

Editorial

An Object That Puzzles Scientists

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The Turin Shroud (TS) has been religiously defined by the Pope (2010) as “... *Mystery of Cross and of Light*” evidencing the halo of mystery that surrounds what for many believers is the most important Relic of Christianity. But can the discussion on the TS be only circumscribed around the Religion? Certainly not because this Object has not yet been explained by Science and therefore never reproduced in all its peculiar characteristics (Schwalbe and Rogers, 1982; Jumper et al., 1984; Fanti et Basso, 2008). This is the reason why the TS is of great interest for physicists and chemists who try to find, from more than one century when S. Pia made the first photograph, an explanation of how the faint body image visible on the TS can be reproduced.

The TS (Schwalbe and Rogers, 1982; Jumper et al., 1984) will be better described in the papers contained in this Special Issue, but synthetically it can be said that it is a linen cloth, 4.4 m long and 1.1 m wide, which enveloped the dead body of a scourged, thorn-crowned man who was stabbed in the side with a spear and crucified (Zugibe, 2005). Also visible on the Cloth are many marks caused by blood, fire and water, which partially obscure the indelible body image. In agreement with the Christian Catholic tradition, the TS is believed by many to be the burial cloth in which Jesus Christ was wrapped when his body was placed in a tomb in Palestine about 2000 years ago, but there are still some scientists (Nickell, 1998; Garlaschelli, 2010) that put in discussion this hypothesis, that is sustained by a great number of scientific clues (Schwalbe and Rogers, 1982; Fanti et al., 2010).

The TS is one of the objects that tends to put some doubts in the positivistic thinkers who state that the Science can explain all the physical world. In fact the TS is unexplainable but it is a physical object that can be directly tested using the Scientific Method. Hence this is the source of interest of many physicochemical scientists that spent and still spend their life in trying to explain the mysterious body image from both a physical and chemical point of view, formulating hypotheses that until now have not satisfied their aim. Some scientists obtained interesting results in the sense that they were able to obtain results very similar to the TS image from a physical point of view, let's say from a macroscopic point of view, but they failed to satisfy many chemical characteristics and many microscopic features of the body image; on the other hand some chemists affirm to have reproduced some peculiar characteristic from a chemical point of view, but they fail to obtain acceptable results from a macroscopic point of view. This Special Issue will point out the status of art on this endless avenue of Science.

Differently from other more common scientific problems not easy to solve, there are also the Religion problems in this case that may complicate the work of scientists. It is not rare in fact to find scientists, having preconceived ideas, that approach the physicochemical research from a biased point of view tending to obtain results in agreement with their religious approach. In some cases these researchers even seem to forget scientific results contrary to their beliefs! This is obviously contrary to the scientific method and this approach does not help the scientific research. For example this fact hampers young researchers approaching to the TS studies, because they frequently find partial data published in papers lacking precious information, information that lacks because contrary to the thesis to be demonstrated by the biased author/s. This problem is detected both in scientists against and in favor of authenticity.

It must be observed that also this Special Issue could in part perhaps be affected by this problem because it is not common to find a paper or a book which contains studies pro TS authenticity posed side by side with studies contra TS authenticity. Even if the communication, inviting authors to participate to this Special Issue, remained in Internet for more than one year, no papers were received against the authenticity of the TS. Therefore there was no any kind of censorship, but only the lack to manage papers of a certain tendency.

This Special Issue cannot obviously be exhaustive for such a multidisciplinary argument that should request thousands of pages to understand at least in part the very peculiar characteristics of the TS and its faint body image. Nevertheless it presents some innovative aspects that can be of help for the researchers that intend to go more in the details. These researchers will be therefore pushed by these contents to give additional contributions to the TS studies. After a discussion of the future avenues of research on the TS, the presentation of the forensic aspects of the TS Man, a blood chemistry dissertation, a discussion of the TS copies made in the past and a study of the mineral particles contained in the TS, there is a series of papers presenting new hypotheses of body image formation, followed by some

comments about the 1988 radiocarbon result that caused a lot of discussion.

Returning again to the religious definition reported above, will be the Science able to explain in the next future the "Mystery"? "Mystery of Cross" because the Science should be able to explain all the bloodstains visible on the TS and to correlate them to a particular torture. "Mystery of Light" because the Science should also be able to explain in which way the very superficial body image formed on the TS, perhaps, as some scientist suppose (Jackson, 1998; Fanti, 2010; Baldacchini et al., 2008), making reference to a kind of radiation coming from a dead body.

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