

## ARTICLE

THE ONGOING HISTORICAL DEBATE ABOUT  
THE SHROUD OF TURIN: THE CASE OF THE PRAY  
CODEX

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## INTRODUCTION

The Shroud of Turin is a linen cloth bearing the frontal and dorsal images of a naked man presumably died by crucifixion. Currently preserved in the Saint John Baptist Cathedral in Turin, Italy, it is one of the most studied and controversial artifacts. Despite the significant amount of research conducted on this artifact, scholars remain polarised regarding the identity and image formation process of the man on the sheet.<sup>1</sup> Many experts—essentially, but not exclusively, Christians—purport that the Shroud of Turin once contained the corpse of Jesus of Nazareth. Others—including many Christians—contest this conclusion, claiming that the image only appeared after the thirteenth century.

Since the late 1970s, hundreds of scientific studies and books have been published on this topic. Nevertheless, the permanence of these central historical questions—the age of both the linen cloth and the image—illustrates the difficulty of establishing a set of basic facts on some religious and interdisciplinary topics. The Shroud could easily be identified as one of those ‘cancerous points’ evocated by the French historian of Christianity and philosopher of history Henri-Irénée Marrou in the mid-1950s, ‘where the discussion drags on, becomes bitter, the bibliography proliferates—without benefit.’<sup>2</sup>

To better understand the reasons for this impossible consensus, we focus on a specific point in the ongoing historical debate: the alleged relationship between the Shroud of Turin and the Pray Codex, the first illuminated manuscript in Hungarian named after the eighteenth-century Jesuit György Pray (1723–1801). Scholars have often compared the characteristics of a miniature in the Pray Codex (folio XXVIIIr), commonly dated circa 1192–1195, with the features of the Turin Shroud.<sup>3</sup> This miniature depicts the scene of the Anointing in the upper part, and the scene of the Three Marys at the Tomb in the lower part. The main reason for this interest appears to be a discussion on the degree of confidence attached to the results of the 1988 radio-carbon dating of the Shroud of Turin: AD 1260–1390 with 95% certainty.<sup>4</sup>

## A QUALITATIVE SURVEY OF RECENT INTERPRETATIONS

The first appearance of the Pray Codex in the field of Turin Shroud studies is by the British writer and Oxford graduate, Ian Wilson. In 1978, Wilson published a landmark study in which he tried to establish a link between a relic kept in Constantinople until the sacking of the city in the Fourth Crusade in 1204, and the linen cloth appearing in the hamlet of Lirey (diocese of Troyes, France) at least one and a half centuries later.<sup>5</sup> Wilson discovered the image in an English translation of a book authored by Ilona Berkovits (1904–1986) on illuminated manuscripts in Hungary.<sup>6</sup> He immediately thought that this illumination, produced in a Benedictine monastery, depicted, or was inspired by, the Shroud of Turin. Wilson's short iconographic analysis was implicitly supported by the historical context of the Byzantine Empire's well-known influence on Hungary.<sup>7</sup>

Since the 2000s, the debate on a possible direct or indirect relationship with the Pray Codex has become central for authors engaged in discussions about the age of the Shroud. Italian palaeographer Barbara Frale exemplifies this point; in 2009, she chose the upper part of the disputed image, the scene of the Anointing, for the dust cover of one of her books.<sup>8</sup> In contrast, Byzantine art historian Gary Vikan does not mention the Pray Codex.<sup>9</sup> In a book written in a popular style, Vikan, convinced by the hypothesis of a medieval forgery, speculates about the identity of the alleged artist, probably a student of Siennese master Simone Martini (c. 1284–1344). This book illustrates the main obstacle to every medieval hypothesis. Vikan has to assume the intervention of one of Martini's pupils, probably Naddo Ceccarelli, who may have been active in France at the beginning of the 1350s, acting at the behest of the dying Pope Clement VI. Vikan describes the image as an 'artistic achievement without precedent in the history of art.'<sup>10</sup> The artist would have to become an ephemeral and immoral genius. Moreover, the technique proposed seems unable to reproduce the extreme superficiality of the image at a fibre level (a fifth of a thousand of a millimetre).<sup>11</sup>

