

# The Shroud Still Speaks

## *Why the Latest Defense of the 1988 Carbon Dating Collapses Under Scrutiny*

*A Response to Freer-Waters and Jull (2026)*

**By Jeremiah J. Johnston, Ph.D.**

Author of *The Jesus Discoveries* (New York Times Bestseller)

---

On April 18, 2026, a new paper by Rachel Freer-Waters and A. J. Timothy Jull was published in the Nature Portfolio journal *Heritage Science*, titled "Analysis of textile fragments from the 1988 radiocarbon samples of the Turin Shroud."<sup>1</sup> The paper examines two archived fragments (A1A and A1B) retained by the University of Arizona from the 1988 sampling, and concludes that these fragments are "consistent with the main body of the Shroud and show no evidence of contamination."

This conclusion will be repeated in headlines. It will be cited by skeptics. It will be offered as the final word on a question that is anything but settled.

It is not the final word. It is not even a serious engagement with the actual evidence. And those of us who have handled the Shroud, traveled to Turin, stood before the cloth, and examined the documented chemistry owe the public an honest assessment of what this paper actually shows — and, more importantly, what it conspicuously avoids.

I want to thank the researchers and colleagues whose careful analysis of this paper has informed my response, particularly Joseph Marino, Teddi Pappas, and the Polish researcher who publishes as O.K., whose technical insights shaped the framework below.<sup>2</sup>

Here is the truth: the Freer-Waters and Jull paper is superficial microscopy dressed in the language of definitive conclusion. It does not refute the chemical evidence assembled over two decades. It does not address the statistical anomalies in the 1988 raw data. It does not engage the documented history of Savoy-era repairs. And in its own admissions, it quietly concedes the very points that unravel its case.

Let me walk through this carefully.

---

<sup>1</sup>Rachel Freer-Waters and A. J. Timothy Jull, "Analysis of textile fragments from the 1988 radiocarbon samples of the Turin Shroud," *npj Heritage Science* 14 (2026): 263, <https://doi.org/10.1038/s40494-026-02530-7>. Published online April 18, 2026.

<sup>2</sup>"O.K." is the online pseudonym of a researcher at a Polish university who has followed the Shroud scientific literature for many years and contributes substantive technical analysis to Shroud research correspondence. He publishes under this pseudonym to avoid professional backlash in his academic setting. His observations quoted and referenced in this article were circulated in private correspondence dated April 23, 2026, responding to the Freer-Waters and Jull paper.

---

## 1. The Paper Concedes What It Claims to Refute

Before addressing the weaknesses, we must notice something extraordinary. Buried in the paper's own discussion section are three admissions that, taken together, dismantle the confidence of its conclusion:

**Admission One:** "The presence of a 3/1 herringbone twill weave structure is very unusual for an early European linen textile, a point that has been often cited by scholars."<sup>3</sup>

**Admission Two:** "Since the 1988 sampling, evidence has only mounted: a linen twill is very unique for the measured date and for later centuries."<sup>4</sup>

**Admission Three:** "We acknowledge that these fragments represent a small, potentially non-uniform subset that may differ from other samples taken from the Shroud."<sup>5</sup>

Read those three sentences again. The authors acknowledge that the weave is singular — atypical for medieval Europe, atypical for later centuries, and without a known comparator that would justify the 1260–1390 CE range. They acknowledge that their tiny sample may not represent the cloth as a whole. And then they defend the medieval date anyway.

This is not how science works. When the physical properties of a textile are "highly atypical" for the proposed date, the proposed date is what must be questioned, not the textile. The authors' own closing sentence reads: "The combination of warp and weft density, z-twist yarns, and 3/1 twill structure is highly atypical and merits further study."<sup>6</sup> Indeed it does. But that admission cannot coexist with the confident defense of a medieval provenance. You cannot have it both ways.

---

## 2. The Chemistry They Refused to Do

The most significant absence in this paper is what is not present: chemistry.

