

# Shroud of Turin: Why the Controversy

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By Daniel R. Porter

In *Surprised by Hope: Rethinking Heaven, the Resurrection, and the Mission of the Church*, N. T. Wright, the Anglican bishop of Durham, lists several reasons that people use to argue that the resurrection didn't really happen: Jesus didn't really die, mistaken identity by the women at the tomb, cognitive dissonance, a vision later exaggerated, and so forth. But what he doesn't mention, and it is the reason I encounter often, is that resurrection just seems too unbelievable for people with a modern scientific worldview. Marcus Borg takes that point of view in *Meeting Jesus Again for the First Time*.

Creationists reject evolution. Atheists reject the existence of God. Worldview, whatever it may be, all too often shapes the evidence we are willing to consider. The Shroud of Turin, rejected by many people and accepted by others is an excellent example. I know. I did not need to know anything about it. It was—and to some extent still is—because of my worldview, too implausible to be possibly real. Like a creationist or an atheist, this theologically liberal Christian soaked in modern revisionism, was too convinced to consider evidence. My mind was made up. Had someone told me he thought it really was the burial cloth of Jesus, I would have thought he was a fool. Ridiculous!

But many people do believe it is real. How can we account for that?

Philip Ball, who for many years was the physical science editor of *Nature*, that most prestigious international journal of science, wrote in an interesting commentary in early 2005, in *Nature's* online edition. It was significant because it was *Nature* that published the results of carbon dating of the shroud in 1988 that showed that the shroud was medieval. Ball wrote:

The scientific study of the Turin shroud is like a microcosm of the scientific search for God: it does more to inflame any debate than settle it. . . . And yet, the shroud is a remarkable artifact, one of the few religious relics to have a justifiably mythical status. It is simply not known how the ghostly image of a serene, bearded man was made. It does not seem to have been painted, at least with any known pigments.

Ball was acknowledging that the carbon dating was suddenly no longer deemed conclusive. We could no longer say, with any scientific certainty, that it was medieval. In fact, it was much, much older and it could be 2000 years old. Ball was also acknowledging that no one knows how the image of a man, who appears to have been crucified, was made. That is a fact. After decades of research, nobody, even in a modern laboratory, can duplicate the image with all of its unique characteristics.

But carbon dating is not the whole story. A microscopic examination in 1978 apparently revealed that the images—there are two, frontside and backside—of a man that appear on the cloth, along with bloodstains, were painted. And an ancient document, written in 1389, by Pierre d’Arcis, the bishop of Troyes, explained that a painter had confessed to creating it. So what was Ball talking about? New findings, as it turns out. But does that make it real?

Many people believe it is. Why? Are they religious fanatics who simply reject scientific evidence that contradicts entrenched religious beliefs, just like creationists reject evolution? Are they part of a lunatic fringe who, like those who with cameras in hand, wait by the shores of Loch Ness hoping to get a good picture of the monster just so they can prove to the world that the mythological creature really exists?

Sure. That is part of the reason. But many researchers—scientists, historians, archeologists, forensic experts, image specialists—have serious misgivings about the validity of the carbon dating. And they challenge the claims by a modern-day microscopist and the medieval bishop that the images were painted. Collectively, with the evidence they have amassed, they can’t tell you if the shroud is genuine or how the images were formed. But they can show you that it is probably not a medieval fake relic. And that seems to be good enough.

Ball, in his article in *Nature*, was acknowledging the seminal work by Raymond Rogers, a retired chemist from the Los Alamos National Laboratory—home of the Manhattan Project during World War II. Rogers had been honored as a Fellow of this prestigious UCLA laboratory. In his home state of New Mexico, he was a charter member of the Coalition for Excellence in Science Education. For several years he served on the Department of the Air Force Scientific Advisory Board. He had published over fifty peer-reviewed scientific papers in science journals; which is no small achievement. In 1978, he had been selected as one of many scientists chosen to study the shroud. Wrote Ball, “He has a history of respectable work on the shroud dating back to 1978, when he became director of chemical research for the international Shroud of Turin Research Project.”

