figures that have crept into the scholarly literature over the years.

The following dimensions are incorrect:		
64.38 m	=	211' 3"
64.61 m	=	212'
65.22 m	=	214'
65.45 m	=	214' 9"
69.18 m	=	227'
69.35 m	=	227' 6"
69.55 m	=	228' 2"
69.65 m	=	228' 6"
70.00 m	=	229' 8"
70.20 m	=	230' 4"
70.34 m	=	230' 9"
An honourable mention should be made for Montfaucon's close approximation in 1730:		
212 <i>pieds</i>	= 68.69 m =	225' 4"
The only credible figures are:		
210 <i>pieds</i> 11 <i>pouces</i>	= 68.34 m = 224' 3"	(Béziers 1773)
68.45/46 m	= 224' 7"	(German team 1941)
68.38 / 68.58 m	= 224' 4" / 225'	(French team 1982-3)
These figures give a notional length for the tapestry of:		
68.46 m ± 12 cm	=	224' 7" ± 5"

FIG. 1. Table of published lengths of the Bayeux Tapestry

In order to avoid further mistakes, it is of some importance to understand the sources of the different measurements and the origins of the various errors, and these have been traced, as far as possible, in the Appendix. The results are summarised in [Figure 1](#), which reveals a range of measurements that differ from each other by as much as 6 m, or nearly 10 per cent of the total length of the tapestry. As shown in the Appendix, only three of the measurements are credible, namely those produced by Béziers in 1773, by a team of German scholars in 1941 and by a French team in 1982–83. The vertical border at the start of the tapestry is largely a restoration, but it does include a strip of original linen, and there is no reason to suppose that anything significant has been lost here. At

	I	II	III	IV	V	VI	VII	VIII	IX	Total
A	13.65	13.75	8.30	7.70	6.55	7.05	7.15	5.20		69.35
B	13.65	13.75	8.35	7.75	6.60	7.05	7.15	5.25		69.55
C	13.70	13.90	8.19	7.725	5.52	7.125	7.19	2.80	2.43	68.38
D	13.65	13.75	8.35	7.75	5.50	7.05	7.15	5.25		68.45
E	13.70	13.90	8.19	7.725	5.52	7.125	7.19	2.80	2.43	68.58
A: Bertrand 1960 B: Bertrand 1966 C: Bédât and Girault-Kurtzeman 2004										
D: Bertrand 1966 (corrected) E: Bédât and Girault-Kurtzeman 2004 (corrected) Corrections are shown in bold.										

FIG. 2. Table of lengths of the individual pieces of linen of the Bayeux Tapestry

the other end, the tapestry is in poor condition and the narrative peters out with the flight of the English army. Clearly, the original ending has been lost. Béziers' measurement, translated into metres, is 68.34 m. The German measurement has been cited variously as 68.45 m and 68.46 m; but we need not be concerned about a difference of one centimetre! The French measurement is generally given as 68.38 m, yet the sum total of the individual pieces of linen that make up the tapestry, as published by the French team, is 68.58 m. It is not clear how this discrepancy arose. It may simply result from a transposition of the numbers 3 and 5, which can easily be confused, in which case 68.58 m would be the correct figure. If so, averaging the three measurements gives a notional length for the tapestry of $68.46 \text{ m} \pm 12 \text{ cm} = 224 \text{ ft } 7 \text{ in.} \pm 5 \text{ in.}$ If 68.38 m is the correct French measurement, the equivalent figures are $68.40 \text{ m} \pm 6 \text{ cm} = 224 \text{ ft } 5 \text{ in.} \pm 2 \text{ in.}$ Over such a length, the discrepancies are insignificant.

The lengths of the individual pieces of linen are important. Bertrand published lengths for eight pieces that were taken when the tapestry was suspended vertically, not laid out flat. In 1982–83 it was discovered that the last piece in fact consisted of two separate pieces whose join had escaped notice because it was concealed by embroidery. Piece VIII in the Bertrand measurements is therefore the equivalent of Pieces VIII and IX in the 1982–83 measurements. Irrespective of this minor difference, the two sets of measurements are not without their problems, and cannot be accepted without correction. Figure 2 summarises the results of the discussion in the Appendix, which explains the reasons for the corrections given in Figure 2, rows D and E. These revised figures are the ones that will be cited hereafter. The slight differences between the two sets of figures are no more than might be expected from measurements taken at different times and in different circumstances, and they do not affect the argument. It would be easy to average out the figures in the two sets of measurements, but in order not to introduce yet another set of figures into the literature, I will cite both, Bertrand's first, followed in italics by Bédât and Girault-Kurtzeman's.

The published dimensions refer to the visible face of the tapestry. The actual pieces of linen, however, are very slightly longer, because the ends of each piece were turned over and hemmed before the piece was joined to its neighbour. The turned-over ends are very short, only about 1 cm each.⁵ The dimensions of the first eight pieces should therefore in theory be increased by about 2 cm each to represent the full lengths of the individual pieces of linen. On Piece IX only the initial edge survives, the end being lost. However, since these tiny increments fall within the range of published lengths for the different pieces, they can in practice be ignored.

It has often been remarked that the varying lengths of the different pieces of linen provide potential clues as to the process of manufacturing the tapestry; yet this line of investigation has seldom been pursued.⁶ As is well known, the first two pieces are considerably longer than the others and are of very similar length, as if they derive from a single very long piece which was cut in half. Pieces I and II combined measure 27.40 m/27.60 m (Fig. 3). Pieces IV, V, VI and VII, when added together, are almost identical in length, viz. 27.45 m/27.56 m. The significance of these figures becomes apparent when they are translated into feet. They are almost exactly 90 English feet (= 27.43 m), which is the same as 30 yards or 24 ells, the ell being a standard English measure of cloth equating to 45 inches or $1\frac{1}{4}$ yards (= 1.143 m). This cannot be a coincidence. Bearing in mind that the tapestry may have stretched slightly over the centuries, and that medieval cloth lengths cannot in any case have attained the levels of precision achieved by modern methods of manufacture, it may be concluded that Pieces I–II and Pieces IV–VII were cut from lengths of cloth measuring 90 ft long.

This conclusion can be corroborated and expanded by an analysis of the height of the linen strips, which corresponds to the width of the cloth on the loom. Across its length, the tapestry varies in height between 45.7 cm and 53.6 cm. The linen cloth itself is slightly taller, since there are narrow fold-overs along the top and bottom edges, similar to those at the ends. It has sometimes been suggested that the pieces were derived from broader pieces of linen, cut lengthways. The original selvage has been located in places on the lower edge of five of the nine pieces, but on one side only, and it has been speculated that the original cloth was two, three or even five times the width of the finished article.⁷ If the pieces were taken from a double-width cloth, the minimum width required would be 45.7 cm + 53.6 cm = 99.3 cm = 39 in. To accommodate two of the tallest (or broadest) sections of linen, one next to the other, would require at least 53.6 cm × 2 = 107.2 cm = 42 in. Allowing for lost selvages, the turned-over edges and so on, the pieces of linen could have derived from a bolt of cloth 45 in. wide cut in half lengthways. As I show below, 45 in., or $1\frac{1}{4}$ yards, or 1 ell, was a standard width for the manufacture of medieval cloth. It may therefore be concluded that Pieces I–II and IV–VII were all cut from a single bolt of linen measuring 90 ft long by 45 in. wide, which is the same as 30 yards by $1\frac{1}{4}$ yards, or 24 ells by 1 ell (Fig. 4).

The origins of cloth measures are shrouded in obscurity. The written sources relate to the later medieval period.⁸ From the 1196 Assize of Measures onwards many statutes and regulations were promulgated that attempted to regulate the sizes of cloths manufactured in or imported into England. Their confusing and sometimes contradictory stipulations demonstrate as much as anything the difficulty, if not the impossibility, of regularising the trade. They refer primarily to woollen cloth rather than linen, though the latter is sometimes mentioned. Measurements tend to be given in standard yards, but bureaucratic attempts at standardisation came up against the practical reality that a yard of cloth might mean 36 in., or 37 in., or 40 in. Further confusion arises from the fact that the Latin word *ulna* is variously translated as yard and ell. The

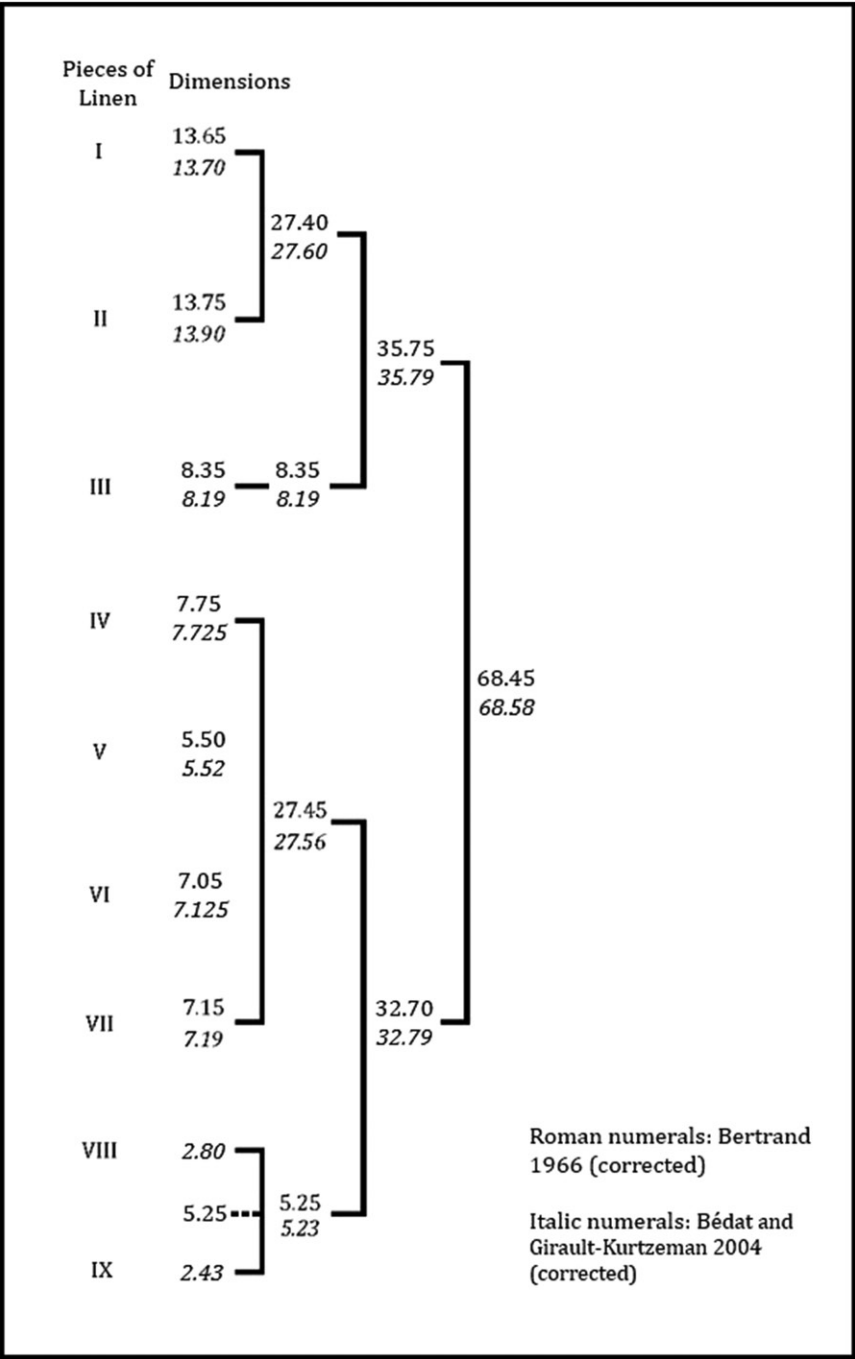


FIG. 3. Analytical table of the physical structure of the Bayeux Tapestry

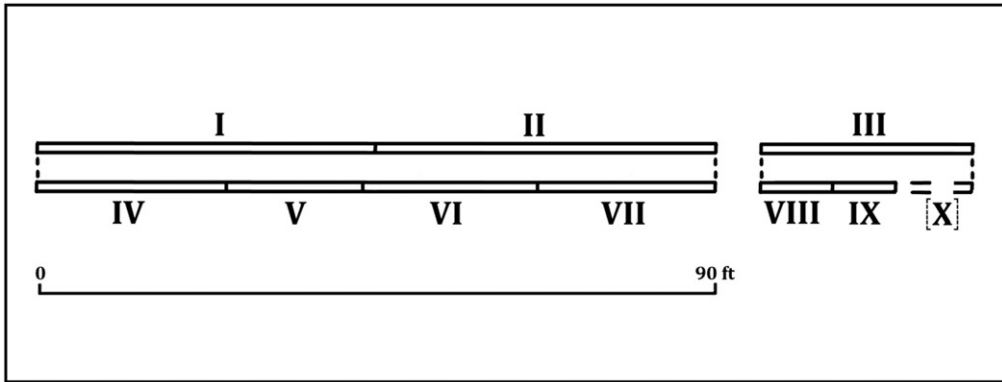


FIG. 4. Diagram of probable derivation of the pieces of linen in the Bayeux Tapestry from bolts of cloths 1 ell in height

45 in. ell appears by that name from the 14th century, and it only became a statutory standard in the late 16th century; but it is clear that a width of 5 quarters (of a yard), that is, the standard ell, was in widespread use by at least the 14th century. Among many lengths which are mentioned as normal we find 24 yards (or ells?) and (more rarely) 30. Clearly, great care must be taken in applying these later sources to an 11th-century context. However, insofar as the practices documented in the written sources are likely to be the continuation of long-established traditions, these later records are relevant because they show that 90 ft by 45 in. is plausible for the dimensions of a single bolt of linen, irrespective of whether those dimensions might have been expressed in terms of feet and inches, or yards (30 by $1\frac{1}{4}$) or ells (24 by 1). Indeed, the tapestry is itself a demonstration of the antiquity of these dimensions.