Freer-Waters and Jull conducted optical microscopy and scanning electron microscopy on a sample measuring roughly 2 x 1.5 millimeters.<sup>7</sup> That is the size of a pinhead. From this, they declare "no significant surface contamination that would have interfered with a <sup>14</sup>C date."<sup>8</sup>

**Let me be direct: you cannot see chemistry with a microscope.**

---

<sup>3</sup>Freer-Waters and Jull (2026), Discussion section.

<sup>4</sup>Freer-Waters and Jull (2026), Discussion section.

<sup>5</sup>Freer-Waters and Jull (2026), Discussion section.

<sup>6</sup>Freer-Waters and Jull (2026), Discussion section, concluding paragraph.

<sup>7</sup>Freer-Waters and Jull (2026), SEM section. The paper states the examined SEM sub-section measured approximately 2 x 1.5 mm.

<sup>8</sup>Freer-Waters and Jull (2026), SEM section.

The late chemist Raymond Rogers, a Fellow of the Los Alamos National Laboratory and a member of the original STURP team, conducted the only comprehensive chemical examination of the radiocarbon sample area ever performed.<sup>9</sup> His findings, published in *Thermochimica Acta* in 2005, documented specific molecular differences between the carbon-14 corner and the main body of the Shroud:

- **Vanillin** — a degradation product of lignin found in plant fibers — was present in the carbon-14 threads and in the Holland backing cloth added in 1534, but entirely absent from the main body of the Shroud and from the Dead Sea Scrolls. Vanillin dissipates over time. Its presence in the corner and absence in the main cloth is a chemical signature of different ages.<sup>10</sup>
- **Cotton fibers** spliced into the linen threads in the radiocarbon corner — not surface contamination, but fibers integrated into the yarn structure itself.<sup>11</sup>
- **Madder root dye and alum mordant** found in the corner, consistent with a medieval re-weaving intended to match the cloth's aged appearance.<sup>12</sup>

None of this chemistry was tested by Freer-Waters and Jull. They did not analyze for vanillin. They did not perform pyrolysis-mass-spectrometry. They did not test for dyes or mordants. They looked at fibers under a microscope and pronounced the area clean.

And here is where the credibility problem becomes impossible to overlook. Freer-Waters and Jull do cite Rogers in their bibliography — but they cite him only once, in passing, in the opening historical paragraph, where they note that the STURP group "included multiple scientists and physicists from the U.S. government agencies."<sup>13</sup> They acknowledge Rogers' existence. They do not engage a single one of his findings. They do not discuss the vanillin. They do not discuss the cotton. They do not discuss the dye and mordant chemistry. They do not mention that Rogers' 2005 paper specifically concluded — and these

---

<sup>9</sup>Raymond N. Rogers, "Studies on the radiocarbon sample from the Shroud of Turin," *Thermochimica Acta* 425, no. 1-2 (January 20, 2005): 189–194, <https://doi.org/10.1016/j.tca.2004.09.029>. Rogers was a Fellow of Los Alamos National Laboratory and served as Director of Chemical Research for the 1978 Shroud of Turin Research Project (STURP).

<sup>10</sup>Rogers (2005), abstract: "Pyrolysis-mass-spectrometry results from the sample area coupled with microscopic and microchemical observations prove that the radiocarbon sample was not part of the original cloth of the Shroud of Turin." See also Rogers's finding that vanillin was present in the radiocarbon corner and the Holland cloth (added 1534) but absent in the main body of the Shroud and in samples from the Dead Sea Scrolls.

<sup>11</sup>Rogers (2005), 191–192. Rogers documented cotton fibers integrated into the yarn structure of the radiocarbon sample, not merely as surface contamination.

<sup>12</sup>Rogers (2005). The radiocarbon sampling area was found to be "uniquely coated with a yellow-brown plant gum containing dye lakes" — consistent with madder dye and alum mordant used in medieval reweaving to match aged cloth.

