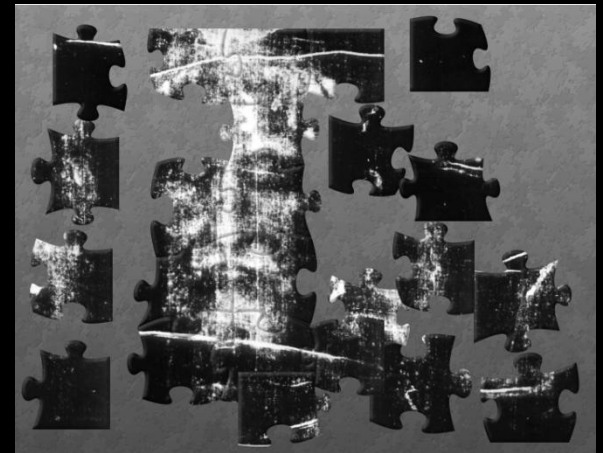




The Shroud of Turin an Enduring Mystery

Part 1: Introduction

Dr. Ray Schneider, P.E., Ph.D.
Associate Professor Emeritus
Bridgewater College, Virginia



Introductions



- Dr. Ray Schneider, P.E., Ph.D. (retired)
 - B.S. Physics, St. Joseph's College, Philadelphia, Pa.
 - Most of an M.S. in Physics from Drexel
 - M.S. in Engineering Technology, Penn State
 - Ph.D. Information Technology , George Mason
- Research Scientist Naval Air Development Center, PA.
- Senior Scientist to Technology Center Leader at Sperry Defense Systems, Eagan, MN
- Engineering Director at ComSonics, Harrisonburg, Va.
- Adjunct Faculty (≈ 10 years) James Madison University
- Professor of Math and Computer Science, Bridgewater College, Bridgewater, Va. (2002-2012)



Encounter With The Shroud

- About 1962 At A Religious Retreat At A Lecture Using Glass Slides From The 1931 Enrie Pictures
 - Showed people the image if they were interested
- 1976 Eric Jumper & John Jackson Dramatically Demonstrate the 3D Characteristic
 - They showed you could do more science on the shroud and that hooked me.
- Researched & Lectured On The Shroud Ever Since



Why Are You Here?

- Please Introduce Yourselves Briefly
 - Share With Us The Questions You Have?
 - Do You Have A Conviction About the Shroud?
 - What Would You Most Like To Know?
 - Where Are You Now On The Balance?



Burial Cloth
or Icon?
Just Don't Know!



An Enduring Mystery

- The Shroud Of Turin Continues To Mystify
- We Will Explore The Mystery Taking A Journey Through The Many Stories That Attempt To Capture The Reality Of The Shroud Of Turin

*A Journey
Through Stories*



The Primacy of Story

- **Eyewitness Stories**
 - A Story By Someone Who Was There
- **Religious Stories**
 - A Story About The Acts of God
- **Science Stories**
 - A Story With Mathematics/Analytics
- **History Stories**
 - A Story With Documents
- **Art Stories**
 - A Story Told In Pictures and Artifacts



Truth: The Test of Story

The Test
of a story is
whether
It Is TRUE?



What Is Truth?



Ecce Homo!

Unless I See I Will Not Believe

Truth is the Correspondence
Between Story and Reality





What Is Truth?



Ecce Homo!

