



# The Post-STURP Era of Shroud Research 1981 to the Present

Presented by

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Shroud of Turin Website

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# 2 (10)

**The Post-STURP Era  
of Shroud Research  
1981 to the Present**

**LECTURE 2 (10)**

**So what do we know for sure  
about the Shroud of Turin?**

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(PDF files are included with this course for all of the above documents)

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## A Summary of STURP's Conclusions

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*Editor's Note: After years of exhaustive study and evaluation of the data, STURP issued its Final Report in 1981. The following official summary of their conclusions was distributed at the press conference held after their final meeting in October 1981:*

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No pigments, paints, dyes or stains have been found on the fibrils. X-ray, fluorescence and microchemistry on the fibrils preclude the possibility of paint being used as a method for creating the image. Ultra Violet and infrared evaluation confirm these studies. Computer image enhancement and analysis by a device known as a VP-8 image analyzer show that the image has unique, three-dimensional information encoded in it. Microchemical evaluation has indicated no evidence of any spices, oils, or any biochemicals known to be produced by the body in life or in death. It is clear that there has been a direct contact of the Shroud with a body, which explains certain features such as scourge marks, as well as the blood. However, while this type of contact might explain some of the features of the torso, it is totally incapable of explaining the image of the face with the high resolution that has been amply demonstrated by photography.

The basic problem from a scientific point of view is that some explanations which might be tenable from a chemical point of view, are precluded by physics. Contrariwise, certain physical explanations which may be attractive are completely precluded by the chemistry. For an adequate explanation for the image of the Shroud, one must have an explanation which is scientifically sound, from a physical, chemical, biological and medical viewpoint. At the present, this type of solution does not appear to be obtainable by the best efforts of the members of the Shroud Team. Furthermore, experiments in physics and chemistry with old linen have failed to reproduce adequately the phenomenon presented by the Shroud of Turin. The scientific consensus is that the image was produced by something which resulted in oxidation, dehydration and conjugation of the polysaccharide structure of the microfibrils of the linen itself. Such changes can be duplicated in the laboratory by certain chemical and physical processes. A similar type of change in linen can be obtained by sulfuric acid or heat. However, there are no chemical or physical methods known which can account for the totality of the image, nor can any combination of physical, chemical, biological or medical circumstances explain the image adequately.

Thus, the answer to the question of how the image was produced or what produced the image remains, now, as it has in the past, a mystery.

We can conclude for now that the Shroud image is that of a real human form of a scourged, crucified man. It is not the product of an artist. The blood stains are composed of hemoglobin and also give a positive test for serum albumin. The image is an ongoing mystery and until further chemical studies are made, perhaps by this group of scientists, or perhaps by some scientists in the future, the problem remains unsolved.

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## SO WHAT DO WE KNOW FOR SURE?

As you have already learned, much of the data gathered by the STURP team is somewhat technical and resides in peer-reviewed scientific journals. However, that means very little to the general public who constantly hear in the popular media that the Shroud is a “fake.”

STURP’s primary goal was to answer the question, “How was the image formed?” and that dictated the specific tests we performed and the resulting data we collected.

## SO WHAT DO WE KNOW FOR SURE?

But, in the end, we still could not answer that single question. We could tell you what it is not (not a painting, not a photograph), but we could not suggest a single mechanism that could create an image with all of the specific chemical and physical properties found on the Shroud.

So this lecture will use the STURP data to specifically address some of the most common claims made by skeptics that the Shroud image is a medieval painting, a scorch, a rubbing or a photograph made by Leonardo da Vinci. Of course, it can't be ALL of them!

## SO WHAT DO WE KNOW FOR SURE?

We will exclude any anecdotal or non-scientific evidence and respond to each claim based on the data collected by STURP, the knowledge gained from that data and the results they published in the peer-reviewed scientific literature.

In other words, **THIS is what we know for sure!**

## THE SKEPTIC'S THEORIES

The Shroud Image is a “Beautiful Painting”

The Shroud Image is a Scorch from a Heated Statue

The Shroud Image is a Rubbing of Iron Oxide

The Shroud Image is a Medieval Photograph  
(Possibly Produced by Leonardo Da Vinci)



# THE SKEPTIC'S THEORIES

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## The Shroud is NOT a “Beautiful Painting”

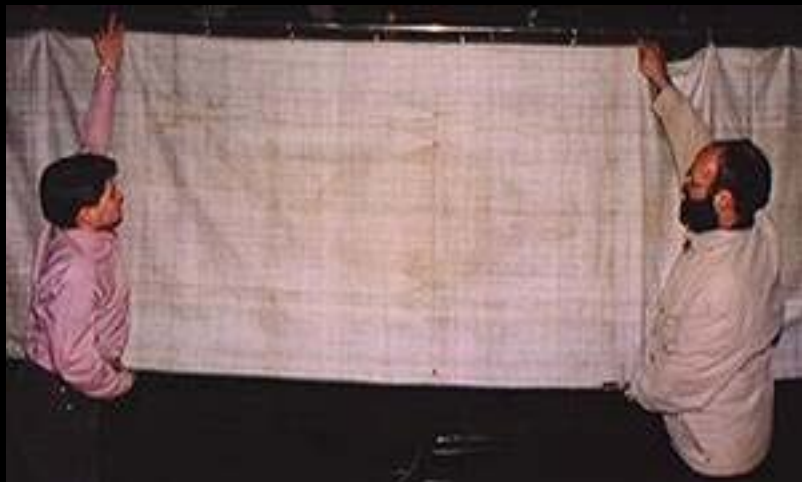
This claim was made by Walter McCrone, who published it in a magazine that he owned and edited, *The Microscope*, but not in any peer reviewed scientific journals. He stated that the Shroud’s image was painted, as were the bloodstains, which were still red in color because they were made by pigment and not real blood.

Walter McCrone NEVER even saw the Shroud. He only examined the tape samples taken by Ray Rogers and only visually under a microscope. He performed NO chemical or other scientific analyses on the samples.

STURP also reported pure red iron oxide particles but noted that they were microscopic in size, scattered evenly across the Shroud and likely the result of the flax retting process. Their data clearly proved that the image was not formed by these particles.

Where did McCrone’s pigment particles come from? He failed to consider the 52 documented occasions when artists were permitted to sanctify their painted replicas by touching them to the Shroud, thus causing an unintentional transfer of microscopic paint particles.

## The Shroud is NOT a “Beautiful Painting”



**The most recently discovered Shroud copy was found Jan. 18, 1999 in the monasterial church in Broumov, Czechia**



**The copy bears the Latin words EXTRACTVM ORIGINALI (taken from the original), indicating it had been in contact with the Shroud.**

# The Shroud is NOT a “Beautiful Painting”



**Included with the copy was a letter dated 1651 and signed by the Archbishop of Turin, verifying this. This provides another logical explanation for the discovery of small amounts of pigment scattered evenly across the Shroud of Turin.**

Courtesy Leo Bazant

# The Shroud is NOT a “Beautiful Painting”

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## Blood on the Shroud of Turin

John H. Heller and Alan D. Adler

By spectroscopic and chemical tests (conversion of heme to a porphyrin), we have identified the presence of blood in the alleged blood areas of the Shroud of Turin.

### I. Introduction

The Shroud of Turin is a linen cloth that has been dated to at least the middle 14th century. It has been traditionally considered the burial cloth in which the body of Jesus Christ was wrapped and placed in the tomb. As recently reported,<sup>1</sup> there is now a widespread interest in this artifact, particularly in its image phenomena.

In October 1978 an interdisciplinary American scientific team was granted permission to carry out a series of nondestructive spectroscopic and photographic tests directly on the artifact. Also, by impressing strips of a special sticky tape (supplied by 3M Corporation) on various locations of the Shroud, it was possible to bring back samples of the surface material for further investigation. A number of investigators have used the spectroscopic data to determine whether the Shroud is a painting.