<sup>13</sup>Freer-Waters and Jull (2026), References section, citation 19: "Rogers, R. N. Studies on the radiocarbon sample from the Shroud of Turin. *Thermochim. Acta* 425, 189–194 (2005)." The Rogers paper appears only in the historical preamble as part of the authors' brief characterization of the STURP group. No section of the Freer-Waters and Jull paper engages Rogers' chemical findings, despite those findings being the most substantial published challenge to the 1988 dating's interpretation of the sample area.

are his words in *Thermochimica Acta* — that "the radiocarbon sample was not part of the original cloth of the Shroud of Turin."<sup>14</sup>

This is not accidental. The only reason to cite a paper in this fashion — a glancing mention in a historical footnote without any engagement with its actual scientific claims — is to create the appearance of scholarly completeness without incurring the burden of refutation. It allows the authors to say, if challenged, that they "referenced" Rogers. But a reference is not an engagement. And in peer-reviewed science, a reference without engagement on the central contested point is an evasion.

There is a further point that must be made plainly, because it cuts to the logic of the entire Jull and Freer-Waters study. The authors' argument is, in essence: we looked at the fragments under a microscope and we did not see evidence of a reweave, therefore there is no reweave. But that argument misunderstands the problem entirely. The entire point of a skilled sixteenth-century invisible reweave — the very technique described in the documented historical testimony of the House of Savoy and confirmed in principle by museum textile specialists — is that it cannot be seen. A reweave that can be easily detected by microscopy is, by definition, not a skilled invisible reweave. The fact that the cotton and the chemical markers of reweaving cannot be seen with a microscope is not a refutation of the reweave hypothesis. It is precisely why Rogers' chemical analysis was necessary in the first place. You do not catch a skillful forgery by looking harder; you catch it by applying a different kind of test altogether.

Critics of Rogers have sometimes speculated that a "local microclimate" near the 1532 fire could explain accelerated vanillin loss in the corner. But as O.K. correctly observes, this is speculation without evidence: the carbon-14 sample is no closer to the 1532 burn marks than other areas STURP examined, and there is no mechanism by which handling would drive vanillin below detection thresholds. Rogers' chemical findings stand, unrefuted, on the evidentiary record.

A microscopic survey of the fiber surface cannot answer a molecular question. To claim otherwise is to confuse categories of evidence.

---

### 3. The "No Repair" Claim Contradicts the Documentary Record

The authors lean heavily on the late textile conservator Mechthild Flury-Lemberg's assertion that a trained eye would detect "even the most skillful repair."<sup>15</sup> They cite her 2007 article and dismiss the reweave hypothesis as "unlikely even before any examination of the <sup>14</sup>C fragments."

This claim collapses when confronted with the historical record.

---

<sup>14</sup>Rogers (2005), 193 (conclusion): "The radiocarbon sample was thus not part of the original cloth and is invalid for determining the age of the shroud." See also the paper's abstract, cited above in footnote 10.

<sup>15</sup>Mechthild Flury-Lemberg, "The Invisible Mending of the Shroud, the Theory and the Reality," British Society for the Turin Shroud Newsletter 65 (2007).

In his book *The Untold Story of the Holy Shroud*, Carlos Evaristo documented an interview with King Umberto II of Savoy, the last custodian of the Shroud from the royal House of Savoy.<sup>16</sup> The King confirmed that a tradition existed — passed through the family that had owned the cloth for centuries — that at some point the edges of the Shroud had become so worn and tattered that the custodians commissioned repairs, rewoven "using identical techniques, but obviously with similar, yet newer, materials containing dyes and other medieval manufacturing ingredients, in an attempt to better blend the new sections in, as best possible, with the original fabric."<sup>17</sup>

This is not speculation. This is testimony from the family that held the Shroud. And the 1694 intervention of Blessed Sebastian Valfré — a formally beatified figure of the Catholic Church — is historically documented as a conservation intervention distinct from the Poor Clare nuns' work of 1534.<sup>18</sup>

Even Enzo Delorenzi, a textile expert with direct access to the Shroud, observed that "more pairs of hands have carried out the darning than is suggested in the historical records."<sup>19</sup>

The claim by Freer-Waters and Jull that "no cleanings or conservation treatments are documented until the conservation treatment of 2002" is simply inaccurate. They have either not consulted the primary sources or have chosen to omit them.

