

## The Last Hour of Jesus Christ: A Case Study from Recent New Insights on the Turin Shroud

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A paper<sup>1</sup> has recently been published that has presented new insights regarding the blood coming from the Turin Shroud (TS) and that has posed new interpretations on the possible physical state of the person who had that blood. In this communication the author offers a first interpretative cue on the sufferings undergone by Jesus Christ especially during His last hour on the cross that can subsequently be developed by any experts in the field interested in the subject. But first let's try to clarify very briefly some statements that could raise some doubts in the reader.

The TS is a handmade 3:1 twill linen cloth, 4.4 m long and 1.1 m wide, on which the front and back images of a human body are permanently and mysteriously imprinted. According to the current Catholic Christian tradition, the TS is the burial cloth in which Jesus Christ was wrapped before being placed in a tomb in Palestine about 2000 years ago and the author is convinced of this<sup>1</sup>.

There is evidence that the TS was in Palestine in the first century A.D., and then taken to Edessa (present-day Sanliurfa in Turkey). The congruence between the TS face with that of Christ on Byzantine coins is further evidence that the TS was seen during the Byzantine empire from the seventh century.

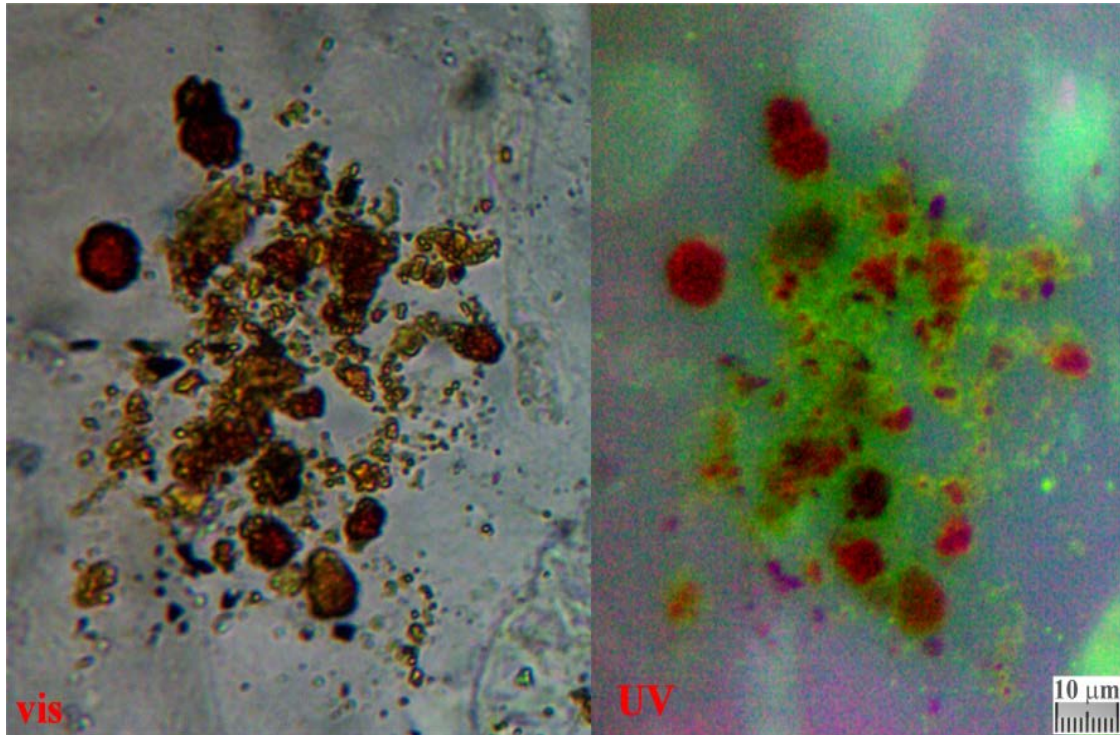
There is evidence that the TS then appeared in Europe in 1353 in Lirey in France after the Sack of Constantinople in 1204. In 1988, it was radiocarbon-dated to 1260–1390 A.D.<sup>2</sup>, but the result is questionable and controversial<sup>3-6</sup>. As the process that formed the body image is still unknown, the dating method cannot be rigorously applied, because the imaging mechanism may, in fact, have varied the percentage of the TS's carbon isotopes<sup>7</sup>. A

partial confirmation of this comes from the reduction of nitrogen in blood samples coming from the TS<sup>8</sup>.

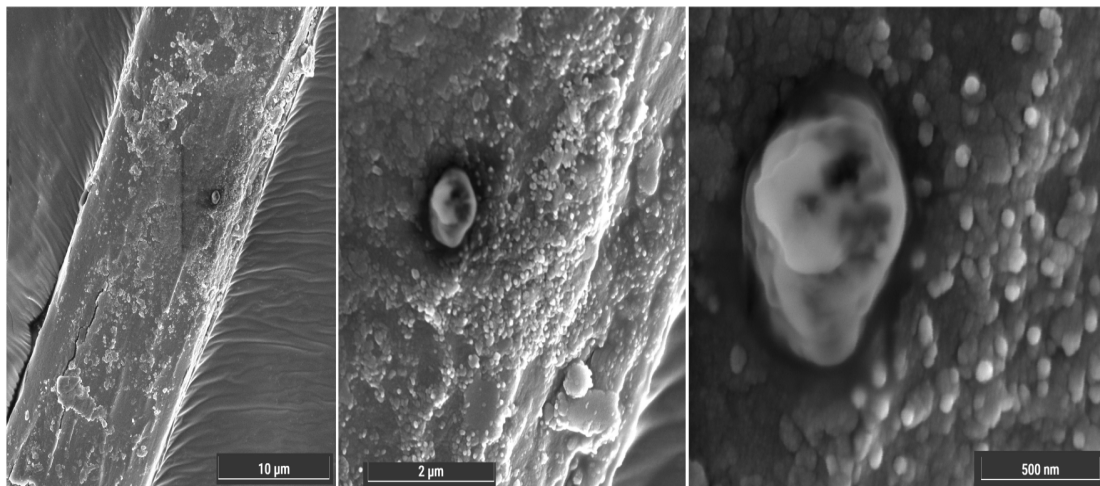
Regarding the numerous red stains present on the HS, J. Heller and A. Adler of STuRP (Shroud of Turin Research Project)<sup>9,10</sup> detected the presence of genuine blood from samples collected from the TS, and this was independently corroborated by the testing performed by P.L. Baima Bollone<sup>11</sup>. The body image reveals many peculiar characteristics that have, thus far, made the body image unreproducible and not even describable through scientific hypotheses that do not refer to miracles<sup>12,13</sup>.

