Anatomical Divergence Between Gothic Art and the Shroud of Turin

Introduction

The representation of the Crucifixion in late medieval art reflects the devotional and theological priorities of its time, but it stands in marked contrast to the anatomical precision observed on the Shroud of Turin. Illuminated manuscripts such as Jean Pucelle's Hours of Jeanne d'Évreux (1324–1328) and Jean Le Noir's Prayer Book of Bonne of Luxembourg (before 1349) consistently depict Christ nailed through the palms, with extended thumbs and stylized wounds—details that conform to Gothic iconography yet diverge from physiological reality. These works exemplify the symbolic visual tradition of the 14th century, prioritizing clarity of suffering over anatomical correctness.

The Shroud of Turin, first displayed publicly in Lirey in 1355, presents a strikingly different testimony. Its bloodstains and wound patterns correspond not to the palms but to the wrists, with neuro-anatomical consequences—including thumb retraction—precisely consistent with forensic expectations of wrist crucifixion. No contemporary artwork records such features, nor was such medical knowledge accessible to European artists of the period. The comparison between Gothic imagery and the Shroud therefore raises a profound question: could a 14th-century artisan have produced an image containing anatomical insights centuries ahead of their time?

Hours of Jeanne d'Évreux* (c. 1324–1328, Paris)

The crucifixion miniature in the *Hours of Jeanne d'Évreux*, produced by Jean Pucelle in Paris between 1324 and 1328, exemplifies the refined aesthetic of Gothic manuscript illumination. In this work, Christ is depicted with nails piercing through the palms, his hands relaxed and thumbs extended—consistent with the canonical iconographic norms of the early 14th century.





This illuminated folio from Jean Pucelle's *Hours of Jeanne d'Évreux* (c. 1324–1328, Paris) displays a highly expressive Gothic Crucifixion scene. Christ is shown nailed through the palms - consistent with medieval iconography but anatomically inconsistent with forensic evidence. The Virgin Mary collapses in sorrow, supported by St. John, while onlookers gesture in anguish. Above, angels collect Christ's blood. This artistic tradition sharply contrasts with the Shroud of Turin, which depicts wrist wounds and retracted thumbs—details absent from all known artworks of this period.

The Prayer Book of Bonne of Luxembourg *L'Image du monde* of Gossouin of Metz, c. 1320-1325

The Prayer Book of Bonne of Luxembourg 4 was commissioned shortly before her death in 1349, possibly in response to the Black Death. The Illuminator Jean Le Noir (and potentially his daughter Bourgot) used delicate line, refined grisaille, and richly patterned backgrounds to produce miniatures of spiritual poignancy. A composition in the book features a Crucifixion above a symbolism-rich diagram—possibly referencing Christ's sacrificial wounds and instruments—inviting contemplation of Passion iconography.



The Fauvel Master, miniature of the Crucifixion, the wound of Christ, and the instruments of the passion, detail, folio 140v, in *L'Image du monde* of Gossouin of Metz, c. 1320-1325 (Bibliothèque nationale de France ms. fr. 574)



This illumination of the Crucifixion distinctly shows the nails driven through the palms of Christ's hands. The artist's choice reflects the medieval convention of emphasizing visible suffering, rather than anatomical accuracy, highlighting the wounds as focal points of devotion and meditation on His sacrifice.





Naddo Ceccarelli (Italian, documented ca. 1347), Crucifixion, ca. 1347. Tempera and gold on panel, 76 × 31.6 × 2.5 cm. The Walters Art Museum, Baltimore, acquired by Henry Walters, before 1909 (37.737) 5

Wrist or Palm? Forensic Reality versus Medieval Tradition

In sharp contrast, the Shroud of Turin, which first appeared publicly in 1355 in Lirey, France, portrays the crucified man with bloodstains and wounds corresponding not to the palms, but to the wrists. Forensic studies have confirmed that crucifixion through the carpal space would better support a body's weight and is anatomically accurate, whereas nails through the palms would tear through tissue under tension [1].

