

The Latin Rite Patriarch of Jerusalem's Thoughts on the Shroud of Turin

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Abstract

This writing is based on Cardinal Pizzaballa's perspective on how to interpret the Shroud of Turin. He argues that the burial linen of Jesus Christ does not explain the Resurrection; rather, it serves as a useful sign that introduces us to the mystery of the Resurrection. To the best of our knowledge, this is the first time that a prominent voice in the Roman Catholic Church has expressed such a view. Indeed, his words place the radiative hypothesis, and the scientists supporting it, in a difficult position. This hypothesis has long been considered the most plausible explanation for the formation of the Shroud's body image. We find this hypothesis unacceptable, not because its supporters refer to it as a miracle, but because they describe, step by step, as though it followed a temporal evolution. This is unacceptable, as a supernatural event must be instantaneous. Furthermore, beyond theological consideration, we will show that there are several problems that have been overlooked, as if physics were irrelevant (Emission by Human Body, Descriptions of a single Supernatural Event, Fibrils Yellowing, Non-Contact Areas, Penetration Depth, Body-Linen Correlation). We believe that both theological and scientific reasons are sufficient to dismiss the radiative hypothesis. Finally, a mention of two possible natural processes for the formation of Shroud Body Image, proposed by other scientists.

Keywords

Cardinal Pizzaballa's Thoughts, Shroud of Turin, Body Image Formation, No-Miracle, No-Radiative Hypothesis

1. Introduction

The Shroud of Turin is one of the most significant and well-studied archaeological finds in the world. Despite this, many writings on the subject carry little weight,

as they are often by authors who, though fascinated by the Shroud, are amateurs. Unfortunately, much of the research by such individuals has caused confusion. On the other hand, numerous other researchers and scientists have made notable contributions. Among all, a special mention goes to STURP (Shroud of Turin Research Project) team [1]-[3].

Recently, the *Sindon* magazine (n. 10, p. 5), reported a statement by His Excellency Cardinal Pizzaballa, Patriarch of Jerusalem of the Latins, regarding the Shroud of Turin. He has stated: “It’s not a matter of explanation but of signs: the cloths, the empty tomb, the Shroud. The cloth that wrapped Jesus does not explain the Resurrection, but it is a sign that allows us to enter into that mystery, introducing us to the Knowledge of Christ’s Resurrection.”

This statement is extraordinary. From our perspective, the Cardinal has accurately captured the role the Shroud of Turin should play in the Christian world. The cloth does not explain the Resurrection but serves as a sign that introduces us to the mystery of Christ’s Resurrection. We had long awaited an authoritative religious voice, such as Cardinal Pizzaballa, to make a clear statement on these issues. In fact, for several decades many scientists have argued that the Image on the cloth is the result of an extraordinary event, what they call a miracle. However, this view is flawed because God’s actions are instantaneous and transcend both space and time. Consequently, when the Apostles first entered the empty tomb of Jesus, both the Body and Blood Images should have been visible. Instead, only the Blood Image was present on the burial linen [4].

This radiative hypothesis, which suggests that radiation was responsible for the formation of the Shroud’s body image. The scientists supporting this theory are largely Catholic Christians, and as such, they should understand that a miracle, an act of the Almighty, can only occur instantaneously. Faced with this theological certainty, even a physicist like myself (G. F.) who is a believing Catholic can appreciate the nature of the event. A miracle cannot be a process; it must be instantaneous. As such, the Divine event must occur at infinite speed, beyond human comprehension and science. In physics, the fastest speed known is that of photons, which are massless particles of light. Other particles, even those with near-zero mass (e.g. neutrinos), cannot reach the speed of light.

An infinite speed is unacceptable for natural science, both today and in the future. To support this view, we refer to St. Thomas Aquinas, who asserted that God is eternal, outside of time and space, and that His actions are instantaneous. Thomas defines the exact nature of this supernatural event: it is a sensitive effect produced by God that transcends all the forces of nature. His power over nature is absolute [5]. Similarly, Augustine of Hippo, a bishop, theologian, philosopher and Doctor of the Church like Thomas Aquinas, wrote that miracles occur outside of time, space, and of becoming [6]. Therefore, all those who believe in God must accept that His intervention can only be instantaneous.

2. Analysis and Discussions

In contrast, many of the afore mentioned scientists continue to believe that the

Shroud's body Image is the result of a miracle. They attempt to hypothesize, step by step, the sequence of events that occurred two millennia ago at moment of Jesus Christ's Resurrection. However, describing a miracle in such a manner is contradictory, as it would not be a miracle at all. Carter [7] proposed a new hypothesis for the mechanism of formation of Shroud Body Image by thinking of an interaction between X-rays and linen. After, some scientists argue that the body of Jesus Christ emitted radiation in the far ultraviolet spectrum at a wavelength of 193 nm, which is close to soft X-ray [8]-[13]. They propose that by irradiating a linen sample in specific ways, it would undergo a yellowing that mimics the appearance of the Shroud. Others suggest using directly ionizing particles, such a proton, which remove electrons from the material they pass through, thereby oxidizing it and causing yellowing [14]-[16]. We remember also that the influence of linen on the possibilities of forming the image is real. Just look at the two light stripes (about 2.5 cm. each), to the left and right of the face, that run along the fabric for its entire length. Their optical density has a lower value than the background one. This is due to the linen coming from different manufactures.