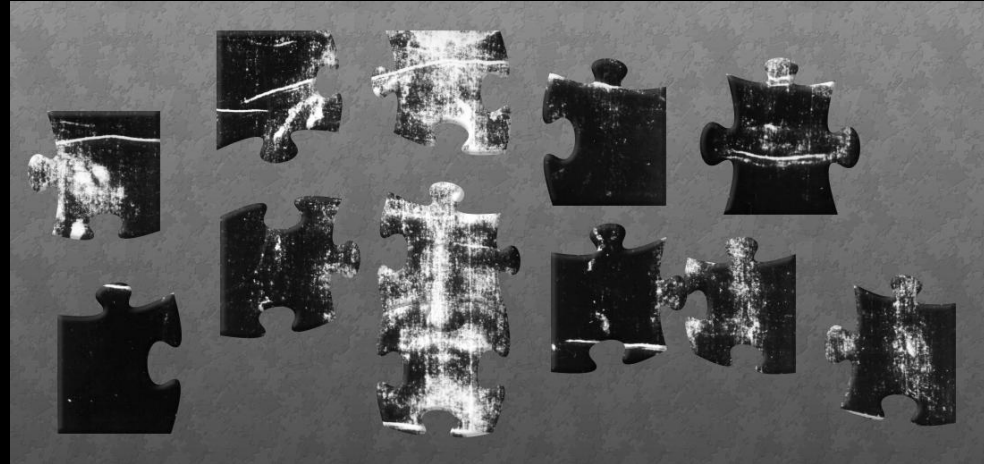
Unless I See I Will Not Believe

Truth is the Correspondence
Between Story and Reality



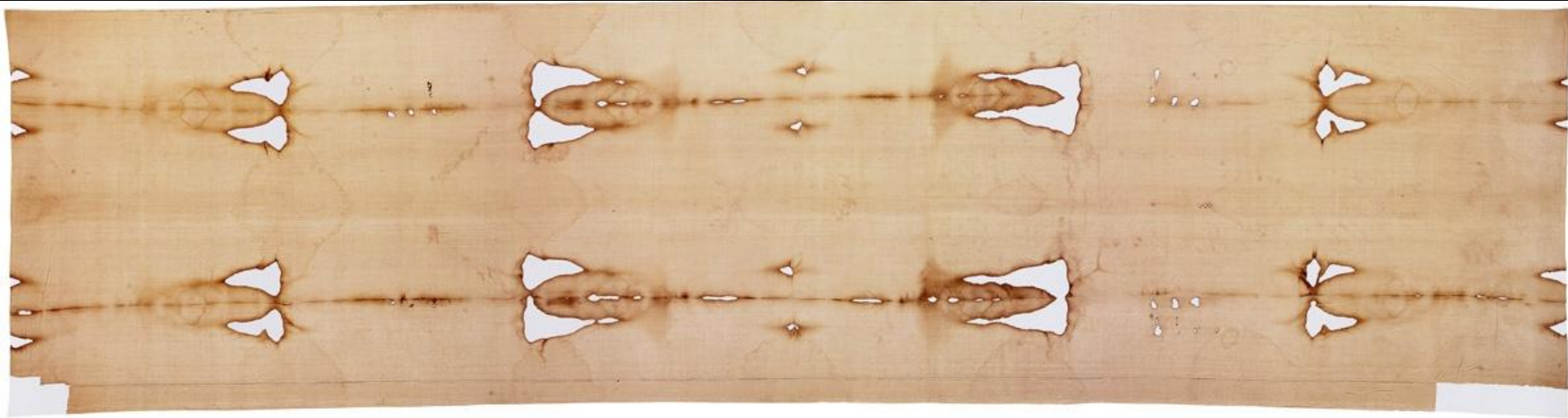
How Do You Know The Truth?

- Direct Observation
 - Witnesses
- Correct Interpretation
 - Understanding
- Correspondences With Other Known Truths
 - Correlation and Explanatory Principles
- Coherence
 - It All Fits Together



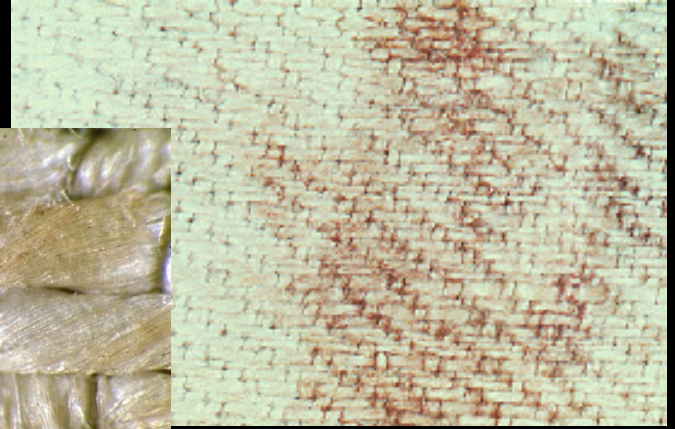
What Is The Shroud?