One other point that emerges from the later records is that, in theory at least, some of the regulations were supposed to apply to cloth imported from abroad, and that some foreign manufacturers made cloth according to English measurements. For instance, some time before 1271 the merchants of Douai (whose cloth had been the subject of royal displeasure) protested that their cloth was 24 yards (or ells?) long according to English measure.⁹ It would therefore be rash to assume that the linen in the Bayeux Tapestry was necessarily of English origin just because it derives from a bolt of cloth made according to English measures. Cloth is easily transported and traded, and unless and until much more is known about 11th-century production not just in England but also in Flanders and Normandy (and indeed further afield), the question must remain open.¹⁰

The prime consideration for the makers of the tapestry would probably have been the quality and consistency of the linen, not its origin. In any case, the linen cloth is merely the ground. Even if it could be demonstrated that it was made in England, that would not of itself prove that the tapestry was embroidered in England. There is, of course, nothing in the above that is incompatible with the hypothesis that the tapestry was made in England; but it does not prove it. Hopefully, textile historians and historical metrologists will be able to shed further light on these matters.

For present purposes, it is not the origin of the linen pieces that concerns us, but what they reveal about the processes of manufacture and design. As we have just seen, Pieces I and II and Pieces IV–VII used up a single bolt of linen one ell in width.

A. Length of tapestry as existing:	$68.45 \text{ m} = 224' 7''$
	$68.58 \text{ m} = 225'$
B. Estimated original length:	$35.75 \times 2 = 71.50 \text{ m} = 234' 7''$
(i.e. Pieces I-III $\times 2$):	$35.79 \times 2 = 71.58 \text{ m} = 234' 10''$
C. Missing from the end:	$3.05 \text{ m} = 10'$
(i.e. B minus A):	$3.00 \text{ m} = 9' 10''$
Roman numerals: Bertrand 1966 (corrected)	
Italic numerals: Bédât and Girault-Kurtzeman 2004 (corrected)	

FIG. 5. Table showing the estimated original length of the Bayeux Tapestry

The remainder of the tapestry, Pieces III and VIII-IX, must therefore have come from another one. The most economical way of extending the tapestry to its full length would have been to take another piece of cloth of the same width, measure half the required length and cut it in half lengthways. Assuming this to have been the case, it enables us to calculate how much is missing from the end of the tapestry. Piece III is $8.35 \text{ m}/8.19 \text{ m}$ ($27 \text{ ft } 5 \text{ in.}/26 \text{ ft } 10 \text{ in.}$) long. This is about 27 ft or 9 yards ($= 8.23 \text{ m}$), which is 30 per cent of a length of 90 ft, but does not correspond to a round number of ells. Pieces VIII and IX in their present state are $5.25 \text{ m}/5.23 \text{ m}$ ($17 \text{ ft } 3 \text{ in.}/17 \text{ ft } 2 \text{ in.}$) long, that is, about 3 m shorter than Piece III. It may therefore be concluded that about 3 m (9 ft 10 in.) has been lost from the end. This would provide space for the narrative to conclude, as has been almost universally supposed, with William the Conqueror's arrival at London and his coronation in Westminster Abbey. It may be suggested that the final section of the tapestry originally consisted of *three* strips each around 2.80 m (9 ft 2 in.) long, that is, the surviving Pieces VIII and IX and a putative lost Piece X. The diagram in [Figure 4](#) therefore shows a lost Piece X at the end.

It is now possible to calculate the original length of the Bayeux Tapestry ([Fig. 5](#)). Taking Pieces I-III as half its length ($35.75 \text{ m}/35.79 \text{ m} = 117 \text{ ft } 3\frac{1}{2} \text{ in.}/$



FIG. 6. The junction of Pieces III and IV of the Bayeux Tapestry
Detail of the Bayeux Tapestry — 11th century — with special permission from the City of Bayeux

117 ft 5 in.), the complete tapestry measured 71.50 m/71.58 m = 234 ft 7 in./234 ft 10 in.

The structure of the tapestry indicates that it was made in two equal halves. The two 90 ft strips (represented by Pieces I and II and Pieces IV–VII) could have been laid end-to-end for the first 180 ft, followed by smaller pieces to take it up to its full length. Instead, one of the 90 ft strips (Pieces I and II) was followed by one of the smaller pieces (Piece III) to take it up to the halfway point. The second half was then constructed in the same way, the only difference being that the 90 ft strip was cut into four (Pieces IV–VII), and the final section was divided probably into three (Pieces VIII–IX and the putative Piece X). This had obvious advantages. The designer and the embroiderers were evidently extremely skilled. All the same, ordering and controlling the execution of such a long piece of embroidery posed formidable challenges. Breaking it down into two equal halves made it more manageable, and cutting the linen cloth into smaller pieces in the second half was a sensible practical adjustment, since they would have been easier to handle. With the experience gained from the first half of the tapestry, the embroiderers should have been capable of working more confidently and quickly, and with less supervision. Cutting the final section into probably three short pieces would have enabled the largest possible number of embroiderers to work on it concurrently, perhaps with a view to completing it to a deadline. These are the kinds of adjustments that could be expected to be made in the course of creating such an enormous work of art. They are comparable to other changes which were introduced in the second half of the tapestry, such as the colours of the lettering and the type of stitching used to represent mail.¹¹

There were also changes to the way in which the different pieces were joined together. As is well known, there is an awkward junction between Pieces I and II. The upper border is misaligned, and the line representing the ground beneath the horses' hooves is left hanging in mid-air. Only at the bottom is the lower border embroidered across the join. It is generally supposed that a second team of embroiderers began work on Piece II while Piece I was still being made, and that there was insufficient communication between or control over the two teams. But the issue was not simply one of execution; it was partly one of design. A striking feature of the tapestry, and one of the reasons why the narrative frieze is so compelling, is the lack of gaps between the various episodes or scenes. In most cases, there are visual connections between them that draw the eye onwards from one to the next. Even where there are short

spaces between adjacent scenes, they are linked by figures pointing forwards or back, by a continuity of the ground or by lettering running through, which forms a visual as well as a verbal link. The junction between Pieces I and II is a rare case where there is a complete gap in the narrative within the borders. This suggests that Piece I was not only embroidered as a separate piece, but was also conceived by the designer as a discrete narrative and visual unit whose connection to Piece II had not been fully thought through. The visual caesura at this point is therefore a consequence of the design process as much as the execution of the embroidery.

The mistake was not repeated. The other joins display no obvious misalignments: in most cases they fall in the middle of scenes and are embroidered over. The designer was no longer conforming his design to the physical structure of the tapestry. But there is one joint that merits closer attention. At the junction of Pieces III and IV (Fig. 6) the borders run on through without any misalignment, and the thin curving line representing the ground does straddle the junction. But above that there is a visual caesura. It is not as marked as at the junction between Pieces I and II, and it is evident not so much in the gap between the figures as in the lettering. Uniquely on the tapestry, the three lines of lettering to the left of the junction are justified, like the letters on a page. This is contrary to the normal practice on the tapestry, where lettering usually concludes in an irregular manner, and often runs on beyond the end of the scene to which it refers. At the junction between Pieces III and IV there are no adjacent figures, trees or buildings that require the text to be laid out in this way. Instead, the lettering terminates in line with the figure underneath, just before the end of Piece III, and the next text starts immediately after the join, on Piece IV. The result is a combined textual and visual caesura which is the more striking for falling exactly at the halfway point of the tapestry.

It may be that the tapestry was not merely structured in two equal halves by the careful arrangement of the different pieces of linen, but was actually executed as two halves that were only joined together at this point after they had been embroidered. This could have been a useful practical expedient. But the gap in the design at the end of Piece III suggests that the halfway point was also used by the designer as a way of structuring the narrative. This could just have been a matter of his own convenience — as a way of mentally subdividing the narrative frieze into more manageable sections. It could also have been a subtle visual device to mark the halfway point of the tapestry.

INTENDED LOCATION AND NARRATIVE STRUCTURE

THE analysis of the dimensions and structure of the tapestry provides clues as to its intended location. It required a large building with uninterrupted hanging space for a continuous embroidered cloth some 71.50 m/71.58 m (= 234 ft 7 in./234 ft 10 in.) long. The way in which it was constructed in two halves of equal length would be consistent with it having been designed to fit a predetermined space in a symmetrical arrangement where the mid-point of the narrative was of some visual significance. The idea of a travelling picture show can in any case be dismissed on practical grounds. As with a modern travelling exhibition, flexibility and adaptability to different locations would have been essential. This means small, discrete units that could be arranged in different ways as the venue demanded. It is hard to think of anything less adaptable than the Bayeux Tapestry.

Among the specific locations which have been proposed, prior consideration must be given to Bayeux cathedral. How might it have been displayed there? There has been

surprisingly little discussion of this question. It would be useful to know how the tapestry was displayed in the 18th century, but none of the antiquarian sources gives any particulars; nor do there appear to be any illustrations of it *in situ*. In recent times replicas have been exhibited in the nave on more than one occasion. In 2005 one was hung eastwards along the north arcade, across the opening of the western arch of the crossing, and back along the south arcade — with the narrative starting, in other words, towards the west end of the north side, and concluding towards the west end of the south side. On an earlier occasion a replica was hung the other way around, starting towards the eastern end of the south nave arcade, then running across between the west responds of the two arcades (level with the eastern face of the western towers), and back along the north side. In each case, the transverse section across the width of the nave was suspended in mid-air and looked completely anomalous.¹² Furthermore, even when reconstructed to its original length, it would not have been long enough to extend the full length of the nave arcades. In short, not a good fit. However, the nave of Bayeux is not as it was in the 11th century: the existing structure is entirely of later date. To address the question properly, we need to go back to the cathedral as it was in the second half of the 11th century.

The architectural history of Bayeux cathedral is complex and not fully understood.¹³ The greater part of the visible fabric is of 13th-century date and later, and is relatively unproblematic (Fig. 7). Not so the earlier work. The elaborately decorated Romanesque nave arcades (which support early Gothic upper storeys) date to the 12th century (Fig. 8), but it has proven very difficult to reconcile their stylistic characteristics with the documentary sources. Of the 11th-century fabric all that can now be seen is the crypt, to the east of the crossing, and the massive western towers. Fortunately, major engineering works carried out between 1855 and 1859 to avert the collapse of the central tower uncovered extensive remains of the 11th-century crossing piers concealed beneath later masonry. The first pair of nave arcade piers to the west of the crossing were also found partly surviving within and beneath the 12th-century arcade piers.¹⁴ Thus enough is known to reconstruct the basic elements of the plan (Fig. 9).

The 11th-century cathedral was essentially the work of Bishop Odo of Bayeux (1049–97), William the Conqueror's half-brother, though some sources attribute the start of the building to the time of Odo's predecessor, Bishop Hugh (d. 1049). This is consistent with the style of the capitals. Those in the crypt have been dated to no later than the middle of the century; the impressive figurative capitals from the crossing have been placed in the 1050s; while the ones in the western towers are later. This suggests a standard east-to-west building campaign starting at the east end under Bishop Hugh. What is certain is that the cathedral was consecrated in the presence of William the Conqueror on 14 July 1077.¹⁵

Further elements of the 11th-century cathedral can be deduced from the surviving fabric and from documentary sources.¹⁶ At the west end, the two 11th-century towers are separated by later masonry. Inside the west doorway there is a two-bay atrium that occupies the space between the western towers. Its side walls correspond to the lower storeys of the 11th-century towers, but are faced in Gothic masonry supporting a double bay of quadripartite vaults (Fig. 8). On its east side, the Gothic atrium opens straight onto the central span of the nave, of which it forms a westward continuation. However, the 11th-century arrangement was quite different. Originally, the western towers were linked not just by the 11th-century façade wall, but by a wall which ran north–south on the line of the east sides of the towers. The 11th-century atrium was thus enclosed on all four sides. It would presumably have had a central doorway on its

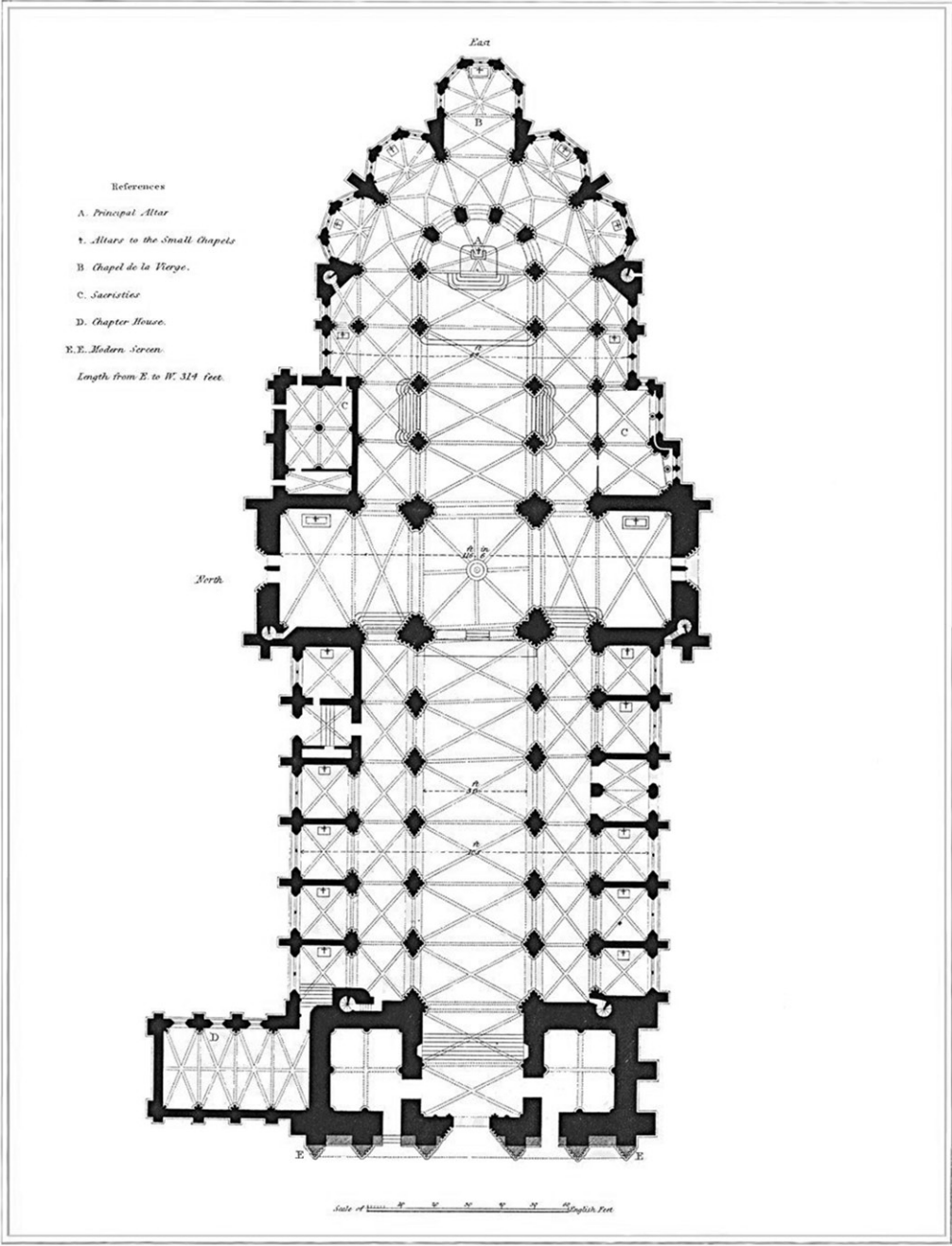


FIG. 7. Plan of Bayeux cathedral (Britton 1828, pl. I)
Image courtesy of Borthwick Institute for Archives, University of York