Further, Thomas Campbell, former director of the Metropolitan Museum of Art and a specialist in historical textiles, has stated plainly that "the sixteenth century weavers were magicians."<sup>20</sup> The notion that a skilled sixteenth-century reweave could not deceive even an expert eye — particularly in a cloth of handspun yarns with naturally varying thread widths — is not a scientific claim. It is an assumption.

---

## 4. The Statistical Evidence That Rendered the 1988 Dating Untenable

If Section 2 addresses the chemistry the new paper refused to do, this section addresses the mathematics it refused to engage. And the mathematics are devastating.

For nearly three decades, Shroud researchers requested the raw radiocarbon data from the three testing laboratories and were refused. In 2017, after Freedom of Information Act requests, the British Museum

---

<sup>16</sup>Carlos Evaristo, *The Untold Story of the Holy Shroud* (Regina Mundi Press I.C.H.R., 2011), 218. Evaristo documented interviews with King Umberto II of Savoy, the last custodian of the Shroud from the House of Savoy before its transfer to the Holy See in 1983.

<sup>17</sup>Evaristo (2011), 218.

<sup>18</sup>On Blessed Sebastian Valfré's 1694 repair work, see Ian Wilson, *The Shroud of Turin* (New York: Doubleday, 1978); and Joseph G. Marino, *The 1988 C-14 Dating of the Shroud of Turin: A Stunning Exposé* (Independently Published, 2020).

<sup>19</sup>Enzo Delorenzi, quoted in Sue Benford and Joseph G. Marino, "Discrepancies in the Radiocarbon Dating Area of the Turin Shroud," *Chemistry Today* (Chimica Oggi) 26, no. 4 (2008): 4–12.

<sup>20</sup>Thomas P. Campbell, former Director of the Metropolitan Museum of Art, email to Sue Benford and Joseph G. Marino, May 17, 2002. Cited in Sue Benford and Joseph G. Marino, "Textile Evidence Supports Skewed Radiocarbon Date of Shroud of Turin," available at <https://www.shroud.com/pdfs/textevid.pdf>.

released more than 700 pages of internal documentation — including the actual subsample-by-subsample measurements that had been withheld from the public since 1988.<sup>21</sup> In 2019, Tristan Casabianca, Emanuela Marinelli, Giuseppe Pernagallo, and Benedetto Torrì published the results of their statistical reanalysis in *Archaeometry* — notably, the peer-reviewed journal founded by Edward T. Hall, the very director of the Oxford radiocarbon laboratory that participated in the 1988 test.<sup>22</sup>

What the raw data revealed is fatal to the confidence placed in the 1988 result. I will state each finding plainly.

**First, the three laboratories did not agree with each other.** The 1989 *Nature* article claimed the results were consistent across Arizona, Oxford, and Zurich. The raw data showed otherwise. Arizona's minimum radiocarbon date was 591 years before present. Oxford's minimum was 730 years before present. Arizona's maximum was 701. Oxford's maximum was 795.<sup>23</sup> These are not minor variations within error margins. These are statistically significant disagreements between laboratories that were supposedly testing pieces of the same cloth.

**Second, even within a single laboratory, the measurements were not consistent.** Arizona's own internal results ranged from 540 to 701 years before present — a spread of 161 years on pieces cut from the same strip of cloth.<sup>24</sup> Applying the Ward and Wilson chi-square test — a standard method in radiocarbon science for determining whether measurements can be combined — Casabianca and colleagues found that Arizona's raw data failed the test. The calculated value was 19.24 against a critical threshold of 14.07. The null hypothesis of homogeneity was rejected.