We conducted a qualitative survey of recent literature on this topic (Table 1). The authors include diverse specialists—medievalists, art historians, textile experts, journalists, and amateurs—engaged in this discussion from diverse countries such as Italy, France, England, Australia, and Switzerland.<sup>12</sup> Their conclusions are sometimes contradictory.<sup>13</sup>

While authors may demonstrate a great level of certainty, they sometimes do not mention many features of the image or they greatly summarise their reasoning processes. We used the table described by the philosopher of history Christopher Behan McCullagh in *Justifying Historical Descriptions* to quantify their implicit assessments.<sup>14</sup> We looked at 11 elements and characteristics of the image of the Pray Codex mentioned by at least one author. We noticed significant variation in their analyses, ranging from the explicit mentioning of a single characteristic to descriptions including up to ten different characteristics. This level of detail, in terms of the omitted or emphasised characteristics, might not only reveal some of their prejudices but also how they practice history.

## SIGNIFICANTLY INCOMPLETE APPROACHES

Italian medievalists Franco Cardini and Marina Montesano published their book for the Shroud's ostension in 2015. The book promises, as indicated in its subtitle, to address the controversies about the so-called authenticity of the Shroud of Turin 'beyond prejudice'. The reader may wonder whether the book takes up the challenge when it comes to the Pray Codex, which is the field of expertise of the two medievalists. Cardini and Montesano tackle this issue in less

**Table 1.** Qualitative survey of the characteristics of the folio XXVIIIr of the Pray Codex mentioned by Turin Shroud scholars (2008–2020).

	Poulle (2009)	Flury– Lemberg (2009)	Cardini– Montesano (2015)	Wilson (2010)	Antonacci (2015)	Frале (2009)	Cataldo– Heimburger (2008)	Perrier (2011)	Marinelli (2011)	De Wesselow (2012)	Nicolotti (2020)
Poker holes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Decorative holes	No	No	No	No	No	Yes	Yes	Yes	No	Yes	Yes
Crossed arms	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Total nudity	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bloody stain	No	No	No	Yes	No	No	No	Yes	Yes	Yes	Yes
Herringbone weave	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Long fingers	No	No	No	No	No	No	Yes	Yes	No	No	Yes
No thumbs	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No sign of violence	No	Yes	Yes	No	No	No	Yes	Yes	Yes	No	Yes
No image on the sheet	No	No	Yes	No	No	No	No	No	No	Yes	No
Psalter of Ingeborg	No	No	No	No	No	No	No	No	Yes	No	Yes
Total	1/ 11	3/11	4/ 11	5/11	5/11	6/11	8/11	9/ 11	9/11	9/11	10/11
Probability of inspiration by the Turin Shroud	95–100%	95–100%	50%	80–95%	95–100%	95–100%	50–80%	50–80%	95–100%	95–100%	0–5%

than a page.<sup>15</sup> They are the only ones who do not even mention the ‘poker holes’ (or L holes). These holes, made before the fire of 1532 that almost destroyed the linen piece, have at least some similarity with the holes depicted on the figure in the Pray Codex. Cardini and Montesano are fully aware of recent debates: they engage at length with Frale. The absence of the most disputed point in this controversy seems to be the unfortunate consequence of their explicit ‘beyond prejudice’ approach and their effort to maintain the appearance of neutrality, understood here as a balanced approach. In this regard, the sentence appearing just after their analysis of the Pray Codex sums up their state of mind: ‘It is obvious that every sceptic conclusion has to face a positive conclusion and vice versa.’<sup>16</sup>

In contrast, Emmanuel Poulle mentions the L-shaped holes in his review article; the existence of this feature before the fire in Chambéry seems sufficient to convince him beyond a reasonable doubt of the presence of the Shroud in Constantinople before 1204.<sup>17</sup> Poulle does not conduct a detailed analysis. Nevertheless, he is convinced by the topological study of the congruences carried out by French geneticist Jérôme Lejeune for an international congress about the Turin Shroud held in Rome in 1993.<sup>18</sup>