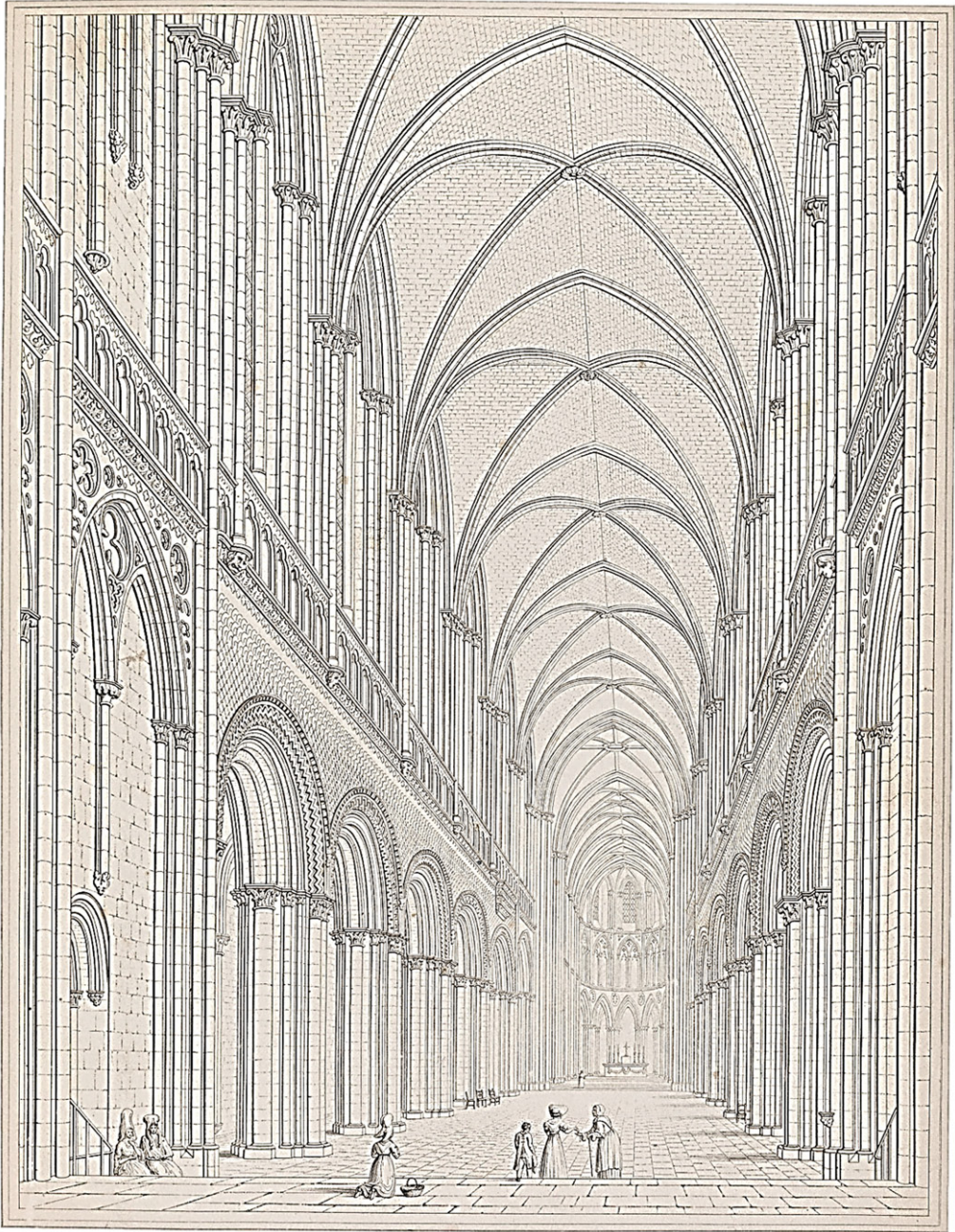


FIG. 8. The nave of Bayeux cathedral in the early 19th century, looking east (Britton 1828, pl. VIII). The choir screen, which appears on Britton's plan (Fig. 7) is not shown

Image courtesy of Borthwick Institute for Archives, University of York

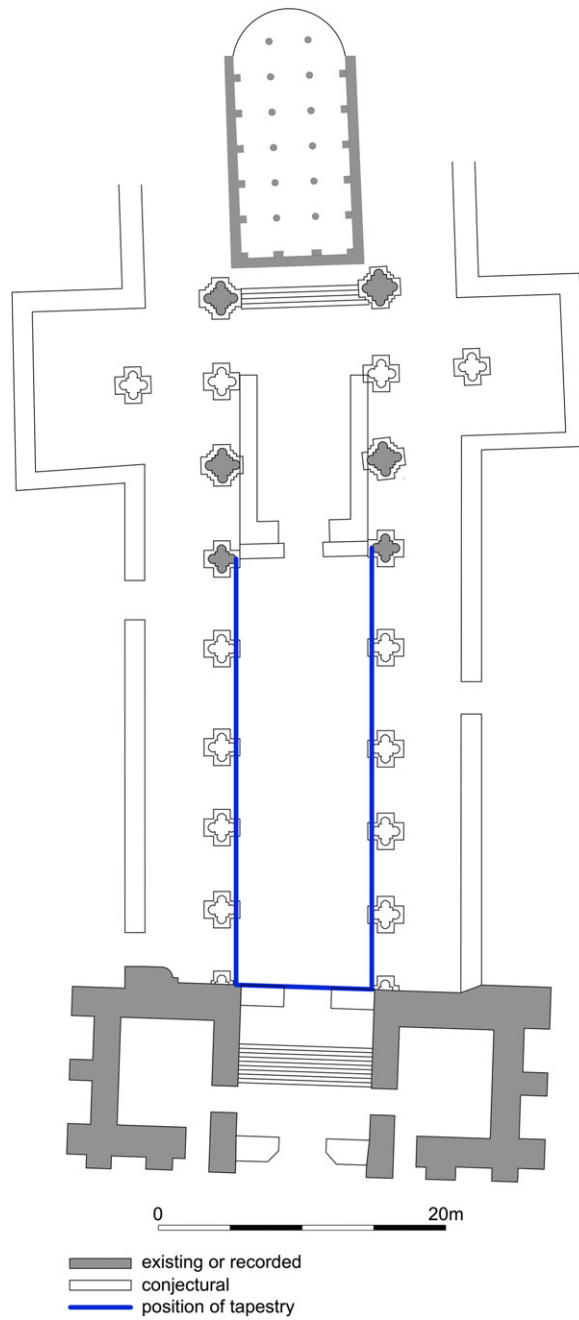


FIG. 9. Reconstructed plan of Bayeux cathedral in the late 11th century (based on Valléry-Radot 1923 and 1958)

Drawing by Stuart Harrison

North Side	East	South Side
5.01 m	Bay 1	4.99 m
	Choir Screen	
6.27 m	Bay 2	6.94 m
6.88 m	Bay 3	7.07 m
5.62 m	Bay 4	5.77 m
5.73 m	Bay 5	5.79 m
5.57 m	Bay 6	5.60 m
	West	

FIG. 10. Table of bay widths of the nave of Bayeux cathedral

eastern side opening into the nave, while lateral doorways opened into the chambers at the base of the two towers. It was also much lower. Above it was a first-floor gallery or tribune that would probably have had a broad opening on its eastern side looking down into the nave, rather like the tribune at Jumièges. The tribune was accessed from the first-floor chambers in the towers, from each of which doorways also opened eastwards into the galleries or tribunes which ran along above the nave aisle vaults. There were no openings between the ground-floor chambers beneath the towers and the nave aisles. This was a consequence, in part at least, of the difference in floor levels between the west façade and the nave. The ground drops away sharply from west to east underneath the cathedral. The western half of the atrium and the ground-floor tower chambers are at street level, whereas the eastern half of the atrium contains a flight of six steps down to the level of the nave. The arrangement of the steps within the atrium has changed over the centuries. The 11th-century nave floor was significantly lower than the pavement of the 12th-century nave, so there would have been many more steps. Consequently, the atrium would have been even more clearly differentiated from the nave, and it would have been very difficult to link the ground-floor tower chambers to the nave aisles. In short, the twin-towered west front was conceived as a distinct part of the building, separate from the nave.

It was presumably the raising of the nave floor in the 12th century that preserved the remains of the 11th-century arcade piers discovered in the 1850s beneath or within the easternmost piers of the 12th-century arcades. The 11th-century nave piers were less substantial than their 12th-century successors. They consisted of a simple square core with a single attached shaft on each side. The

inner faces of the piers aligned with the inner faces of the 12th-century piers, so the internal span of the 11th-century nave was the same as now, namely c. 9.25 m. It is presumed that the other 12th-century arcade piers also perpetuate the positions of their 11th-century predecessors. The bays of the 12th-century arcade are of varying widths (Fig. 10), another feature presumably inherited from the 11th-century cathedral, whose plan is notably irregular. The design of the gallery can be reconstructed, but the clerestory is speculative (Fig. 11).

Thus the 11th-century nave was of six bays, extending from the east side of the atrium as far as the crossing. As well as the western entrance from the atrium, there were apparently three other doorways. In the third bay of the nave from the crossing there is a double doorway in the south aisle wall with a large vaulted porch beyond, which opens onto the exterior through an outer double doorway. This porch dates to c. 1200 and was originally free-standing, until the south nave aisle chapels were constructed alongside it in the second half of the 13th century. The porch gave access to the cemetery of Saint-Sauveur, which lay immediately to the south of the cathedral, and it faced the entrance to the deanery beyond.¹⁷ Liturgically, it was the most important doorway into the cathedral after the west doorway. It was here, for instance, that the Palm Sunday procession re-entered the cathedral. The widest bay of the 12th-century arcade, namely the third bay of the south arcade, is immediately opposite the porch, suggesting that an entrance already existed here before the porch was constructed. This arrangement probably derives from Odo's cathedral. The 11th-century nave replaced an ancient church of Saint-Sauveur, which probably helps to explain the misalignments in the building. The parish of Saint-Sauveur had an altar of Saint-Sauveur in the nave, and had parochial rights there. It is likely that access from the nave to the cemetery of Saint-Sauveur would have been provided from the outset, and therefore that there was already a south doorway in the third bay of the nave from the 11th century.