- The Shroud is a linen cloth 2 x 8 cubits (14' 3" long and 3' 7" wide)



- Above: the Shroud From The Back Side

LinenTextile

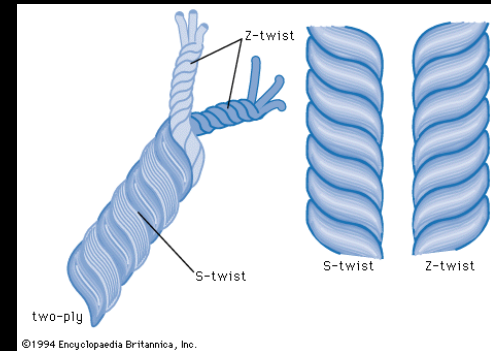


- Weave

- a three-to-one herringbone twill — each weft thread passing alternately under three warp threads and over one, producing diagonal lines, which reverse direction at regular intervals to create a herringbone pattern.

- Shroud Threads are Z-twist (clockwise)

- Egyptian Linen is predominantly S-twist



- Weave Density

- Warp 38.6, Weft 25.7 threads per cm. Z-twist

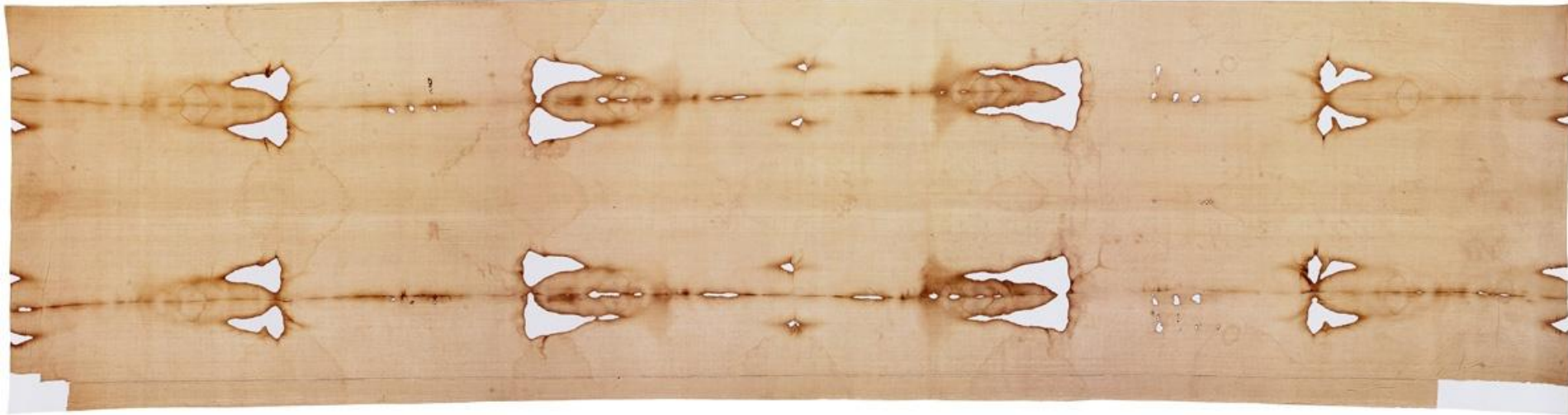


Fineness of Weave

- Raes Results from 1973 Sampling as reported by Ian Wilson

		Raes' results	
		(as published by Ian Wilson in <i>The Turin Shroud</i>)	
		<i>Piece I</i>	<i>Piece II</i>
Threads cm	Warp	38.6	—
	Weft	25.7	25.7
Linear density (count) of the yarn (tex)	Warp	16.3	18.0
	Weft	53.6	73.1
Direction of twist	Warp	Z	Z
	Weft	Z	Z