From his work on the shroud, the only thing Rogers concluded was that the shroud images were not painted. He did not offer an opinion on its possible authenticity. Following the carbon dating, he accepted the conclusions. He had complete respect for the technology and the quality of work done by the carbon dating labs. But others were not so easily convinced. There were other reasons to think it might be the real thing. For one thing, there were profound mysteries about the images that made it seem impossible to think that some faker of relics could have created them. Those who still thought it might be real sought explanation for why the medieval carbon date might be wrong.

To be perfectly honest, some measure of religious fanaticism came into play. Many hypotheses were developed and some of them were unscientific and weird. Rogers rejected all of them. He had a disdain for poor science, pseudo-science, and for anyone who ignored well established

scientific methods. Those who persisted in defending and promoting unscientific theories in defense of the shroud's authenticity, he criticized, calling them the "lunatic fringe of shroud research."

But one hypothesis was gaining traction, particularly on the internet. Two researchers, M. Sue Benford and Joe Marino, were suggesting that the sample used in the carbon dating was not part of the shroud but instead part of a medieval repair; a section of the cloth mended using a technique known as invisible reweaving. It is a technique practiced by medieval tapestry restorers and practiced today by tailors to repair tears in expensive clothing. Several textile experts who examined documenting photographs of the carbon dating samples believed there was visual evidence of reweaving. Based on estimates from these photographs, and based on a historically-plausible date for reweaving, Ronald Hatfield of the radiocarbon dating firm Beta Analytic provided estimates that showed that the cloth might be 2000 years old.

Rogers was skeptical. According to Ball, "Rogers thought that he would be able to 'disprove [the] theory in five minutes.'" (brackets are Ball's). Well, he didn't. *Inside the Vatican*, an independent journal on Vatican affairs, reported:

Rogers, who usually viewed attempts to invalidate the 1988 study as 'ludicrous' . . . set out to show [Benford's and Marino's] claim was wrong, but in the process, he discovered they were correct.

Rogers discovered evidence of nearly invisible mending: dyestuff and spliced thread. Just to be sure, he sent samples to John L. Brown, formerly Principal Research Scientist at the Georgia Tech Research Institute's Energy and Materials Sciences Laboratory. Working independently and using different methods, Brown agreed with Rogers. He wrote:

This would appear to be obvious evidence of a medieval artisan's attempt to dye a newly added repair region of fabric to match the aged appearance of the remainder of the Shroud.

So how does this explain a wrong date? It turns out that if you date a mixture of materials—threads in this case—from two different time periods, you will arrive at a date that is not accurate for either material. It is something of a weighted average of the two. If you know the quantity of each part of the mixture and the true date of one part, you can estimate the date of the other. Hatfield was not so much attempting to do that—to argue that the shroud was 2000 years old—but demonstrating that it could be that old. There is some historical evidence that the cloth was mended in 1531 and if this is true, and if about 60% of the carbon dating sample was newer material from mending then the cloth could be 2000 years old.

But the most stunning discovery by Rogers was that the shroud fibers did not contain the chemical compound vanillin. Just as in the vanilla bean, but in smaller measure, flax fibers contain vanillin. Over time, it disappears through decomposition. Under normal conditions it

takes at least 1300 years for all of the vanillin to disappear. If the carbon dating had been correct, then about 40% of the vanillin should still be present in the cloth. But none remained. The shroud, it seems, is at least twice as old as the carbon date. With that, at least for the time being, the last best hope for proving the shroud a fake vanished.

## **But what about claims that the shroud was painted?**

This is a classic case of how a selective, single opinion from a single expert gains traction as a fact. That expert was Walter McCrone, a renowned microscopist. One of his specialties was detecting forgeries in art and historical artifacts.

In 1965, Yale researchers discovered a map that was believed to have been made before Christopher Columbus' first journey to America. The map, showed Vinlandia Insula, the Island of Vinland, or Newfoundland as it is known today. It was significant because it supported archeological and documentary evidence (the *Icelandic Chronicles*, the *Graenlendinga Saga* and *Eirik's Saga*) of Norse landings in Newfoundland. If it was genuine, it provided chronological proof that by the time Columbus made his famous journey of discovery, some people in Europe clearly knew about North America.