According to the Christian Bible - and in particular the four Gospels - Jesus Christ, the Son of God made Man, was severely beaten, scourged, crowned with thorns, had a heavy cross carried to Mount Calvary where He died crucified. His dead body was then removed from the cross, wrapped in a shroud and placed in a rock hewn sepulcher where He remained for about 30-40 hours before rising from the dead. The author has found compelling scientific correspondences between the narration of the Bible and the TS which have convinced him that this is the authentic burial shroud of Jesus Christ<sup>14</sup>.

<sup>1</sup>detected on the TS three different types of blood substances (**Figure 1**) which, via the Gospels, can be correlated to different moments of the Passion and Death of Jesus. The most evident traces appear to be postmortem blood leakage which probably occurred due to the movement of the corpse during transport and/or in the tomb and which were transferred into the TS in a fluid phase; less evident are the pre-mortem bloodstains which probably occurred when Jesus was still nailed to the cross and which were probably transposed onto the TS after the blood crusts dissolved due to fibrinolysis in the humid environment of the sepulcher.



**Figure 1:** Single microcytes and small agglomerates coming from sample GF-3EF-3, a piece of sticky tape put in contact with the bloodstain on the left wrist of Jesus. On the left, visible epi-illumination on bright field; on the right, the UV epi-illumination shows the greenish fluorescence of serum surrounding the microcytes.



**Figure 2:** Bloody TS fiber coming from “h-S” sample: linen fiber coming from Filter-h. Some stacked microcytes surrounded by creatinine particles can be observed.

Among others, <sup>1</sup>reports the presence of fibrin coupled with erythrocytes and creatinine (**Figure 2**), which is typical of a tortured person. But perhaps the most important discovery concerns the fact that the post-mortem blood of Jesus is composed of microcytes which are erythrocytes having a diameter of about 0.7 micrometers and which are about ten times smaller than normal human erythrocytes. Some of these microcytes may also be residuals of echinocytes.

Experimental results have shown that shrinkage of this type can be obtained if human blood is diluted with a saturated urea solution. The fact that Jesus of HS suffered from acute uremia is demonstrated by the atrocious flagellation, clearly visible on the Relic and clearly mentioned in the Bible, which would have likely resulted in a renal failure.

But, at this point, it would be interesting to develop in detail the physical conditions of Jesus on the cross in His last hour.

The renal (and probably liver) malfunction or blockage caused by microcytic anemia which would have, also, been exacerbated by a prolonged deprivation of food, imply the extreme difficulties Jesus had in exchanging oxygen which most likely resulted in extremely labored breathing. The probable coagulopathy (caused both by the excessive loss of blood and the coagulation factors) that occurred during scourging, caused hypovolemic shock. In Jesus' last hour on the cross before His death, hypovolemia and severe dehydration (in parallel with John 19:28: “Jesus said, ‘I thirst.’”) would have caused reduced blood flow to His kidneys.

The microcytes would have been significantly reduced in their ability to exchange oxygen, which would have resulted in a notable tachycardia that would have been accentuated by tonic and clonic contractions due to the hypertension of the limbs nailed to the cross. Jesus' heart would have been beating very rapidly due to congestive heart failure while, also, causing a pericardial effusion.

To compensate for these physical problems in exchanging oxygen, Jesus had to heavily increase His breathing and, consequently, increase the frequency of His heartbeats, which prompted a heart attack as His primary cause of death.

In the New Catholic Bible, Psalm 22:15 states “My heart has turned to wax and melts within me.” This seems to provide interesting information about the physical state of Jesus shortly before his death.

The fact that the “heart has turned to wax” probably does not only mean that it has taken on the consistency of wax, but, according to medical pathology, a heart attack is caused by a significant reduction in blood flow to the infarcted part of the heart muscle which took on a waxy color too. So, the Psalm confirms what was experimentally deduced by doctors who studied the TS.

The same Psalm then goes on to say that the “heart...melts within me,” indicating that various causes “consume” the Body of Christ following renal failure, hemothorax caused by blunt trauma, and orthostatic collapse<sup>15</sup>.

Various experts<sup>15</sup> confirm that all these causes produced the early death of Jesus on the cross due to a hemopericardial infarction. Having established these facts, as mentioned at the beginning, it would be interesting to take these hypotheses as a starting point to carry out a more detailed analysis of the particular physical conditions of Jesus Christ nailed to the cross by comparison with the characteristics of the detected blood, and to also better understand the extent, still unknown to many, of the immense suffering that this God-Man declared in the Bible that He would endure in order to redeem all humanity.

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