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Premise

The authors of **Articles #1 (A1)**^{1,2}, reaffirm the entirety of their previously published findings, including the assertion that classifying the Turin Shroud (TS) as a medieval artifact is epistemologically comparable to asserting that the Earth is flat. They express particular concern regarding the content of **Article #2 (A2)**³, which they regard as scientifically unsound, primarily due to its selective omission of data and evidence that contradict the conclusions it seeks to advance.

Introduction

As it would require at least 100 pages to properly discuss and scientifically clarify all the very disputable sentences contained in **A2**, the authors of **A1**, therefore, decide to comment on only a few significant examples.

One cannot accept results declared as “*not perfect*” or statements such as “*possible artistic methods ... have provided a satisfactory proofs-of-concept, if not a definitive answer ...*” (because they do not reproduce all the complex characteristics of the TS image). Either all the characteristics of the scientifically analyzed body image can be reproduced or it is not scientifically correct to declare that a “*non-perfect*” reproduction has almost achieved the goal.

Perhaps the most robust and defamatory criticism that appears among the lines of **A2** is that the authors of **A1** cannot provide a serious and objective scientific judgment on TS because they

are deviated from the fact that they “*know*” that TS is authentic.

A. Einstein affirmed⁴ an important concept: “*Religion without science is blind. Science without religion is lame.*” Obviously, scientific studies should not influence religion and vice-versa; only at the end of the specific analysis should scientific conclusions be compared with religious ones to detect their compatibility.

As a notable macroscopic example of scientific findings and among the many comparisons drawn between empirical evidence and accounts in the Christian Holy Bible, it is observed that, unlike others condemned to crucifixion, Jesus Christ as represented on the TS and traditionally regarded as the “King of redemptive suffering.” – displays distinct signs of a crowning with thorns on the forehead, temples and nape of the neck¹.

As a microscopic example of scientific results, there is a notable presence of creatinine⁵ mixed with the blood, typical of a person who has been severely tortured.

In reference to alleged non-scientific claims, one cannot ignore what is reported in the conclusions of **A2**: “*The wholesale rejection of this research based on unfounded or disputed assumptions and misplaced religious conviction, is unworthy of serious consideration in a scientific journal.*” It is clear here that the author formulates an attack that is too generic, both in terms of its scientific validity and because it lacks substantiated and verifiable evidence.

In the published papers, the authors of **A1** present quantifiable, repeatable and reproducible scientific evidence that is entirely opposite to that declared by **A2**. The reviewers have allowed the publication of these results.

Examples of Criticality

In the Summary, we read: “*Unfortunately, he (author of **A2**) finds that excessive zeal for an alternative, 1st Century, explanation (by the authors of **A1**) has clouded these reviews ...*”. The “*excessive zeal*” that implicitly indicates an antiscientific attitude in **A1** is instead demonstrated by several publications; see, for example, Refs.⁶⁻¹⁴, which are strangely forgotten by **A2**. In these, it is clear that using 4 (four) independent methods (mechanical, numismatic and chemical FT-IR and Raman analyses), the TS finds a temporal placement around the 1st Century and, therefore, in the era in which Jesus Christ lived in Palestine.

Rather than objectively presenting the substantial and largely conclusive scientific findings published across numerous peer-reviewed journals, **A2** risks misleading readers who lack expertise, in the subject. **A2** does so by emphasizing conflicting viewpoints many of which date back many years and have since been substantially resolved, as documented in recent studies¹⁵⁻²⁴ Ref.^{25,26}.

By emphasizing conflicting data without addressing the subsequent scholarly resolutions, conclusions of **A2** appear to adopt a biased approach aimed at promoting the misleading notion that little or nothing is definitively known about the TS. This rhetorical strategy leads to the unfounded conclusion that nearly all existing hypotheses remain scientifically valid. Such a position is not supported by credible evidence. On the contrary, publications such as those cited in Refs.²⁷⁻²⁹ form the foundation for describing the TS's scientifically established characteristics – findings that remain indisputable unless and until refuted by new, rigorous evidence.

A2's statement is misleading when it reads, “*... this author, who has himself studied all the relevant literature ...*”. This author evidently ignores (or selects not to know) for example, Refs.²⁷⁻²⁹. It seems evident that **A2** wants to ignore some results that are unfavorable to his set goals.

Let us consider the example of the presence of blood and iron oxide (in addition to other material) in correspondence with the TS bloodstains. While **A2** insists on highlighting the contrast between what J. Heller & A. Adler declared in Refs.^{22,23} on the presence of blood and what W. McCrone declared in Refs.¹⁵⁻²¹ on the presence of iron oxide in correspondence with the same red stains, Refs.^{25,26} clarify the problem by simply explaining that the stains in question are blood (also mixed with blood serum) that were contaminated over the centuries by the pigments detected by W. McCrone following the contact of the TS with pictorial copies pressed onto the Relic in order to obtain relics of a higher order.