In 1972, McCrone examined some particles of ink from the map and found titanium anatase, a chemical compound discovered in the 1920s. He thus concluded that the map was a recent forgery. Yale, he declared, had been duped.

Several people doubted McCrone's conclusion including George Painter, the curator of ancient documents of the British Museum. There were wormholes in the map and wormholes in a volume of *The Tarter Revelation* which was reliably dated by contemporaneous references to the Katatas people (Mongols) who dominated one end of the Eurasian landmass. There were also references to a certain bishop of Gada and Greenland that further corroborated its ancient provenance. The wormholes on the map and pages in the ancient volume aligned perfectly, clearly showing that they had been bound together at one time.

In 1985, physicist Thomas Cahill, of the University of California at Davis, analyzed the map using particle induced x-ray and found only minute traces of titanium anatase. These amounts were consistent with what would be expected, naturally, in the common green vitrol ink of the 15th century. McCrone's claim evaporated. But his reputation was at stake and he defended his visual observations and his conclusion until his death in 2002.

In 1978, McCrone was afforded the opportunity to examine some fibers taken from the surface of the shroud. He found microscopic particles that he concluded were inorganic paints (iron oxide and mercuric sulphide). He concluded that the shroud images and the bloodstains had been painted. But as with the Vinland Map, many doubted him.

Many scientists examined shroud fibers before and after McCrone's microscopic examination, and none of them found any paint. In fact, they all concluded that the images were formed by dehydrated organic substance, not paint. The shroud was examined with visible-light, ultraviolet, x-ray fluorescence and infrared spectrometry. No paint was found. Following McCrone's claim, additional tests were performed. Fibers were examined using pyrolysis-mass-spectrometry at the National Science Foundation Mass Spectrometry Center of Excellence at the University of Nebraska. No paint was found.

In fact, Mark Anderson, who worked for McCrone, did not agree with his boss. Anderson used laser microprobe Raman spectrometry to demonstrate that what McCrone thought was Hematite was in fact an organic compound. McCrone was simply wrong.

### **But then what are we to make of the 14<sup>th</sup> century document written by bishop Pierre d'Arcis, also claiming it was painted**

In isolation this document seems damning. But examined carefully and in the context of several contemporaneous documents it becomes questionable. First of all, it is only a draft of a letter that the author intended to send to the pope. There is no record of it in Vatican archives, either in Rome or in Avignon. It is at best hearsay. An unnamed painter apparently confessed at an inquest to Pierre's predecessor, Henry of Poitiers, conveniently dead. There is no record of this inquest. Pierre's peers, we learn from other documents, doubted his veracity and questioned his motives. Pierre, himself, lamented about this distrust. It seems that it was all about money and politics. Pierre was the bishop of Troyes. The shroud was being exhibited at nearby Lirey; and it was to that town that pilgrims with bags of coins were flocking rather than to his cash-strapped cathedral with its numerous relics of saints. Given what we now know from science, that the images on the cloth were not painted, the letter is meaningless.

### **So what do we know?**

Not much. We don't the shroud's age. It is probably much older than the carbon date. And as Ball reminds us, "[it] is simply not known how the ghostly image of a serene, bearded man was made." This has resulted in imaginative speculation, some of it serious scientific hypothesis, some of it bizarre notions. Some, but not everyone who thinks the shroud might be genuine, suggest that the images might be miraculous, perhaps caused by Jesus' resurrection. For in this age when the resurrection is severely questioned by non-believers and believers alike—was it a physical act, a spiritual reality, a metaphor or pure fiction—wouldn't it be nice to have tangible evidence? Ball, in this regard, is correct; the shroud is like a microcosm of the scientific search

for God. Prove the resurrection and you have come very close to proving that God exists. But is that possible?