There were two doorways in the north nave aisle wall opening onto the cloister. The cathedral cloister is attested as early as the late 11th century.¹⁸ Its layout differed from that of a standard monastic cloister. The south walk lay along the north nave aisle wall, and was subsequently destroyed when the north aisle chapels were constructed in the 14th century. The chapter-house occupied the part of the west range closest to the north-west tower, with its entrance at the south-west corner of the cloister. This could be reached along the south cloister walk, or via a doorway in the westernmost bay of the north nave aisle. Originally, the chapter-house was on the ground floor, but it was later rebuilt as a first-floor room over an undercroft, and in due course access was provided via a staircase up from the westernmost chapel on the north side of the nave (Fig. 7). The bishop's palace was situated from the time of Odo at the north-east angle of the cloister. From there, the east claustral walk led back to the cathedral. However, instead of adjoining the west wall of the north transept in the normal way, it was one bay further west. When the side-chapels were added to the north aisle of the nave in the 14th century, a doorway was made in the second chapel from the east opening into the east walk of the cloister. This presumably perpetuated an earlier arrangement. Bishop Odo is said to have built a tower by the north door of the cathedral to house relics. The easternmost chapel on the north side of the nave may perpetuate the memory of this tower, since it consisted, unusually, of a first-floor chapel raised over a vaulted ground-floor chamber.¹⁹

How might the tapestry have been displayed in the 11th-century nave? The transverse wall that divided the nave from the atrium would have provided a means of hanging it

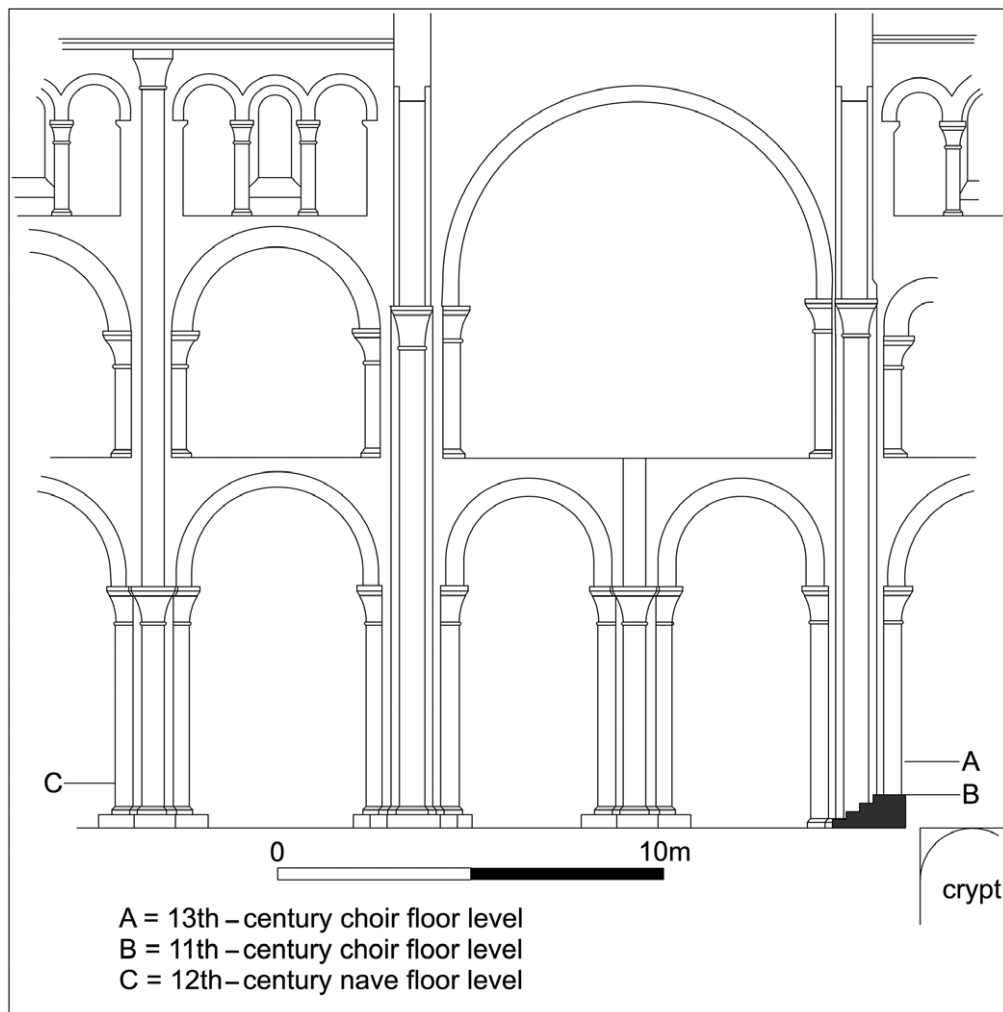


FIG. 11. Reconstructed elevation of the north side of the crossing and the adjacent portions of the nave and choir of the 11th-century cathedral at Bayeux (based on de Dion and Lasvignes 1861 and Liess 1967, [fig. 1](#))
Drawing by Stuart Harrison

across the central span of the building. The east face of this wall would have been about 36 m from the east end of the nave. Thus, for the tapestry to have extended the whole of the north, west and south sides of the nave, it would have had to have been about 81.25 m long — about 10 m more than its original length. However, the architectural nave was not the same as the liturgical nave. Until the 1850s, the pulpitum or choir screen was underneath the western arch of the crossing, and the choir-stalls extended from there to the east side of the first bay east of the crossing. The stone choir screen which would have been known to the 18th-century antiquarians had been built in 1700.

It replaced an earlier, wooden screen constructed in 1578 following the sacking of the cathedral and its treasures by the Protestants in 1562. This in turn had replaced an earlier, stone screen.²⁰ Documents from the mid-13th century onwards attest to the fact that the central tower was above the choir. However, this does not prove that the choir screen was always located underneath the western crossing arch,²¹ and there is evidence in the fabric that the screen cannot have been in that position in the 11th century.

The 1855–59 underpinning works around the central tower revealed that the floor of the 11th-century nave and crossing had been about 1.1 m lower than the floor of the 12th-century nave. The original floor was level with the *intrados* of the vaults of the 11th-century crypt east of the crossing (Fig. 11). The floor level above the crypt must therefore have been higher, and there must have been steps up to it beneath the eastern arch of the crossing.²² It would therefore have been impossible for the 11th-century choir-stalls to have run through from the crossing into the first bay of the eastern arm, as was subsequently the case. Instead, they must have extended westwards into the nave, as was normal in 11th-century great churches. The stalls would have occupied the east end of the nave and the western part of the crossing, leaving room for upper choir doorways into the north and south transepts before the steps up into the eastern arm. A choir screen on the line of the first pair of piers of the nave arcade would have allowed sufficient space for the 11th-century chapter, and a choir entrance at this point would have enabled the bishop and clergy to enter via the east cloister doorway in the second bay of the north nave aisle and turn left directly into the choir (Fig. 9). There is some evidence for this in the later fabric. In the elaborately patterned 12th-century masonry above the easternmost pier of the north nave arcade are two filled-in slots that have no parallel further west. These slots suggest the former existence of a transverse wooden beam of the type that would have supported a crucifix above the entrance to the choir. This would indicate that the choir screen was in this position after the nave floor had been raised in the 12th century.²³ The equivalent masonry above the south arcade pier was rebuilt in the mid-19th century, so any evidence that might have existed at this point has been lost. The easternmost bay of the nave on both sides was rebuilt in the 1850s to match the 12th-century Romanesque arcades in the rest of the nave, but prior to this the bays next to the crossing were of early 13th-century style and date, similar to the refaced crossing piers and the choir arcades. The architectural change in the easternmost bay of the nave may have been an echo of the liturgical division which once existed at this point.

All the evidence therefore points to the fact that in the 11th century the choir screen must have been situated one bay west of the crossing. A choir screen at this point would have changed the proportions of the nave. Measuring along the south side, the distance from the centre of the first 11th-century pier west of the crossing (uncovered in 1855–59) to the end of the south arcade is 31.17 m. Adding half the width of the span of the nave (4.63 m) gives 35.80 m. The length of Pieces I–III is 35.75 m/35.79 m (Fig. 3). So, starting at the south end of the screen, the first half of the tapestry would terminate at the doorway in the centre of the west wall. The second half would carry on round to the north end of the choir screen, c. 71.50 m/71.58 m from its start. In short, the tapestry would fit neatly into three sides of the rectangle formed by the five bays of the nave between the west wall and the choir screen.²⁴

The height at which the tapestry would have been hung can only be guessed. It must have been above head height, or it would have prevented circulation between the nave and the aisles and would have obstructed the entrance from the atrium. From an architectural point of view, the most appropriate level at which to hang it would have been along the continuous section of masonry between the tops of the nave arcade arches and

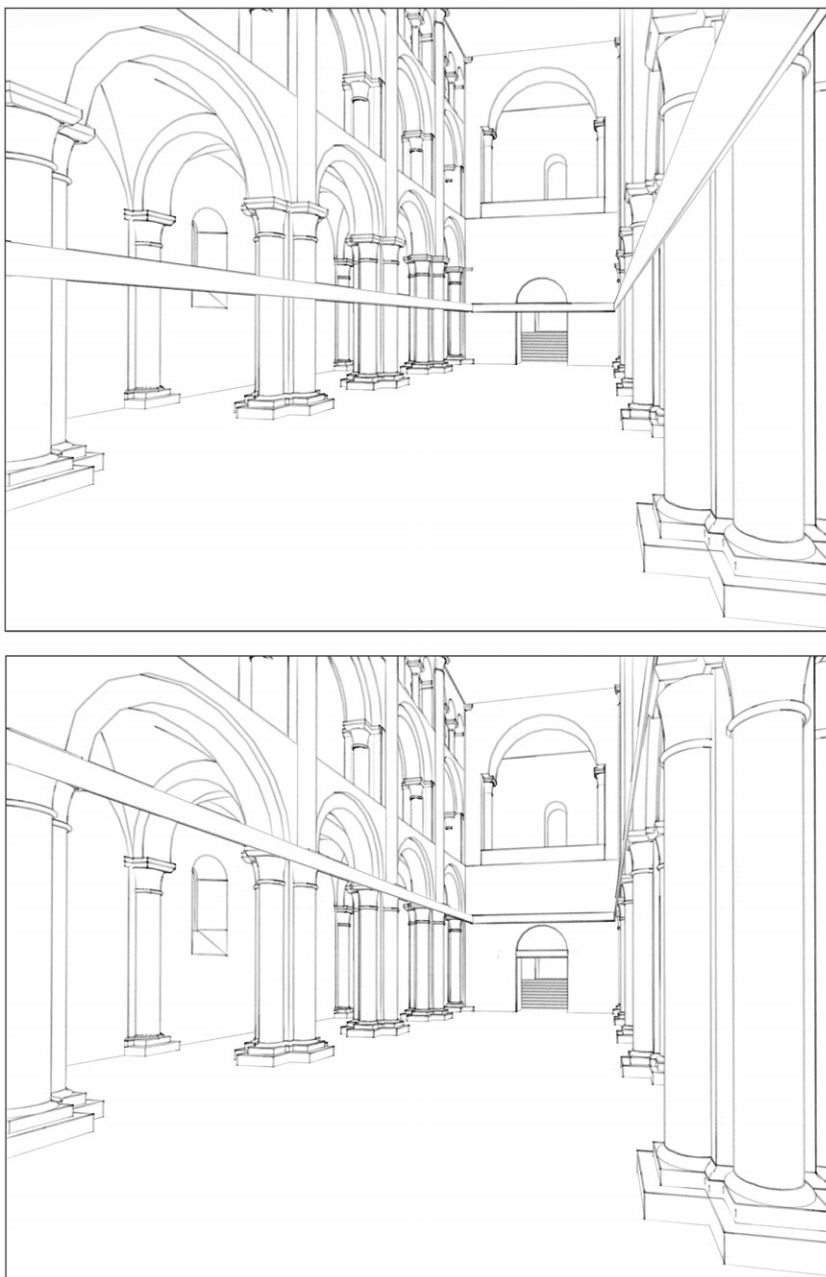


FIG. 12. Reconstruction views showing the tapestry hanging at different heights in the 11th-century nave of Bayeux cathedral. The view is taken from the north end of the choir screen, looking west

Drawing by Stuart Harrison

the base of the gallery (Fig. 11). The galleries would have facilitated hanging it from this level. The base of the galleries was about 9.65 m above the 11th-century floor level. At this height, the details of the embroidery would not have been visible, and the inscription would have been at the limit of legibility. On the other hand, medieval cathedrals are full of paintings, sculptures and stained glass placed at a level where their details are invisible and their inscriptions illegible, so this possibility cannot be excluded.

Alternatively, the tapestry could have been set at the level of the capitals of the arcade piers. The abaci would have provided a convenient means of support for rails or cords from which the tapestry could have been hung in front of the capitals and shafts. The tops of the 11th-century capitals were about 6.10 m above floor level. At this height the details would have been difficult to make out, but the inscriptions would have been legible. Or the tapestry could have been hung part-way down the arcade piers, at a height of perhaps around 3 m, which is the level at which replicas have been hung in recent decades. This would have been much the easiest height for a sustained viewing of the tapestry.²⁵ It is also the one that is least satisfactory from an architectural perspective, but as the building was designed long before the tapestry was thought of, this is not a serious objection. Figure 12 shows how the tapestry might have looked at the two lower levels. Of course, it may have been hung at different levels at different times.

A diagram of the layout of the tapestry in the nave (Fig. 13) makes clear that the narrative is structured to fit the three sides of the rectangle. The long southern side presents the political background to the invasion, bookended by King Edward on his throne at the start, and by Harold teetering on the throne at the other end. The English ship that brings the news to William at the west end of the south arcade makes the transition to the western return. The north–south section across the width of the nave starts with the decisive moment when William gives the order to build the ships (Fig. 14). The preparations for the expedition continue to the halfway point. The second half begins immediately above the entrance arch as William leads his troops into the boats and sets sail for England. This point is marked by the visual caesura between Pieces III and IV discussed above, and it is emphasised by the cross at the very centre of the tapestry (one of just two such crosses in the entire inscription), which prefaces the words *HIC WILLEM DUX*. The designer has carefully placed the image of William embarking for the invasion over the west doorway, which thus becomes a sort of triumphal arch. The north–south section across the west wall ends with the landing at Pevensey. Thus the physical crossing from one side of the nave to the other corresponds to the narrative crossing of the invasion from Normandy to England. The long northern side of the rectangle is entirely devoted to the course of the invasion. It starts with the word *HESTINGA*, and the first appearance of William sees him seated in state as the rightful claimant to the throne of England, flanked by his half-brothers, Bishop Odo and Count Robert. After the long battle sequence culminating in the death of Harold, the very last scene (now lost) would, it is generally agreed, have shown William as the crowned king of England, directly facing Edward the Confessor on his throne on the opposite side of the nave.