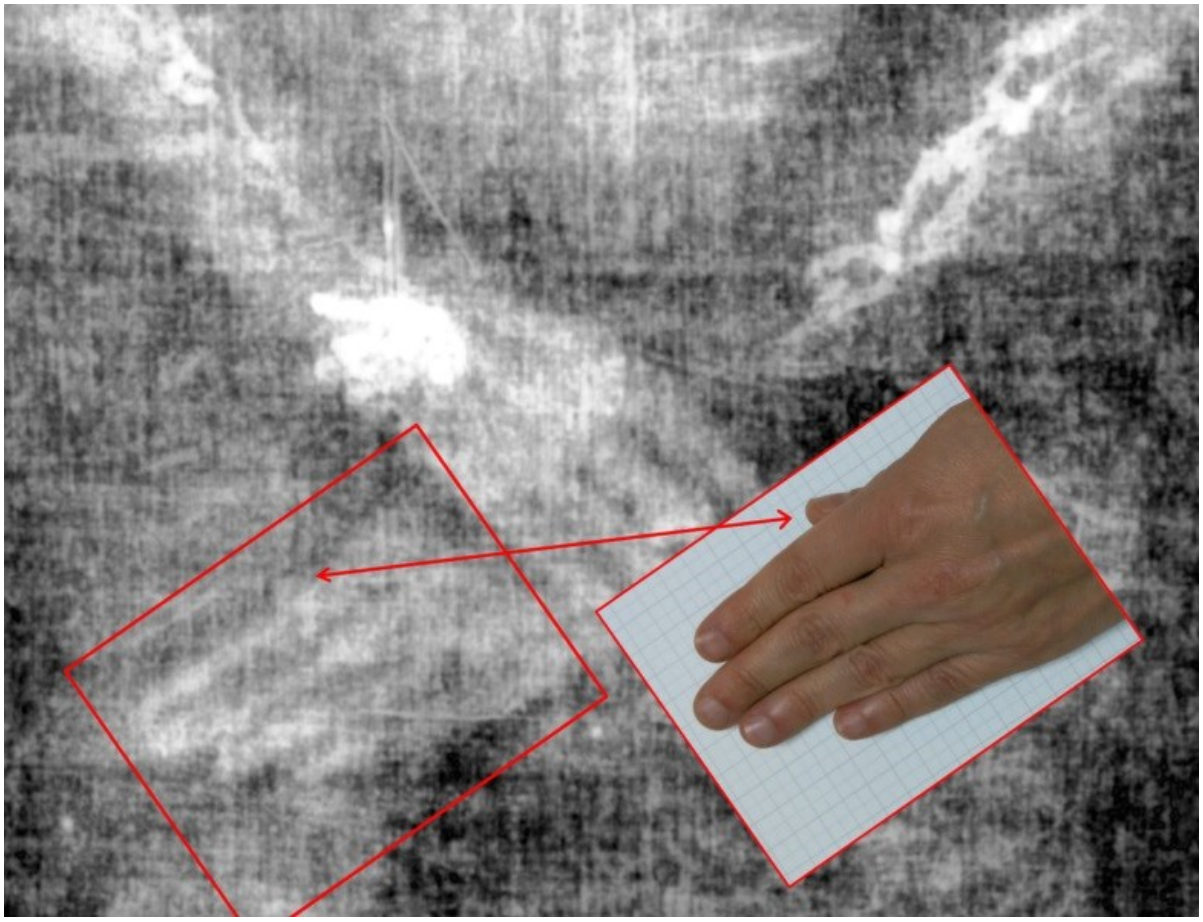


The contrast between forensic reality and medieval art is striking. In historical reality, confirmed by anatomy and the Shroud of Turin, the nails passed through the **wrist at Destot's space**, ensuring structural support and producing nerve damage consistent with the retracted thumbs. This placement is both medically functional and forensically accurate. By contrast, **medieval art**—as seen in the manuscripts - consistently depicts the nails piercing through the **palms**. This tradition was guided less by anatomical accuracy and more by theological symbolism and artistic convention. The palm wounds made the suffering of Christ visually clearer and easier to emphasize in devotional art, even if physiologically implausible. Thus, while forensic evidence points to the **wrist as the true site of crucifixion nails**, medieval depictions reinforced a symbolic image of Christ's suffering that shaped centuries of Christian imagination.



Roman practice likely fixed victims through the wrist, not the palm. The carpal corridor known as Destot's space provides a bony channel that resists tear-out under body weight, unlike the palm's soft tissues. A square iron spike angled slightly proximally engages the carpal complex and the radius, securing the patibulum attachment. Penetration at this site often irritates the median nerve, producing intense pain and reflex flexion with the thumb folding inward, a sign consistent with forensic observations. Texts describing wounds to the "hands" reflect Semitic usage that includes the wrist. Palm nailing is largely a later artistic convention, not biomechanics.

Furthermore, the absence of visible thumbs on the Shroud is consistent with median nerve damage - a known consequence of wrist penetration - that causes muscular contraction and thumb retraction [2].