Poulle recalls the existence of these holes on a copy of the Shroud in the Saint Gommaire Church of Lier (Belgium). These clues allow him to identify ‘in an almost certain way’ the folio of the Pray Codex with the Shroud of Turin.<sup>19</sup> In the 1995 publication of the acts of the 1993 Congress, History of Law Professor Yvonne Bongert (1921–2012) also carefully examines the Pray Codex; her belief in a relationship is based less on the crossed hands on the pubis than on the poker holes.<sup>20</sup> Jérôme Lejeune was inspired by the research of Paul Vignon (1865–1943) and a list already established by Father André-Marie Dubarle (1910–2002).<sup>21</sup> Lejeune used his experience as a geneticist accustomed to methodically analysing complex images. In those same acts, the painter and restorer Antoine Legrand (1904–2002) notes a correspondence between the L-shaped holes and a badge for pilgrims kept in Paris at the Musée de Cluny. For Legrand, this badge, with its imprints in relief and series of three small dots evoking the damage previously caused by some incandescent embers, constitutes an ‘irrefutable medieval witness’.<sup>22</sup>

In addition to the Lier copy and the badge of Cluny, two miniatures inform us that the holes were important for the artists who tried to reproduce this complex image. The first miniature was offered in 1559 by Cristoforo Duc (1503–1563) to Margaret of France (1523–1574) for her matrimony. It shows a faint image with L-shaped holes, but without the damage caused by the Chambéry fire.<sup>23</sup> The later discovery, probably more ancient than the Lier copy, appeared in 2016 and dates back to 1512. In this prayer book, one can notice the consequences of the spear and the beating on the back and, in three places, the L-holes.<sup>24</sup>

#### DETAILED APPROACHES

This qualitative survey shows some detailed examinations, such as those of Brice Perrier, Thomas De Wesselow, Sébastien Cataldo, and Thibault Heimburger (hereafter Cataldo).<sup>25</sup> The most detailed analysis appears to be Nicolotti’s examination. Emanuela Marinelli responds to Nicolotti’s previous book, already engaging the issue of the Pray Codex, and arrives at the opposite conclusion.

##### *Balanced evaluations*

Sébastien Cataldo and Brice Perrier’s evaluations are detailed and provide a nuanced conclusion. Cataldo believes that the identification between the Pray Codex and the Shroud of Turin is likely. Nevertheless, he emphasises the subjectivity of his assessment. Throughout

his journalistic enquiry, Perrier utilises interviews with scholars and experts. After a lengthy presentation of the Pray Codex, he explains that the relationship is probable but not sufficiently obvious to be decisive.<sup>26</sup>

The evaluations made by Cardini-Montesano, Cataldo, and Perrier show that it is at least possible to avoid polarisation on a controversial and religious topic. This is valid, whether one is in favour of the so-called forger hypothesis (Cardini-Montesano) or in favour of an antique image (Cataldo, Perrier). Thus, these balanced evaluations contradict Nicolotti, who asserts that the experts in Turin Shroud studies, identified by him as sindonologists—a pejorative term according to him—are not able to consider the analysis of serious scholars reasonably.<sup>27</sup>

### *Polarised conclusions*

Thomas De Wesselow seems to be at a crossroads. In a popular book with more than 300 academic references, this British art historian offers a lengthy argument in favour of the Pray–Shroud identification. To arrive at this certainty, he devotes four pages,<sup>28</sup> relying heavily on Dubarle, the Belgian historian of Law Yvonne Bongert, and Lejeune.<sup>29</sup> De Wesselow’s opinion is based on a methodology that reflects his education. He points to eight ‘telling correspondences’: five for the upper part (the Anointing), and three for the lower part (the Three Marys).<sup>30</sup> These eight telling points are inspired by those presented by Lejeune in 1993. De Wesselow’s approach is more selective, leaving out the most common characteristics (beard and long hair). He does not introduce a comparison with the Christ in Majesty of the Pray Codex. The absence of the thumbs seems a good indication; however, he is aware that some Byzantine artists do not often represent them, even when they should do so according to our current common Western perception. Unfortunately, De Wesselow does not establish a dialogue with sceptics or other recent alternative assessments, such as those of Nicolotti or Frale.

Nicolotti’s detailed treatment of the Pray Codex might appear as a reply to Frale’s book. It illustrates the importance of the Pray Codex in academic discussions. Nicolotti provides the best argument against the relationship between the two images. However, his ostensibly meticulous style and willingly professorial tone paradoxically highlight some surprising shortcomings. We will focus on four of them.