The spectator standing in the nave would have viewed the long, continuous frieze of the tapestry against the background of the nave arcades. On closer inspection, it can be seen that the designer has used the bay spacings to help structure and give rhythm to the narrative on the long sides. The easternmost bay on the south side, as we have seen, was beyond the choir screen, and the tapestry started at the first pier, so the story began in Bay 2 (architecturally speaking) with the seated figure of Edward the Confessor, who forms a kind of preface to the entire narrative. The rest of Bay 2 is designed in three sections that are arranged symmetrically (Fig. 15). Firstly, Harold, his men and his dogs

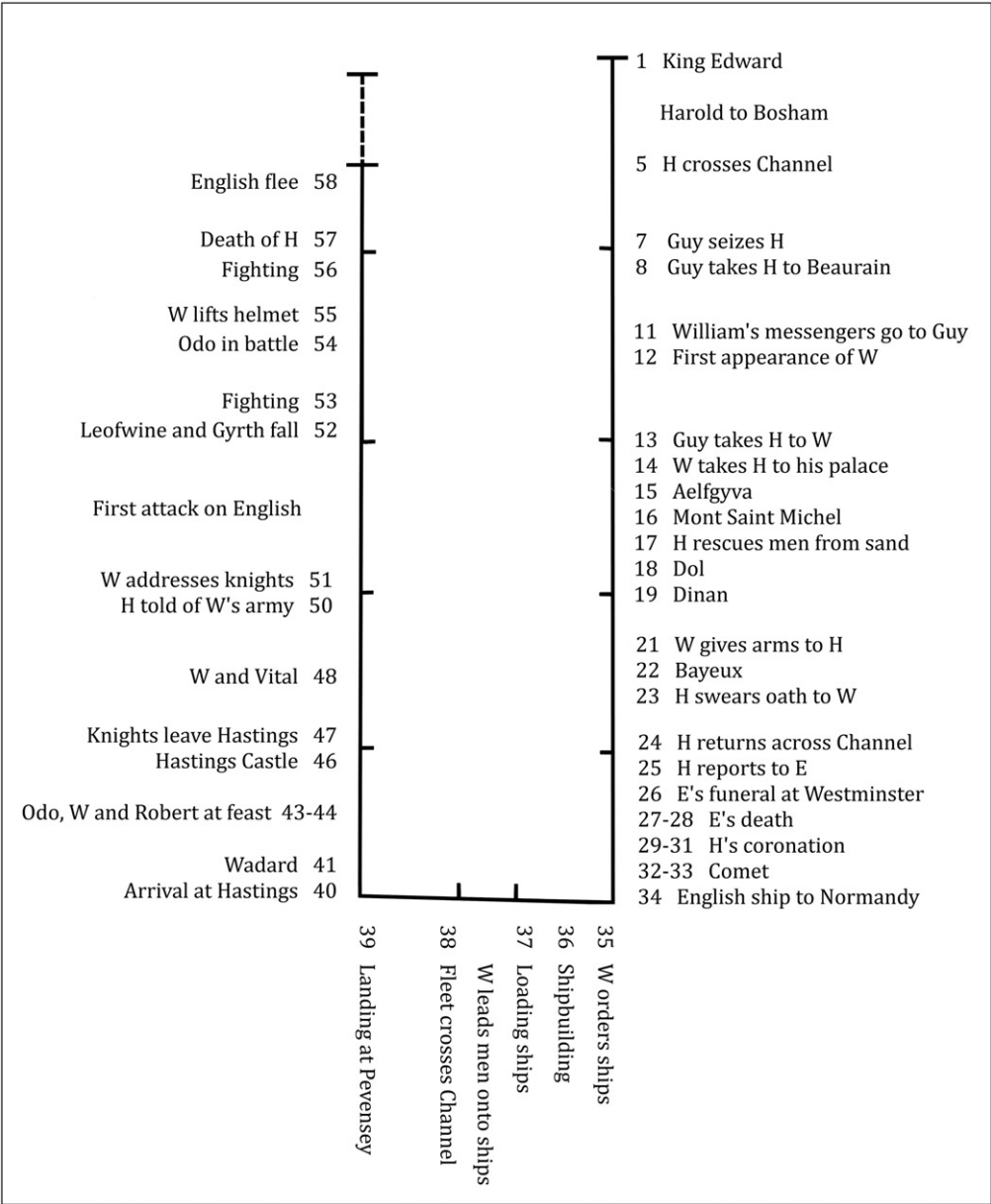


FIG. 13. Diagram of the layout of the Bayeux Tapestry as originally displayed in the nave of the cathedral

ride down to the coast, their arrival marked by the word BOSHAM placed above a tree. The central section contains the preparations for the sea voyage and the actual crossing. The third section shows Count Guy of Ponthieu riding out to seize Harold, his company



FIG. 14. The north-south section of the tapestry across the west wall of the nave
Detail of the Bayeux Tapestry — 11th century — with special permission from the City of Bayeux

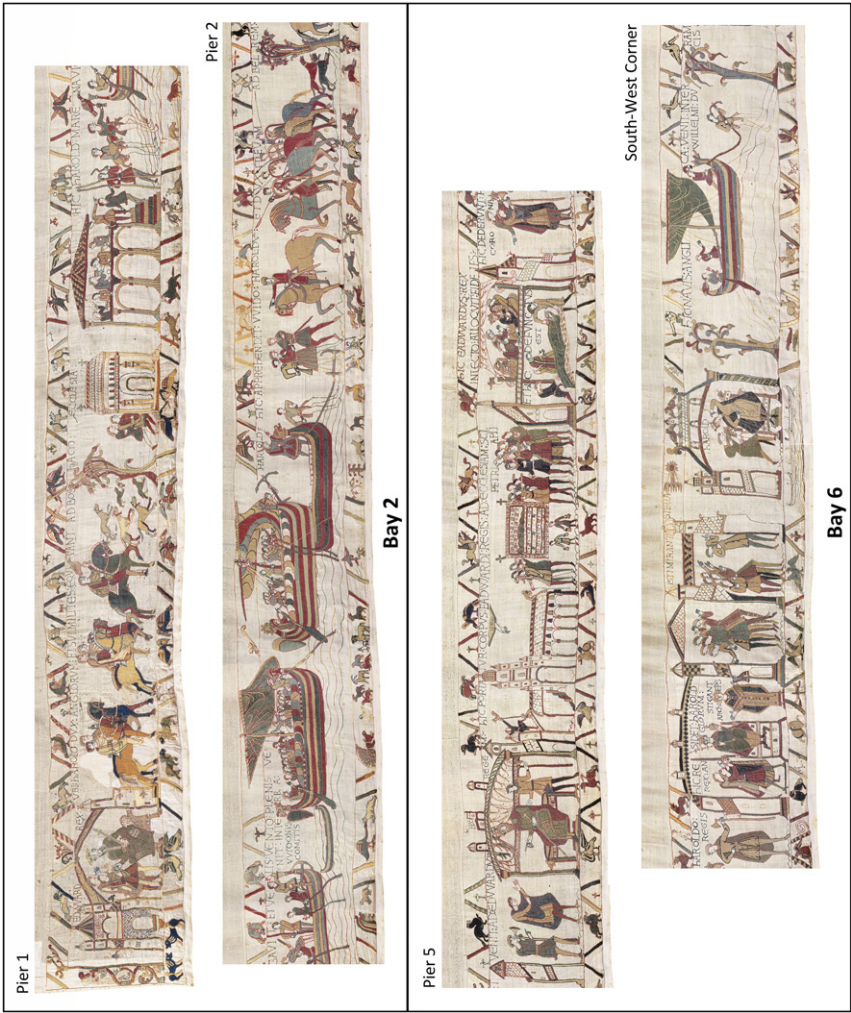


FIG. 15. Bays 2 and 6 of the tapestry on the south side of the nave
Detail of the Bayeux Tapestry — 11th century — with special permission from the City of Bayeux

moving right to left, mirroring Harold's journey to the coast at the start of the bay. Bay 2 ends with the tree surmounted by the word BELREM. The words of the inscription and the left-to-right movement of the two dogs to the left of the tree lead the eye on to the start of Bay 3. Thus the designer has used the layout of the episodes and the words of the inscription to subtly reflect the symmetrical form of the arcade arch, while keeping the narrative flowing onwards from left to right.

Bay 3 shows a similar constructional technique. The initial group of Guy and his men leading Harold away mirrors the grouping at the end of Bay 2 where Guy and his men seized Harold; but it also mirrors the end of Bay 3, which is marked by another tree (at the start of Piece II) preceded by the group of William and his men riding to the left to meet up with Guy and Harold. The middle section of Bay 3 is taken up with the communications between Guy and William, which preceded Harold's hand-over to William. This is one of the places in the tapestry where the narrative apparently goes 'into reverse'. These have caused quite unnecessary difficulty, partly as a result of looking at the scenes separately, in isolation. Seen from further back, as a group, they present little difficulty. They can be understood as a visual equivalent of the use of the pluperfect tense in a verbal narrative. Thus, the story might be said to run something as follows:

Guy took Harold to Beaurain and held discussions with him there. Messengers from Duke William then arrived to speak to Guy. They had been sent post-haste by William after the news had reached him of Harold's arrival in Ponthieu. Consequently, Guy took Harold and handed him over to William.

Arranging the scenes in this way has the effect of emphasising William's role as the prime mover in the story. In one direction, he sends his messengers to Guy. In the other direction, it is his intervention which makes Guy hand over Harold. Furthermore, by arranging the scenes in this order, the designer has further underlined the importance of Duke William. William has not so far been represented in the tapestry. Placing the two scenes with the NVNTII WILLELMI before William himself appeared is the visual equivalent of a fanfare announcing the imminent appearance of the great man. The significance of this scene is reinforced in two other ways. The text accompanying William's first appearance, † HIC VENIT NVNTIVS AD WILGELMVM DVCEM, is the only one that starts with a cross, apart from the text accompanying the scene of William embarking above the west doorway, mentioned above. And these three scenes of William's messengers and his own first appearance are placed in the centre of Bay 3, immediately in front of the south nave doorway, where they would have been seen by anyone exiting the nave at this point.

Bays 4 and 5 are given over to Harold's time in France with William. Bay 4, like Bay 3, begins with a group of horsemen who mirror the similar group moving leftwards at the end of Bay 3, the two groups being separated by the tree which corresponds to the bay division. Thereafter the narrative in Bay 4 moves seamlessly from left to right, past the conference at Rouen and the Aelfgyva scene into the Breton campaign. This continues past the next bay division, which falls at the image of Rennes, into Bay 5. Here the designer gives us a scene that is both centrally planned and also moves the narrative forward. Dinan, in the middle, is besieged by attacking Norman knights on the left and by a slowly moving group on the right who take the surrender. The Breton campaign shows to the spectator — and, within the narrative itself, to Harold — the military prowess that was the fundamental basis of William's power.

There then follow three crucial scenes that complete Harold's stay in France: William giving arms to Harold, taking him to Bayeux and receiving the oath from him. Historians, comparing these scenes to the written sources, have worried about whether the giving of arms took place before or after the Breton campaign, and whether the oath-giving took place at Bayeux or somewhere else. But the designer is less concerned with chronological and topographical exactitude. By grouping these scenes together, he is, as it were, summarising the political consequences of Harold's expedition to France. The giving of arms symbolised Harold's subordination to William. Bayeux was the place where Guy of Ponthieu had been held captive for two years after William's decisive victory at the Battle of Mortemer in 1054. From the time he gained his release in 1056, Guy was effectively William's vassal. Harold's stay in Bayeux culminated in his swearing the oath to William. Immediately after this, according to the tapestry, he was able to sail back *AD ANGLICAM TERRAM*. His return to England marks the end of Bay 5.

The last bay on the south side contains the dense sequence of scenes between Harold's return and his unsteady appearance on the throne after the sighting of the comet (Fig. 15). This includes the much-discussed sequence where the narrative apparently goes into reverse, depicting King Edward's burial before his death. Once again, this can be understood as a visual equivalent of the pluperfect tense. In verbal form, the story can be summarised thus:

Harold, on his return to England, reported back to King Edward. Soon after, Edward died and was buried in Westminster Abbey. On his deathbed, he had relayed his last wishes to his family and closest advisors. Harold was then offered the crown ...

The deathbed scene and the coronation scenes, which come in the centre of Bay 6, are thus emphasised as a crucial point in the narrative. With Edward's death, one part of the story comes to an end, and the fateful decision to give the crown to Harold starts the next one. Bay 6, like Bay 5, concludes with a ship crossing the Channel, this time bringing news of events to William in Normandy. Past the tree at the corner, William, at the start of the transverse west wall, makes the fateful decision to launch the invasion.

We can pass more rapidly along the north side. The narrative here is much less episodic than the south side, covering as it does just a few months late in the year 1066, and focusing largely on the events of the battle itself. The westernmost bay, Bay 6, depicts the establishment of William's army in England (Fig. 16). The initial sequence, showing the knights riding inland from Pevensey, the provision of supplies and the feast, mirrors the start of the narrative at the far end of the south side, where Harold rides down to the coast with his men and holds a feast at Bosham. But now it is William in command. He appears for the first time on English soil after the feast scene, seated in state between Bishop Odo and Robert of Mortain. These two scenes occupy the middle of the bay, over the western cloister doorway. They are positioned opposite the death of Edward the Confessor, and form a mocking counterpoint to the adjacent image of Harold crowned, flanked by Archbishop Stigand and the English nobles. Bay 6 ends with the construction of a castle at Hastings and the first intelligence about Harold's movements.

The battle sequence begins in Bay 5 with the knights moving out from Hastings *AD PRELIVM CONTRA HAROLDVM*. From here on the narrative is much more fluid,



FIG. 16. Bays 6 and 2 of the tapestry on the north side of the nave *Detail of the Bayeux Tapestry* — 11th century — with special permission from the City of Bayeux

the various incidents of the day running on from one to the other. Here the designer uses different devices to pace the narrative. The left-to-right progression of the Norman knights, accelerating in pace from standing to full gallop, conveys the increasing urgency of the moment as they approach the enemy. Once battle is joined, various incidents are highlighted in centrally planned scenes where groups of standing Anglo-Saxon warriors are attacked from both sides by mounted Norman knights. The famous episode where Odo urges on the lads, staff in hand, and William raises his helmet to show he is still alive, is placed in the middle of Bay 3, opposite the south nave doorway, where it would have caught the eye of anyone entering the cathedral from this side. The fighting carries on uninterrupted to the right, but it is immediately after the pier dividing Bay 3 from Bay 2 that there comes the climactic scene of the death of Harold (Fig. 16).

Here above all, as indeed throughout the tapestry, it is important to be able to stand back and take in the scene as a whole. The designer has conceived it once again as a self-contained, centrally planned unit. From left and right, Norman knights attack on horseback. Harold's bodyguards stand and face them, and fall, in two groups on either side of the central image, which shows a single Norman knight hacking down a single Anglo-Saxon. This is the focus of the scene. This is the death of Harold. The wording of the inscription confirms it. The key words are not HAROLD REX, to either side of the bodyguard with the restored arrow in the eye, but INTERFECTVS EST, placed immediately above the falling figure. The arrow in the eye (if indeed it is correctly restored) is a red herring. Bay 2 would have ended with William's triumph and coronation. Facing the enthroned figure of Edward the Confessor at the south end of the choir screen, the final scenes formed the natural culmination of the narrative. Bishop Odo, one may presume, would have reappeared at this point, where he and King William would have been seen by the bishop and clergy as they came out of the choir and turned right to leave the cathedral via the east cloister doorway.

