

Did the Shroud of Turin originate as a latent image?

Abstract

The Shroud of Turin has been purported to be the burial sheet of the historical Jesus of Nazareth or a type of medieval artwork. Although often heralded as the most studied archaeological artifact in the world, it remains to be determined how the faint image of a scourged and crucified man was imprinted upon the cloth. A wide range of possibilities have been proposed for the molecular basis of image formation, including artistic applications, natural chemical reactions, and the projection of radiant energy. With the latter, the image is proposed to have been inscribed on the cloth instantaneously, within the fractions of a second. An apparent dichotomy exists: if immediate, why is there no specific mention of an image in the Gospel narratives or the remaining New Testament canon? For those who believe the Shroud is non-authentic, the answer is obvious. In a balanced outlook, though, the possibility should be considered that the image may not have been immediately visible. Here, recent experimental findings are discussed in consideration of the idea that the image on the Shroud of Turin may have developed in a latent manner.

Key words: Shroud of Turin, image, latent, energy

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The Shroud image and the Gospels

The Shroud of Turin is a 1.1 meters wide x 4.4 meters long cloth bearing the life-size image of scourged and crucified man (Figure 1). When the Shroud is displayed publicly, approximately every 25 years or so, millions of visitors stand in line for a viewing opportunity, even if it may only last for a few brief moments. If authentic, there is no way of knowing how the appearance of the image or the background might have changed over two thousand years. It is interesting to speculate, however, as to what the disciples may or may not have seen when stooping to enter the tomb on Easter morning. Both the gospels of Luke and John describe that the discarded linen was found lying within the tomb, but no reference to an image is made. In Luke's narrative, it is said that Peter went away, wondering to himself what had happened, without further mention of any specifics of the cloth. When the disciple Thomas asked for physical proof of Jesus' resurrection, this would have been an opportune time for his companions to mention that an image had been etched on the burial sheet. However, the narratives are silent in this regard. The scriptures relate that in the days and weeks following Jesus' death, there was a general lack of realization and awareness among his inner circle that his resurrection had been foretold and accomplished. If an image had been immediately imprinted onto the burial cloth, surely this would have contributed to their understanding that something miraculous had taken place.

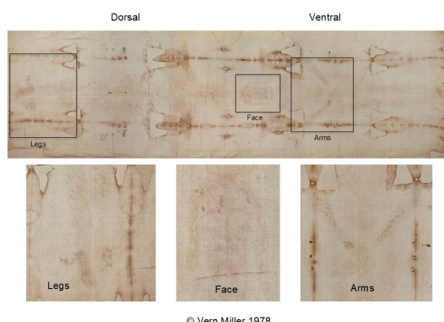


Figure 1 The Shroud of Turin. Ventral and dorsal images are visible on the 1.1 meters wide x 4.4 meters long cloth. Highlighted regions are shown in close up below the full-length figure.

The C-14 dating controversy and artistic attempts to replicate the Shroud image

Doubters of the Shroud's credibility may maintain that the lack of mention of a cloth image in the Gospels is supportive of the idea that the relic was created much later, during the medieval period. This time frame is in agreement with the carbon (C-14) dating results, although controversy accompanies the data¹⁻⁴. The principal arguments supporting the C-14 results are that the 1260-1390 data range was obtained by three separate accelerator mass spectrometry laboratories; and matches the earliest clearly verifiable historical appearance of the Shroud in Lirey, France. Challenges center around inter-laboratory heterogeneity, with the samples showing a shifting, spatial gradient of ages. Variation in the dated age was observed, correlating with the sample distance from the edge. As all the samples originated from only one localized strip, it has also been argued that the results are not representative of the entire cloth¹⁻⁴.

Certain artistic approaches to reproduce the Shroud have been performed in the past, including the use of applied pigments, acid, and photosensitive chemicals. To date, all current artistic attempts to fully replicate the Shroud's features have fallen short, particularly at the microscopic level⁵. However, all efforts rely on observations made in 1978 in the singular investigation of the whole cloth that was performed. Apart from the C-14 dating experiment in 1988, which was limited to an ~3 inch x 1 inch strip, no additional examination has been conducted.