Nicolotti is not surprised by Jesus’ nudity in the Pray Codex. He affirms, without providing any references, that ‘it has been said, wrongly, that in the artistic representations of the time, nudity is very rare’.<sup>31</sup> Presumably, Nicolotti refers only to Jesus’ total nudity, without the perizoma or loincloth. Except for some scenes of the baptism, such as the famous twelfth-century mosaic of Jesus naked behind a veil of water at the Norman palace in Palermo, such artistic representation is exceedingly rare. This rarity is expected, given that the narratives of the crucifixion never mention this feature. During the Scourging, one can think of two early dorsal representations of a naked Jesus: the Psalter of Utrecht and the Psalter of Stuttgart.<sup>32</sup> The deposition of the Cross of the Pray Codex (folio XXVII), by the same author but of better artistic quality, depicts a dressed Jesus without traces of violence, and the thumb of the right hand is well drawn. The closest representation of nudity in the twelfth century is probably found in Berzé-la-Ville (France). It does not represent a crucified Jesus, but the martyrdom of Saint Vincent of Saragossa, naked upon a grill, with his legs held tight. As with the Pray Codex, the Byzantine influence, through Italy, of the painter of Berzé-la-Ville is highly likely.<sup>33</sup> At the beginning of the fourteenth century, there was a ‘gradual move toward total nudity’.<sup>34</sup> In the representations of the Crucifixion, Jesus’s nudity only appears around 1330 (Holkham Bible, folio 32r) and, for the post-crucifixion Christ, at the beginning of the fifteenth century.<sup>35</sup> This begs the question: Why would the Pray Codex miniaturist decide (or be asked) to take this degree of theological liberty?

Nicolotti wants to discredit the evidence of reproduction of the millimetric herringbone pattern of the Shroud on the miniature of the Pray Codex. This unusual pattern of the fabric is visible to the naked eye. However, Nicolotti emphasises that the miniaturist ‘would have to enlarge it dozens of times.’<sup>36</sup> There is no reminder that this enlargement is a common artistic practice, including in this specific case. This pattern is already present on two medieval pilgrimage badges of the Shroud: the medallion of Cluny and the mould of Machy found in 2009, recently made public by Alain Hourseau.<sup>37</sup>

The third point concerns a dark sign on the Pray Codex above the right eyebrow of Jesus. Nicolotti does not think that it is inspired by the trickle of blood, in the form of an epsilon, visible on the forehead of the Turin Shroud man. He describes the marking as ‘an indistinct smudge, which is not similar to the epsilon in terms of its shape or its position (on the Shroud, it is at the center of the forehead).’<sup>38</sup> This location, described as obvious, comes from an extensive conception of the centre of the forehead. On the Shroud, the epsilon is not literally above the nose. If one divides the forehead into two sections, the smudge is undoubtedly on the right side, to such a degree that a drop of blood entirely appears on the right eyebrow.<sup>39</sup> Other drops of blood, without remarkable shapes, are also visible on the right side of the forehead but are absent from Nicolotti’s description. This mark on the right side was part of the characteristics described by Lejeune as intentional after his direct analysis of the manuscript in the Hungarian archives.<sup>40</sup>

To explain the presence of the L-shaped holes, Nicolotti does not hesitate to call on an amateur sindonologist, David Montero, who supports the thesis of a false medieval Shroud.<sup>41</sup> On his website, Montero reviews several dozen Lamentation scenes.<sup>42</sup> He thinks that the poker holes should be interpreted as oculi. Consulting these images paradoxically brings out the unusual character of the scene in the Pray Codex. The oculi are generally larger, three in number, and have a horizontal arrangement. Nicolotti offers alternative explanations: some precious stones, tears shed by women or drops of ointment.<sup>43</sup> The possibility remains that the image does not depict sheets, but decorated sarcophagi. The miniaturist would only have had in mind the Lamentations model, where the stone covering the sarcophagus is offset. There would be no sheets, only a sarcophagus with patterns. However, several points contradict this interpretation. First, there is no two-dimensional effect, yet this effect is present in the upper part of the folio. Second, the angel is seated on a bench that can only be a stone. Third, the red Greek crosses might be an easy reminder of the motifs on the privileged vestments worn by holy bishops from the late eleventh century (*polystaurion phelonion*).<sup>44</sup> Fourth, for De Wesselow, the meeting in the lower-left corner of the two zigzag patterns and cross patterns suggests that ‘the two rectangles are two halves of the same cloth, [...] in accordance with the depiction of the winding sheet in the scene above – and with the Shroud.’<sup>45</sup> Thus, the influence of Byzantine models on the miniaturist does not exclude the evocation of the Turin Shroud.