Many Markings



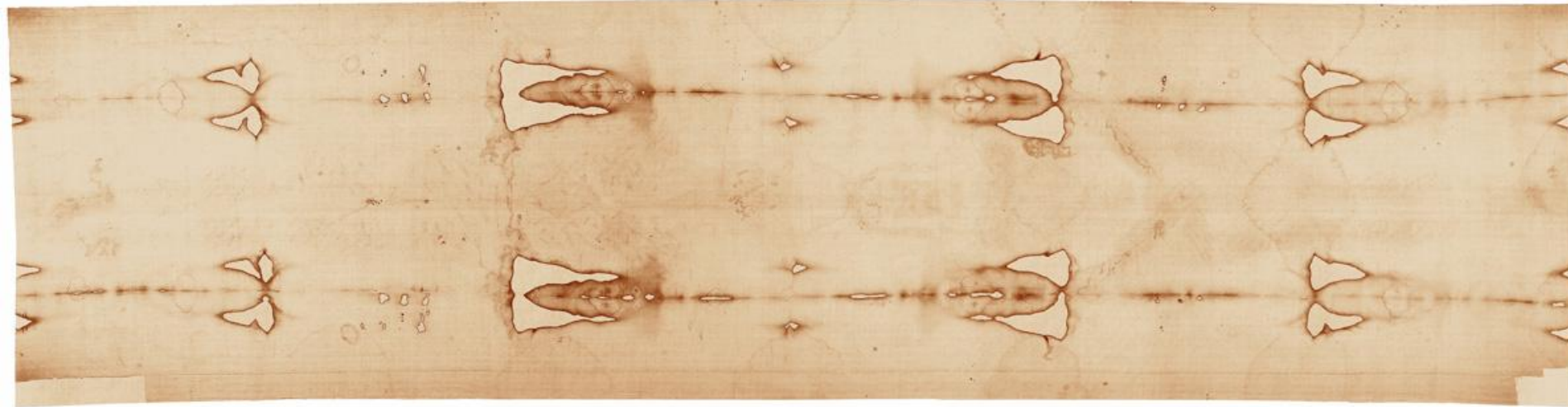
3 and 1 Twill Weave



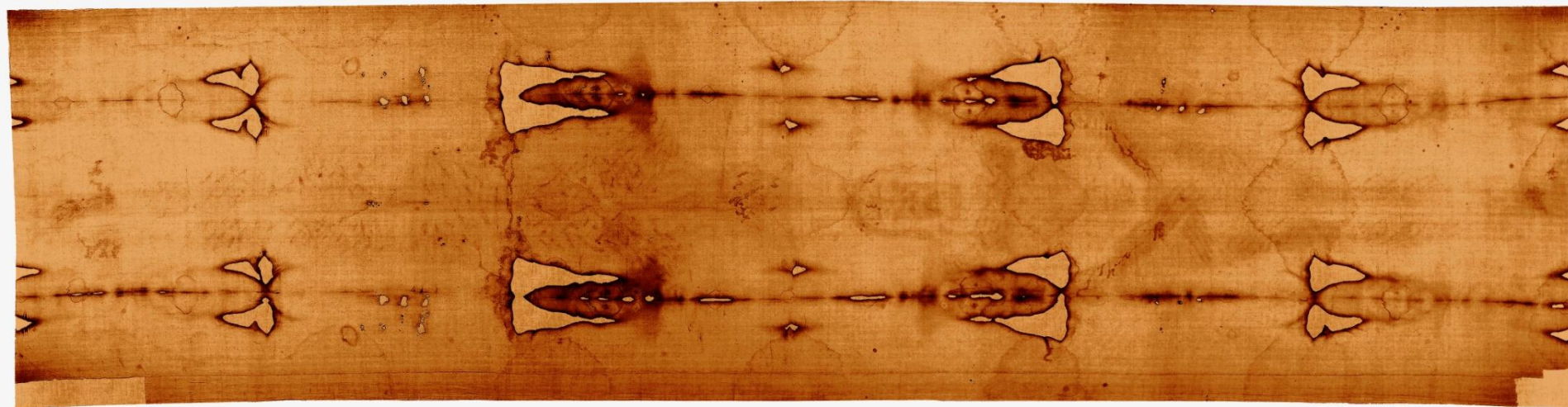
- Burn Holes
- Scorches
- Water Stains
- Patches
- A Complex Weave