### II. Spectroscopic Tests

An x-ray fluorescence study demonstrated that no significant amounts of high atomic number elements except for iron appear on the cloth, and iron appears only in high concentrations in the blood areas.<sup>2</sup>

We received a single 2.5 × 7.5-cm (1 × 3-in.) specimen of the sticky tape from one of the blood areas. Unfortunately, from the viewpoint of optical and chemical examinations, this came with the sticky side firmly pressed down on a microscope slide. A 1000× dry microscopic examination showed several hundred linen fibrils, assorted debris of the centuries (e.g., a crimson silk fiber, an azure wool fiber), less than a dozen possible bloodstained fibrils, and a single brownish red translucent crystal. The stains appeared as a surface sheath on some of the fibrils as well as seeming to penetrate them.

To develop and check appropriate techniques we prepared a simulacrum from a sample of roughly woven Spanish linen ~300 years old and impregnated with dried blood from one of us. This was done on a piece of Scotch Tape, and under microscopic examination the fibrils similar to those on the Shroud were observed.

The blood on the Shroud was confirmed as blood by spectrographic and chemical analysis.

The results were published in the peer reviewed scientific journal **Applied Optics**

## The Shroud is NOT a “Beautiful Painting”



**Victims of severe torture extending over many hours, like the man on the Shroud, go into shock and over time, their red blood cells start to break down. At the same time, their liver floods their blood stream with bilirubin. Under these very rare conditions, the blood remains red forever.**

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## A Comprehensive Examination of the Various Stains and Images on the Shroud of Turin

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*The chemistry of the various stains and images on the Shroud of Turin is presented. The chemical conclusions were drawn from all the data and observations, both physical and chemical, collected by direct investigation of the Shroud in 1978. The conclusions are that the body image is made up of yellowed surface fibrils of the linen that are at more advanced stages of degradation than the non-image linen. The chromophore is a conjugated carbonyl. No evidence was found in the body image of any added substances that could have contributed to the yellow color of the fibrils that form the image. The blood images on the cloth are made of blood. The data, taken together, do not support the hypothesis that the images on the Shroud are due to an artist.*

**A** TEAM OF SCIENTISTS AND TECHNICIANS known as the Shroud of Turin Research Project (STURP) took part in direct physical testing on the Shroud of Turin in October 1978. The object of their efforts was a piece of ancient linen measuring approximately 4.3 m × 1.1 m presently kept in the Chapel of the Holy Shroud in the north Italian city of Turin. The cloth's value stems from the presence of the frontal and dorsal image

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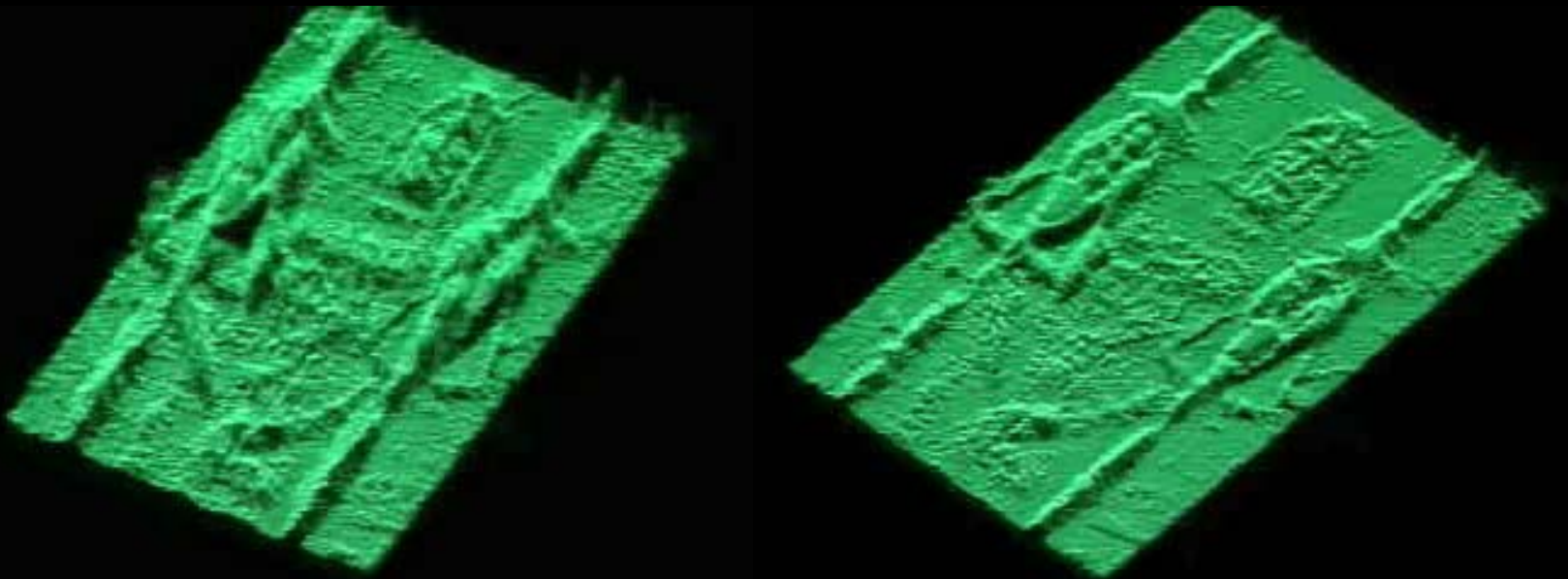


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## The Shroud is NOT a “Beautiful Painting”

The spatial or so-called three dimensional characteristics of the Shroud's image were first noted by STURP using the VP-8 Image Analyzer, prior to their actual examination of the cloth. However, the data gathered in 1978 provided quantitative scientific evidence that there was depth information encoded into the Shroud image that was the result of the image density being a function of cloth-body distance.

The VP-8 Image Analyzer  
Visualizes the Spatial Properties of  
the Shroud Image on a TV monitor



### THREE DIMENSIONAL CHARACTERISTIC OF THE SHROUD IMAGE

John P. Jackson  
University of Colorado at Colorado Springs

Eric J. Jumper  
Air Force Institute of Technology

William R. Ercoline  
United States Air Force Academy

#### Abstract

The frontal image on the Shroud of Turin is shown to be consistent with a body shape covered with a naturally draping cloth and which can be derived from a single, global mapping function relating image shading with distance between these two surfaces. The visible image on the Shroud is not the work of an artist in an eye/brain/hand coordination sense, nor does it appear to be the result of direct contact only, diffusion, radiation from a body shape or engraving, dabbing powder on a bas relief, or electrostatic imaging. The visible image on the Shroud is probably not the result of a hot bas-relief impressed into cloth, but such a mechanism might be able to account for the Shroud image's distance correlation, resolution, and chemical structure; it does not simultaneously account for the image residing on one side of the Shroud, low contrast of the Shroud image, or lateral distortions in the Shroud image consistent with a draping cloth over a body shape.