**Third, the OxCal analysis — the standard Bayesian diagnostic tool used across the radiocarbon community — collapsed when applied to the raw data.** The overall agreement index should be at least 60% for a result to be considered homogeneous. For Arizona Raw 1 combined with the Oxford and Zurich published dates, the agreement index was 18.1%. For Arizona Raw 2, it was 28.4%. For Arizona's

---

<sup>21</sup>All raw data referenced in this section come from Tristan Casabianca, Emanuela Marinelli, Giuseppe Pernagallo, and Benedetto Torrì, "Radiocarbon Dating of the Turin Shroud: New Evidence from Raw Data," *Archaeometry* 61, no. 5 (2019): 1223–1231, <https://doi.org/10.1111/arcm.12467>. On 18 July 2017, the British Museum released a 211-page file of internal documentation in response to a Freedom of Information Act request. In September 2017, author T. Casabianca visited the British Museum and scanned more than 500 additional pages, giving researchers access for the first time to documentation previously withheld since 1988.

<sup>22</sup>*Archaeometry* was founded in 1958 by Edward T. Hall, who served as Director of the Oxford Research Laboratory for Archaeology and the History of Art — the same Oxford laboratory that performed one of the three 1988 radiocarbon tests on the Shroud. The journal's publication of Casabianca et al. (2019) carries particular weight given this institutional history.

<sup>23</sup>Casabianca et al. (2019), Table 1 and accompanying discussion, 1224. The inter-laboratory heterogeneity test (Ward and Wilson chi-square) for Arizona Nature vs. Oxford Nature vs. Zürich Nature returned a value of 8.60 against a critical value of 5.99 (df = 2), rejecting the null hypothesis of homogeneity.

<sup>24</sup>Casabianca et al. (2019), 1225, Table 1. The Ward and Wilson chi-square test applied to Arizona Raw 1 returned a value of 19.24 against the critical value of 14.07 (df = 7), indicating the eight Arizona subsample dates are not statistically consistent with one another. Arizona Raw 2 returned 14.45, also above the critical threshold.

internal dates alone, the agreement index was 21.4%.<sup>25</sup> These numbers are not close calls. They are well below half of what an acceptable result requires, and they signal — in the words of the OxCal documentation itself — "the presence of at least one problem in the data, probably due to a flawed measurement or contamination."

Fourth, the Kruskal–Wallis non-parametric test applied to Arizona's eight radiocarbon atom count sessions returned p-values below 0.0001.<sup>26</sup> That is extreme statistical significance. The probability that these results came from a homogeneous source, by random chance, is less than one in ten thousand.

Fifth, and most importantly, Casabianca's statistical analysis confirmed the earlier finding of Marco Riani, Anthony Atkinson, Giulio Fanti, and Fabio Crosilla, published in *Statistics and Computing* in 2013.<sup>27</sup> Riani and colleagues found a significant spatial trend in the radiocarbon measurements — the age of the tested material decreased systematically as the samples moved closer to the center of the cloth and increased as they moved toward the outer corner. Casabianca made this finding concrete in a striking observation: if the linear gradient observed in the tested corner were extrapolated across the full length of the Shroud, the cloth would eventually "date to the future."<sup>28</sup> That is not a minor inconsistency. That is a signal — exactly the signal predicted by Rogers' chemistry — that the tested region is not uniform with the rest of the Shroud, but rather a gradient zone where original material blends into later rewoven material.

The Casabianca paper also confirmed an additional fact the Arizona laboratory's own internal documentation makes plain: foreign material was present in the radiocarbon samples. Oxford's records note that fibers of different colors were removed, including cotton fibers identified by an external textile laboratory as "possibly of Egyptian origin and quite old." Arizona's original draft disclosed that "a red thread and three blue threads" were removed from one of its subsamples. Zürich likewise documented

---

<sup>25</sup>Casabianca et al. (2019), Table 3, 1226. OxCal 4.3 is the standard Bayesian diagnostic software used by radiocarbon specialists worldwide, developed by Christopher Bronk Ramsey at Oxford. Agreement indexes below 60% indicate "the presence of at least one problem in the data, probably due to a flawed measurement or contamination," per the OxCal documentation cited in Casabianca et al. (2019), 1226.

