

Shroud: Blood Pattern Analyses are not accurate and require new studies

The authors have used the techniques of forensic anthropology, those known to fans of thrillers, to assess the authenticity of the blood stains on the Shroud, the sheet that, according to Christian tradition, wrapped the body of Jesus after the crucifixion. This study, published in the Journal of Forensic Sciences, indicates that an important part of those traces of blood are not compatible with the position of the body, either on the cross, or lying in the sepulchre. The authors of the research are two Italians: Matteo Borrini - forensic anthropologist who teaches at John Moores University in Liverpool, [author of the discovery], who discovered the “female vampire of Venice” in 2008 - and Luigi Garlaschelli, chemist, professor at the University of Pavia and member of the Cicap, the Italian Committee for the control of statements on pseudosciences.

But this research raises many doubts, the directors of the International Centre of Sindonology (CIS, Centro Internazionale di Sindonologia) point out. The physicist Paolo Di Lazzaro, a senior scientist at Enea (Italian National Agency for New Technologies, Energy and Sustainable Economic Development) and deputy director of CIS, advises first of all to be on guard against simplifications. “Nobody, and even less so the authors of this research, spoke of false bloodstains, but of blood flow directions not completely compatible with the position of an individual who died on the cross and was then laid on a sheet”.

The first objection refers precisely to the study, which is not at all new. “It was presented in 2014 at a conference of forensic medicine in the United States – Di Lazzaro explains – but was not published due to the concerns raised on the reliability of the results”. Now, with the addition of some other tests, the investigation has found its place in the media. But the same doubts remain.

It seems that Borrini and Garlaschelli used a blood bag for their experiment, and let rivulets flow, through a cannula, from the wrist. They then observed the drippings from the arm, as they shifted the angles. And they concluded that the stains most similar to those on the Shroud were those obtained with the forearm almost vertical. Hence - from this hypothetical “error” – they advance the hypothesis that the image on the Shroud was created by a “medieval forger”. “A forger – emphasizes Di Lazzaro – who would be able, among other things, to create a body image that to date, even with our current knowledge, we still cannot reproduce”.

In fact, the technique of Blood Pattern Analysis (BPA) deals with the reconstruction of the dynamics of a criminal event, starting from the study of blood traces on the scene of a crime, says Prof. Nello Balossino, deputy director of CIS and director of the Museo della Sindone (the Shroud Museum), as well as being a criminologist and a university professor of image processing: “We take into consideration the shape, size and position of the blood traces, assigning them to a specific category. The primary purpose of BPA is therefore to hypothesize the course of events, during and after the crime event, starting from the evaluation of the static information in order to determine the dynamic action. We are talking

about an inverse process: the bloodstains lead to their source, to the position of the attacker and the victim.”

Important, among the categories relative to blood traces, is the flow pattern that is formed as a result of a certain amount of blood coming out from a wound. “The quantity is a function of the wound – Balossino points out – and possibly of the shape and consistency of the injuring object, while the dispersion and accumulation of blood substances are influenced by the action of gravity, by the morphological characteristics of the surface itself and by the movement of the subject”.

The fact is that the research of Borrini and Garlaschelli seems to leave ample room for discretion also from a methodological point of view.

Di Lazzaro continues: “The first problem is about the use of an anticoagulant, essential for storing blood in the sac. In fact the liquid flowed so freely from the cannula, that it looked like coloured water”. A situation that certainly was very far from that of the crucifixion. “The man of the Shroud had been tortured, had not eaten or drunk for at least a day. He was dehydrated and also strained by the *patibulum*, the horizontal arm of the cross, which he had to carry to the top of the Calvary. His blood must have had a viscosity very different from that of a healthy man and therefore the rivulets escaping from the wounds cannot find any terms of comparison in a laboratory test that uses blood made fluid by anticoagulant and artificial blood, rivulets which flow on the arm of a clean man and on a plastic dummy, neither for the direction they take, nor for their sliding speed”. Another important variable is the epidermis. “Traces of soil were found on the image of the man of the Shroud. The skin of the man of the Shroud was that of a dehydrated man, under stress, who had been subject to beatings and repeated falls. Besides being swollen with bruises, it must have been encrusted with sweat, blood and dirt”. Once again, it was a state not comparable with that of a clean and smooth arm, or a plastic dummy. “And certainly the tumefactions and the dirt have affected the path of the blood”.