## Encountering the Shroud

The first thought-provoking encounter I had with the shroud was on a flight to Miami. I was reading *Desire of the Everlasting Hills*, Thomas Cahill's book about the Roman-Hellenistic-Hebrew world just before and after Jesus' appearance on the world scene. Suddenly I found myself laughing out loud, something I rarely do alone in the company of strangers, particularly on a plane. Cahill suggested that the shroud might have been a treasure of the early church. That is when I laugh. "How ridiculous," I remember thinking; "how can anyone think the Shroud of Turin is the actual burial shroud of Jesus?" The fact that the Shroud of Turin has an image on it, believed to be a picture of Christ, made it seem beyond preposterous.

I do remember being surprised that I knew so little about the Shroud of Turin. Then in my mid-fifties, I had always been an avid reader of history, particularly early church history, and I couldn't recall ever reading anything about the shroud. It was so far from being something I cared about that I never paid it any attention. It might have stayed that way for me if not for a single, enigmatic fact that Cahill mentioned: the picture on the Shroud of Turin was a negative.

I knew something about the subject of negatives. Rather than marveling at this fact, I doubted it. I was so convinced, without any reason to be so, that the shroud was a fake I doubted the images were negatives, at least not grayscale negatives. Yet I doubted that Cahill and other scholars were fooled by this. I had to see for myself.

A grayscale simply means that light or dark tones of what we see, say in a face, is represented in an image as shades of grey between black and white. We typically call this a black and white picture or a monochromatic picture. The monochrome need not be gray. It could be brown, as in a sepia tone picture, but the brown scale is still called a grayscale. A grayscale negative simply means that black and white and all the shades in between are reversed.

Crude negatives have existed for a long time in bas-relief rubbings, carvings used for block printing and, in a sense, statuary casting molds. But these are not grayscale negatives. As far as I know, and anybody knows, nobody in the world had ever seen a grayscale negative before the invention of the photographic negative by Henry Fox Talbot in 1834—more than four centuries after Pierre d'Arcis claimed that someone painted the shroud's images.

I was certain that no artist, no craftsman, no faker of relics, painted a negative of a human face without a negative to copy. The mind fights against us if we try. It is relatively easy, with talent and training, to paint a picture of what we see in the world. And an artist, if he is imaginative, like Picasso, can alter that perception in stylistic ways. But the one thing he can't easily do is to

perfectly reverse black and white, light shades and dark shade and all shades in between. Try it. It is near impossible.

Moreover, why would someone do so if he could? We would not even know that the images were negatives until 1898 when an Italian photographer took the first photograph of the shroud and discovered, to his complete surprise that his negatives were positives images—in photography, a negative of a negative is a positive. Along with new scientific-quality photographs, taken in 1978 and again in 2002, extraordinary details were noticed. There are contusions and anatomical detail only a modern pathologist understands.

But imagine, for just a moment, that he could. As Cahill observed, it would have taken a Rembrandt to paint such a realistic image of a man. In the 14<sup>th</sup> century, and in the centuries preceding, no one was painting realistic pictures of people. A brief survey of the history of art makes this clear. And doing so in negative was very hard to imagine.

Observers of these characteristics—negativity and seemingly extraordinary realism (photorealism)—led some to speculate that the shroud might be a medieval proto-photograph. But the same battery of tests that revealed no paint pigments on the shroud also showed that there was no photosensitive emulsion. Without it, you don't have a photograph. Image analysis by Don Lynn of the Jet Propulsion Laboratory in California also showed that it was not a photograph. And there is no historical evidence, whatsoever, that photograph might have been invented in the medieval era. It is difficult to believe that such an invention was made, used only once for two life-size negatives on a single fourteen-foot long sheet of linen, and was never mentioned or used again until it was “reinvented” in an age of science.

## **The Bigger Mystery**

When we look at the shroud we see what looks like pictures of a man. What to our eyes seem like the highlights, lowlights, and cast shadows of reflected light on a human form is not light at all. It is certainly not light as a camera would detect it or an artist would see it and translate it to canvas. Technical image analysis reveals no directionality to the implied light; not from above or below, not from the right or the left, not from the front.