#### I. INTRODUCTION

In Turin, Italy there exists a 14 foot 3 inch linen cloth known as the Shroud of Turin. This cloth contains visible discolorations of the apparent frontal and dorsal images of a human male form (Figure 1). The image appears to be that of a crucifixion victim who has been whipped, knifed in his right side, and physically abused. These characteristics, reminiscent of what the Gospels report happened to Jesus, have led some to hypothesize that the "Man of the Shroud" is Jesus while others still remain cautious, awaiting in some instances a radiocarbon date of the Shroud. In this paper, we consider the Shroud image from a point of view that is independent of the identification of the Man of the Shroud and accordingly all conclusions reached are independent of whether or not the Shroud is the actual burial cloth of Jesus. The general layout of the frontal and dorsal images can be interpreted as having been produced from a body enveloped between folded halves of the Shroud. It is in this sense that the cloth can be interpreted as a shroud. However, correct scientific inquiry regarding the nature of the Shroud image must not exclude the possibility that the image was the work of an artist, possibly made to look like the burial shroud of Jesus. As an art form, the image might have been produced by simple eye/brain/hand coordination (like a painting) or by some physical

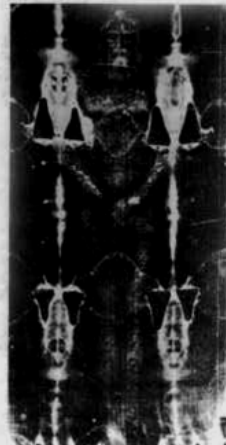


Figure 1. Frontal Shroud Image.  
Vernon Miller, 1978

mechanism (i.e., chemical transfer from a human corpse or statue.)

In this paper, we discuss the Shroud image with respect to its shading structure. For discussions of the Shroud image relative to its chemical properties as well as aspects of the Shroud outside the scope of this paper, we refer the reader to other literature (Refs. 1-4). Our discussion consists of two parts: first, we determine the type of shading structure contained in the Shroud image and second, we discuss various hypotheses with respect to the type of shading structure determined. Our analysis of the first part will presume nothing of the chemical nature of the Shroud image and accordingly, this discussion will be independent of image chemistry. In the second section, however, we discuss chemical considerations where appropriate so as to integrate this paper with other studies.

#### II. CHARACTERIZATION OF SHADING STRUCTURE

A. Discussion. Gilbert and Gilbert (Ref. 5) and Pellicori (Ref. 6) have published spectral reflectometer curves taken directly from the Shroud image. As a general rule, curves from



Figure 25. Electrostatic Image Profile.

Thus, electrostatic imaging does not appear to be a viable way of producing an image like the one on the Shroud. In many respects, electrostatic images are like diffusion images because both obey Laplace's Equation for potential and number density respectively.

#### IV. CONCLUSIONS

In summary, we list the following conclusions resulting from our investigations of the Turin Shroud. We do not claim to have absolutely proven any of them (except the first) for reasons specified in the text, but we do believe them to have a high probability of being correct (independent of whether or not the Shroud is the actual burial cloth of Jesus.)

1. The frontal image on the Shroud has a shading structure consistent with a body shape covered with a naturally draping cloth and which can be derived from a single, global mapping function relating image shading with distance between these two surfaces. This interpretation would be a reasonable explanation for the Shroud image if a high resolution mechanism satisfying all image and chemical characteristics of the Shroud can be demonstrated.

2. The visible image on the Shroud is not the work of an artist in an eye/brain/hand coordination sense, nor does it appear to be the result of direct contact only, diffusion, radiation from a body shape or engraving, dabbing powder on a bas relief, or electrostatic imaging.

3. The visible image on the Shroud is probably not the result of a hot bas-relief impressed into cloth, but such a mechanism might be able to account for the Shroud image's distance correlation, resolution, and chemical structure; it does not seem to simultaneously account for the image residing on one side of the Shroud, low contrast of the Shroud image, or lateral distortions in the Shroud image (consistent with a draping cloth over a body shape.)

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Laplace's Equation for potential and number density respectively.

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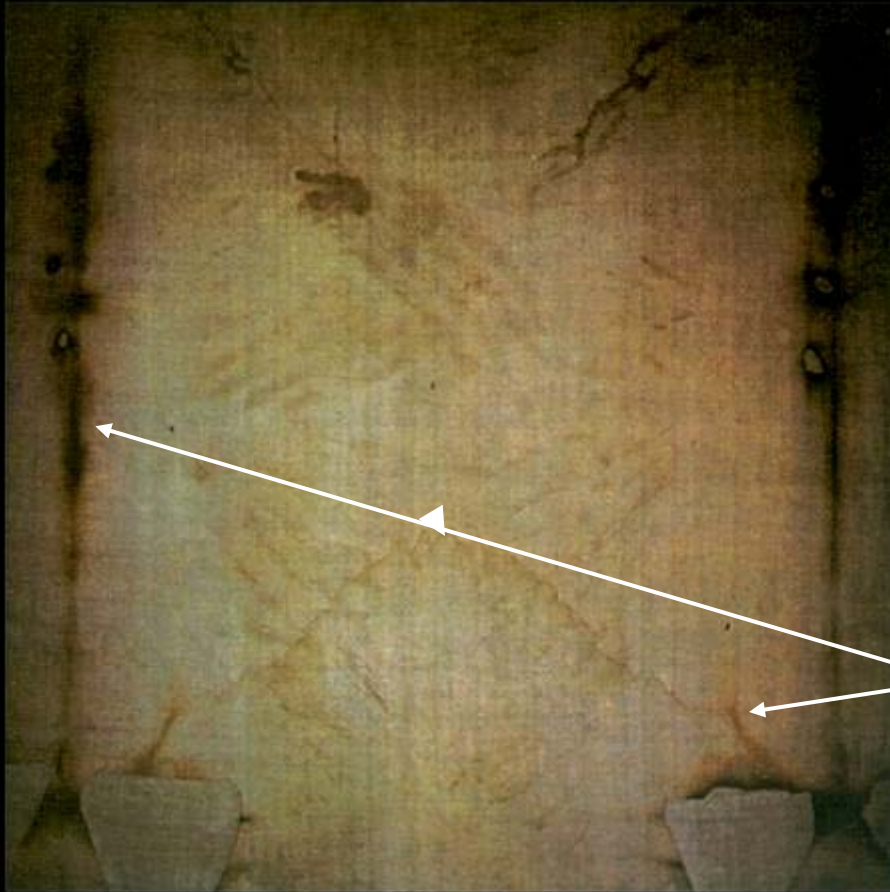
**STURP determined that if the cloth had been heated enough to scorch it, there would be changes in the structure of the flax fibers and the blood - and there was none. Kinetic studies support a low temperature image formation process.**

**Joe Nickell proposed the theory that the Shroud image is a scorch made from a hot metal statue. However, he is a former stage magician and not affiliated with any scientific or academic institutions. He is not a scientist.**

- **Nickell did not provide one example of a scorched image on linen.**
- **A scorch would not have the same chemical and physical characteristics as the Shroud image.**
- **Nickell's results were never published in any peer reviewed scientific or academic journal, just a TV show.**



## The Shroud Image is NOT a Scorch



©1978 Vernon D. Miller

Scorched linen will fluoresce under certain types of UV illumination. STURP found that the burns on the Shroud fluoresced as expected, but the image itself did NOT. In fact, it actually inhibited the fluorescence, completely eliminating heat as a possible image formation mechanism.

You can see a slight red fluorescence surrounding the scorched areas in this 1978 UV fluorescence photo.

Notice that the image areas of the hands and thighs show a darkening but no fluorescence.

## Ultraviolet fluorescence photography of the Shroud of Turin

V. D. Miller and S. F. Pellicori

*Members, Shroud of Turin Research Project  
Santa Barbara, California*

One of the nondestructive techniques used to investigate the Shroud of Turin was ultraviolet fluorescence (UV) photography. This technique is able to detect organic and inorganic compounds by their integrated emission spectra and it is the complement of the more common technique of reflectance photography. Photographic data collection was one of many information resources designated by the Shroud of Turin Research Project<sup>1</sup> (STURP) team for the investigation of the body image and blood stains. The goal of the team was to determine the nature of the body image and its cause.

