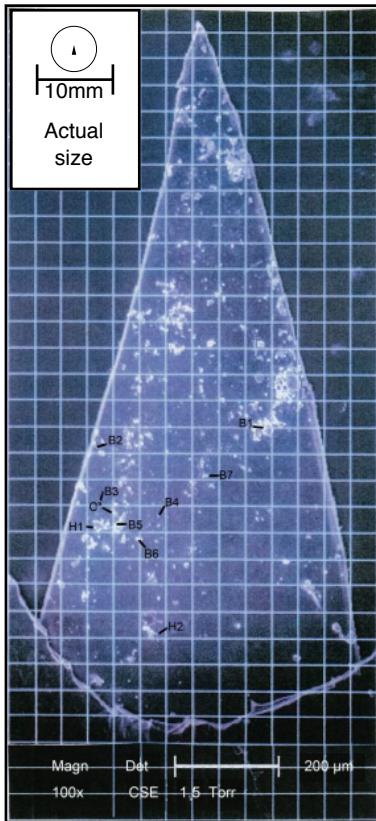


The Ongoing Researches of Gérard Lucotte

Some years ago, Gérard Lucotte, of the Institute of Molecular Anthropology in Paris, investigated some dust extracted from the space between the Shroud and its backing cloth, extracted by Riggi di Numana during the 1978 scientific investigation, and his findings were published in 'Verités sur le Saint Suaire' (Atelier Fol'fer, 2010). More recently he has received a tiny shred of sticky tape, extracted from a sample taken by Riggi di Numana from a 'blood area' on the image of the face on the Shroud in 1978. He does not make it clear, but I think this not a direct

contact tape, but one 'dabbed' onto detritus vacuumed from the area, as described by Giulio Fanti in a paper presented to the Ohio Shroud conference in 2008.¹



The sample, by SEM

Lucotte's shred is a narrow triangle, $1360\mu\text{m}$ long and $614\mu\text{m}$ wide, an area of about half a square millimetre. Nevertheless, according to Lucotte, it carries over 2500 separate particles over $1\mu\text{m}$ wide, and with the aid of a Scanning Electron Microscope (SEM) equipped with Energy Dispersive X-ray (EDX) equipment for microfluorescence analysis, he has been laboriously observing, identifying and recording them. At a magnification of $\times 80000$, even half a square millimetre is a vast landscape, and Lucotte has been roaming it like a miniaturised geologist exploring a desert for several years. He has spotted red blood corpuscles, skin cells, linen fibres, mineral particles, pollen grains and other unidentified 'dusts',

¹ Fanti G., *Statistical analysis of dusts taken from different areas of the Turin Shroud, Perspectives of a Multifaceted Enigma*, 2008

and published a series of profusely illustrated monographs, explaining his identifications in precise detail:

Lucotte G., *Optical and Chemical Characteristics of the Mineral Particles Found on the Face of the Turin Shroud*, Scientific Research and Essays, July 2012

Lucotte G., *Exploration of the Face of the Turin Shroud. Pollens Studied by SEM Analysis*, Archaeological Discovery, September 2015

Lucotte G., *Exploration of the Face of the Turin Shroud. Linen Fibres Studied by SEM Analysis*, International Journal of Latest Research in Science and Technology, October 2015

Lucotte G., *Red Blood Cells on the Turin Shroud*, Jacobs Journal of Hematology, December 2015

Lucotte G., *Skin Debris on the Face of the Turin Shroud: A SEM-EDX Analysis*, Archaeological Discovery, April 2016

Lucotte G. et al., *Hematite, Biotite and Cinnabar on the Face of the Turin Shroud: Microscopy and SEM-EDX Analysis*, Open journal of Applied Sciences, September 2016

A 'blood area' might be thought to be particularly rich in adherent particles, but even so, 2500 in half a square millimetre puts the researches of McCrone, Rogers and Heller & Adler into interesting perspective.

Lucotte's papers are remarkably non-judgemental. Whether or not he is personally persuaded of the authenticity of the Shroud is not evident from his dispassionate descriptions, an attitude which is all too rare in Shroud studies. Every identification is illustrated and explained in optical, SEM and X-ray Fluorescent detail in such a way that even if one disagrees with him, at least it is apparent why he came to the conclusion he did, and easy to use his own evidence to enquire about any discrepancies.

As an illustration of his method, I shall take a single particle from his latest monograph, namely cinnabar. Walter McCrone missed this in his first examination of the STuRP tape samples, but, having been made aware of it by his students, found it all over the place, especially associated with 'blood',² while Heller & Adler identified a single large particle from the 'spear-wound' blood stain, which they attributed to paint from a copy of the Shroud laid over it at some time in the past.³ Here (abbreviated) is Lucotte's identification:

"We only found one cinnabar particle on the surface of the triangle: the particle k56 (Figure 13), that is located in the lower part of the k area; optically, it is of pale red (yellow) colour."