#### METHODOLOGICAL APPROACHES

##### *Threat of hypercriticism*

Nicolotti’s detailed and critical analysis of this image and its similarity with the Turin Shroud invites speculation about the relationship between Shroud research and hypercriticism, understood here in the same sense popularised in the 1950s by Henri-Irénée Marrou: ‘The obstinacy in disbelief.’<sup>46</sup> Nicolotti tries to convince the reader that he establishes—finally—a welcome critical look into the field of Shroud studies which, according to him, comprise mainly amateurs and Christian scholars misled by their sincere belief in the antiquity of this artifact. On



the other hand, partisans of authenticity remain unconvinced by Nicolotti's historical arguments and evidence: Byzantine scholar Mark Guscini called Nicolotti's sincerity into question.<sup>47</sup> Leading amateur expert Emanuela Marinelli went as far as describing, in a polemical tone, his methodology as

the sum of extreme negationism. Nicolotti is against any possibility that there could be any minimal historical indication that the Shroud existed before the fourteenth century, and this conviction of his is not proposed as an alternative hypothesis to others, but as absolute certainty.<sup>48</sup>

However, the existence of a bridge between unbalanced scepticism and negationism is not absurd, as shown by the intellectual trajectory of French writer Paul-Eric Blanrue. Blanrue, who wrote two books on the Turin Shroud in favour of the medieval hypothesis, is mentioned without reservation by Nicolotti as one of the 'leaders among skeptical scholars' in France.<sup>49</sup> Since 2011, Blanrue has publicly appeared to be won over by the discourse of the negationist Roger Faurisson.<sup>50</sup>

A large number of requirements are used to reject any kind of relationship between the Pray Codex and the Shroud of Turin. However, a justified belief in a relationship does not need to be based on a realistic perspective in the modern—photographic—sense of this expression. The lack of 'realism' in the Pray Codex is beyond doubt.<sup>51</sup> The style of the Codex can be better understood in parallel with modern naïve art.<sup>52</sup> Even in the mid-1530s, reproductions of the Turin Shroud could have lacked important components of a realistic perspective. The imposing Voragno's fresco (more than 6 meters in length), in Italy, depicts an ostension of the Shroud, Jesus being represented with a perizoma and without bloodstains.<sup>53</sup> The miniature offered by Cristoforo Duc does not show blood stains and depicts Jesus with arms crossed above the navel.<sup>54</sup> These two sixteenth-century examples illustrate why the exclusion of many details of the Passion or the image on the Turin Shroud by the Pray Codex artist is not surprising.

The accusations of scholars from opposite sides are linked with suspicions: if one can torture a document to get it to confess, one can also impose silence on it. This implication, in a highly controversial field, may have an impact on one's belief system and lead to faulty reasoning. Regarding the poker holes of the Shroud, Nicolotti also uses circular reasoning: the absence of proof of their existence in 'the early years of the thirteenth century (or that the Shroud itself existed before the fourteenth century).' Another example of this incorrect reasoning process is presented in the last two pages of his book. Here, Nicolotti criticises the research of contemporary palynologist Marzia Boi, who disagrees with the previous identification of pollen samples taken by the criminologist Max Frei in the 1970s. Nicolotti commits a logical fallacy in arguing that 'Frei and Boi's results are in full contradiction and cancel each other out.'<sup>55</sup> Moreover, contrary to other passages of the English version of his book, Nicolotti does not update his text by informing his readers that Boi's conclusions have been published and well-received in a peer-reviewed journal.<sup>56</sup>

### *Intuitive assessments*

The assessments and likelihoods assigned by researchers are often not based on analytical approaches seeking to establish an estimate. These assessments are also not often explicit. Historians and experts frequently rely on a mixture of knowledge of the different artifacts, the period, and relevant prejudices, which come together to develop an opinion. This constitutes 'the expert's experience', which is an intuitive approach. In the art world, it is still used to detect fakes or to make attributions.<sup>57</sup> However, this approach is perilous because of a possible

confirmation bias, which leads to providing an analysis along the lines of previous work or in the direction believed to agree with the opinion of the audience, sponsors, peers, or others. The lack of objectivity in this intuitive approach constitutes a serious obstacle for those who want to impose their convictions. It is often difficult to explain and reproduce an intuitive assessment; in this sense, it only fits into a broad definition of the scientific realm.