Right hand region analysis: comparison of the thumb image of the TS left hand, partially visible under the index finger, with that of a photograph of a man's hand 174 cm tall. The red rectangular box has sizes of 11.3 and 14.5 cm. [3]

No known artwork from the same period depicts this neuro-anatomical detail. If the Shroud were a forgery, one would expect it to reflect the artistic and anatomical conventions of its time. Yet Jean Pucelle, a master of his craft and working just 30 years earlier in the same cultural milieu, portrayed the crucifixion according to long-standing visual tradition: nails in the hands, full thumb visibility, and stylized rather than anatomically precise suffering. There is no evidence in any 14th-century manuscript or painting of the scourging patterns, blood dynamics, or nerve response seen on the Shroud image. The divergence cannot be dismissed as artistic license. The physiological realism present on the Shroud—retracting thumbs, radial blood flow from wrists, rigor mortis flexure, and anatomically coherent scourge marks—suggests either empirical anatomical observation or access to knowledge centuries ahead of its time [3]. Such forensic accuracy would have been impossible for a medieval artist, as neither anatomical dissection nor neurovascular knowledge had yet emerged in European medicine to this degree. Thus, when juxtaposed with the *Hours of Jeanne d'Évreux*, the Shroud appears to originate from a vastly different paradigm—one that privileges anatomical exactitude over stylized symbolism. Its realism contradicts both the aesthetic vocabulary and physiological naivety of its alleged era of origin. If forged, it was forged not in imitation of medieval art, but in defiance of it—rendering the forgery hypothesis increasingly untenable.

Concluding Remarks

The divergence between Gothic crucifixion iconography and the forensic realities encoded on the Shroud of Turin is more than stylistic—it represents two radically different paradigms. Medieval artists such as Jean Pucelle and Jean Le Noir consistently adhered to the convention of nails through the palms, visible thumbs, and highly symbolic compositions. Their intent was devotional, not anatomical, and no artwork from the 13th or early 14th century betrays knowledge of neurovascular detail, rigor-induced

posture, or realistic blood dynamics. By contrast, the Shroud exhibits precisely those forensic markers: nail entry through the wrist at Destot's space, thumb retraction from median nerve trauma, radial blood flows, anatomically coherent scourging, and rigor mortis flexure. These features align with modern medical and forensic knowledge but remain wholly absent from the artistic and anatomical vocabulary of the Middle Ages. If the Shroud were a product of a 14th-century forger, we would expect it to replicate the prevailing visual grammar of its time—palms pierced, stylized wounds, symbolic rather than empirical anatomy. Instead, it defies those conventions and presents a level of anatomical accuracy centuries ahead of contemporary understanding. This sharp divergence constitutes powerful evidence that the Shroud's image is not the invention of a medieval artist, but a witness to a reality that transcends the limits of 14th-century art and medicine.

Bibliography

1. Pucelle, Jean. *The Hours of Jeanne d'Évreux*. Paris, 1324-1328. Illuminated manuscript on vellum. The Metropolitan Museum of Art, The Cloisters Collection, New York (accession number 54.1.2). Link. (This Gothic illuminated book of hours, created for Queen Jeanne d'Évreux, contains canonical depictions of the Crucifixion showing nails through the palms and visible thumbs, representing standard medieval iconographic conventions.)

2. Fanti, G., Basso, R., & D'Arienzo, M. (2014). How was the Turin Shroud Man crucified? *Injury*, 45(2), 142-148. Link. (This study uses digital image analysis to examine anatomical details of the crucifixion wounds on the Shroud, revealing previously unseen features including evidence of wrist nail placement and thumb positioning consistent with median nerve damage.)

2. Retief, F. P., & Cilliers, L. (2013). Crucifixion and median neuropathy. *SA Medical Journal*, 103(6), 380-382. Link. (This paper examines the neurological effects of crucifixion, specifically how nail placement through the carpal tunnel would damage the median nerve, causing thumb retraction—a detail precisely depicted on the Shroud of Turin.)

3. Fanti, G., & Gaeta, S. (2016). Turin Shroud hands' region analysis reveals the scrotum and a part of the right thumb. *Comptes Rendus Biologies*, 339(1), 16-25. Link. (Advanced digital enhancement of the Shroud image reveals anatomical details invisible to the naked eye, including partial visibility of the right thumb in an unnatural position consistent with median nerve damage from wrist crucifixion.)

4. The Prayer Book of Bonne of Luxembourg, Duchess of Normandy Attributed to Jean Le Noir French before 1349 Link

5. THE JOURNAL OF THE WALTERS ART MUSEUM VOL. 70–71, 2012–2013 Link