### Background

The investigation in October 1978 followed the conclusion of the public exhibition held in celebration of the 400th anniversary of the Shroud's housing in Turin, Italy. That was the first public exhibition in 45 years and the first full-scale multidisciplinary study in the Shroud's history.<sup>2,3</sup>

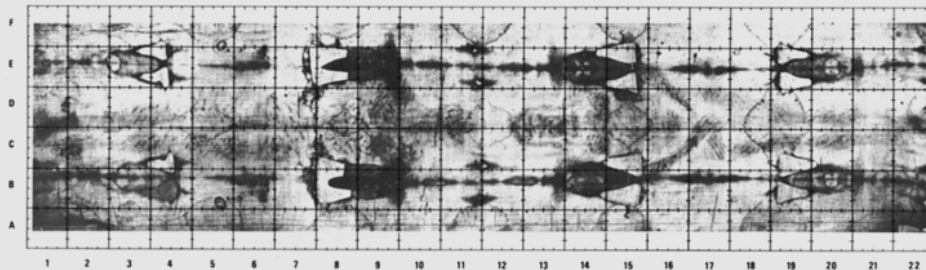
The Shroud is a 4.4 by 1.1 meter piece of age-yellowed linen which displays the life-sized dorsal and frontal images of a man. The appearance of the visible image and the locations of the blood stains suggest parallels with the descriptions of Christ's crucifixion in the Scriptures. For this reason, the legend associated with the Shroud of Turin is that it is the burial cloth of Jesus of Nazareth. It has also been suggested that the image was painted in the 14th century. Since the historical record is complete back only to the 1350's, the veracity of the legend cannot be directly addressed. Obvious scorch and water marks can be pinpointed to a fire in 1532. Hypotheses such as artistic painting, for example, can be tested for agreement with the observations. The team was thus charged with the task of collecting multifaceted data of necessary and sufficient quality and quantity for testing various hypotheses.

The United States team, an independent group of 32 scientists and assis-

stants, was equipped with instrumentation<sup>4</sup> capable of detecting work produced by known artistic techniques and adequate to provide a broadly-based foundation of information. The instrumentation included x-ray transmission and fluorescence<sup>5</sup> to detect high atomic number elements expected for inorganic pigments, microscopy<sup>6</sup> for visual and photographic examination of details, photoelectric spectrophotometry<sup>7,8</sup> for measurements of reflectance and fluorescence, photography<sup>9</sup> through bandpass filters, infrared spectrometry<sup>10</sup> and UV fluorescence photography documented here for the first time.

### Photographic procedure

To record the emission excited by ultraviolet, a special light source was assembled. For our experiment a filter-window bandpass enabled wavelengths of 335 to 375 nm to be isolated from the sources for the exciting radiation. The two sources aimed at 45-degree angles from



## THE SKEPTIC'S THEORIES

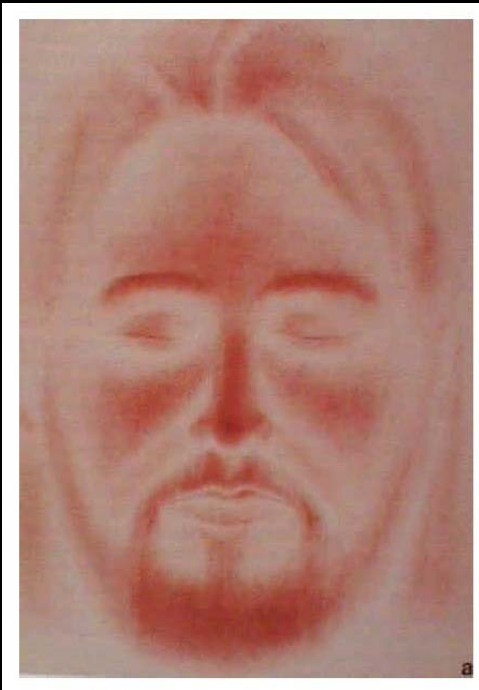
The Shroud Image is a “Beautiful Painting”

The Shroud Image is a Scorch from a Heated Statue

The Shroud Image is a Rubbing of Iron Oxide

The Shroud Image is a Medieval Photograph  
(Possibly Produced by Leonardo Da Vinci)

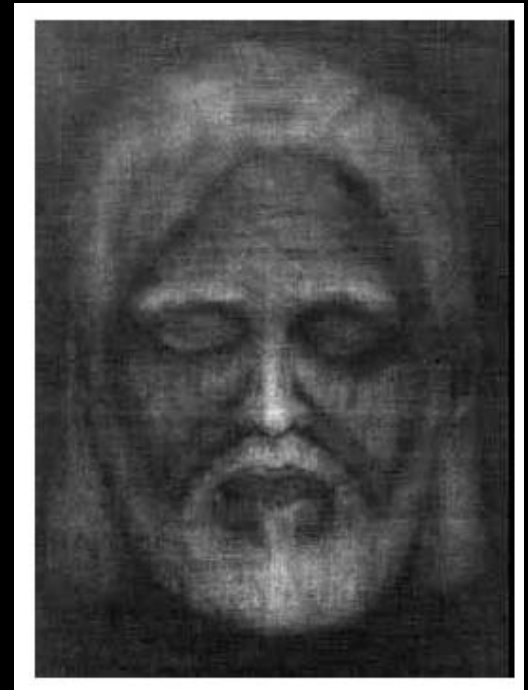
In 1994 Emily Craig Claimed The  
Shroud Image is a Rubbing of Iron Oxide



Original Image  
drawn by artist on  
newsprint using iron  
oxide/collagen dust



Newsprint then laid  
onto linen fabric  
and rubbed against  
it to transfer image



Photographic  
negative of the  
resulting image on  
linen fabric

Courtesy Emily Craig

## In 2009 Luigi Garlaschelli Claimed The Shroud Image is a Rubbing of Iron Oxide

**In October 2009, Luigi Garlaschelli (L.G.), Italian Chemistry professor announced:**

**Shroud “reproduced” using simple methods and inexpensive materials available in the 14<sup>th</sup> century, same age as determined by the famous carbon dating**

**Artificially aged linen by heating and then washing in water**

**Red ochre (i.e. iron oxide) applied to body, then linen cloth laid on and rubbed over body’s prominent features**

**Blood stains, burn holes, scorches and water stains then added for final effect**

**Used Schwartz photos for reference**



**Courtesy Luigi Garlaschelli**

## The Shroud Image is NOT a Rubbing of Iron Oxide



Courtesy Mark Evans

In this series of 1978 photomicrographs, various Shroud image areas are shown at different magnifications. See if you can find any red iron oxide particles.

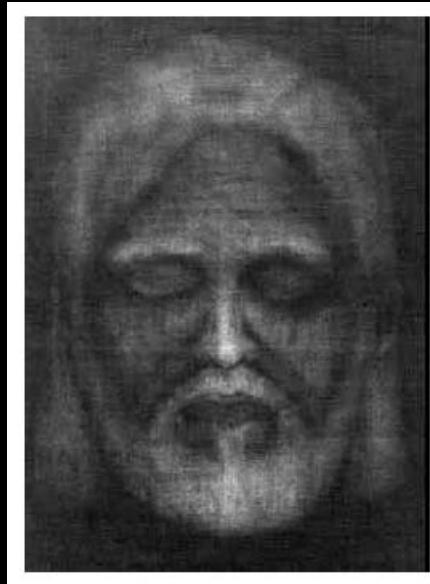
The first is the Shroud image at the small of the back at 32x.

This is of the Shroud image at the tip of the nose at 64x.

This is of the Shroud image at the heel of the foot at 50x.

If the image were a rubbing of iron oxide, we would see millions of red iron oxide particles permeating the cloth at every magnification. Yet virtually none were found.