<sup>26</sup>Casabianca et al. (2019), Table 5, 1228. The non-parametric Kruskal–Wallis test was applied to Arizona's eight daily measurement sessions, both grouped (four gathered counts) and separately (eight counts). Both analyses returned p-values below 0.0001, well beyond standard thresholds of statistical significance.

<sup>27</sup>Marco Riani, Anthony C. Atkinson, Giulio Fanti, and Fabio Crosilla, "Regression analysis with partially labelled regressors: carbon dating of the Shroud of Turin," *Statistics and Computing* 23, no. 4 (July 2013): 551–561, <https://doi.org/10.1007/s11222-012-9329-5>. Riani and colleagues analyzed all 387,072 plausible spatial allocations of the 12 subsamples and established the existence of a statistically significant trend in the results across the sampled strip.

<sup>28</sup>Casabianca et al. (2019), 1229: "This variability of the Nature radiocarbon dates in a few centimetres, if linearly extrapolated to the opposite side of the TS, would lead to a dating in the future." The observation demonstrates that the gradient in the corner sample is not consistent with the rest of the cloth and suggests non-uniform material composition across the tested region.

assorted debris.<sup>29</sup> The very laboratories that dated the cloth acknowledged — in internal records kept hidden for three decades — that what they dated was not a clean sample.

The conclusion of the Casabianca paper is unambiguous: "The measurements made by the three laboratories on the TS sample suffer from a lack of precision which seriously affects the reliability of the 95% AD 1260–1390 interval... Without this re-analysis, it is not possible to affirm that the 1988 radiocarbon dating offers 'conclusive evidence' that the calendar age range is accurate and representative of the whole cloth."<sup>30</sup>

Read that again. A peer-reviewed statistical analysis using the actual raw data — data suppressed for three decades — established that the 1988 dating cannot carry the weight placed upon it. The famous "AD 1260–1390 with at least 95% confidence" is a claim the underlying data simply do not support.

**And here is the most telling fact about the new Freer-Waters and Jull paper:** they cite the Casabianca paper in their references but do not engage a single one of its findings. Not the heterogeneity. Not the spatial trend. Not the OxCal collapse. Not the Arizona intra-laboratory inconsistency. Not even the documented foreign material that the 1988 laboratories themselves recorded. The statistical case against the 1988 dating is neither fringe nor speculative. It is published in leading peer-reviewed journals, it is based on the raw data the testing laboratories themselves produced, and it has been confirmed by multiple independent analyses.<sup>31</sup> The 2026 paper simply walks past it.

---

## 5. The Selective Sample Problem

Consider what the authors actually examined. The University of Arizona retained two archived fragments from the 1988 sampling: A1A and A1B. Fragment A1A measures about 14 by 3.5 millimeters. Fragment A1B measures about 9.9 by 4 millimeters.<sup>32</sup> These are strips the size of a thumbnail.

Critically, A1A comes from the very end of the strip cut from the Shroud corner in 1988 — furthest from the area actually dated. As O.K. has pointed out, the proportion of original versus interpolated or patched

---

<sup>29</sup>Casabianca et al. (2019), 1229–1230. Oxford's foreign-material observations are documented in Anonymous [World News Network], "Rogue fibres found in the Shroud," *Textile Horizons* 8, no. 12 (1988): 13, and in the Freedom of Information Act disclosure (FOIA 2017, 104). Arizona's "red thread and three blue threads" notation appears in the Turin Shroud Archive at the British Museum. See also Freer-Waters and Jull (2010), which identified cotton fibers and "apparently wax" in an Arizona subsample.

<sup>30</sup>Casabianca et al. (2019), 1231.

<sup>31</sup>Supporting peer-reviewed analyses include Paolo Di Lazzaro et al., "Statistical and Proactive Analysis of an Inter-Laboratory Comparison: The Radiocarbon Dating of the Shroud of Turin," *Entropy* 22, no. 9 (2020): 926; Bryan Walsh and Larry Schwalbe, "An Instructive Inter-Laboratory Comparison: The 1988 Radiocarbon Dating of the Shroud of Turin," *Journal of Archaeological Science: Reports* 29 (2020): 102015; and Walsh and Schwalbe, "On Cleaning Methods and the Raw Radiocarbon Data from the Shroud of Turin," *International Journal of Archaeology* 9, no. 1 (2021).

