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Enigma of the Shroud of Turin

Abstract

In lieu of an abstract, below is the essay's first paragraph.

"There is an unbroken historical record of the Shroud from fourteenth-century France to its current residence in Turin, Italy. Although its whereabouts before that time are unknown, circumstantial evidence has been used to try relating it to earlier contexts in the Middle East (Maher, p.67), including the Gospel accounts. Church authorities challenged the authenticity of the Shroud of Turin from the time of its earliest known historical appearance. French Bishop Pierre d'Arcis complained in 1389 to Pope Clement VII, during the Avignon Papacy, about something the bishop considered to be a forged shroud being promoted for gain within his diocese. The two primary questions regarding the Shroud have concerned its age and the origin of its image."



Justin A. Tubiolo

ENIGMA OF THE SHROUD OF TURIN

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ABSTRACT: This is a composite of information about the Shroud of Turin, which had been considered until recently to possibly be the burial cloth of Jesus of Nazareth. With its age established, the principal remaining mystery concerns the origin of its life-sized, photographic negative image of a crucified man, complete with torture wounds and bloodstains. A hypothetical scenario forwarded here allows that the image on the Shroud was NOT a purposeful forgery, and probes the possibility of its creation through very unusual circumstances, assisted by indirect human activity in medieval Europe.

There is an unbroken historical record of the Shroud from fourteenth-century France to its current residence in Turin, Italy. Although its whereabouts before that time are unknown, circumstantial evidence has been used to try relating it to earlier contexts in the Middle East (Maher, p.67), including the Gospel accounts. Church authorities challenged the authenticity of the Shroud of Turin from the time of its earliest known historical appearance. French Bishop Pierre d'Arcis complained in 1389 to Pope Clement VII, during the Avignon Papacy, about something the bishop considered to be a forged shroud being promoted for gain within his diocese. The two primary questions regarding the Shroud have concerned its age and the origin of its image.

Throughout the intervening centuries, questions and claims about the Shroud abounded. One of the more extraordinary ideas to be proposed was that the image could have been the work of Leonardo da Vinci, secretly studying the science of photography (Picknett, p.147). This is quickly dismissed, however, when one considers Bishop d'Arcis' 1389 letter documenting the Shroud before Leonardo was born (1452-1519). Only during the last few decades have numerous facts been determined which offer parameters for theories regarding this remarkable object. Much of the information derives from work done in the 1970s-1980s, when an interdisciplinary team of scientists - working on a voluntary basis - turned a great deal of attention to the Shroud. The team was begun by U.S. Air Force physicists John Jackson and Eric Jumper and was known as the Shroud of Turin Research Project, or STURP. Many other individuals also made scientific contributions and added to the ever-growing accumulation of information about the intriguing artifact.

Each conceivable avenue of investigation has, in turn, been applied to the Shroud. Some tests have helped to resolve questions, while others have raised new questions surrounding its existence. Examination of the linen by Gilbert Raes of the Ghent Institute of Textile Technology,

in Belgium, was unable to pinpoint the place of its manufacture, indicating either Europe or the Middle East as possibilities (Wilson, p.34). Either location is compatible with the first historical appearance of the Shroud in fourteenth-century France, in a locale known to be an import center of Middle Eastern goods. Swiss criminologist Max Frei analyzed pollen harbored in the weave, and suggested the cloth had traveled widely throughout the Mediterranean region and the Middle East (Wilson, p.38). Jumper and Jackson utilized a NASA space image analyzer to observe lateral distortions in the image (Wilson, p.47) which agreed with the notion that the cloth had been wrapped around a 3-dimensional object. Alan Adler, a specialist in blood chemistry from Western Connecticut State University, determined that the blood at the wound sites on the image was certainly deposited before the addition of the photographic body image itself (Lavoie, p.59, 111). This suggests there was a sequence of actions that created the composition of the Shroud's features. What actually composes the image, however, still remains unknown. The image is definitely not painted, for no pigment has been detected microscopically or through chemical reagents, x-rays, or any other means. Adler discovered that the yellow image is not formed by the addition of anything, but by a chemical change or degradation of the cellulose in the linen fibers.

The age of the woven linen is a key factor in our understanding of the Shroud of Turin. The original method of carbon-14 dating, developed in the late 1940s, could not be used on the Shroud because it would necessitate destroying too much of the object itself. That changed in May 1977, when a new method of radiocarbon analysis called accelerator mass spectrometry (AMS) was invented at the University of Rochester by Harry Gove and associates. Gove addressed this topic in his presentation to the Lewis Henry Morgan Chapter of the New York State Archaeological Association on February 11, 1994 (Gove, 1994). Independent AMS tests were run on snippets of cloth from the Shroud at three different international laboratories in May 1988. The results of all three coincided, and the samples were reliably dated to A.D.1260-1390 (Gove, 1996, p.287). The Shroud of Turin, therefore, is too young to have been the actual burial cloth of Jesus. This discovery was met with disbelief on the part of many who irrationally preferred clinging to the notion that the cloth originated further back in antiquity (Gove, personal communication).