More in general, “The attempt to reproduce the stains with a bag of blood placed at the wrist seems superficial and approximate – muses Walter Memmolo, a medical doctor, responsible for the CIS Delegation of Southern Italy and Sicily. “Such an experiment is in fact impossible without taking into account the concentration of the blood, the speed and mode of fall, the quality of the skin tissue, and also the movements on the cross of a man crucified more than 2000 years ago of which we cannot know all the elements which are useful for a search of this kind. The blood from the bag was made to flow freely on prof. Garlaschelli’s arm. On the man of the Shroud the blood drained over the dorsal face of the forearm from the wrist fixed by the nail and adhering tightly to the *patibulum*, a situation that, together with the other associated causes, conditioned the outflow of blood. “Furthermore – Balossino urges – a fundamental fact has not been taken into account: the location of the blood source”. Borrini and Garlaschelli had apparently chosen a point where the nail is usually placed. “And if this was not the case? The blood stain on the man of the Shroud’s wrist is wide and it is not possible to ascertain the exact position of the nail. If the initial data are modified, so are the trajectories”.

The conclusions of the research have been widely criticised. According to the study, the so-called “blood belt”, which thickens on the pelvis and probably comes from the ribs, seems “unlikely”. “In this case the experiment was made by pouring synthetic blood onto a dummy with a sponge”. But indeed in this case making hypotheses is practically impossible, considering the infinity of variables that exist between reality and a laboratory experiment. Di Lazzaro considers: “For example the Shroud could have been used not only to wrap the body, but also to carry it to the tomb, holding it by the arms and feet. Hence the stagnation of blood in the center”.

And there is no lack of methodological perplexities on this front. Balossino points out: “The experimentation conducted by Garlaschelli about the blood belt is not a reverse but a direct process: that is to say that a source of blood is imposed (without considering the size of the wound, the morphology, the blood viscosity). And the action of modification of the propagation of the blood material due to the surface of the human skin that presents different texture in each individual is not considered, and furthermore no movement of the subject is introduced”. It is therefore evident that there cannot be any compatibility between the blood belt’s morphology of the Shroud and the results of the investigation. “According to the authors the morphology obtained by them with this experiment is not realistic, but they say nothing about how a realistic one should be. Finally, there is no certainty that the leakage of blood from the wound to the side can be simulated with a sponge soaked in blood. Nor is anything known about the different consistency of blood at the time of the event”.

The study appears also to be distorted by another non-secondary defect: “It seems strange that in the bibliography only articles on BPA by the authors themselves are mentioned – Balossino points out – The science of BPA has produced numerous publications over the years, some of which are fundamental and basic.”

Di Lazzaro concludes: “Every experiment is welcome, provided it is done correctly. Before drawing any conclusions, a serious scientist must take into account the limits of experimentation and must leave some margin of doubt due to uncertain or unknown parameters. For this reason I would consider the results of the research interesting but only preliminary, waiting for other more targeted experiments, that could reproduce realistic conditions in dripping blood on the body of a crucified person, taking into account the presence of soil, dirt, sweat, bruises on the skin of the man of the Shroud, and the accentuated blood viscosity due to strong dehydration”.

The International Center of Sindonology (CIS) operates in this way, which it considers to be the correct scientific approach. Unlike many situations, just like the one in question in which the authors presented their research in dogmatic terms based on pre-existing convictions, either for or against the tradition that accompanies the Shroud, the Centre places itself in a neutral position, respecting the correct dialectic between science and faith, applying scientific critique, open to any result as long as it is scientifically coherent.

From the Papal Custodian of the Shroud comes an invitation to continue studies on the Shroud, but with a mind free from preconceptions. Msgr. Cesare Nosiglia, Archbishop of Turin, points out: “Studies and research – if conducted with scientific criteria and without prejudicial hypotheses – stimulate an unclouded and constructive confrontation, confirming what St. John Paul II stated: “The Shroud is a constant provocation for science and intelligence”. I believe, however, that a fundamental principle must be reiterated that must guide those who want to deal with complex issues such as this with a rigorously scientific method: it is the principle of neutrality, because if we start from a preconception and orientate the research to prove it, we will easily confirm it... In this case it will no longer be the facts that count, but the preconceived ideas thus nullifying the intrinsic neutrality of science with respect to personal convictions.

And in any case, no investigation can touch the deep meaning of the Shroud. “To contemplate the Shroud is like reading the pages of the Gospel that tell us the Passion and death on the cross of the Son of God. Therefore the Shroud, which is not an object of faith, helps faith itself, however, in that it opens the heart of those who approach it and contemplate it to become aware of what has been the suffering of Jesus on the cross and therefore of that greatest love that he has shown us”.