

The dating of the Holy Shroud is to be redone, the measurements made at the end of the 1980s with radiocarbon and published by the prestigious journal Nature turned out to be unreliable, in light of the current availability of the raw data of those measurements and new and more accurate statistical analysis tools. This is what statisticians, historians, physicists and mathematicians claim in the article recently published by the journal Archaeometry (2019) "Radiocarbon dating of the Shroud Turin: new evidence from raw data", presented this morning during a conference held in 'great hall of the University of Catania.

Opening the proceedings, the rector Francesco Basile underlined the importance of hosting a debate in Catania that fascinates and attracts scholars from all over the world, through the contribution of internationally renowned scholars who are inspired by the availability of new acquisitions. The director of the Department of Economics and Business Michela Cavallaro pointed out, in particular, the interdisciplinary nature of this research project and the potential impact in the scientific world. The mayor Salvo Pogliese, on the other hand, underlined the contribution of the University, with its scientific and educational excellences, to the relaunching of the city of Catania, afflicted at this particular historical moment by the scourge of instability.

"There is no conclusive evidence that the Shroud is medieval," Professor Benedetto Torrisi, associate professor of Economic Statistics at the University, said. Many researchers, in the last thirty years, had requested, in vain, the publication of the raw data of the three laboratories (Oxford, Arizona, Zurich) that carried out the analyzes in 1988, and finally, in 2017, Dr. Tristan Casabianca, researcher of History of the Shroud at the University of Aix-Marseille succeeded in obtaining the raw data from the British Museum, giving way to interdisciplinary research that highlighted the unreliability of that dating".

"Several scientific contributions, in the following years - noted the Shroud scholar Elena Marinelli - highlighted the inefficiencies of dating, the reconstruction of the events that led to the radiocarbon dating of the Shroud in 1988 and the subsequent controversies, with leaks and missed compliance with the foreseen protocols, cast strong shadows on the validity of the result. The laboratories produced different results, not attributable to the same phenomenon, and in the publication the presence of important heterogeneous material not mentioned in the article on Nature was omitted, such as ancient cotton or blue and red threads". The procedures (selected after more than 10 years of negotiations between archaeologists, tissue experts and the Holy See) were therefore far from perfect, according to scholars gathered in the city of Etna.

"These results provide the definitive proof that the shroud of the Turin Shroud is medieval," the authors of the article in Nature wrote in February 1989, but this - for prof. Paolo Di Lazzaro, research director of ENEA (Frascati) and deputy director of the International Center for the Studies of Sindonology of Turin - is somewhat "unusual" in the scientific field: "All the results and experimental evidences are obtained" to the best of our knowledge 'and are accepted' until proven otherwise' - he underlined -. Over the centuries, science has progressed by questioning the results previously acquired, finding new ones that often complete and in some cases deny the previous results. Today therefore we have a greater awareness of how difficult it is to obtain an accurate relationship between the C-14 isotope count and the age of textile samples, due to the great permeability of the tissues to pollutants that bind chemically to the tissue cellulose becoming an integral part of it".

The statistical analysis of the raw data performed by the working group coordinated by prof. Torrisi with the data analyst Giuseppe Pernagallo unequivocally confirms the inhomogeneity of the C-14 counts used for dating, probably due to a contaminant not removed by preliminary cleaning operations, a difficult problem to solve in the radio-dating of tissues, today well known and which was not considered important in 1988. While on the one hand a historian like Marinelli underlines doubts about sampling, Torrisi and Pernagallo himself confirm that the strong inhomogeneities between the three laboratories and within the laboratories are bells of alarm indicating the non-representativeness of the fabric sections used in the sampling.

Statistical tests conducted in 2012 as part of a research by prof. Marco Riani, Professor of Methodological Statistics at the University of Parma and director of the Interdepartmental Center of Robust Statistics for large databases, revealed that the datings provided by the three different laboratories were with homogeneous variability, but significantly different. "This heterogeneity in the dating that has been published - Riani said - implies that the twelve estimates of the age of the Shroud cannot be combined together in a single measure through an average, also because of the presence of a "spatial trend", linked to the exact point where the pieces of fabric of the various samples analyzed by the different laboratories have been cut".

Numerous theories were then proposed and as many experimental attempts to reproduce (starting from a corpse or through an artificial method) an image similar to the Shroud, said Bruno Barberis, associate of Mathematical Physics at the Department of Mathematics of University of Turin and former Director of the International Center of Sindonology of Turin. "Someone - said Barberis - assumed that the cause of the impression was the chemical reactions between ammoniacal cadaveric vapors and substances present on the sheet. Others have suggested that the imprint was made by an artist with various painting techniques. Still others have thought that to generate the imprint may have been different types of radiation from the body or from sources external to it".

"The main chemical-physical characteristics of the Shroud image - he said - are now sufficiently known especially following the studies carried out by the US scientists of the STURP (Shroud of Turin Research Project) on data and samples collected on the Shroud in 1978. On the occasion of such researches various tests were carried out (spectroscopy in the visible and ultraviolet for reflectance and fluorescence, X-ray and IR spectroscopy, mass spectroscopy, infrared thermography, radiography, etc.), ascertaining the absolute lack on the pigment sheet and dyes and showing that the body image, absent on the back of the Shroud, is due to an oxidation-dehydration of the cellulose of the surface fibers of the fabric. "As of today - concluded Barberis - the process that caused the formation of the image is still unknown and needs further studies both theoretical and experimental and therefore the Shroud image must still be considered a substantially irreproducible image".

"It is evident - concluded prof. Torrisi - that there are shadows on radiocarbon dating of 1988. The sample scheme does not provide a statistical representativity of the cloth, also because of the 'spatial trend' which determines heterogeneity between the measures returned to the various laboratories. And this is confirmed by numerous parametric and non-parametric tests referring to both raw and official data ". "For all these reasons - confirmed the scholars - it would be desirable to have a new campaign of studies directed at the cloth that should have the purpose of collecting the greatest number of data so as to constitute a complete map of the physical, chemical and biological characteristics of the entire Shroud, to be made available to scholars so that they can work and confront themselves on reliable and reliable data, to arrive at a new dating of the Telo of Turin, without sacrificing other strips of fabric of what is considered the most precious of relics."

Online Translation courtesy of Joe Marino