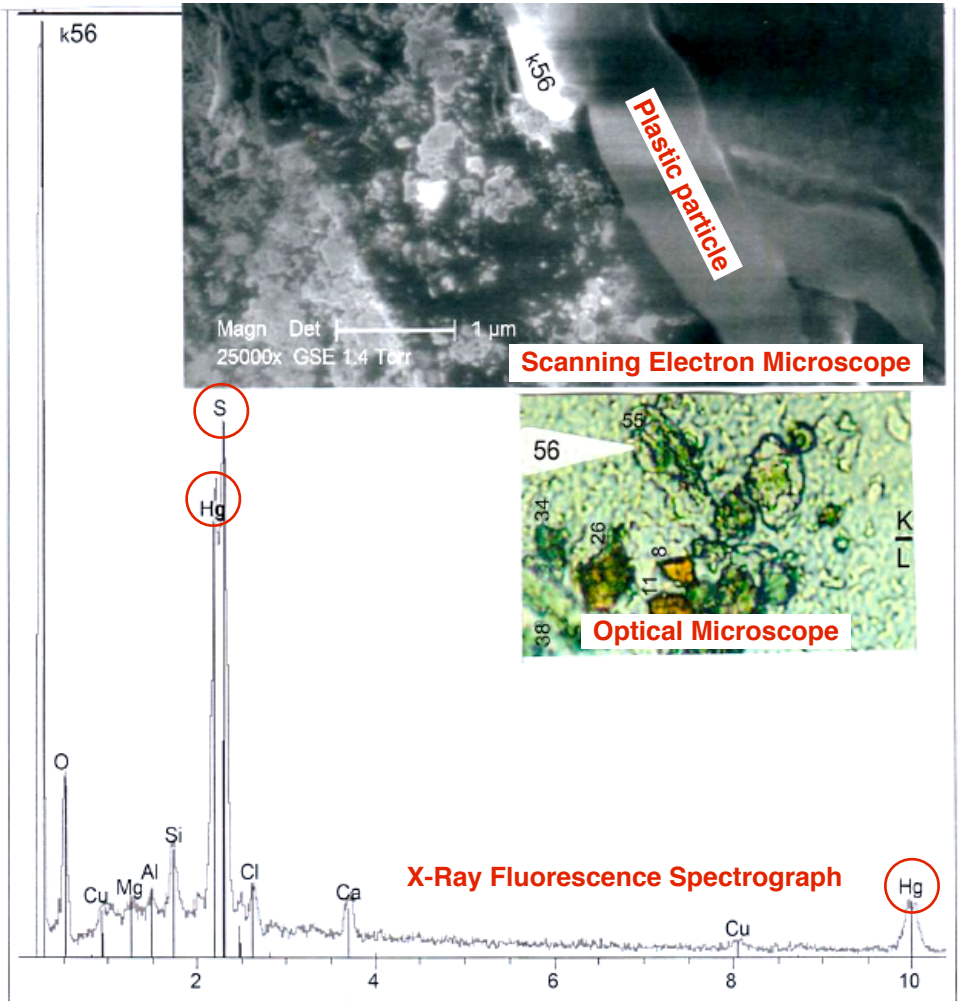


Lucotte's single particle of cinnabar is located in Area K, hence its identification number k56. It is identified on the micrograph left with a 'C'. 'B' and 'H' stand for Biotite and Hematite. The red circle and dot are mine.

k56 is tucked under k55, which is a piece of plastic, and surrounded by debris - particles too small to investigate, less than $1\mu\text{m}$ across. By observation alone, at whatever magnitude, it would be impossible to identify, but the EDX facility on the SEM enables the chemical composition of particles this size to be determined with accuracy. As cinnabar is mostly mercuric sulphide, peaks of mercury and sulphur are diagnostic. Lucotte thoughtfully includes a reference spectrum with which to compare his findings.

² Walter McCrone, *Judgement Day for the Turin Shroud*, McCrone Research Institute, 1996

³ John Heller & Alan Adler, *A Chemical Investigation of the Shroud of Turin*, Canadian Society of Forensic Science Journal, 1981



The cinnabar particle, k56, by optical microscope (x1000), SEM (x25000), and X-ray fluorescence. The prominent Mercury (Hg) and Sulphur (S) peaks are circled. The tall peak on the left is Carbon (C), and traces of Copper (Cu), Magnesium (Mg), Aluminium (Al), Silicon (Si), Chlorine (Cl) and Calcium (Ca) can also be identified. (From Lucotte's paper, red additions mine)

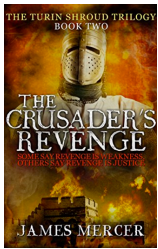
And so on, through every identifiable speck of organic and inorganic material. There is blood and skin, indicating contact with real people, and also a variety of pigments, suggesting an artificial provenance, but Lucotte does not judge, he merely presents his findings with meticulous impartiality leaving it to others to make up their minds what they mean.



PUBLICATIONS (2)

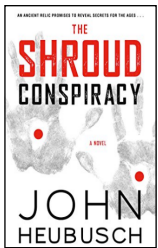
BOOKS

Remarkably, there have been fewer Shroud themed books than ever before published in the last six months. Sadly, Marc Antonacci's 'Test The Shroud' has been delayed again, and may not formally make it across the Atlantic at all, although it can be bought through amazon.com.



The Crusader's Revenge, James Mercer
Amazon Media

The second part of a swashbuckling medieval adventure, this one describing the sack of Constantinople. Robert of Oldfield of the Forgotten Army joins the mysterious Brotherhood of Turin to discover the hidden treasure before the Order of the Bloodied Cross gets there first...



The Shroud Conspiracy, John Heubusch
Amazon Media

Forensic anthropologist Dr Bondurant sets out to prove the Shroud a fake, but quickly discovers the opposite and must race to stop the evil forces who want to use traces of blood in the fabric to clone Jesus and bring on a second coming of their own design.