## The Shroud Image is NOT a Rubbing of Iron Oxide



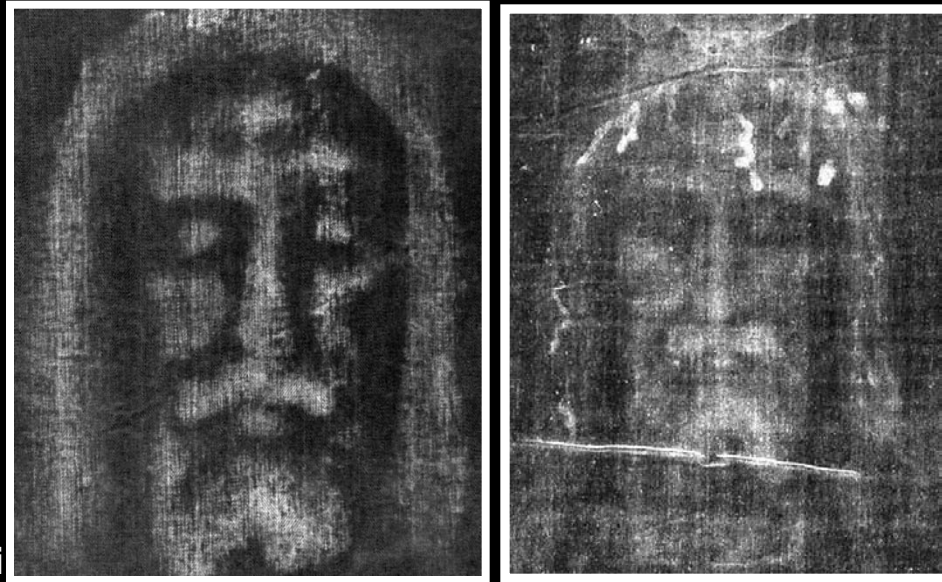
Courtesy Emily Craig



Although Emily Craig created an interesting image, it was 100% red iron oxide. The Shroud image does not consist of any.

Also, she never addressed the bloodstains. STURP proved the blood inhibited the image formation mechanism. There is NO image under the bloodstains. An artist would have first had to apply the blood to the cloth in the correct forensic positions and then paint the image around the bloodstains!

## The Shroud Image is NOT a Rubbing of Iron Oxide

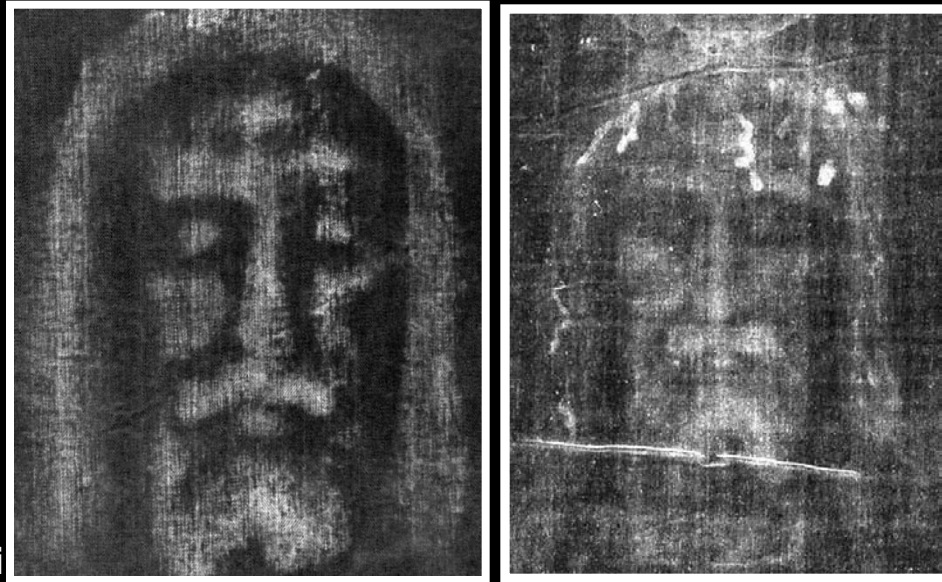


Courtesy Luigi Garlaschelli

- L.G. is the 4<sup>th</sup> person in thirty years to propose image created by iron oxide**
- STURP determined by multiple tests that iron oxide did not constitute image**
- L.G. image does not have true 3D properties as the Shroud does**
- L.G. ultimately admitted he put blood on after the image, unlike the Shroud**
- L.G. ultimately admitted he had not duplicated the fluorescent “serum halo” that exists on the Shroud blood stains**



## The Shroud Image is NOT a Rubbing of Iron Oxide



Courtesy Luigi Garlaschelli

After scientific review and direct consultation with Luigi Garlaschelli, Thibault Heimburger, M.D., concluded, “...the properties of his image remain in fact very far from the fundamental properties of the Shroud image.” \*

\*Source: “Comments About the Recent Experiment of Professor Luigi Garlaschelli”  
<http://www.shroud.com/pdfs/thibault-lg.pdf>

## Interesting To Note...

**Similar claims have occurred every time the Shroud is publicly displayed**

**This claim, i.e. “Italian Scientist Reproduces Shroud of Turin,” was made by nothing but a press release - no proof until “next week” - yet got immediate global coverage in over 350 media outlets!**

**L.G.’s efforts paid for by Italian group of atheists and agnostics**

**Scientific rebuttal of L.G.’s claims was quickly available, yet still remains basically unreported by the media**

# A Comprehensive Examination of the Various Stains and Images on the Shroud of Turin

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ALAN D. ADLER—Western Connecticut State University, Department of Chemistry, Danbury, CT 06810

JOHN P. JACKSON—University of Colorado at Colorado Springs, Department of Electrical Engineering and Computer Science, Colorado Springs, CO 80907

SAMUEL F. PELLICORI—Santa Barbara Research Center, Goleta, CA 93117

JOHN H. HELLER—The New England Institute, Ridgefield, CT 06877

JAMES R. DRUZIK—Los Angeles County Museum of Art, Conservation Center, Los Angeles, CA 90036

*The chemistry of the various stains and images on the Shroud of Turin is presented. The chemical conclusions were drawn from all the data and observations, both physical and chemical, collected by direct investigation of the Shroud in 1978. The conclusions are that the body image is made up of yellowed surface fibrils of the linen that are at more advanced stages of degradation than the non-image linen. The chromophore is a conjugated carbonyl. No evidence was found in the body image of any added substances that could have contributed to the yellow color of the fibrils that form the image. The blood images on the cloth are made of blood. The data, taken together, do not support the hypothesis that the images on the Shroud are due to an artist.*