However, this intuitive approach should not be rejected. As McCullagh notes, to refuse to accept those conclusions ‘might be to deprive historical scholarship of remarkable insights by learned scholars, and that would be a high price to pay for the right to check all inferences before believing them.’<sup>58</sup> In the case of the Pray Codex, this use of intuition is more easily perceptible in incomplete approaches. For example, based on three main characteristics, Mechthild Flury-Lemberg refers to a ‘remarkable source [...] much more significant than any comparison with an ancient artifact could be, and for the textile historian it is equally powerful.’<sup>59</sup>

### *More systematic approaches*

The reasoning process of researchers and historians shares similarities with the reasoning of a police expert who finds a dozen common features on two fingerprints, emphasising that with the Pray Codex one is leaving the realm of biological certainty to enter the troubled field of intentionality, inspiration, and skill. Another comparable, more subjective discipline could be the writing expertise. These commonalities may explain the expeditious nature of certain analyses. Once singular characteristics have been identified, there is no need to look further, hence, the attributions made by the experts. However, it must be ensured that the accumulation of characteristics is improbable and sufficient to justify a high degree of confidence. In the 1980s, Alan and Mary Whanger used a polarised overlay image technique and detected 145 points of congruence between a solidus of Justinian II (692–695), the first Byzantine coin bearing the facial image of Jesus, and the Turin Shroud.<sup>60</sup> This quantitative technique has been criticised, but it objectively analyses the similarity between the two faces, showing that this way of representing Jesus was already present in the seventh century in Constantinople.<sup>61</sup>

Partial approaches, such as those of Poulle, can refer to classifications that are more objective and less intuitive. However, these classifications have several limitations. Lejeune’s approach does not sufficiently question the frequency of common characteristics in Byzantine art. This failure is likely to view some characteristics as more significant, such as the absence of the thumbs, in some paintings and illuminations of Byzantine inspiration found in the twelfth century.<sup>62</sup>

A more systematic method can sometimes be proposed. According to Nicolotti, ‘the differences are greater than the congruences.’<sup>63</sup> However, this proportion is, as in the Whanger method, difficult to establish. For example, the beard of Jesus in the Pray Codex is not bifid; nevertheless, Jesus is bearded. Thus, this comparison does not lead to a high level of reliability. The ratio between the differences and congruences does not matter. It is sufficient to refer to the representations of the sixteenth and seventeenth centuries to note that significant differences are expected. Major differences would not be surprising for any artist painting the Shroud from memory. On a deeper level, the comparison between differences and congruences leads to the idea that the miniaturist wanted to faithfully reproduce the Shroud of Turin, and not simply evoke it. However, it is perfectly possible to maintain that the artist would have constrained the Shroud by inserting it into the conventional framework of his time. Cataldo hypothesised that the primary goal of the miniaturist was not to reproduce the image on the Shroud, but to evoke some of its features.<sup>64</sup> This miniature would then have been a testimony of faith and spiritual support, without ever being thought of as evidence. An evocation does not seek the accumulation of convincing elements.



The assessment should be influenced by the artistic context. De Wesselow, comparing the Byzantine miniatures, is convinced by the eight revealed similarities. According to the art historian, ‘the only reasonable conclusion is that the artist of the Pray Codex was aware of the Shroud.’<sup>65</sup> Nevertheless, this identification should be immediately nuanced by emphasising that the miniaturist may not necessarily have ever been in the presence of the Shroud.<sup>66</sup>

This systematic listing culminated in the argument developed in 2014 on an amateur blog, *shroudstory.com*, by ‘O.K.’, an anonymous Polish apologist.<sup>67</sup> O.K. attributes a probability, each time extremely low, to six characteristics that he describes as common to the Pray Codex and the Turin Shroud. Those characteristics are proposed as ‘independent, non-trivial and non-disputed’: the nudity of Jesus with his hands crossed on the pelvis (1%), four fingers on each hand with no visible thumb (1%), his legs cut at the end of the page (1%), the zigzag drawing on what can resemble a shroud or a grave (1%), two red lines on the surface of this shroud or grave that may refer to the dorsal blood belt of the Shroud (1%), and four L-shaped holes (0.2%). The stain on Jesus’ forehead is missing. It is, therefore, a systematic and minimal facts approach because it is based on the broadest academic consensus and eliminates some characteristics common to the images.<sup>68</sup>

