

# What is the Shroud of Turin?

## A suggestive hypothesis awaiting a new radiocarbon dating

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### Abstract

What appears on the Linen of Turin is a latent image, yielded by a natural stochastic process. The above image is not due to any miracle or forgery. To solve the "Shroud question" a new radiocarbon dating is necessary. However, the Shroud man shows all torments of the Nazarene described in the Gospels. Therefore, taking into account both the possible presence of burial ointments [6] and the Middle East origin of the fabric, the above mentioned linen is, with high probability, the burial cloth of Jesus of Nazareth.

Keywords: Shroud of Turin, burial cloth of Jesus of Nazareth

What is the Shroud? This question was raised in 1898, when an amateur photographer pointed out that the body image on the Linen of Turin showed the characteristics of a negative.

The Shroud is an ancient linen cloth with the image of a male crucified with nails. The man also shows wounds in the forehead, nape, chest, scourge marks and intact legs. The bloodstains are made of **haeme** derivatives and albumin in the central parts, surrounded by serum. The presence of biliary pigments agrees with the blood of a crucifixion victim. Besides, there are burned and scorched areas and "water marks" produced in the 1532 Chambery fire and its being extinguished [1].

The Linen of Turin is the source of a vast debate: is it the image of Jesus as in the Gospels? Recently, we extracted the natural mechanism of body image formation [2] and we demonstrated that it is able to explain its chemical and physical characteristics [3, 4]. The Shroud body image,

produced over many years (e.g. a few decades), is natural. Therefore, to explain the image formation we do not need to say that it was a miracle and we can rule out the medieval forgery hypothesis [1-3].

The Shroud body image was labelled an “impossible image” because over a century of studies and attempts had not been solve the formation mechanism. This non-result is due to the fact that only deterministic processes have been considered. Indeed, due to the chemistry of the linen in the image area, for these mechanisms it is impossible to explain the body image. Therefore, the UV radiation, the corona discharge and the attempts made to demonstrate a forgery must be excluded. Nowadays, we know that a slight transfer of energy triggered a stochastic process [2,3].

Our explanation attempt also has the advantage in respect to the others that it presents the smallest number of assumptions, in line with Occam’s Razor [5]: “The hypothesis that includes the smallest number of special assumptions has the highest probability of being closest to the truth”. Therefore, the marks, stains, and trace formation on the Shroud is due to: (i) the contact between linen and a wounded human body, (ii) the stochastic process by the transfer of a small quantity of energy, and (iii) the 1532 Chambery fire. Items (i), (ii) and (iii) justify the blood image, the body image, and the burned and scorched areas with “water-mark” formation, respectively.

Recently, we have studied the abrupt changes in the dorsal part of the Shroud body image. Indeed, in the areas at the base of shoulder and buttocks, one can see both the scourge marks and a low level of the most yellowed fibrils density. This result appears incomprehensible because only the blood presence agrees with the fact that these are contact areas. We have explained these anomalies with the original presence of aromas and/or burial ointments [6]. Therefore, we confirm that the Linen of Turin is a burial cloth. Moreover, it is also known that the presence of pollens of various plants, of cotton within the linen fibers and of calcium carbonate in the rhombic system (aragonite) agree with an origin in the Middle East.

In our opinion, a new radiocarbon dating on a representative sample of the original cloth should take place to solve the “Shroud question”. However, various considerations can be made: we have a piece of linen showing the image (frontal and dorsal) of a tortured, scourged and crucified man. Today, we know that whatever appears on the linen has a natural explanation. No miracles or forgeries, only a series of natural events modified the fabric. With this state of affairs, a comparison between what one can see on the Shroud and the passion and death of Jesus of Nazareth described in the Gospels needs to be done.

The Shroud shows all the wounds suffered by a crucified male. Crucifixion victims died of asphyxia caused by fracturing the legs. On the contrary, the Shroud man shows intact legs, a wide gash to the chest, scourge marks and wounds to the forehead and nape, like those described in the Gospels. Therefore, taking into account that: (a) the presence of aromas and/or burial ointments is possible, (b) the tracks of cotton and the pollen and aragonite agree with an origin in the Middle East, we think that the Shroud of Turin is, with high probability, the burial cloth of Jesus of Nazareth.

#### References

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