And On The Other Side The Faint Image Of The
Front And Back Of A Man

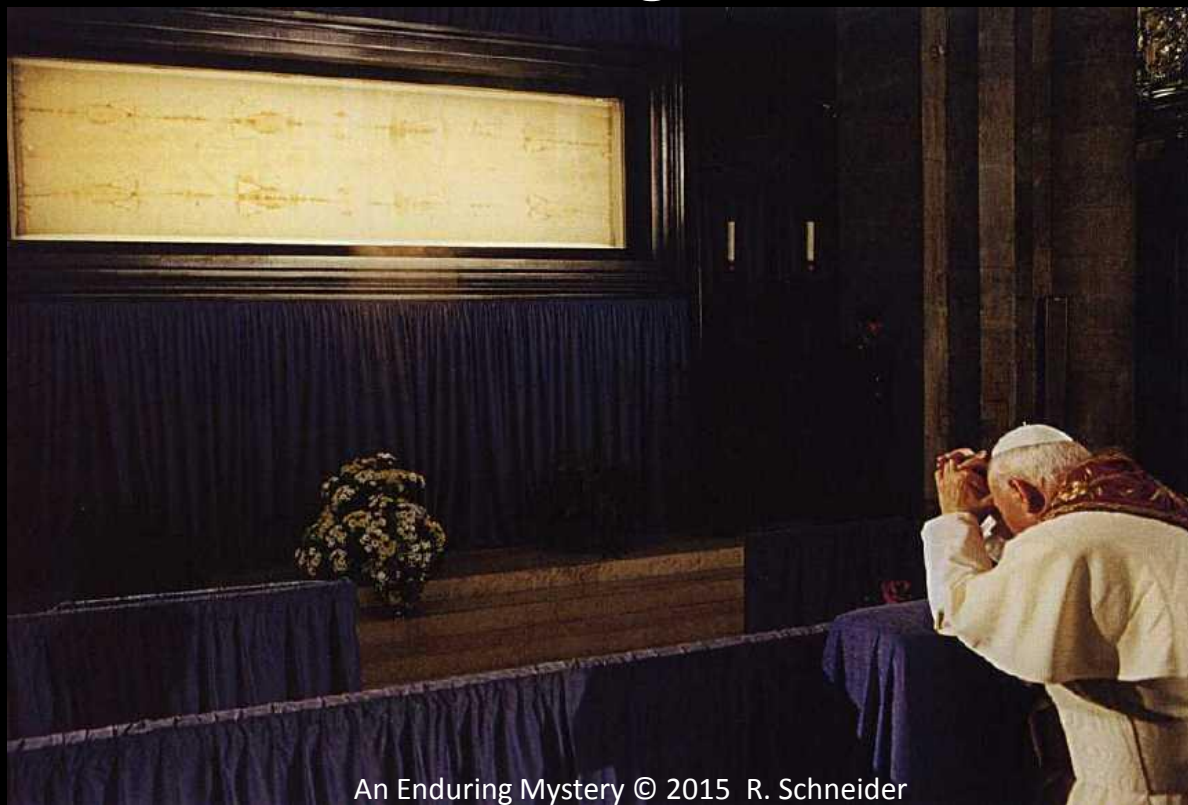


Lower Image Equalized



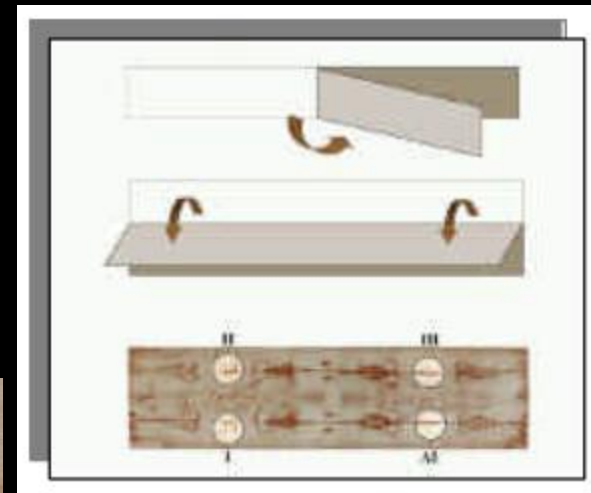
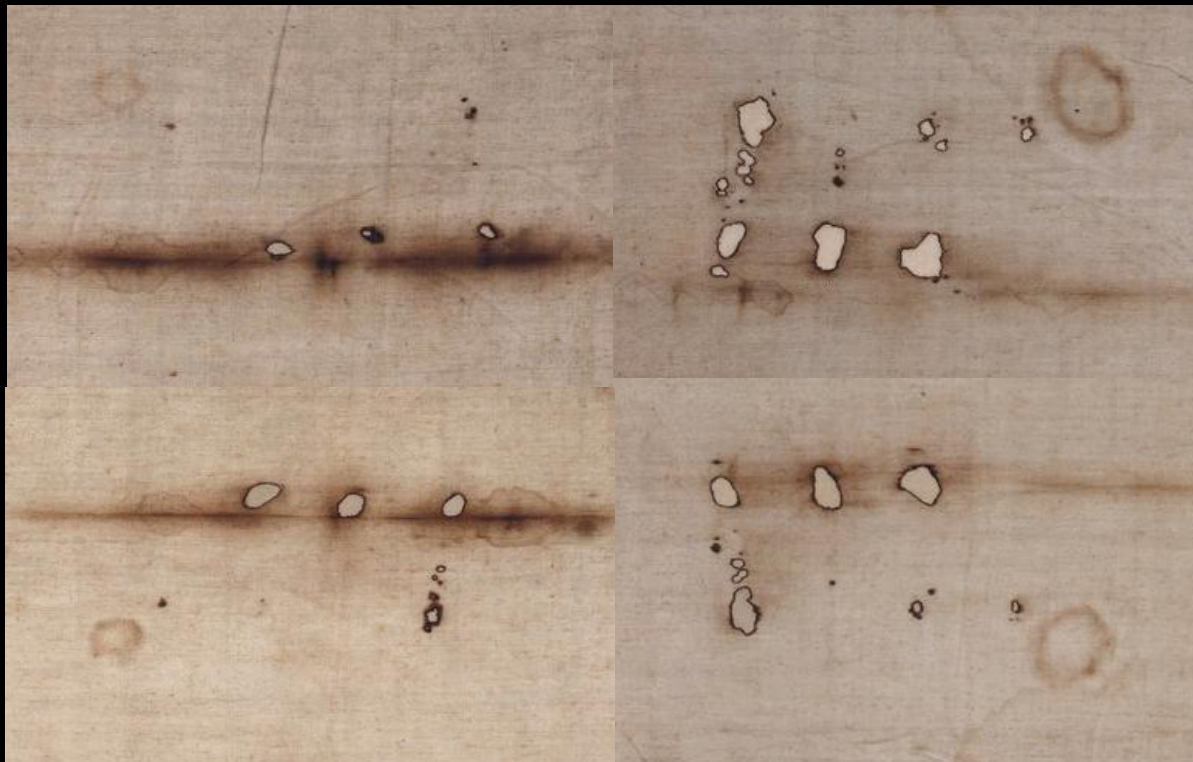
Visibility of the Image