If one accepts the framework and the given likelihoods, the multiplication of rare characteristics makes the probability of a coincidence infinitesimal. However, one may wonder whether the apologist’s reasoning is correct. These percentages refer to the probability of finding similar characteristics in the same historical context.<sup>69</sup> They are, of course, arbitrary and intended to give an order of magnitude to the reader. The presence of a common characteristic would be sufficient to assign a high degree of reliability, even when it is only 1%. The presence of ‘poker holes’ (0.2%) seems to legitimise the immediate positions taken by some specialists.

The first reflection is to attribute this result to a selection bias. It is expected that hundreds of images will share two characteristics with a low probability, especially since our brain is looking, consciously or unconsciously, for what it already knows (pareidolia effect). These similarities might dispel differences from the researcher’s perspective.

More systematically, a single common characteristic, such as the absence of thumbs (1%), would have no force of conviction. Now, let us consider an image of Jesus with two common characteristics: four fingers on each hand with no visible thumb (1%) and severed legs at the end of the page (1%). Even if one were to increase the probability of these two independent characteristics by an order of magnitude (from 1% to 10% for each of them), the likelihood that both occur would remain very low: 1% ( $0.1 \times 0.1$ ). However, in such a situation, it is safe to assume that a historian would find it difficult to identify with certainty the Pray Codex with the Shroud of Turin. The examination of the first Byzantine funeral lamentations (*epitaphoi threnoi*) illustrates this difficulty: it is impossible to link the Shroud with certainty to such representations. Before the carbon dating results, the art historian Hans Belting seemed to favour this thesis but refrained from deciding for or against it.<sup>70</sup>

Unlike many researchers, O.K. dwells on the two red lines, which he interprets as a reference to the traces of dorsal blood on the Shroud. This interpretation is interesting because the choice of the miniaturist is difficult to explain, apparently having no decorative or symbolic logic.

The accumulation of common points beyond the stylistic conventions of the time or for decorative reasons would be enough to justify a belief. Therefore, these characteristics are neither the beard, nor even the absence of thumbs or even the red Greek crosses, rather, the total nudity of Jesus, the spot on the forehead, the zigzag drawings, the L-shaped holes, and the two red lines starting from the angel’s left foot. This systematic approach has the merit of allowing a better perception of the differences in interpretation between supporters and opponents of the thesis that the Pray Codex is inspired, directly or indirectly, by the Turin Shroud.

*A Bayesian framework*

A frequentist application of O.K.'s reasoning, concerning the number of occurrences, is not without significant obstacles. However, this approach can gain force in a Bayesian framework. Many researchers have often applied Bayesian reasoning without realising it.<sup>71</sup> Unlike the frequentist approach, it insists on the a priori knowledge of the expert (plausibility), reassessed thanks to new data. The failure to consider the Bayesian framework occurs regularly, even among scientists from prestigious institutions.<sup>72</sup> This deficit of comprehension can lead to serious errors for philosophers like Hume and historians alike.<sup>73</sup>

The Bayesian reasoning makes it possible to understand why an extremely low a priori probability can be quickly counterbalanced by evidence that is given strong confidence. For example, I have reason to believe that it is extremely unlikely that I will win the lottery tonight, but if the television news announces my numbers, then my belief in my gain becomes perfectly justified. The high credibility given to this unique witness and the improbability that I will be the victim of an extremely rare error is enough to reverse the extremely low a priori probability.

Even in the case where one piece of evidence, which is not at all convincing, is added to several independent equally weak elements going in the same direction, the hypothesis quickly becomes more likely. The Bayesian approach allows us to understand that some unreliable independent testimonies can quickly lead us from a low probability to a high degree of confidence.

This is the strength of common characteristics. Their independence quickly reinforces the identification hypothesis. Nevertheless, the historical context is important. In the iconographic analysis of the Pray Codex, this likelihood is offset by similar artistic examples or models, such as the Psalter of Ingeborg, of better artistic quality but probably produced two decades later, between 1214 and 1218.<sup>74</sup> The layout of the scene is almost identical, and the two drawings show Byzantine inspiration.<sup>75</sup> That said, the differences are obvious. The folio 028v of the Psalter of Ingeborg represents Christ dressed in a long sheet with only one visible hand (without a thumb) stretched out along his body, and visible injuries to the right palm and right side. Below, one can notice the absence of herringbone weave, large flat bands, and Greek crosses.