It is thus clear that the narrative not only fits the three sides of the rectangle, but also reflects the rhythm of the nave arcades. This can hardly be a coincidence. The designer must have been aware not just of the overall dimensions of the nave, but of the widths of the individual bays. These vary along the length of the two arcades by as much as 1.50 m (Fig. 10), so the correspondence between the bay widths and the spacing of the visual narrative is all the more striking. In addition, some of the most significant scenes have been positioned to take account of the four doorways in the nave. There could hardly be a clearer demonstration that the tapestry was designed for this position.²⁶ In short, both the physical structure and the narrative structure of the tapestry were arranged to fit the nave of Bayeux cathedral. There is no need to look any further for its intended location.

LITURGICAL CONTINUITY AT BAYEUX CATHEDRAL

IN 1476 an inventory was made of the treasures of Bayeux cathedral. It was divided into six sections. The first two listed the jewels, precious ornaments and reliquaries kept on and around the high altar and in the treasury. The next two listed the precious vestments and the more ordinary vestments. The fifth listed the hangings, carpets, altar cloths and other such items, and the last recorded the office books and study books held in the cathedral. The Bayeux Tapestry appears in the fifth section:

Item, une tente très-longue et estroicte de telle à broderie de ymages et escripteaulx, faisans représentation du conquest d'Angleterre, laquelle est tendue environ la nef de l'église le jour et par les octaves des Reliques.

Item, a very long and narrow hanging of embroidered cloth with images and inscriptions depicting the conquest of England, which is hung around the nave of the church on the day and during the octave of the Feast of the Relics.²⁷

Like other fabrics in the inventory, it is identified by its materials and subject matter, and by its liturgical function. The tapestry, in other words, functioned as an ecclesiastical ornament whose display was determined by the liturgical calendar.²⁸ The Feast of the Relics was on 1 July, and its octave fell on 8 July. The inventory is not a liturgical handbook, so the mention of its liturgical function is simply a means of identification: it is not a precise instruction for its liturgical usage. Since the tapestry would have been tricky and time-consuming to hang and dismount, it may have been displayed for some days before and after the feast in question. In the 18th century, it was sometimes referred to as *La Toile de Saint-Jean*. Ducarel, the visiting antiquary, recorded that it was displayed on the Feast of Saint John the Baptist (24 June) and for the week following (which would include the Feast of the Relics), while Béziers, the local historian, stated that it went up on the Feast of Saint John and remained in position until the Feast of the Dedication (14 July).²⁹ This could have been a precise continuation of a practice extending back to the 15th century; but, even if the exact dates of its hanging had changed over the centuries, the fundamental practice had not.

Bayeux cathedral was extremely conservative in its liturgical traditions. In spite of the sacking of the cathedral and the destruction of most of its medieval treasures by the Protestants in 1562; in spite of the changes introduced during the Counter-Reformation and the 17th and 18th centuries (when most cathedrals abandoned much of their medieval practices); in spite even of the hiatus brought about by the French Revolution, it was the proud claim of Bayeux cathedral even at the end of the 19th century that it had preserved its medieval ritual fundamentally unchanged.³⁰ The continued display of the tapestry around the time of the Feast of the Relics right up until the Revolution is therefore merely one aspect of a much wider traditionalism, one which went back long before the time of the 1476 inventory.

In places the 1476 inventory cites an earlier (now lost) inventory that had been made in 1369.³¹ This earlier inventory, however, only seems to have included the relics, jewels and ornaments listed at the start of the 1476 inventory. It would not, therefore, have mentioned the tapestry. However, the liturgical rites current in the 15th century and for centuries thereafter were in essence identical to those set down in two very important 13th-century texts. One is a Customary that was compiled by a canon of Bayeux, Raoul Langevin, in 1269. The other is an Ordinal written sometime during the preceding forty years.³² Between them, these give an exceptionally full picture of the liturgical life of the cathedral in the centuries following its reconstruction in the early 13th century. But they also refer back to even earlier times. They were not written as blueprints for new arrangements but as codifications of existing practices. Langevin states explicitly that he wanted to set down in writing the traditional practices of the church of Bayeux, using older written sources where possible. In places, there are references back to the time of Bishop Odo and William the Conqueror, while parts of the liturgical texts can be traced back to sources from the Carolingian period or even earlier.³³ In broad outline, at least,

the Ordinal and Customary may be taken as credible evidence for liturgical practice at Bayeux in the 12th and later 11th centuries.

The Ordinal and Customary are written from the perspective of the senior cathedral clergy. The focus is on liturgical texts and music, movements and gestures, lights and incense, organs and bells. The physical setting is taken for granted, and the liturgical vessels and ornaments, vestments and hangings, are mentioned only in passing. They are not enumerated, as in the 1476 inventory. The day-to-day use of such items was the province of the lesser clergy, the sacristans and other officials, and knowledge of the practicalities as to when and how to hang the textiles, for instance, would have been learnt in the doing and passed on by word of mouth. It is no surprise, therefore, that the Bayeux Tapestry is not specifically mentioned.

The majority of the services and liturgical ceremonies described in the Ordinal and Customary took place east of the choir screen, where the laity were not normally granted access.³⁴ But the nave was also in regular use. Every day, the martyrology, necrology and prayers for the dead were read in the chapter-house, which the clergy would have reached via the east or west cloister doorways. On major feast days, processions would pass through the nave, where there were three standard stations, one at the west end, one in the centre and one in front of the choir screen. Both the Feast of the Relics and the Feast of the Dedication were counted among the principal feasts, on a par with Ascension, Pentecost and the Feast of the Assumption. Some of the processions are explicitly traced back to the time of Odo, who was remembered as having gained papal indulgences for those who attended.³⁵ On special feast days Odo's magnificent chandelier, known as the great corona, was lit. It was suspended from above, just to the west of the choir screen. It held ninety-six candles and was adorned with images of the Agnus Dei, twelve apostles and prophets, and the twenty-four elders of the Apocalypse, and these were accompanied by a lengthy Latin verse inscription.³⁶ So rare and precious was the chandelier, and so costly to light, that it had special endowments of its own. One of these, documented from c. 1190, was specifically allocated to lighting the great corona on the Feast of the Relics. On that day, also, Odo's magnificent reliquary of Saint Ravenius and Saint Rasiphus was processed around the cathedral, and it was the tradition for the dean to host a dinner for the canons and clergy on that day, which would have helped to ensure a good turnout.

The corona would have illuminated the great crucifix that stood over the entrance through the choir screen. A crucifix in this position was a common feature of medieval cathedrals, but it had a particular significance at Bayeux, where the nave was dedicated to Saint-Sauveur. This reprised the dedication of an ancient church that had stood on the site until the building of Odo's cathedral. A parochial altar of Saint-Sauveur stood on the west side of the choir screen, and the parochial cemetery of Saint-Sauveur lay on the south side of the nave. Funeral services for the parishioners were held in the nave, and the bodies of the deceased would have been taken out in procession through the south nave door. The parish of Saint-Sauveur was officially moved to the nearby church of Saint-Etienne at the east end of the cemetery by 1251, but the altar of Saint-Sauveur continued to exist against the choir screen until the 16th century, when the dedication was replaced by Saint John the Evangelist. The transference of the parochial functions out of the nave was balanced by the construction of the nave aisle chapels in the later 13th and early 14th centuries, which ensured the continued regular liturgical use of the nave over succeeding centuries.

Thus the nave had its distinct functions and routines. Above all, it was a space for the laity as well as the clergy — in modern parlance, the more secular part of the

cathedral. In the weeks when the tapestry was exhibited it is likely to have been especially busy. The Feast of Saint John the Baptist was widely celebrated as a midsummer festival; the Feast of the Relics with its great procession would have attracted a crowd; and the Feast of the Dedication was traditionally a time when people were encouraged to visit their mother church. With the light of midsummer, they could have seen the tapestry at its best, wandering across the unfurnished nave as their eye was drawn from one scene to another. Or they could have followed the whole story from the south end of the choir screen clockwise all the way round the building. A clockwise arrangement can be paralleled in other monumental cycles, but at Bayeux it had a particular resonance in the way in which Harold, on the south side, moves ever further away from the image of Christ on the cross as he navigates his way to the crown of England, coming to rest precariously on his throne in the far south-west corner of the building. Conversely, William on the north side, as he proceeds from Pevensey and Hastings up to London and his coronation, moves ever closer to the Saviour on the cross above the altar of Saint-Sauveur. The message of the tapestry is reinforced by the symbolism inherent in the physical space.

Two centuries separate the inventory of 1476 from the Customary of Raoul Langevin, and it is another two centuries back to the Norman Conquest, during which period the church of Bishop Odo was transformed into the Gothic cathedral. Yet, so far as we can tell, the liturgical context and function of the tapestry continued essentially the same throughout. One pointer in this direction is the exceptional state of preservation of the colours of the embroidery. If the tapestry was exhibited for just two or three weeks a year between its creation and its removal from the cathedral at the time of the French Revolution, its total exposure to light over a period of 700 years would only have been in the region of 27 to 40 years. Had it been permanently displayed for even just 100 years, it would have been exposed to $3\frac{1}{2}$ to $4\frac{1}{2}$ times as much light. Another 100 years' permanent display would have raised its total exposure to something like 6 to 8 times as much.

Was it hung in the nave at the time of the dedication of the cathedral on 14 July 1077, as has often been suggested? We cannot know for certain, but it seems highly likely. Generally speaking, a dedication ceremony does not imply that the building in question was complete. At a minimum, all that was required was an altar that could be brought into commission for liturgical services. The scheduling of a dedication ceremony would depend not just on the progress of the works, but on the needs of the clergy and the availability of the bishop and distinguished guests. However, in the case of Bayeux, it is likely that the building was more or less complete by 1077, except perhaps the towers. Work had begun three decades earlier, time enough to build a whole cathedral, and Odo's financial resources, particularly after the conquest of England, should have ensured a rapid progression.

The year 1077 was one of grand dedication ceremonies, and seems to have been planned as such in order to ensure the attendance of a glittering concourse of the Norman establishment. As well as Bayeux, there were consecrations that year at Evreux cathedral and at the abbey churches of Le Bec, Saint-Désir at Lisieux and Saint-Etienne at Caen (the Conqueror's own foundation). Canterbury cathedral was also dedicated in 1077. The Conqueror did not attend all of the ceremonies, but he was certainly present at Bayeux, which was one of the most magnificent occasions of a memorable year.³⁷ He was accompanied by Queen Mathilda and their sons Robert (the future duke of Normandy) and William Rufus. As well as Odo himself, the ecclesiastical contingent included Geoffrey of Montbray, the energetic bishop of Coutances, and the three

archbishops from the Anglo-Norman domain — John of Rouen, Lanfranc of Canterbury and Thomas of York, the former canon treasurer of Bayeux.

Coming from the ducal chateau in the south-west corner of the city, William and his entourage would have entered through the west front. Descending the flight of steps inside the atrium, he would have led his party through the doorway into the nave beneath the triumphal image of himself on the tapestry, leading his troops onto the ships to start the invasion. Moving forward, he would have seen the narrative stretched out between the columns on either side. At the east end of the nave, standing in front of the crucifix beneath Odo's corona, he would have seen the image of himself crowned as king of England, facing King Edward on the other side. Passing through the choir screen with Odo, the archbishops and the other senior clergy, he would have processed to the high altar, above which were enshrined in Odo's great reliquary the relics of Saints Rasiphus and Ravenius on which Harold had sworn his oath. As the consecration ceremony proceeded, the rest of the congregation would have remained in the nave, where they would have had ample time to admire the tapestry.

CONCLUSIONS

IN attempting to trace the history of the Bayeux Tapestry, it has always been the case that the simplest explanation, the one that involves the fewest imponderables and requires the fewest assumptions, is that it was designed for Bayeux cathedral. This general proposition can now be corroborated by the specific evidence that the physical and narrative structure of the tapestry are perfectly adapted to fit the liturgical nave of the 11th-century cathedral, a setting that provides a physical, institutional and liturgical context for its continued use and survival down the centuries. Of course, a case could be made (and in some cases has been made) for other places. However, any other hypothesis is bound to require a more complex and more speculative explanation. Applying Ockham's razor to the problem, the challenge for any alternative is to show, not just that it is possible, but that it provides a more cogent and compelling case than Bayeux cathedral.

Tying the tapestry to the nave of Bayeux has important consequences for how it is viewed. Some of these may be briefly indicated:

- Hypotheses concerning other possible intended locations can be laid aside.
- Theories of patronage that depend on the tapestry having been made for somewhere else can also be discounted. This rules out the majority of proposed candidates. Odo of Bayeux, long the favourite, remains the front-runner, though the manner and extent of his involvement require a fuller scrutiny than they have yet received.
- Arguments concerning the 'secular' or 'religious' nature of the tapestry, sometimes crudely formulated in terms of doubtfully relevant modern categories, should give way to a more nuanced discussion of the function, meaning and reception of the tapestry when viewed within the more public part of an ecclesiastical building.
- The viewers of the tapestry would have been predominantly inhabitants of Normandy, together with a few distinguished visitors from further afield who happened to be there at the right time of year. Very few Anglo-Saxons would ever have seen it.

- Consequently, theories of a ‘subversive’ message within the imagery designed to appeal to Anglo-Saxon sensitivities must be considered very dubious. In retrospect, they seem to owe more to prevailing art-historical fashions of recent decades than the late 11th century.
- The designer must have visited Bayeux and known the exact dimensions of the nave. His origins and artistic background deserve a much fuller consideration, extending beyond manuscript parallels to the wider context of monumental art.
- The place of manufacture remains an open question. Technical analysis hitherto has concentrated largely on the actual embroidery. The observations on the linen fabric offered above suggest that there is far more to be learned on that front.

