

Reply to Memmolo's Letter-to-the-Editor "Evidence of Jesus' Hematidrosis on the Turin Shroud?"

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Dear Editor,

we welcome the opportunity to address this letter since it allows us to clarify and confirm what we already stated in Ref.¹. It also responds to Ref.² that, instead of being collaborative in search of the Truth, appears supercilious. Its Author places himself as a supreme judge for Ref.¹ whose title is characterized by a question mark.

In addition, this Author criticizes Ref.¹ self-defining, not better explained "current scientific standards," branding it "highly dubious and not supported by sufficient robust data" in front of an article that instead proposes further confirmation to the hematidrosis suffered by Jesus in the Gethsemane and described in the Gospels, based on incontrovertible experimental results.

Despite the criticisms, the first author thanks W. Memmolo, a member of the CISS of Turin because for the first time, the authenticity of the Fanti samples from the Shroud of Turin (TS) are indirectly recognized. This same material has been erroneously declared not authentic by members of the same CISS. Consequently, the result obtained by Ref.³ about the dating of the TS to the 1st century AD, at the time rejected by the CISS because it referred to material of unclear provenance, appears now confirmed as reliable.

Comments of Ref.² are divided into three parts that will be appropriately commented on here, but W. Memmolo is to be

commended for his thorough knowledge of both biblical exegesis and physics, as well as, of course, medical science. However, it may seem strange that such an expert philologist contradicts the Holy Bible (Luke 22:44) and comes to implausible conclusions regarding the physics of vision.

- **PHYLOGOLOGICAL ANALYSIS.** The criticism seems very weak, subjective and probably oriented to personal belief: the sentence "... drops of blood is not acceptable" appears arrogant because objective facts do not support it. Like some detractors of the Truths of the Gospel, Ref.² argues that the evangelist Luke (22:44) wants to describe the "drops of blood falling to the ground" not as a fact but as an analogy "comparing the density of sweat to that of blood similar to Aretèo of Cappadocia".

The authors of Ref.¹ then pose the following question. What significance might the inclusion of an apparently minor detail, such as "dense sweat" hold within the Gospel of Luke, a text otherwise concerned with conveying essential facts? A sweat of blood is important because it clearly characterizes for a physician the particular psycho-physical state of Jesus, who foresaw all the suffering He would have to endure for the salvation of humanity. Other more detailed criticisms can be read in Ref.⁴.

- **PHYSIOLOGICAL ANALYSIS. (Figure 2)** of Ref.¹ and (Figure 1) of this paper show a case report of hematidrosis in which it is evident that the sweat is not pink but reddish and that

the color intensifies at the lower edges, making it more visible even with dim light. Incidentally, the so-called “pink-sweat” is not pink (the pink color is the sum of red and white) but light red (i.e., less intense red).

(**Figure 1**) then shows that the same image observed under candlelight (representative of torches and bonfires that were supposedly lit during the event in question) makes the traces of blood mixed with sweat a bit less visible but still clearly detectable and only an orange photographic filter can get a little closer to the phenomenon doubtfully described by Ref.².

It should also be noted that the possible criticism that the photographic sensor has a different perception of color than the scotopic human visual perception (of the cones rather than the rods) and, therefore, that it shows a different result than that perceived by the human eye may be true. However, the first author verified that, in this case, his visual perception was very similar to that reproduced in the reported images.

In rebuttal to what Ref.² states, it should not be forgotten that the bluish light of the full moon on the nights around Easter accentuates rather than reduces the scotopic recognition of the reddish blood-stains mixed with sweat.

Furthermore, the sentence “... any pink (sic!) spots on the skin ... would ... not have been recognizable.” appears wrong (in reference to the color) and presumptuous because scientific facts and the words do not support it “... analogy and not a clue ...” must be refuted because the analogy has not been minimally demonstrated.

- MEDICAL ANALYSIS OF BLOOD. Ref.² affirms that “The desire to prove that there are traces of hematidrosis on the shroud is implausible.” but this statement is not supported by any scientific fact. Therefore, it appears to be a mockery to the authors who do not desire but rather observe on scientific grounds.

To be fair, the first author admits his inaccuracy in describing the pathological state of Jesus of the TS as uremia, clarifying that, as reported in Ref.⁵, this pathological state should not be understood as chronic renal failure. The finding of creatinine on the TS should be the result of acute, macroscopic, post-traumatic kidney damage during flagellation which does not cause the alleged a state of “clouding of the senses” claimed in the Ref.². There are many signs of injury on the sides of the dorsal body image of the TS confirming this pathology. As detected in Ref.⁶, acute cardiac decompensation caused by the heavy flagellation produced urea and creatinine in the blood.

Against all scientific evidence, see Refs.^{1,5-8} Ref.², taking information from obsolete bibliographic references like Ref.⁹ wrongly states that “Blood cells are almost non-existent” forgetting the greater resolving power of most recent electron microscopes like the SEM-FEG.

Ref.² wrongly states that “... acute uremia does not evolve over a period of 15-18 hours ...” because, see Ref.⁸, uremia is the terminal condition of chronic renal failure and can last up to 10 days (with progressive deterioration of the sensorium); death is inevitable if uremia is not treated with dialysis therapy.

It is finally curious to read the statement of Ref.² “The attempt to assimilate microscopic elements of an undeterminable nature to erythrocytes reduced in volume ... is implausible.” Ref.⁶ reports that these rounded discoidal particles are like a

donut with central concavity and elements contained therein are compatible with those of blood (among other elements, Iron, Nitrogen, Potassium and Phosphorus). These particles of Type A blood⁶ are therefore amenable to erythrocytes or parts of them deriving from echinocytes. Before criticizing, to be credible, Ref.² should instead propose a plausible alternative.



Figure 1: Three photos of the same image using different light sources. On the top common visible light; on the center light only produced by a candle, on the bottom common visible light filtered by an orange (not pink) photographic filter.

In conclusion, the highly dubious and speciously goal-oriented statements of Ref.², many of which are subjective and are not supported by sufficiently robust data, read more as polemic on the authors of Ref.¹ than constructive criticism worthy of further investigation.

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