With its age established, the principal remaining question is determining the nature of the haunting image on the Shroud. Microscopic examination of the yellowed image area shows that nothing has been added or applied to the cloth. Natural yellowing of materials like cloth and paper occurs with age as plant cell walls degrade; and it has been asserted that the cellulose of linen might also degrade, or oxidize, in the presence of a suitable biochemical catalyst (Nickell, p.135). Hypothetically, the microscopic "corrosion" of flax fibers forming the Shroud's image might be the product of contact with a compound that catalyzed the cellulose degradation.

To accommodate all of the factors noted above, let us indulge in a flight of fancy and envision the following line of reasoning. Good Friday pageants, also known today as "Living Stations of the Cross," are performed around the world. Medieval pageants sometimes incorporated statues of the dead Christ being placed in a tomb and draped with a shroud (Wilson, p.72). Sepulcher statues of Jesus are relatively uncommon today, although one is open to public viewing in the sanctuary of the Franciscan Monastery in Washington, D.C. It may be possible that the Turin Shroud was one such dramatic prop. A sepulchre statue, daubed with blood and wrapped in linen during a medieval Holy Week pageant, could conceivably account for the Shroud's bloodstains. Delving into the issue of the yellow photo image on the Shroud, our train of thought must leap a bit further. Let us suppose the actors in said pageant applied something to the sepulchre statue to "anoint" the dead Christ, as with burial ointments. Or perhaps a freshly carved wooden statue - still "green" - might have exuded some organic substance that reacts with and degrades flax cellulose? The obvious question would be as to which chemical agent(s) could react with linen to yield a modest attack on its plant cell walls, yet leave no trace to be detected thus far? No relevant experiments have been reported. The ceremonial props (statue and shroud) could

remain in contact inside a sarcophagus until used again the following year. Discontinuation of a community's annual Good Friday pageant might leave a neglected, shroud-wrapped sepulchre statue undisturbed for many years. Meanwhile, would it be possible for the oxidation of cellulose to imprint the statue's figure upon the cloth? Additional questions arise regarding conditions of ambient light, temperature, and humidity. This scenario has been viewed as "interesting" by some (Jumper, 1994, correspondence), but unlikely by others. There are no other existing instances of unexplained images, and no reported observations of any natural process that creates a photographic image of this sort.

I wondered how plausible it would be for an organic specimen such as piece of carved, green wood to imprint its image on another cellulose-based medium like linen or paper. To gain a realistic assessment of this, I visited botanist Martin Vaughan in his laboratory at the Rochester Institute of Technology. Together, we opened hundreds of pressed botanical specimens that had been preserved for decades. The few pale stains encountered were the merest silhouettes of leaves; or were due to simple transference of plant juices to the paper before drying. None of these specimens displayed anything resembling a shroud-like "image" or photo contact print of the pressed plant. We concluded that ordinary processes do not create impressions such as those observed on the Shroud of Turin (Vaughan, 1994, personal communication).

Regardless of how the image was created, the Shroud of Turin has existed for seven centuries or more, and it bears meaning for us in a broader perspective. Nuclear physicist D.J. Donahue is a Roman Catholic who supervised the 1988 AMS dating of the Shroud at the University of Arizona. A man of faith as well as reason, he said, "I was hoping it would be 2,000 years old. I admit I was disappointed. It's not the true burial cloth of Christ, but my religious faith never was based on the Shroud. The [radiocarbon] measurement is done and gone. I have pride in the result. If called upon, I would defend it ... Many scientists, including myself, have faith. Some see the hand of God in nature. I'm one of those" (Wentzel, p.12C). Gove aptly states, "In my view it is certainly not a hoax and, unless a plausible, scientifically valid reason is found for the radiocarbon date being too young, it cannot be a relic. I believe it is an icon and, arguably, the most important icon in Christendom at that" (Gove, 1996, p.309).

We must remember that miracles are not supernatural, but are the coincidences of natural phenomena in meaningful ways. If, for example, the Shroud's image is the result of a reaction between linen and green wood, such as through a Good Friday pageant, then we must recall that the original purpose for the association of those two materials in a pageant was to rekindle the faith of Christians. The Shroud has done an incredible job of this for many centuries.

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