Initial suggestions that the Shroud image may have developed in a delayed manner

For those who favor an authentic viewpoint, recent findings on the potential interrelatedness of blood and image properties may reconcile the noted omission of the Shroud's image within the gospels (see below). This apparent disparity is not problematic if the image developed in a delayed or dormant fashion. Samuel Pellicori, who was part of the scientific team that examined the Shroud over a continuous five day period in 1978, was the first to suggest that the Shroud may have been initially devoid of an image. He hypothesized that natural skin secretions or applied ointments were transferred to

linen by contact, providing local photo- or thermal-sensitization for accelerated degradation of the thread surfaces over time^{6,7}. The delayed development of an image is referred to “latent coloration”. Specifically, the initial processes necessary for an image to occur have taken place, but the image is not yet apparent. Only after the passage of time or following exposure to heat is the image fully visualized. Scientist Ray Rogers, who was also a member of the 1978 scientific investigation team, proposed that a natural type of Maillard reaction was involved in image formation and was able to reproduce fibers that were macroscopically and microscopically similar to those on the Shroud⁸. He also suggested that the image may have appeared in a delayed type of manner.

Irradiation of linen and latent coloration

One of the most interesting properties of the Shroud image is that it is extremely superficial, residing only on the uppermost portion of the top two or three fibers of the linen threads^{5,9}. To place this context, each fiber is approximately 10 times thinner than a human hair. Although the molecular basis for the formation of the image remains unknown, a popular theory among authentic Shroud proponents is that radiant energy projected from the body, affecting the cellulose at the surface level. Obviously, this type of experiment involving a body may not be replicated in a laboratory; however, scientists have developed a system using short (nanosecond) laser pulses in the vacuum ultraviolet to create superficial and Shroud-like coloration of linen^{5,10,11}. This method provides an approximate representation of the physical characteristics of the Shroud image at both the macroscopic and microscopic level.

Two types of linen coloration using laser irradiation have been established, that which is seen immediately (at or above the threshold for instant visualization), and a lower dose which affects the linen but to a much lesser degree, such that it is not immediately visible. Coloration is detectable, however, when the sample is allowed to age naturally, or with a brief exposure to heat^{11,12}. As described previously, this type of delayed visibility is referred to as latent coloration. A demonstration of latent and immediate coloration of irradiated linen is presented in Figure 2 (Figure 2).

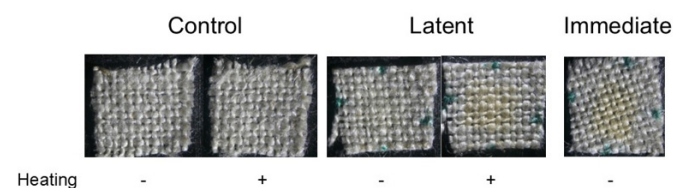


Figure 2 Effect of irradiation on linen coloration. Control and irradiated linen were evaluated before and after heating for visualization of color. Two radiation levels were used: **Latent**, which corresponds to an energetic setting below the threshold for instant visualization of color, and **Immediate**, which is above the threshold. When latent treatment is used, the color will become visible following a brief exposure to heat (shown here) or by natural aging.

Reconciliation of radiation effects on bloodstains and linen coloration in the formation of the Shroud image

The image is noticeably the main feature of the Shroud but there are also numerous bloodstain regions, several of which show visibly separated serum, indicative of the transfer of clotted blood^{13,14}. For the Shroud to be authentic, the bloodstains would have had to transfer to the cloth prior to the imaging event. As the bloodstains on the Shroud appear undamaged, any hypothesis involving radiant energy projection would necessitate that bloodstains would be relatively

unaltered by this occurrence. In 2018, the same scientific group that established parameters for laser treatment in the Shroud-like coloration of linen found that irradiation conditions corresponding to immediate coloration vaporized bloodstains. For bloodstains to remain undamaged, laser pulse conditions had to be weakened to the latent level¹². Recent studies using a similar type of laser system have confirmed and extended these findings, using both blood and serum. Experiments were also performed to examine the linen fibers underneath following radiation treatment¹⁵. Microscopic evaluation showed perturbation of both blood and serum, even at the upper range of latent settings. Only under lower-level latent conditions did the bloodstains appear unharmed. Serum was found to be less protective of underlying fibers than blood¹⁵. Together with previous results, such data support the idea that if the Shroud image were created by radiant energy, it may have been initially undetectable, existing in a dormant (latent) state until revealed by exposure to heat or natural aging. This assertion is based on the observations that conditions required for immediate visualization of color were not compatible with bloodstains remaining undamaged. A schematic figure of this process is shown in Figure 3 (Figure 3).