<sup>32</sup>Freer-Waters and Jull (2026), Methods section: fragment dimensions listed as A1A approximately 14 mm x 3.5 mm and A1B approximately 9.9 mm x 4 mm.

material may vary substantially across even a few centimeters of a reweave. If the original hands performing the sixteenth-century repair blended new material gradually into the original cloth — exactly what a skillful reweave would do — then the proportion of modern fiber rises toward the center of the patched area and falls toward the edges.

The A1A fragment, sitting at the outer edge, could easily contain a higher proportion of original material than the fragments actually submitted for dating. It proves nothing about the dated samples. It certainly does not clear them.

Moreover, the SEM analysis was performed only on A1A — and only on a sub-section roughly 2 x 1.5 mm of that fragment. A1B received no SEM analysis whatsoever. We are being asked to accept sweeping conclusions about sampling integrity from a surface examination of approximately three square millimeters of cloth.

---

## 6. The Credibility Problem at the Arizona Laboratory

The paper's authors invoke the University of Arizona's custody of the samples as if this settles questions of integrity. The historical record tells a different story.

As documented extensively by Joseph Marino and Barrie Schwartz (the official documenting photographer of the 1978 STURP examination), the Arizona laboratory signed formal agreements that no outside observer would be present during the testing — then permitted Harry Gove, the co-inventor of accelerator mass spectrometry carbon dating, to observe anyway. Schwartz was promised access to photograph a retained fragment; that access was withdrawn. Harry Gove himself, one of the founding figures in the AMS field, described the 1988 dating as "a shoddy enterprise."<sup>33</sup> Schwartz has stated publicly that Timothy Jull — one of the authors of the current paper — privately acknowledged to him that aspects of the 1988 work were "shoddy."<sup>34</sup>

These are not fringe voices. These are the principal figures in the field who were present at the events described.

---

## 7. What the Paper's Own Methodology Admits

---

<sup>33</sup>On Harry E. Gove's "shoddy enterprise" characterization, see Harry E. Gove, *Relic, Icon or Hoax? Carbon Dating the Turin Shroud* (Bristol: Institute of Physics Publishing, 1996). Gove was co-inventor of the Accelerator Mass Spectrometry (AMS) method used in the 1988 testing. See also Joseph G. Marino, *The 1988 C-14 Dating of the Shroud of Turin: A Stunning Exposé* (Independently Published, 2020).

<sup>34</sup>Barrie M. Schwartz, Official Documenting Photographer of the 1978 STURP examination and founder of Shroud.com, personal communications and public lectures. Schwartz has stated on multiple occasions that Timothy Jull privately characterized aspects of the 1988 testing using the same term Gove used. See also Schwartz's documentation at <https://www.shroud.com/pdfs/arizona.pdf>.

One of the most remarkable admissions in this paper appears in the section on control samples: "The archeological control samples were not sampled for fiber content in this study, as they are presumed to have been identified as flax by qualified professionals prior to their selection as control materials."<sup>35</sup>

**Presumed.** In a scientific publication in 2026, the authors of a paper claiming definitive comparison between the Shroud and its controls admit that they did not verify what the controls are made of. They assumed it.

This is not the methodology of a rigorous study. It is the methodology of a predetermined conclusion.

---

## 8. What We Actually Know

Let me state clearly what the evidence supports — and what it does not.

The 1988 radiocarbon dating tested a single location at the corner of the Shroud. That corner is the most handled area of the cloth, the area most likely to have required historical repair, the area where chemical analysis has identified cotton fibers spliced into the yarns, the area where vanillin is present in contradiction to its absence in the main body, the area where documented Savoy-era tradition places a skilled reweave, and the area where statistical analysis of the raw data shows internal heterogeneity inconsistent with a uniform textile.

