

SPECIAL FEATURE

Observations by Microscopy of the Sticky Tape Samples Taken from the Shroud by Dr. Max Frei in 1978

by **Kevin Moran**

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Thanks to the efforts of **Paul Maloney** and **Dr. Alan Whanger**, I have been able to examine the 27 original **Dr. Max Frei** sticky tapes that are still intact on microscope slides and kept in a vault here in North Carolina.

I have been able to photograph some of these specimens with a research grade Olympus Vanox microscope using 35mm negative colour film that was scanned to Kodak Photo CD rom. Disks with some of these pictures can be obtained through the Holy Shroud Guild of Esopus, NY, USA. The pictures can be viewed on multi-media computers and imported into your research documents. If the pictures are to go into profit-making works then a royalty is due to the Holy Shroud Guild for copyright release.

There are many features to these samples that are not on the STURP tapes or on other samples collected since. For one thing, Max Frei used a fingernail to press the tape deeper into the cloth, and thereby collected more pollens. Paul Maloney has reported on this already elsewhere.

Because of my interest in how the image was formed, I have examined the image-forming pixels or segments of the fibre that have the darker yellowing. I have dubbed the elements 'pixels' to draw attention to the fact that they are optically terminated. They are very sharply defined at their ends. They are not diffused spots that would be seen if they were dyed or chemically reacted, or a thermal burn. They are most certainly not made by pigment contact.

They have been compared to a random halftone pattern as used in printing a greyscale image to paper. Since the linen fibres are some 10 to 30 microns in diameter and appear as smooth fibre optics, the section where the darkened fibre meets the clear fibre looks like a precision line formed on a modern semiconductor. In private communications with a recognized authority in cellulose chemistry I have been told there is no normal process to obtain this sharp optical step function in linen fibre. It appears to be the result of particle radiation. Dr. John Jackson and others have shown that the radiation reacted only for a 3.5 cm. distance from the body surface. This rapid attenuation accounts for the 3D image as shown by the VP-8 analysis.

There is a popular misconception that we understand how these pixels were formed. Some have even gone so far as to 'demonstrate' how the image was made by dusting, painting, burning, laser marking, corona discharge, etc. Not one of these methods is even close. The darkening in each pixel area has been shown to be uniform in nature, about 30% darker than the non-imaged fibre. Dr. Alan Adler has identified the reaction as dehydration of the cellulose with resulting conjugation of carbonyls.

Some have described this as rapid aging of the cellulose. But this does not account for the sharp boundaries to these dark segments I choose to call pixels. The whole fibre is coloured uniformly across the circular section as seen by optical microscope. The pixel section is also more brittle than the clear sections of the fibre.

There are two other unique characteristics of these areas. They don't fluoresce and the random lengths are always terminated by a fibre-growth irregularity. This leads to the theory that whatever the exact nature of the radiant energy deposited in the fibre, this was due to the collision of a high-energy particle, quantized and reacted in the cellulose so cleanly that no shards of multi-stable molecules remained to fluoresce in the way that a normal thermal reaction would leave behind.

This also suggests that the velocity of propagation of the collision event was at the absolute speed of light, above that of the normal local speed of light in the fibre medium; also that the local optical irregularities deflected the energy so that the boundaries are of molecular dimension. This would explain the random lengths but uniform colour of each pixel.

There is no way to replicate this phenomenon today.

It is well to note that Dr. Alan Whanger and others have pointed out that the image is an auto-radiograph with X-ray properties. The bones show in the hands and certain features in the jaw and gum-line are visible. If a cosmic process is occurring in the Resurrection that we believe is recorded here, then we would expect very interesting high energy particles to be involved in the image-forming mechanism.

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