So what does the image represent if not reflected light? It turns out that with computer software we can plot the relative lighter and darker areas of the image and produce a three-dimensional elevation of the body. With computerized virtual reality we can view the body from different angles. We can see the slope of the nose, the recesses of the eye sockets and the shape of the torso. The image seems to be a graphic representation of the distance between any part of the body and the cloth. That doesn't mean that the image is distance encoded, but there is yet no other credible explanation.

This fact is amazing and puzzling. It is important to note that works of art, artifacts or relics of any kind will not produce an apparent 3D plot like the one produced from the shroud. Researchers have tried every imaginable artistic method including paintings, photographs, bas-relief rubbings, images produced by scorching using hot statues, and daubing the surface with pigment dust. Nothing works to produce a 3D plot; nor should any of these methods work when the physics of the image are understood.

This is startling. There is nothing at all like this image in the known history of art.

## History and the Shroud of Turin

As science reveals new information about the shroud, new historical information was coming to light. Indeed, there is evidence that the cloth, now called the Shroud of Turin, really was a treasure of the early church as Cahill had suggested; not the Pauline communities mostly in what is now Greece and western Turkey, but the Church in the East including a community in Edessa.

Edessa, in the Fertile Crescent of the upper Mesopotamia, between the Tigris and the Euphrates, was a major city on the Silk Road and undoubtedly one of the earliest Christian communities. If you traveled from Jerusalem to Antioch, you were two thirds of the way to Edessa. Instead of turning westward towards Tarsus, you would turn right for Edessa. There is some evidence and a strong tradition that the apostle Thomas and a disciple named Thaddeus Jude (Thaddeus of the 70, Thaddeus of Edessa) went to Edessa as early as 33 CE. There is an early, documented legend that suggests they carried with them a cloth bearing an image of Jesus. In 544 CE, a cloth, with an image thought to be of Jesus, was found above one of Edessa's gates in the walls of the city. Gregory Referendarius of Constantinople would later, after seeing the cloth, describe it as having a full-length image and bloodstains. There is strong evidence that the Edessa cloth is in fact the Shroud of Turin. Numerous writings, drawings, icons, pollen spores and limestone dust found on the shroud and forensically specific to the Middle East attest to this.

If this is so, how interesting these poetic words from the apocryphal Thomasine literature of Edessa now seem. They are from the "Hymn of the Pearl," a poem arguably as old as the first half of the first century. As a figure of speech, Jesus, is speaking in the first person in this poem:

Suddenly,  
I saw my image on my [burial] garment  
like in a mirror  
Myself and myself through myself [or myself facing outward and inward]  
As though divided, yet one likeness  
Two images but one likeness of the King [of kings]

These words resonate with the two head-to-head images we see seemingly reflected on the Shroud of Turin: like in a mirror . . . facing outward and inward (front and back images) . . . as though divided . . . yet one likeness . . . two images.

The brackets in the poem above represent different interpretations of how the poem should be translated. There are many different translations. We can't be sure if the versions we have today were translated from Syriac to Greek or from Greek to Syriac and back again to Greek, and that would make a difference. We can't be sure if the words are as old as some suspect. The poem is found in the Acts of Thomas which is probably from the first half of the 3<sup>rd</sup> Century but the poem seems, to some scholars, to be from the 1<sup>st</sup> or 2<sup>nd</sup> Century Parthian Period. Many attribute it to the Syrian Gnostic poet, Bardaisan of the royal court of Edessa (154-222 CE).

Regardless of the particulars, it is nonetheless, much older by many centuries than the medieval carbon dating. It is, after all, highly descriptive of the images on the shroud or it is extraordinarily coincidental.

## Controversy

So long as no one can explain how the images on the shroud were formed, so long as there is some possibility that it might be an actual burial shroud of a crucifixion victim, and if that is so, so long as no one can explain why it did not rot away in a tomb as all other burial shrouds did, it will test worldview incredulity.