We, however, believe that there are several insurmountable problems with this hypothesis. These issues must be addressed:

1) *Radiation and particles Emission by the Human Body:* It is impossible for a human body, even after death, to emit radiation or subatomic particles. Humans can only emit thermal radiation. If the body of Christ had emitted radiation or subatomic particles, it would have been the first and only occurrence of this in history. One might argue that since it was the Body of Christ, such emissions could be possible. But in this case, we would have a miracle, and the image would have been seen by the Apostles instantaneously upon entering the tomb. Therefore, we could already exclude the miraculous hypothesis [4]. In fact, radiation or particles, if emitted by the corpse, would hit all the linen in the image area. The result would be a completely yellowed linen.

2) *Different Descriptions of the Supernatural Event:* As we have seen above, various groups supporting the radiative hypothesis describe the event in different ways. Among the various models with radiation and particle, present in scientific literature, we note an incredible description provided by [17] [18], who proposes that the body, wrapped in burial linen and placed in the tomb, became mechanically transparent, causing the linen to collapse into and through the body while vacuum ultraviolet radiation were emitted. Despite Jackson's authority due to the many important results obtained in Shroud research, this hypothesis is purely speculative.

3) *Fibrils Yellowing and Image Formation:* To form an image like the one on the Shroud of Turin, specific fibrils will be yellowed, increasing their optical density. The others fibrils must maintain their optical density value, coinciding with that of the background color. Unfortunately, the vectors (radiation and particles) obey the laws of physics [19]-[22] and are not able to recognize the suitable fibrils. They hit them all. In fact, their action will be deterministic, while the fibrils dis-

tribution shows a probabilistic character. So, it seems unlikely that radiation or particles would yellow the appropriate fibrils.

4) *Non-Contact Zones and Energy Loss:* In non-contact areas, between the body and the burial linen, we must consider the VUV radiation-air and protons-air interactions. While in the contact areas all the emitted energy by corpse is entirely absorbed by the linen, in those of non-contact areas, radiation and particles must overcome a variable thickness of air to reach the cloth. Therefore, they will lose energy which will depend on the thickness of air crossed. Thus, radiation and particles will not carry to the linen all the energy they possessed at the moment of emission. As result, the linen's coloration will not be uniform.

5) *Penetration Depth of Radiation and Protons:* In the non-contact areas, the 193 nm radiation with the 6.8 eV (able to penetrate in the contact areas the linen for the depth of Image) meets directly the air where the oxygen (about the 20.95% of air) has a binding energy of 5.16 eV. So, the radiation penetrates the air a few microns coloring only the contact areas [23]-[25]. Even the particles show the same behavior. In fact, the weak energy that the protons have to penetrate 200 nm, the depth of the Image on the Shroud [26], cannot be sufficient to cover the range of discoloration effects [27] [28] which is 37 mm in air. A distance that the protons travel with 1.35 MeV [29]. Therefore, in the non-contact areas the protons penetrate a few mm, with more colored area, with respect to the radiation.

6) *Correlation between Body and Linen:* The radiation cannot generate such a correlation because it is skilled at coloring only the body-burial linen contact areas [23] [24]. Relatively to protons, our investigation shows that the hypothetical correlation, between the intensity of the image and the distance between the body and the burial linen, has not a linear trend as it is for the Shroud [30]. Therefore, a total failure for a desired but unproduced image [31].

It is impossible to make any statements regarding the resolution of the hypothetical image produced by the radiative hypotheses. Actually, for the Shroud this important parameter is about 5 mm for the minimum resolvable features [32].

In conclusion, the radiative hypothesis does not provide a satisfactory explanation for the Shroud's body image. However, we must reaffirm that the Shroud of Turin is outside of Revelation. Therefore, whatever it is True or False does not change the beliefs of Catholic Christians.

3. Conclusions

We are perplexed by this complex issue, not only because many Catholic-Christian scientists casually refer to the term "miracle" but because they attempt to study it. They try to describe the supernatural events Step-by-Step, even though miracles, occur instantaneously (in a time equal to zero). At times, we wondered if we were wrong with our stochastic natural process, since many scientists, including some of the best, supported the radiative hypothesis as the mechanism behind the formation of the Shroud's body image [33]-[35]. Our process, which considered weak thermal energy as the only energy source in an ancient tomb,

involved a stochastic process (with all the fibrils affected) capable of producing a latent image (where only a part of the total fibrils are yellowed). The latency time varies from years to decades. However, in this work, we have shown that the radiative process, whether involving ultraviolet radiation or protons, cannot explain the Image on the Shroud. Thus, we conclude that the sought result lies not in the Transcendent but in the Immanent [36].

Finally, we want to remember Raymond N. Rogers, chemist at Los Angeles Laboratory and member of the STURP team who contributed greatly to the understanding of the Shroud's linen. His model based on an amino-carbonyl reaction (a Maillard reaction), was too focused on the natural formation of the body image [37] [38]. In details, the Rogers' hypothesis: a Maillard reaction between amine (nitrogen compound with a free-NH₂ group) coming through the corpse wrapped in the burial linen and reduced sugars, due to the manufacturing procedure, present on the surface of above linen. This process takes into account the only energy present in an ancient tomb: the thermal energy of the corpse. Furthermore, Dr. Irvine (Pathology Section, Office of the Medical Investigation, University of New Mexico) claim that the temperature of the body in the burial linen can also reach 41 °C [39], useful for triggering a Maillard reaction. Rogers considered the radiative hypothesis pseudoscience. We also affirm that the radiative hypothesis is not in line with theology and physics.

Nevertheless, a significant number of scientists and of Catholic Christian researchers continue to study the development of a miracle, moment by moment, knowing that such an event would last for zero time.

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Conflicts of Interest

Regarding the publication of this article, the authors declare no conflicts of interest.

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