Another example of a misleading statement is found in the Introduction of **A2**, where it is written that the TS was “*reliably radiocarbon dated*”. Incalculable scientific articles convincingly question this dating⁶⁻¹⁴. With these inaccurate statements, it appears that **A2** is subtly leading the reader, drop by drop, to the **A2** predefined conclusion.

The introduction also states: “*possible artistic methods ... have provided a satisfactory proofs-of-concept if not an answer;*” but it does not appear at all that an artistic method capable of reproducing all the very particular physical-chemical characteristics of the body image of the TS has been described.

Also noteworthy is the following statement in **A2**: “*... his suspicion ... that my “destiny” is to be “suffering in hell” ...*”. This interpretation, however, misrepresents the actual wording found in Ref.³⁰, which states: “*Through the evidence of the TS, we can help bring other doubters to Christ to avoid a destiny of suffering in hell.*” This statement clearly conveys a general theological reflection: that the numerous evidential features of the TS may assist individuals in their spiritual journey, potentially guiding them toward faith in Christ and, thereby, salvation - understood as liberation from eternal suffering and the affirmation of Resurrection and eternal life.

A2 mistakenly finds a contradiction in **A1**'s writing: “*... there is no apparent connection between the two images in terms of color transmitted through or between the threads. However, this seems to be contradicted by his own observation ...*” of Ref.²⁷ regarding the interstices between the threads “*... that the colored fibers of the main image continue deep into the interstices between the threads.*” **A2** does not understand that, while the cited publications refer to the interstices observed along the plane formed by the two major directions of the fabric, the author of **A2** mistakenly considers the interstices along the thickness of the fabric.

This is noted only to highlight a further failure by the author of **A2** who silently tries to hide the complete failure of his hypothesis of image formation. Initially highlighted by the studies of R. Rogers, Ref.¹ of **A1** observes that in the TS “*E10. There is no cementation between fibers or signs of capillary flow in the image areas*” and then it comments in reference to the hypothesis of **A2** that “*Evidence E10 (cementation), although not frequent, contrarily to the TS image, is found above all in the areas of more intense color (Figure 11).*”

In fact, one of the main problems in the impossibility of reproducing the TS image concerns the fact that tempera-type colors cause production of additional substances on the fibers and also inevitable cementation between fibers that make the experimental result completely different from the result which we observe on the TS, see (**Figure 1**).

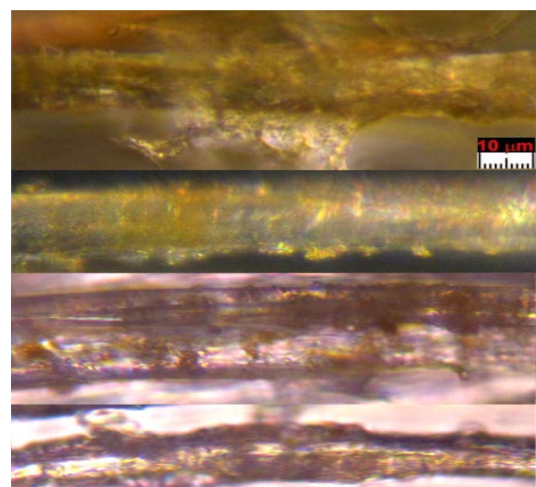


Figure 1. Examples of additional unevenly distributed material on linen fibers colored using egg-tempera in the experiment proposed by the author of **A2** (in addition to Figure 11 of Ref.¹).

Lastly but not least is the observation that **A2** contains incorrect information that could be misleading to readers. Here, we limit ourselves to just two examples.

A2 claims to have studied the photographs of the TS taken in 1988. There were no official photographs taken in that year. In addition to the photographs taken by Haltadefinizione in 2008, the most recent official photographs are those taken by Gian Durante in 2000 and 2002.

As previously noted, **A2** claims or gives the impression that that he has thoroughly “*studied all the relevant literature*” on the TS. However, it omits several key publications that document the selective presence of high radioactivity of the TS^{5,30,31}. This omission is significant, as such findings alone have the potential to fundamentally challenge and invalidate the 1988 radiocarbon dating results that concluded a medieval origin for the TS.

Conclusion

While several criticisms have been directed at the content of **A2**, one final acknowledgement of merit is warranted. In the Conclusions and in reference to the image formation hypothesis the author candidly concedes: “*The author is aware that his results are not perfect ...*”, a rare moment of intellectual honesty following numerous highly questionable claims. This admission effectively underscores the continuing inability to replicate the body image on the TS with all its unique and complex characteristics. As such, the TS image remains, to date, scientifically irreproducible and its formation mechanism unexplained within the current framework of scientific understanding.

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