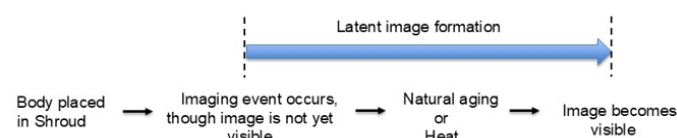


Figure 3 Latent formation of the image on the Shroud of Turin. See text for details.

Clearly, such evidence that the Shroud image developed in a latent fashion is primarily indirect and should not be considered to represent a demonstrated mechanism. To speculate as to precisely when the image may have become visible in a latent-type scenario is futile, although it is plausible that this would likely have occurred relatively early in the development of Christianity. Related to this point, there are no definite historical records of the Shroud's existence prior to the 14th century, although there is considerable circumstantial evidence to suggest that the Shroud may have subsisted before this time period⁵.

The interpretation of the events proposed in this article is hypothetical and would clearly benefit from further supporting evidence. It is feasible that future studies may show that energetic conditions can be defined that fulfill both aspects of instant linen coloration and lack of perturbation of bloodstains. It is also possible that alternative image creation mechanisms that achieve the totality of the Shroud's characteristics may be uncovered, including those that rely solely on natural or artistic means. Though often viewed as separate but related subjects, a more detailed study of the Shroud's blood marks may help to provide valuable insight into how the image may have been created.

Summary

In summary, this article discusses the possibility that recent findings on irradiation of bloodstains on linen are consistent with the idea that the Shroud image may have developed in a latent (delayed) manner.

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This paper is dedicated to the memory of Kelvin R. Kears.

References

1. Damon PE, Donahue DJ, Gore BH, et al. Radiocarbon dating of the Shroud of Turin. *Nature*. 1989;337:611–615.
2. Casabianca T, Marinelli E, Pernagallo G, et al. Radiocarbon dating of the Shroud of Turin: new evidence. *Archaeometry*. 2019;61:1223–1231.
3. Marino JG. *The 1988 C-14 Dating of the Shroud of Turin: A Stunning Exposé*. Joseph Gerald Marino Publishing; 2020.
4. Freer-Waters R, Jull AJT. Analysis of textile fragments from the 1988 radiocarbon samples of the Turin Shroud. *npj Heritage Sci*. 2026;14:263.
5. Jackson JP. Critical Summary of Shroud Observations, Data and Hypotheses. Turin Shroud Center of Colorado Publishing; 2019.
6. Pellicori SF, Evans MS. The Shroud of Turin through the microscope. *Archaeology*. 1981;34:34–43.
7. Pellicori SF. Spectral properties of the Shroud of Turin. *Appl Opt*. 1980;19:1913–1920.
8. Rogers RN. *A Chemist's Perspective on the Shroud of Turin*. Raymond Rogers Publishing; 2008.
9. Schwalbe LA, Rogers RN. Physics and chemistry of the Shroud of Turin: a summary of the 1978 investigation. *Anal Chim Acta*. 1982;135:3–49.
10. Di Lazzaro P, Murra D, Nichelatti E, et al. Superficial and Shroud-like coloration of linen by short laser pulses in the vacuum ultraviolet. *Appl Opt*. 2012;51:8567–8578.
11. Murra D, Di Lazzaro P, et al. Shroud-like coloration of linen by nanosecond laser pulses in the vacuum ultraviolet. ENEA; 2015. Accessed August 2026. ResearchGate publication
12. Di Lascio A, Di Lazzaro P, Iacomussi P, et al. Investigating the color of the blood stains on archaeological cloths: the case of the Shroud of Turin. *Appl Opt*. 2018;57:6626–6631.
13. Kears KP. Ultraviolet 365 as an alternative light source for detection of blood serum. *J Forensic Sci*. 2020;65:1716–1721.
14. Kears KP. A simple, natural mechanism for the transfer of dry bloodstains onto the Shroud of Turin. *Int J Archaeol*. 2023;11:17–21.
15. Kears K. The sequential addition of blood and image to the Shroud of Turin. *Int J Archaeol*. 2026;16–26.