A redisplay of the tapestry offers a once-in-a-lifetime opportunity to increase our knowledge and enhance our understanding of it.

- The need has long been felt for a new ‘edition’ that would illustrate the whole tapestry, back as well as front, and would document its status and restoration history from end to end. The data thus acquired would inform the conservation process and revitalise the study of the tapestry for decades to come. Digital technology opens up new possibilities for recording, analysis and publication.
- The tapestry could ideally be displayed along three sides of a rectangular space c. 31.15 m long and 9.25 m wide. It could be mounted in such a way as to evoke the 11th-century architectural setting, including the irregular bay spacing of the nave arcades. Viewed from the middle, it would enable the spectator for the first time in centuries to experience an approximation of the original spatial arrangement and appreciate anew the subtlety and inventiveness of this endlessly fascinating work of art.

APPENDIX: THE DIMENSIONS OF THE BAYEUX TAPESTRY

OVER the years, a bewildering variety of dimensions have been given for the Bayeux Tapestry (Fig. 1). In part, this is a consequence of the practical difficulties in measuring it exactly. In part, it results from approximations passing as precise measurements. In no small measure, it derives from errors. The tapestry has probably been measured only a few times in the last three hundred years. Consequently, almost all writers on it have of necessity derived their information from earlier sources. Quite often, figures that should have been superseded have continued to be cited. Mistakes have not infrequently been introduced, and recent authorities are by no means less prone to error than their predecessors. The result is confusion, more in recent years than it has ever been before. What follows is an attempt (by no means comprehensive) to trace the origins and assess the reliability of the principal figures to be found in the literature. We shall start with the overall length of the tapestry, before moving on to the dimensions of its constituent pieces. Measurements given by the various authorities are generally cited to the nearest centimetre or half-inch.

In 1730 Montfaucon published the second volume of his *Monumens de la monarchie françoise*. In it he gave the length of the tapestry as 212 *pieds* and its height as a little under two *pieds*.³⁸ With one *pied* the equivalent of 32.4 cm, this gives a length of 68.69 m (225 ft 4 in.) and a height of less than 65 cm (2 ft 2 in.). He was evidently content to give the figures to the nearest *pied*. The height of the tapestry is not controversial. According to the measurements taken after it was remounted in 1982–83, the height varies between 45.7 cm and 53.6 cm (18 in.

and 21 in.), and all authors give measurements within this range.³⁹ It is the length that is problematic, and it turns out that Montfaucon's figure of 212 *pieds* is much more accurate than the majority of measurements given by more recent authors.

In 1767, Ducarel published his *Anglo-Norman Antiquities*, based on a journey he had made fifteen years before. In it he gave the length as 212 ft.⁴⁰ However, he failed to point out that the unit of measurement was the French *pied* rather than the English foot (which equals 30.05 cm). English readers who assumed the measurements to be 212 English feet (64.61 m) would have underestimated the tapestry's length by about 12½ feet. The kind of confusion that could result is demonstrated by Dibdin's statement in 1821 that the tapestry was about 214 English feet long (65.22 m). This confusion was further confounded in 2004 when Hill incorrectly converted 214 ft to 70.20 m (= 230 ft 4 in.), thereby introducing a new measurement into the literature.⁴¹

In 1773, Béziers published his *Histoire sommaire de la ville de Bayeux*. In it he stated that the tapestry was 210 *pieds* 11 *pouces* long and 19 *pouces* high.⁴² This translates into a length of 68.34 m or 224 ft 3 in. and a height of 51 cm or 20 in. The length is remarkably close to that which is given by reliable modern authorities. If only Béziers' dimensions had been adopted by the scholarly literature, a great deal of subsequent trouble would have been avoided.

With the adoption of the metric system in France, the old measurements seem to have been forgotten. In 1856 Bruce gave the length as 227 ft,⁴³ but soon a length of 70.34 m (230 ft 9 in.) came to be accepted as a standard. This figure continued to be cited right through the 20th century and is still frequently encountered. It can be traced back to the middle of the 19th century and is attributed to Lambert, who was appointed the first librarian of Bayeux municipal library in 1835 and became the tapestry's first official curator in 1842. It is not known how he came up with a figure that is as much as 2 m too long.⁴⁴ Its continued currency is most unfortunate.

In 1939 the tapestry was removed from display in Bayeux for safekeeping. In 1941 a group of German scholars examined it in detail and measured it. They did not publish their results, but their measurement of 68.45 m (224 ft 7 in.) became known after the war. It was cited by Wingfield Digby in 1957 in the famous collection of essays edited by Stenton, but he also referred to 'an accurate modern measurement given by Monsieur J Verrier' of 70 m × 50 cm (229 ft 8 in. × 20 in.), as well as citing the traditional figure of 70.34 m (230 ft 9 in.). Verrier's measurement, however, was clearly no more than an approximation. Wormald, in his frequently cited article in the same book, stuck to the established length of 70.34 m.⁴⁵ Greater confusion was to follow. Bertrand cited the German measurement of 68.45 m in an important article in 1960. In the English translation of her 1960 article, published in 1997, the German measurement was mistakenly given as 65.45 m (214 ft 9 in.) instead of 68.45 m. However, the sum total of the lengths of the individual pieces of linen that make up the tapestry, as cited by Bertrand in her article, was 69.35 m (227 ft 6 in.), and this was given as the length by Hill in 2004. In her widely disseminated 1966 book in the *Zodiaque* series, Bertrand cited the length according to the German scholars as 69.55 m (228 ft 2 in.), a figure derived from a mistake in the length of one of the individual pieces of linen given by Bertrand, as will appear shortly. This total was then incorrectly cited by Renn in 2011 as 69.65 m (= 228 ft 6 in.). In spite of her knowledge of the German measurement, Bertrand tended in fact to stick to the figure of c. 70 m in later publications, and this has been repeated by some subsequent authors.⁴⁶ When the notes of the German scholars finally became available, it transpired that their measurement was in fact 68.46 m (224 ft 7 in.), and this is the figure now generally cited for the German measurement.⁴⁷

We need not quibble over 1 cm! But it is unfortunate, to say the least, that so much confusion has entered the literature from this period.

The tapestry was measured again in 1982–83 during the preparations for the new tapestry gallery in Bayeux. Its overall length was found to be 68.38 m (224 ft 4 in.). This measurement was cited in Wilson's important 1985 monograph, and has frequently been repeated since.⁴⁸ However, this too is not without problems. When details of the 1982–83 study were finally published in 2004 in the proceedings of the 1999 Cerisy-la-Salle conference, a table was printed giving the dimensions of all the individual pieces of linen with an overall length of 68.38 m.⁴⁹ Unfortunately, the sum total of the lengths of the individual pieces is actually 68.58 m (225 ft). It is not clear which figure is correct. A further error appeared in Musset's 2002 book in the *Zodiaque* series, which gives the length as 64.38 m (211 ft 3 in.). This, the shortest dimension ever cited, is evidently a slip of the pen or typographical error for 68.38 m.⁵⁰

The results of this dis-spiriting survey of three centuries of scholarly endeavour, muddle, error and confusion are summarised in [Figure 1](#). In short, it appears that only three of the figures for the overall length of the tapestry are reliable, namely, those given by Béziers in 1773, by the German team in 1941 and by the French team in 1982–83 — the last, however, consisting of two alternative (though closely similar) figures which have yet to be reconciled.

We turn now to the measurements of the individual strips of linen that make up the tapestry. It seems that it was not until the 1870s that it was noticed that the tapestry was composed of more than one piece of linen joined end to end. For many years it was accepted that there were eight individual pieces, until the 1982–83 analysis revealed that the eighth piece in fact consisted of two smaller pieces whose junction was largely obscured by embroidery and had therefore escaped attention. Piece VIII in pre-1982–83 measurements therefore corresponds to Pieces VIII and IX in the current reckoning.

Dimensions for the individual pieces of linen were published by Bertrand, and by Bédât and Girault-Kurtzman based on the 1982–83 French analysis. Unfortunately, neither set of figures is without its problems. Bertrand gave the lengths of the pieces in her 1960 article and again in her 1966 book (see [Fig. 2](#), A and B). She stated that the measurements were accurate to within a few centimetres. There are slight differences between the two sets of figures. Pieces III, IV, V and VIII are all shown as 5 cm longer in the 1966 figures, resulting in a difference of 20 cm in the overall length. The 1966 book is much more often cited by subsequent authors and will be used here. Piece V is given as 6.60 m long. This is unquestionably too long. Correcting it to 5.50 m makes it almost identical to the length recorded by the French team in 1982–83 and it brings Bertrand's total length down to 68.45 m, which is the exact length cited by her for the German 1941 measurement. The mistake may simply result from a misreading of the number 5 for 6. Bertrand's measurements can therefore easily be amended to make them consistent ([Fig. 2](#), D).⁵¹

The 1982–83 French measurements for the individual pieces of linen were published in 2004 in a table in the important article by Bédât and Girault-Kurtzman.⁵² The problem here, as noted above, is the discrepancy between the sum of the individual pieces, which is 68.58 m, and the published total of 68.38 m. In this case there is no obvious simple correction to the individual lengths that would resolve the discrepancy.⁵³ Pending further clarification, it seems right to stick to the dimensions of the individual pieces published by Bédât and Girault-Kurtzman and to amend the total length to 68.58 m ([Fig. 2](#), E).

The two sets of figures vary by no more than 16 cm for any of the pieces, and could easily be averaged out. However, to avoid introducing yet another set of measurements into the discussion, it seems preferable to cite both sets of measurements, as corrected, first Bertrand's 1966 measurements, and then Bédât and Girault-Kurtzman's in italics (Fig. 2, D and E). Citing the two sets of measurements also serves as a reminder that, while accuracy is always desirable, precise dimensions are not achievable.

NOTES

1. The substance of this paper was presented in a lecture given to the British Archaeological Association in London on 3 April 2019 and to a research seminar in the History of Art Department of the University of York. I have retained something of the language of the lecture in the published version. I am indebted to various members of both audiences and to the anonymous reviewers for their comments, to Emily Nelson for stimulating discussions on the tapestry, and to Zara Burford for help in preparing the article for publication. For consistency with the historiography I refer to it as a tapestry throughout, rather than an embroidery, although the latter is technically correct.

2. S. A. Brown, *The Bayeux Tapestry — Bayeux, Médiathèque Municipale: MS 1 — A Sourcebook* (Turnhout 2013) gives an annotated bibliography of over one thousand items, prefaced by a very useful *état de la question*. Subsequent publications are listed in X. Barral i Altet, *En souvenir du roi Guillaume: la broderie de Bayeux* (Paris 2016), 523–32. The most useful illustrated editions are D. M. Wilson, *The Bayeux Tapestry* (London 1985); L. Musset, *La tapisserie de Bayeux*, new edn (Paris 2002) and M. K. Foys, *The Bayeux Tapestry Digital Edition* (CD-ROM, Scholarly Digital Editions 2003). The pull-out reproduction at approximately 1:7 scale published by the city of Bayeux is also very useful. Valuable collections of essays include F. Stenton ed., *The Bayeux Tapestry — A Comprehensive Survey* (London 1957); R. Gameson ed., *The Study of the Bayeux Tapestry* (Woodbridge 1997); P. Bouet, B. Levy and F. Neveux ed., *La tapisserie de Bayeux: l'art de broder l'histoire*, Actes du colloque de Cerisy-la-Salle, 1999 (Caen 2004), also published in English as *The Bayeux Tapestry: Embroidering the Facts of History* (Caen 2004); G. R. Owen-Crocker ed., *King Harold II and the Bayeux Tapestry* (Woodbridge 2005); M. K. Foys, K. E. Overbey and D. Terkla ed., *The Bayeux Tapestry — New Interpretations* (Woodbridge 2009); M. J. Lewis, G. R. Owen-Crocker and D. Terkla ed., *The Bayeux Tapestry: New Approaches — Proceedings of a Conference at the British Museum* (Oxford 2011). At the time of writing, I have not seen S. Lemagnen, S. A. Brown and G. Owen-Crocker ed., *L'invention de la tapisserie de Bayeux: naissance, composition et style d'un chef-d'oeuvre médiéval* (Rouen 2018). In what follows, bibliographical references are kept to a minimum.

3. See the illustrations in I. Bédât and B. Girault-Kurtzman, 'Etude technique de la broderie de Bayeux', in *La tapisserie de Bayeux*, ed. Bouet et al. (as n. 2), 83–109, figs 1 and 36, and S. Lemagnen, 'The hidden face of the Bayeux Tapestry', in *Bayeux Tapestry*, ed. Lewis et al. (as n. 2), 36–43, fig. 8.

4. G. Deslandes, 'Le trésor de l'église Notre-Dame de Bayeux, d'après les inventaires manuscrits de 1476, 1480, 1498 conservés à la bibliothèque du chapitre de Bayeux', *Bulletin archéologique du Comité des travaux historiques et scientifiques* (1896), 340–450, and reprinted separately (Paris 1898), no. 262; and see below, at n. 25.

5. Bédât and Girault-Kurtzman, 'Etude technique' (as n. 3), 86–87 and fig. 6, and information from Mme Lemagnen.

6. D. Renn, 'How big is it — and was it?' in *Bayeux Tapestry*, ed. Lewis et al. (as n. 2), 52–58 did attempt to work out the sizes of the cloths from which the linen pieces might have been cut, discussing how much might have been lost and offering some comments on the process of assembly. However, his analysis was inconclusive, and was based on the current sizes of all the pieces, although, as he himself admitted, 'there is evidence that the Tapestry was once longer than it is now, which potentially invalidates all the ... diagrams'.