I'm reasonably confident that it is authentic: it is the burial shroud of Christ. Even so, I feel the tug of worldview incredulity. And in recognizing that tug, I see how atheists and fundamentalists and people of really any faith perspective can minimize or ignore evidence for the sake of their religious beliefs. I do. My faith in Christ is not dependent on the shroud. It never was and I hope it never will be. For me, the shroud has been instructive into how I handle worldview, how I think and how I believe what I do.

There is, of course, another side to the argument about the shroud's authenticity. Regrettably, since Rogers published his peer-reviewed challenge to the carbon dating in January of 2005 [Rogers, R. N., "Studies on the radiocarbon sample from the Shroud of Turin," *Thermochimica Acta* 425/1-2, 189-194 (2005)], there has been little written. Here are links to three skeptical articles written since Rogers paper. None of them are peer-reviewed.

- [Nickell, Joe. \(2005\). Claims of Invalid "Shroud" Radiocarbon Date Cut from Whole Cloth. CSICOP On-line. + Ray Rogers' Letter to the Editor Regarding Joe Nickell's Article in Skeptical Inquirer](#)
- [Ingham, Richard. \(2005\) Turin Shroud confirmed as a fake](#)
- [Wilson, N.D. \(2005\) Shadow Shroud](#)

For older skeptical articles you should visit the [The Skeptical Shroud of Turin Website](#). It contains many links, however many of the papers are out of date with scientific developments.

For a pro-authenticity site, I recommend [The Shroud of Turin for Journalists](#).

For further study, I recommend the following:

- Benford, M. Sue, and Joseph Marino. "New Historical Evidence Explaining the 'Invisible Patch' in the 1988 C-14 Sample Area of the Turin Shroud." [Shroud of Turin Website](#) ed. Barrie Schwartz. Sep 2005. July 2006. <http://shroud.com/pdfs/benfordmarino.pdf>
- Benford, M. Sue, and Joseph Marino. "Historical Support of a 16th Century Restoration in the Shroud C-14 Sample Area." [Shroud of Turin Website](#) ed. Barrie Schwartz. 2002. Aug 2006. <http://www.shroud.com/pdfs/histsupt.pdf>
- Brown, John L. "Microscopical Investigation of Selected Raes Threads from the Shroud of Turin." [Shroud of Turin Website](#) ed. Barrie Schwartz. 2005. July 2006. <http://www.shroud.com/pdfs/brown1.pdf>
- Currie, Lloyd A. "The Remarkable Metrological History of Radiocarbon Dating [II]." [Journal of Research of the National Institute of Standards and Technology](#) (U.S. Department of Commerce, U.S. Government Printing Office) 109.2, (Mar-Apr 2004): 185-217
- Heller, John H., and Alan D. Adler. "A Chemical Investigation of the Shroud of Turin," [Canadian Society of Forensic Science Journal](#) 14 (1981): 81-103
- Marino, Joseph, and M. Sue Benford. "Evidence for the Skewing of the C-14 Dating of the Shroud of Turin Due to Repairs." [Shroud of Turin Website](#) ed. Barrie Schwartz. 2000. July 2006. <http://shroud.com/pdfs/marben.pdf>
- Meacham, William. [The Rape of the Shroud](#), New York, Lulu Press. 2005 (ISBN: 1411657691)
- Muldoon, Shena, "Was the Dating a Hoax?" [Inside the Vatican](#), 13.2 (Mar 2005): 23-26
- P. E. Damon, et al, "Radiocarbon dating of the Shroud of Turin," [Nature](#), 337 (1989):611-615.
- Rogers, Raymond N. "Studies on the radiocarbon sample from the Shroud of Turin." [Thermochimica Acta](#) 425.1-2 (Jan 2005): 189-194
- Rogers, Raymond N., and Anna Arnoldi. "Scientific Method Applied to the Shroud of Turin: A Review." [Shroud of Turin Website](#) ed. Barrie Schwartz. 2002. July 2006. <http://www.shroud.com/pdfs/rogers2.pdf>