- the image is only visible at a distance
- when you are close to the shroud you can no longer discern the image



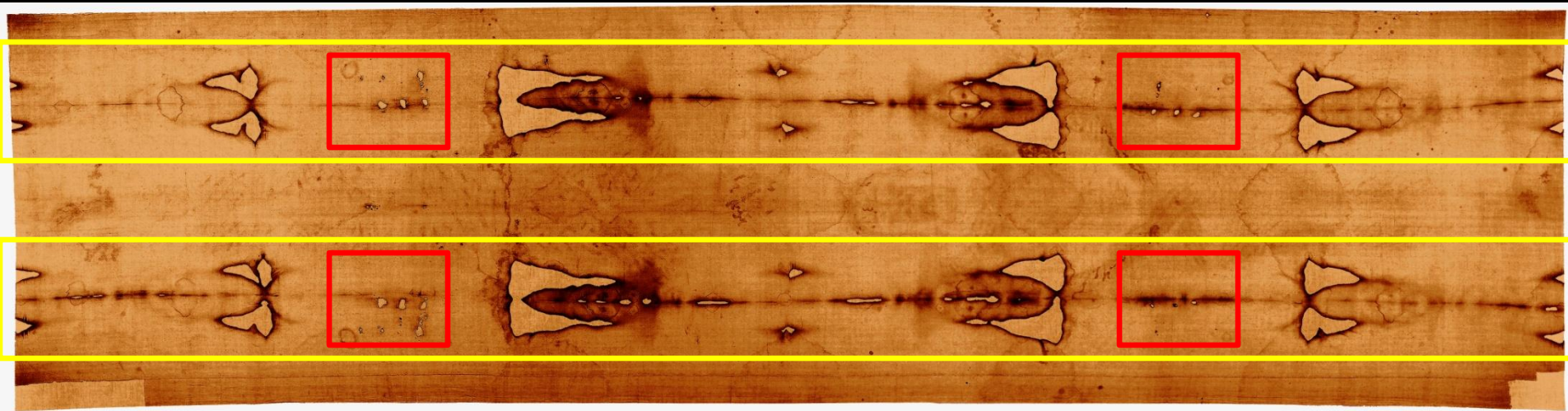
Pray "Poker" Holes

- Four sets of holes often called the "Poker" holes or the Pray holes from the illustration in the Pray codex indicate that at the time of the damage the shroud was folded in four.