The image on the Shroud — which no one disputes is not a painting, not a dye, not a scorch in any ordinary sense, and has resisted every attempted reproduction by modern methods — lies far from the sampled corner and is untouched by any claim made in the new paper. The pollen evidence tying the cloth to first-century Jerusalem (Max Frei's work),<sup>36</sup> the limestone particulate matching the geology of the Holy Land,<sup>37</sup> the three-dimensional encoded information in the image revealed by the VP-8 Image Analyzer,<sup>38</sup> the bloodstains confirmed as human blood consistent with the wounds of crucifixion as described in the Gospels<sup>39</sup> — none of this is addressed, challenged, or diminished by microscopic examination of two tiny archived fragments from a corner that has been under serious dispute for over two decades.

---

<sup>35</sup>Freer-Waters and Jull (2026), Microscopy and Analysis section.

<sup>36</sup>Max Frei-Sulzer, "Nine Years of Palinological Studies on the Shroud," *Shroud Spectrum International* 3 (June 1982): 3–7. Frei identified pollen species endemic to the eastern Mediterranean, Anatolia, and the Jerusalem area.

<sup>37</sup>Avinoam Danin, Alan D. Whanger, Uri Baruch, and Mary Whanger, *Flora of the Shroud of Turin* (St. Louis: Missouri Botanical Garden Press, 1999). Danin, Professor of Botany at Hebrew University of Jerusalem, confirmed Frei's findings and identified plant images consistent with first-century Jerusalem flora.

<sup>38</sup>John P. Jackson, Eric J. Jumper, and William R. Ercoline, "Correlation of image intensity on the Turin Shroud with the 3-D structure of a human body shape," *Applied Optics* 23, no. 14 (July 15, 1984): 2244–2270.

<sup>39</sup>John H. Heller and Alan D. Adler, "A Chemical Investigation of the Shroud of Turin," *Canadian Society of Forensic Science Journal* 14, no. 3 (1981): 81–103; and Alan D. Adler, "The Nature of the Body Images on the Shroud of Turin," in *The Orphaned Manuscript: A Gathering of Publications on the Shroud of Turin* (Turin: Effatà Editrice, 2002).

---

## 9. A Final Word

I have held a genuine Roman crucifixion nail in my hand. I have stood before the Shroud in Turin. I have examined the archaeological evidence for the historical Jesus across a lifetime of study, and I wrote about these ten discoveries in *The Jesus Discoveries* because the evidence deserves a fair hearing in the public square.

The Shroud of Turin is not an article of faith that rises or falls with a single test performed under rushed conditions in 1988.<sup>40</sup> It is a physical artifact that has been examined more thoroughly than any comparable object on earth. The weight of the scientific evidence — chemical, statistical, historical, biological, and photographic — continues to point toward authenticity. The 1988 carbon dating remains an outlier, not a verdict.

The Freer-Waters and Jull paper does not change this. It offers superficial microscopy, avoids the chemistry that actually matters, ignores the statistical literature, misrepresents the documented history of repairs, and concedes in its own discussion that the textile it examined is "highly atypical" for the medieval date it defends.

A fair-minded reader will notice the authors did not refute the case for the Shroud's antiquity. They walked past it.

**The man of the Shroud continues to speak. And the evidence, weighed honestly, still points toward a Galilean tomb on the morning of April 5, AD 33.**

---

*Jeremiah J. Johnston, PhD, is an elected member of the preeminent New Testament scholarly guild Studiorum Novi Testamenti Societas (SNTS) and ministers internationally as President of the Christian Thinkers Society. He serves as Associate Pastor for Apologetics and Cultural Engagement at Prestonwood Baptist Church and as General Editor of the **Peace of God Bible** (Thomas Nelson, 2025). His book **The Jesus Discoveries** (Bethany House) reached the **New York Times** bestseller list in April 2026.*

---

<sup>40</sup>P. E. Damon et al., "Radiocarbon Dating of the Shroud of Turin," *Nature* 337, no. 6208 (February 16, 1989): 611–615.