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## THE SKEPTIC'S THEORIES

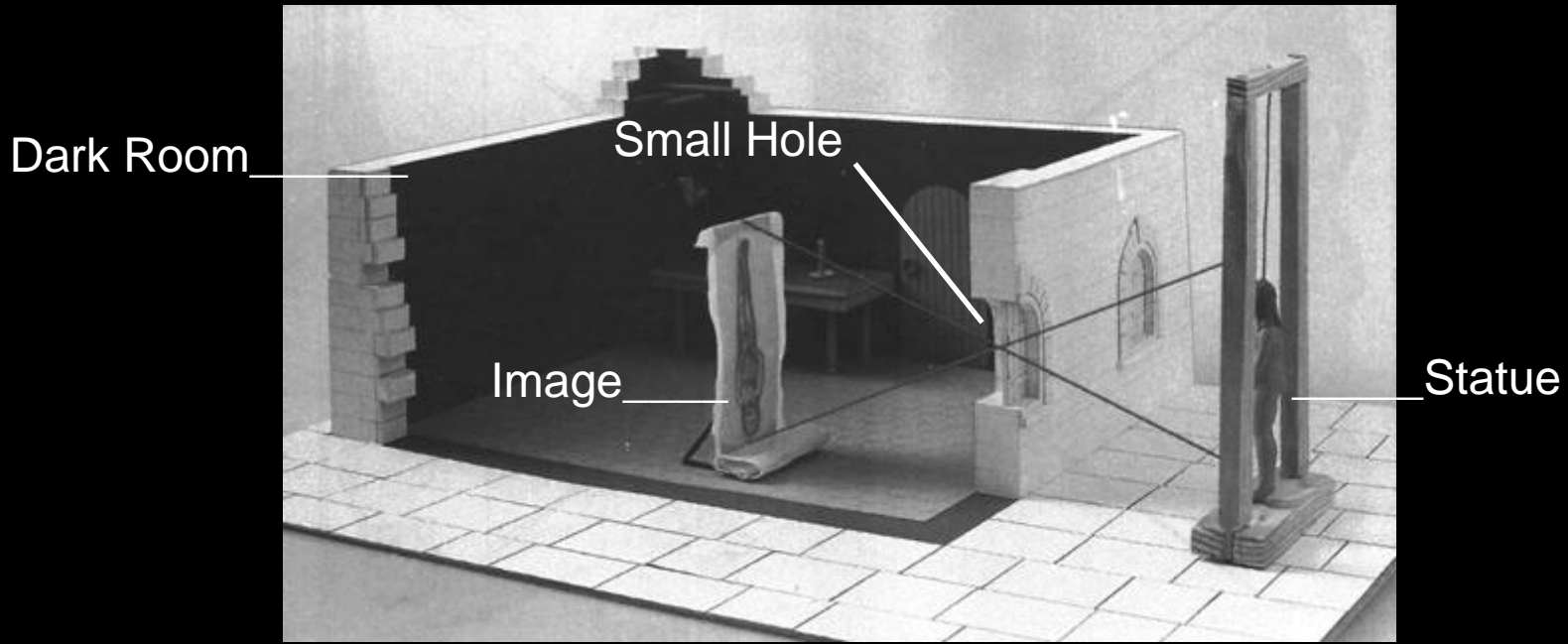
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(Possibly Produced by Leonardo Da Vinci)

## In 1995 Nicholas Allen Claimed The Shroud Image is a Medieval Photograph



Courtesy Nicholas Allen

The camera obscura is a drawing aid used by medieval artists. It is simply a darkened room with a small hole at one end. The hole acts as a lens and focuses an object onto a sheet coated with a light sensitive emulsion.

## In 1995 Nicholas Allen Claimed The Shroud Image is a Medieval Photograph



**Nicholas Allen produced a photographic image using a camera obscura and a lifesize sculpture.**

**Picknett & Prince agreed with Allen and further suggested that this technique was in fact employed by Leonardo da Vinci to create the Shroud.**

**Courtesy Nicholas Allen**

## The Shroud Image is NOT a Medieval Photograph



**Nicholas Allen never made a side by side comparison of his “camera obscura” results with the image on the Shroud.**

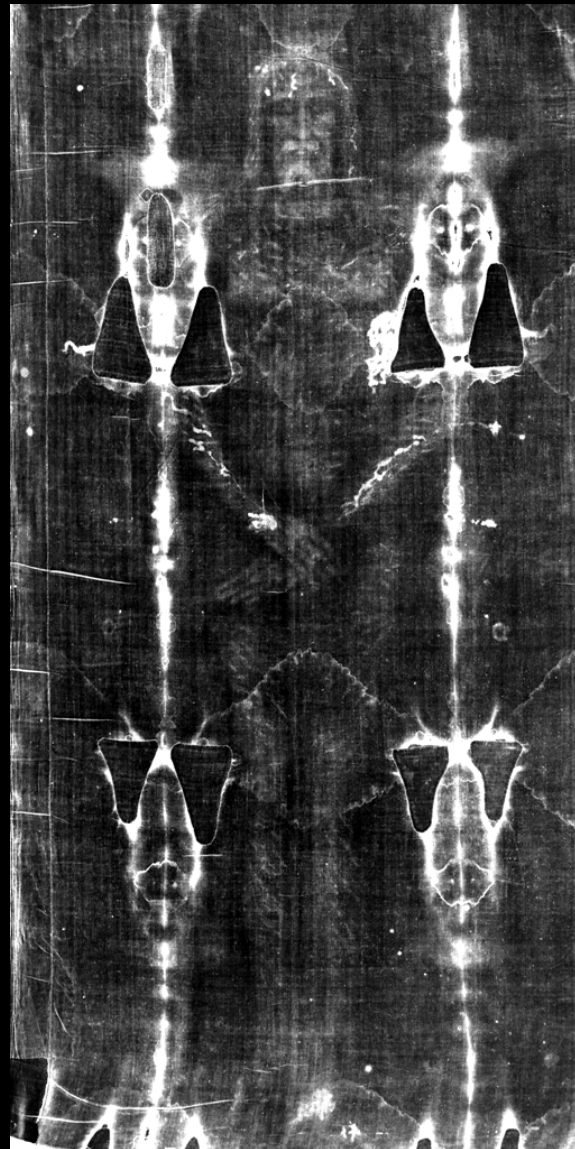
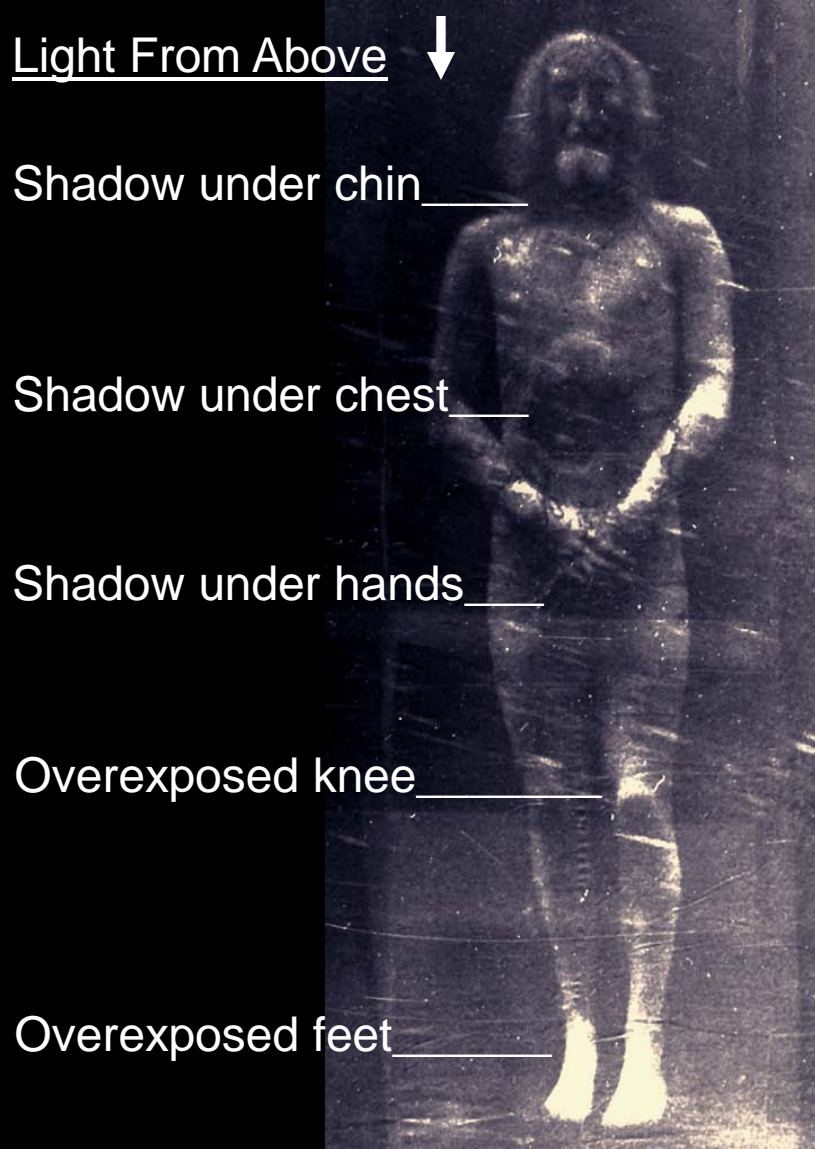
**No reasonable conclusion can be drawn without just such a comparison.**