7. See e.g. G. Vial, 'Etude de la bande "numérotée" de la broderie de Bayeux', in *La tapisserie de Bayeux*, ed. Bouet et al. (as n. 2), 111–16, at 111; Bédât and Girault-Kurtzman, 'Etude technique' (as n. 3), 84; Renn, 'How big is it?' (as n. 6), 53–55. See also the analysis of the make-up of the tapestry in S. Bertrand, 'Etude sur la tapisserie de Bayeux', *Annales de Normandie*, 10 (1960), 197–206 (translated as 'A Study of the Bayeux Tapestry', in *Study of the Bayeux Tapestry*, ed. Gameson (as n. 2), 31–38) who notes that the edges are turned over along the top and bottom of the pieces of linen.

8. A. R. Bridbury, *Medieval English Clothmaking — An Economic Survey* (London 1982), 106–11; R. D. Connor, *The Weights and Measures of England* (London 1987), 87–95; G. R. Owen-Crocker, E. Coatsworth and M. Hayward ed., *Encyclopedia of Dress and Textiles in the British Isles c. 450–1450* (Leiden 2012), 83, 130–32, 189, 316–18, 656.

9. Bridbury, *Medieval English Clothmaking* (as n. 8), 107.

10. I merely note that no significant correlations emerge when translating the lengths into *pieds* as current in the 18th century (= 32.4 cm) or into the foot of c. 28.5 cm, which is said to have been used in 11th-century buildings in Normandy (J. Morganstern, 'Jumièges, église Notre-Dame', in *Congrès Archéologique de France, Rouen et Pays de Caux* (2003), 85–86).

11. Various minor anomalies and inconsistencies in the execution of the tapestry have been pointed out, but none of these is incompatible with the view that the tapestry was the work of a single designer and a single workshop, albeit one that must have been of some size, capable of being divided into more than one team.

12. See e.g. D. J. Bernstein, *The Mystery of the Bayeux Tapestry* (London 1986), fig. 86.

13. J. Britton, *The Architectural Antiquities of Normandy* (London 1828), 36–40 and pls I–XI, with fine plan and elevation drawings; J. Vallery-Radot, *La Cathédrale de Bayeux* (Paris n.d. [1922]; 2nd edn, Paris 1958); J. Vallery-Radot, 'La façade de la cathédrale de Bayeux — étude archéologique des tours', *Bulletin monumental*, 82 (1923), 65–94; R. Liess, *Der Früromanische Kirchenbau des 11. Jahrhunderts in der Normandie* (Munich 1967), 139–48; J. Thirion, 'La Cathédrale de Bayeux', *Congrès Archéologique de France*, 132 (1994), 2 40–85; M. Baylé, 'Bayeux: cathédrale Notre-Dame', in *L'architecture normande au Moyen Âge*, 2, *Les étapes de la création*, ed. M. Baylé, 2nd edn (Caen 2001), 37–42; F. Epaud, *De la charpente romane à la charpente gothique en Normandie* (Caen 2007), 389–462. This last has provided precise dates for the early- to mid-13th-century roofs of the eastern arm and transepts, revealing a slightly different order of work from that previously proposed. A coloured, phased ground plan is in F. Neveux and C. Ruelle, *La cathédrale Notre-Dame de Bayeux* (Cully 2007), 33.

14. The restoration of the 1850s was promptly published by H. de Dion and L. Lasvignes, *Cathédrale de Bayeux — Reprise en sous-œuvre de la tour centrale par M. E. Flachet — Description des travaux* (Paris 1861), with excellent illustrations. I am indebted to M. Vincent Juhel for providing me with a copy of this work. See also the important critique of the 1850s campaign by Ruprich-Robert, 'Discours', *Bulletin de la Société des Antiquaires de Normandie*, 11 (1881–82), 315–83.

15. J.-M. Bouvris, 'La dédicace de la Cathédrale Notre-Dame de Bayeux (14 juillet 1077)', *Société des Sciences, Arts et Belles-Lettres de Bayeux*, 28 (1982), 3–16.

16. The liturgical and textual sources referred to in the following section can be found in E. Deslandes, *Etude sur l'église de Bayeux — antiquité de son cérémonial — son chapitre — disposition du chœur de la cathédrale* (Caen 1917), 530–45 and 561–85.

17. F. Neveux, *Bayeux et Lisieux — Villes épiscopales de Normandie à la fin du Moyen Âge* (Caen 1996), plans XVI and XIX.

18. For the cloister, see A. Renoux, 'Palais épiscopaux des diocèses de Normandie, du Mans et d'Angers (XIe–XIIIe siècles): état de la question', in *Les évêques normands du XIe siècle*, ed. P. Bouet and F. Neveux, Actes du colloque de Cerisy-la-Salle, 1993 (Caen 1995), 173–204, at 195–97; F. Delacampagne, 'Le cloître de la cathédrale de Bayeux', in *Chapitres et cathédrales en Normandie*, ed. S. Lemagnen and P. Manneville, Congrès des Sociétés Historiques et Archéologiques de Normandie, 2 (Caen 1997), 307–15.

19. Deslandes, *Etude* (as n. 16), 7–8 suggested that the east cloister doorway was moved to the second bay from the east in the 14th century, having originally been in the third bay, opposite the south aisle doorway. There appears to be no physical or documentary evidence for this.

20. Vallery-Radot, *Cathédrale de Bayeux* (1922 edn, as n. 13), 17–23, and the plan in de Dion and Lasvignes, *Cathédrale de Bayeux* (as n. 14), 10; Deslandes, 'Le trésor' (as n. 4), *passim*, for references

to the pulpitum in the 1476 inventory; and U. Chevalier, *Ordinaire et coutumier de l'église cathédrale de Bayeux (XIII^e siècle)* (Paris 1902), passim, for references to the pulpitum in the 13th century.

21. The easternmost bay of the nave arcade on both sides was rebuilt in the 1850s in a richly ornamented Romanesque style to match the original 12th-century work in the rest of the nave arcades. Any original evidence was destroyed at this time. Ruprich-Robert, 'Discours' (as n. 14), 376–78, however, noted that there had been a very high base to the 13th-century wall-shafts on the south face of the north-west tower pier, which he thought could only be explained by the existence of the 13th-century choir screen at this point. However, it could also be explained by the presence of the backs of choir-stalls running through from the east end of the nave. Prior to the mid-19th-century rebuilding, the easternmost bay of the nave arcade on each side had been in early-13th-century style, matching the contemporary casing of the 11th-century crossing piers and the elevation of the eastern arm (just visible in Fig. 8). The 13th-century reconstruction of this bay may have been necessary on structural grounds, but it would have made good visual sense for it to match the masonry further east (rather than the 12th-century arcade to the west) if the choir screen was still one bay west of the crossing. This would have ensured that the whole of the liturgical choir and presbytery presented a harmonious appearance, distinct from that of the nave. If this is right, it would only have been later that the choir screen was moved to the west side of the crossing.

22. De Dion and Lasvignes, *Cathédrale de Bayeux* (as n. 14), pls II and XVII–XXIV; so also Liess, *Friöromanische Kirchenbau* (as n. 13), fig. 1.

23. Ruprich-Robert, 'Discours' (as n. 14), 376–78 noted that the southern face of the north-west crossing pier had been altered when the 12th-century nave had been constructed, but he found no sign of a 12th-century choir screen at this point.

24. Because of the irregularities in the plan of the cathedral, the north nave arcade, from the east face of the north-west tower to the middle of the easternmost arcade pier, is 1.10 m shorter than the south arcade. The difference is not discernible to the naked eye. If the designer of the tapestry was aware of the difference, he could have made the second half of the tapestry slightly shorter (in which case the measurement given above for the original length of the tapestry would have to be reduced correspondingly); or he could have used the extra length to allow for some slack in the hanging.

25. The tapestry's backing cloth has been found to contain in places positive or negative images of the embroidered design (Bédât and Girault-Kurtzman, 'Etude technique' (as n. 3), 100–01). These may provide clues as to the manner in which the tapestry was hung, though the evidence has not been published in sufficient detail to enable any conclusions to be drawn. However, they probably relate to a later period or periods in the tapestry's history.

26. This also shows, should there be any doubt on the matter, that the tapestry was intended to be hung this way round. The spacings would not work if it started at the north-west corner and ran eastwards from there, across the choir screen and back to the south-west corner.

27. Deslandes, 'Le trésor' (as n. 4), 394, no. 262.

28. On the custom of hanging fabrics in churches, including other evidence from Bayeux, see E. C. Pastan and S. D. White with K. Gilbert, *The Bayeux Tapestry and its Contexts – A Reassessment* (Woodbridge 2014), 72–81.

29. A. C. Ducarel, *Anglo-Norman Antiquities, considered in a Tour through Part of Normandy* (London 1767), 79; V. Béziers, *Histoire sommaire de la ville de Bayeux* (Caen 1773), 53.

30. Deslandes, *Etude* (as n. 16), 16–19.

31. Deslandes, 'Le trésor' (as n. 4), 346, 364–65, 370.

32. Both published by Chevalier, *Ordinaire et coutumier* (as n. 20), and frequently referred to by Deslandes, *Etude* (as n. 16).

33. See n. 35 below.

34. The following section is based largely on Deslandes, *Etude* (as n. 16), esp. 530–74 and 577–85, supported by 13th-century liturgical references from Chevalier, *Ordinaire et coutumier* (as n. 20), passim.

35. Deslandes, 'Le trésor' (as n. 4), 362, n. 2 and Chevalier, *Ordinaire et coutumier* (as n. 20), esp. 231, 298, 363, 379, 383, 395–96, 404, 413.

36. On the reliquary and the corona, see Deslandes, 'Le trésor' (as n. 4), 344–45, 351–53 and nos 6 and 94 of the 1476 inventory, and Chevalier, *Ordinaire et coutumier* (as n. 20), passim. Also F. Neveux, 'Les reliques de la cathédrale de Bayeux', in *Les saints dans la Normandie médiévale*, ed. P. Bouet and F. Neveux (Caen 2000), 109–33, and K. E. Overbey, 'Taking place: reliquaries and

territorial authority in the Bayeux Embroidery', in *The Bayeux Tapestry*, ed. Foys et al. (as n. 2), 36–50.

37. Bouvrin, 'La dédicace' (as n. 15); D. Bates, *William the Conqueror* (New Haven 2016), 394–96; S. Harrison and C. Norton, *The Architectural History of York Minster, c. 1070–1220* (forthcoming), part 2, chapter 1.

38. B. de Montfaucon, *Les Monumens de la monarchie françoise*, II (Paris 1730), 1–31, at 2.

39. Wilson, *Bayeux Tapestry* (as n. 2), 10; *Study of the Bayeux Tapestry*, ed. Gameson, (as n. 2), 33.

40. Ducarel, *Anglo-Norman Antiquities* (as n. 29), 79.

41. T. F. Dibdin, *A Bibliographical, Antiquarian and Picturesque Tour in France and Germany* (London 1821), I, 376, cited by D. Hill, 'The Bayeux Tapestry: the establishment of a text', in *La tapisserie de Bayeux*, ed. Bouet et al. (as n. 2), 383–99, at 386.

42. Béziers, *Histoire sommaire* (as n. 29), 53.

43. J. Collingwood Bruce, *The Bayeux Tapestry Elucidated* (London 1856), 17.

44. J. Comte, *La tapisserie de Bayeux* (Paris 1878), 6, attributing the measurement to Lambert. F. R. Fowke, *The Bayeux Tapestry — A History and Description*, 2nd edn (London 1898), 19; A. Levé, *La tapisserie de la reine Mathilde dite la tapisserie de Bayeux* (Paris 1919), 10 and numerous later publications. I have been unable to consult C.-E. Lambert, *Notice historique sur la tapisserie brodée de la reine Mathilde* (Bayeux 1854 and later editions). On Lambert, see Brown, *Bayeux Tapestry* (as n. 2), liv–lv.

45. G. Wingfield Digby, 'Technique and production', in *Bayeux Tapestry*, ed. Stenton (as n. 2), 37–55, at 53; F. Wormald, 'Style and design', in *Bayeux Tapestry*, ed. Stenton (as n. 2), 25–36, at 25; J. Verrier, *La broderie de Bayeux dite tapisserie de la reine Mathilde* (n.p. 1946), II. Verrier was the inspector of historic monuments responsible for the tapestry during the German occupation.

46. Bertrand, 'Etude sur la tapisserie' (as n. 7), 199; S. Bertrand, *La Tapisserie de Bayeux et la manière de vivre au onzième siècle* (La Pierre qui Vire 1966); S. Bertrand, *La vie au XI siècle sous Guillaume le Conquérant d'après la Tapisserie de Bayeux* (Caen 1975), 3; D. Hill, 'The Bayeux Tapestry: the establishment of a text', in *La tapisserie de Bayeux*, ed. Bouet et al. (as n. 2), 383–401, at 386; Renn, 'How big is it?' (as n. 6), 53, and see below, n. 51.

47. S. Lemagnen, 'L'histoire de la tapisserie de Bayeux à l'heure allemande', in *La tapisserie de Bayeux*, ed. Bouet et al. (as n. 2), 49–64 at 56 and fig. 4.

48. Wilson, *Bayeux Tapestry* (as n. 2), 10, but citing Bertrand's 1966 measurements for the individual pieces of linen on p. 228, n. 5.

49. Bédât and Girault-Kurtzman, 'Etude technique' (as n. 3), 86, schéma 1.

50. Musset, *La tapisserie de Bayeux* (as n. 2), 19. The dimensions he gives for the individual pieces are, however, taken from Bertrand's earlier measurements.

51. In his Table 1, Renn, 'How big is it?' (as n. 6), 53 introduces a further discrepancy into Bertrand's figures by citing Bertrand's 1966 length for Piece VI incorrectly, resulting in yet another incorrect total length of 69.65 m.

52. See n. 49.

53. Renn, 'How big is it?' (as n. 6), 52–53 claimed that the error arose in the measurement of Piece VIII, which he suggested is only 2.58 m long instead of 2.80 m as given by Bédât and Girault-Kurtzman. He then recalculated the lengths of the individual pieces, using the c. 1/7 scale reproduction to produce a completely new set of dimensions adding up to 68.38 m. This is purely speculative and methodologically unsound.