In a Bayesian framework, the independent testimony must be considered. Nicholas Mesarites, the sacristan of the imperial palace, mentions the nudity of Jesus with the burial cloths of Christ, made of linen.<sup>76</sup> This is surprising given that the Gospels do not reference Jesus's nakedness during or after the Crucifixion, making this addition difficult to explain in the case of a simple forgery. The nakedness described by Mesarites also implies an image of the relic with more than a face and even more than a torso.<sup>77</sup> The probability is low for the nudity of the artifact mentioned by Mesarites to have separately appeared a few years earlier and especially in a miniature of the Pray Codex; therefore, they probably evoke the same object. Robert de Clari's eyewitness testimony is also coherent with the image of a lengthy cloth, which could have been brought, even weekly, from the Pharos Church to the Church of the Blachernae.<sup>78</sup>

In the hypothesis of the presence of the future Turin Shroud in Constantinople, Nicholas Mesarites could even be part of the explanation to address the 'historical gap' between 1204 and the appearance of the Shroud in Lirey. According to Byzantine historian Michael Angold, Mesarites probably 'did his duty and handed over the relics to bishop Garnier of Troyes.'<sup>79</sup> This early mention in the historical debate of the diocese of Troyes is surprising. Garnier sent 'many relics back to various churches in Champagne.'<sup>80</sup> The translation of most of them was officially recorded, but of course, we have no record of the Shroud.<sup>81</sup> In a manner typical of the historiography of the Turin Shroud, Wilson briefly evokes the possibility of this translation, whereas Nicolotti mentions that Wilson's references are incomplete and, using an argument from silence, rejects every possible relationship.<sup>82</sup>

A modern manuscript highlights the decision-making process. An image of the entombment in a sixteenth-century book of Châlons-en-Champagne (approximately a hundred kilometres from the hamlet of Lirey) contains striking resemblances to the Shroud of Turin.<sup>83</sup> Jesus is wrapped in a white sheet, entirely naked, with his arms crossed and traces of blood all over his body, as well as evidence of the crown of thorns on his forehead, long hair, a forked beard, and hidden feet. The main differences are the presence of the thumbs and the marks of the nails in the palms, and the absence of a dorsal image, an epsilon trace on the forehead, and burn holes on the sheet. These characteristics, in addition to its origin, make it impossible to claim that the Shroud of Turin did not influence this illumination.

Folio XXVIIIr of the Pray Codex, created by an artist influenced by the Byzantine world, where the Shroud allegedly stayed for centuries, contains an image with many unusual common characteristics. The parallel between the manuscript of Châlons-en-Champagne and the Pray Codex shows why it is impossible to claim beyond a reasonable doubt that the Shroud had no influence on folio XXVIIIr of the Pray Codex.

## CONCLUSION

The comparison between the Pray Codex and the Shroud of Turin, reinforced by a credible historical context and combined with a reliable methodological approach, makes the position that the Turin Shroud has absolutely no direct or indirect link with the Pray Codex untenable. The obstacles to certainty remain our incomplete knowledge of this period including artistic practices, the lack of a dorsal image on the Pray Codex, and the absence of definitive testimony. However, it can be said with confidence that the miniaturist of the Pray Codex probably had a direct or indirect link with the Shroud of Turin.

The detailed analysis of the Pray Codex and its historical context does not always protect specialists from omissions, errors, and controversial statements. A Bayesian framework should be privileged to safeguard against important biases and prejudice. A good understanding of the Bayesian mechanism helps to emphasise the importance of common characteristics when they differ significantly from the artistic models of around 1200. The ongoing debate about a possible relationship between the Pray Codex and the Turin Shroud illustrates that iconographic analyses are, in essence, subjective. Moreover, the analysis of this specific controversy helps to understand why some historical debates are still difficult to solve, especially when dealing with religious topics. However, a better understanding and use of historiographical criteria and probability reasoning by historians might constitute a valuable objective basis for solving difficult interdisciplinary disputes.

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