**For example, Allen’s photograph shows a strong directionality of light from above:**

**Courtesy Nicholas Allen**



# The Shroud Image is NOT a Medieval Photograph



No Directionality  
of Light is evident  
on the Shroud

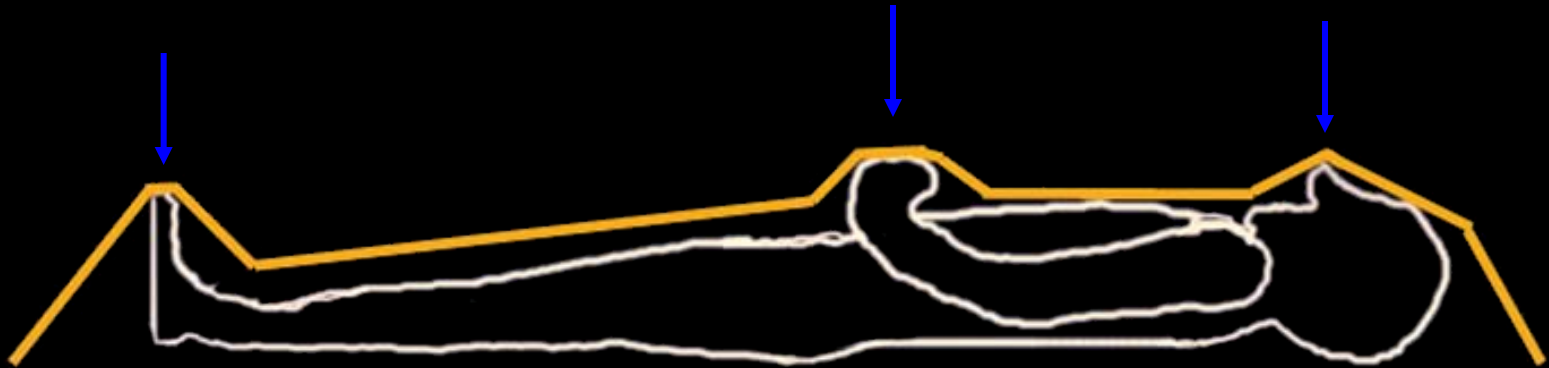
## The Shroud Image is NOT a Medieval Photograph

The STURP data proved:

The image on the Shroud was darkest at the points where the body and cloth came into direct physical contact with each other (tip of nose, tops of hands, etc.)

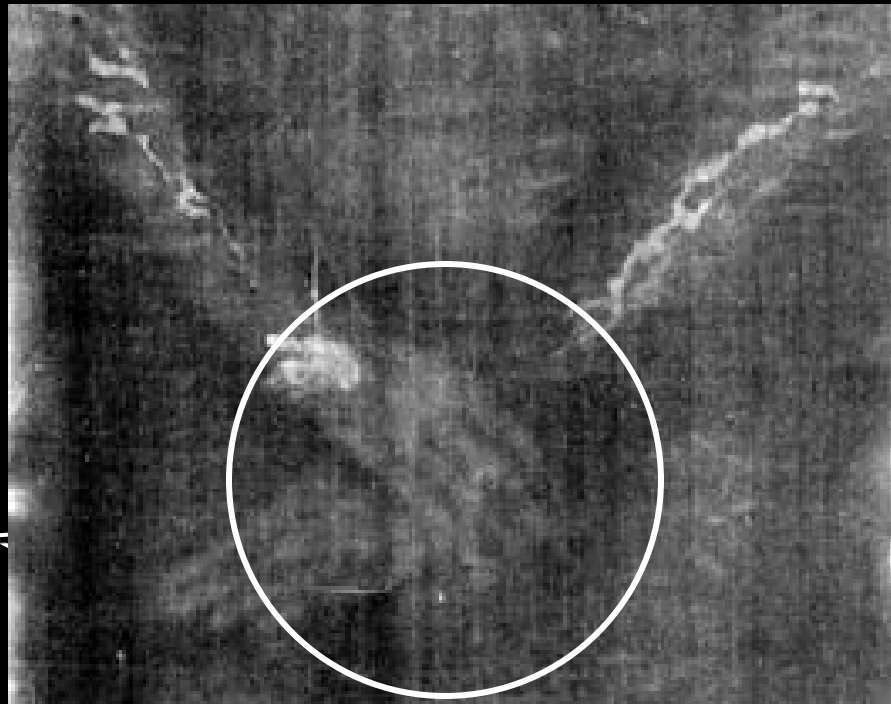
The image grew more faint as the distance between cloth and body increased.

This result cannot be accomplished or duplicated using any photographic or artistic mechanism and requires some form of direct interaction between the cloth and a body.



## The Shroud Image is NOT a Medieval Photograph

The cloth was lifted away from the torso by the hands. This resulted in the torso image appearing more faint around the hands. Images made by light do not have this property.



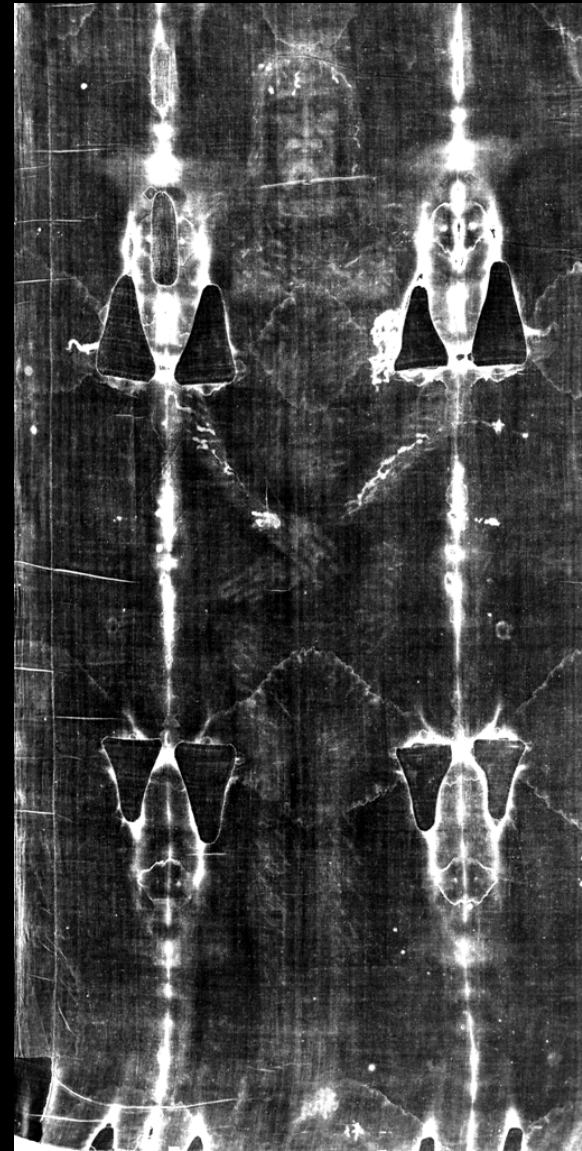
One can clearly see a lighter halo that completely surrounds the hand area. This fact provides strong evidence that the Shroud image was not made by light.



## The Shroud Image is NOT a Medieval Photograph

Allen's result also shows a very distinct and sharp edge around the entire image. →

Allen makes no attempt to explain how human blood was on the cloth before the image.



The Shroud image has no distinct or sharp edges. It just fades out gradually.

Courtesy Nicholas Allen

## The Shroud Image is NOT a Medieval Photograph

**No light sensitive photographic emulsion or any associated silver salts were found anywhere on the Shroud via spectral analysis so the image is not the result of any photographic process.**

**Not one example of a photographic image exists prior to the documented invention of photography in 1818.**

**For more on this topic read “Is The Shroud of Turin A Medieval Photograph?”**  
<http://www.shroud.com/pdfs/orvieto.pdf>

## Ultraviolet-visible reflectance and fluorescence spectra of the Shroud of Turin

Roger Gilbert, Jr., and Marion M. Gilbert

The Shroud of Turin is a partially scorched linen cloth containing an apparently bloodstained sepia image of a man lying in a state of repose. It is believed by some to be the burial cloth of Jesus of Nazareth. A team of scientists, under the auspices of The Shroud of Turin Research Project, Inc., performed nondestructive measurements on the Shroud with electromagnetic energy from x ray to the IR to develop data leading to the analysis of the substances making up the body image stains and bloodstains. Presented here are UV-visible reflectance and fluorescence spectra of the sepia body image area and scorched and bloodstained areas on the shroud.

### I. Introduction

This paper describes the techniques used and results of an UV-visible reflectance and fluorescence study performed on the Shroud of Turin in Turin, Italy during the week of 8 Oct. 1978. This study was performed as part of a more complete set of experiments by a team of scientists sponsored by The Shroud of Turin Research Project.

### II. Background

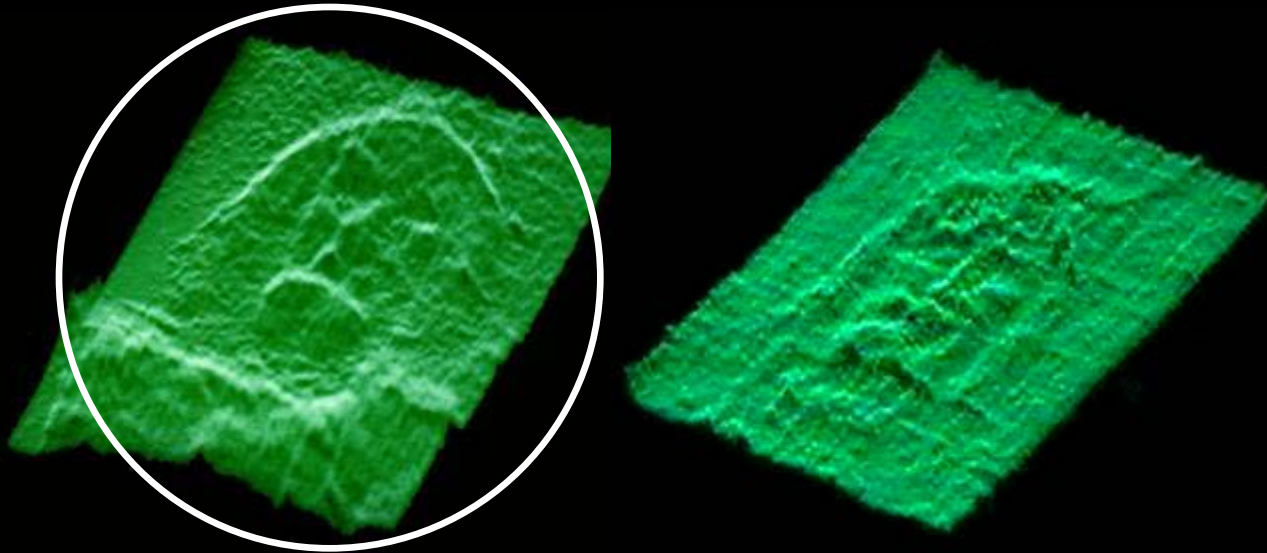
The Shroud of Turin shown in Fig. 1 is an old piece of linen ~4.3 m long  $\times$  1.1 m wide. The linen bears a faint image of a full-sized bearded man apparently layed out in death; this image appears only on the front face

believed to have been left by the successful attempts to quench the burning cloth. Patches also appear on the front of the cloth placed after the fire to cover holes where it had burnt through. At this same time a new piece of linen was sewn to the back of the cloth to preserve its integrity. The cloth today resides in a chapel attached to the cathedral of St. John the Baptist, Turin, Italy. The history and previous scientific work performed on the Shroud are described in detail elsewhere.<sup>1,2</sup>

Because of the belief by some that this cloth is the burial shroud of Jesus of Nazareth, The Shroud of Turin Research Project requested and received permission to perform scientific tests to try to determine the nature

# The Shroud Image is NOT a Medieval Photograph

## VP-8 Comparison of “Medieval” Photo and Shroud



VP-8 photo at left courtesy Kevin Moran

**No natural relief of a human form was encoded into Nicholas Allen’s image.**

**Notice the sunken mouth, raised chin and hair and elevated chest of Allen’s image on the left, compared to the undistorted nature of the Shroud’s facial features.**

**The Image on the Shroud was not made with a camera obscura.**

Reprinted from IEEE 1982 PROCEEDINGS OF THE INTERNATIONAL  
CONFERENCE ON CYBERNETICS AND SOCIETY, October 1982

### THREE DIMENSIONAL CHARACTERISTIC OF THE SHROUD IMAGE

John P. Jackson  
University of Colorado at Colorado Springs

Eric J. Jumper  
Air Force Institute of Technology

William R. Ercoline  
United States Air Force Academy

#### Abstract

The frontal image on the Shroud of Turin is shown to be consistent with a body shape covered with a naturally draping cloth and which can be derived from a single, global mapping function relating image shading with distance between these two surfaces. The visible image on the Shroud is not the work of an artist in an eye/brain/hand coordination sense, nor does it appear to be the result of direct contact only, diffusion, radiation from a body shape or engraving, dabbing powder on a bas relief, or electrostatic imaging. The visible image on the Shroud is probably not the result of a hot bas-relief impressed into cloth, but such a mechanism might be able to account for the Shroud image's distance correlation, resolution, and chemical structure; it does not simultaneously account for the image residing on one side of the Shroud, low contrast of the Shroud image, or lateral distortions in the Shroud image consistent with a draping cloth over a body shape.

#### I. INTRODUCTION

In Turin, Italy there exists a 14 foot 3 inch linen cloth known as the Shroud of Turin.

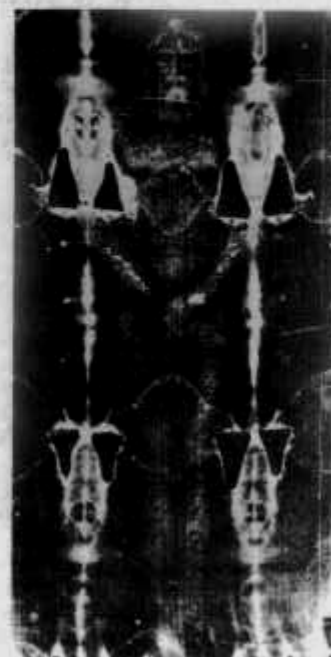


Figure 1. Frontal Shroud Image.  
Vernon Miller, 1978

mechanism (i.e., chemical transfer from a human



## The Shroud Image is NOT a Medieval Photograph



Da Vinci Self Portrait



**As for Leonardo da Vinci creating the Shroud, he was born on April 15, 1452.**

**The first documented public exhibition of the Shroud of Turin occurred in 1355, almost 100 years before Leonardo was born!**

**He was a great artist, but he wasn't THAT good!**

# END OF LECTURE 2 (10)

All Photographs in this Presentation are  
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