Burn Holes From 1532 Fire

- Burn holes from a fire in Chambery in 1532 run the length of the shroud on both sides of the image

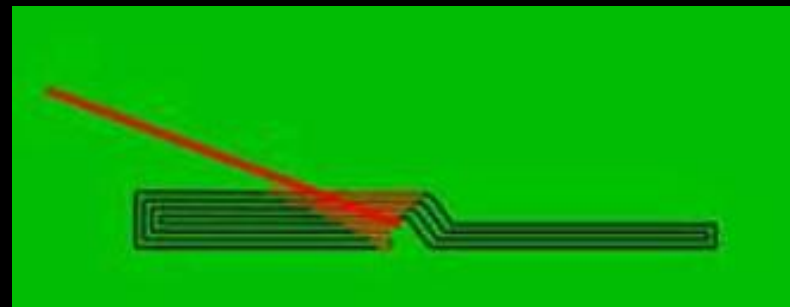


Pray Holes, shroud folded in 4

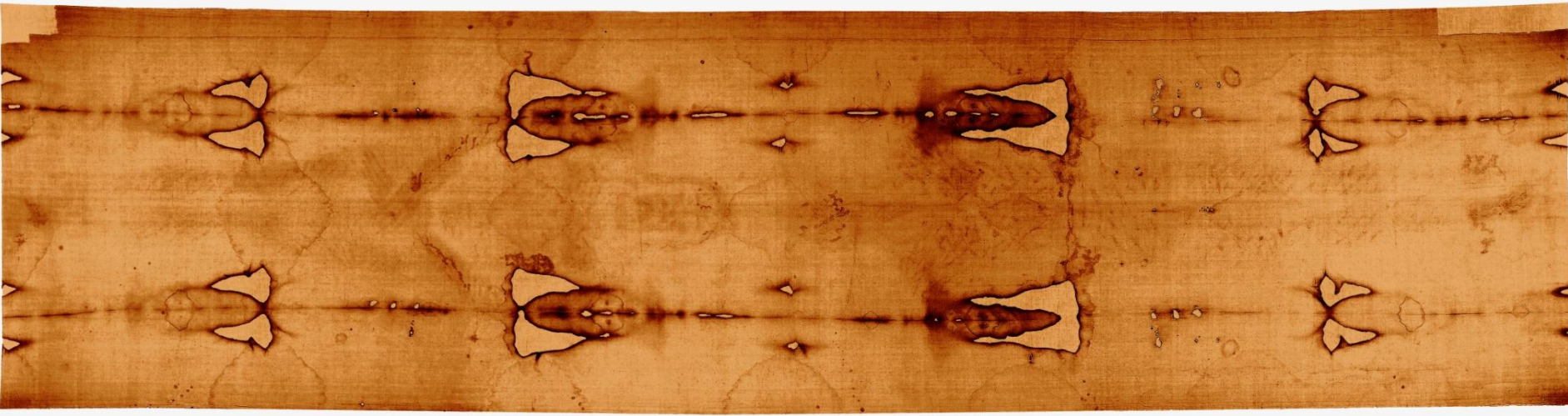
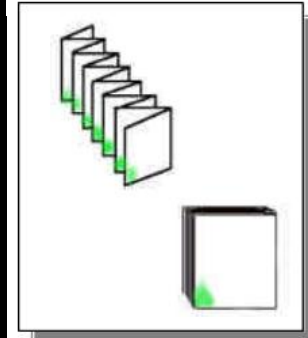
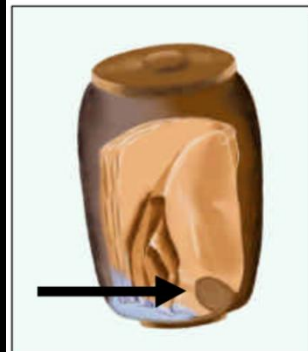


Burns from 1532 fire, shroud folded in 32

Folding image from FURTHER STUDIES ON THE SCORCHES AND THE WATERMARKS by Aldo Guerreschi and Michele Salcito, © 2005 Dallas



Waterstains



Folding work by Aldo Guerreschi and Michele Salcito reported in their paper PHOTOGRAPHIC AND COMPUTER STUDIES CONCERNING THE BURN AND WATER STAINS VISIBLE ON THE SHROUD AND THEIR HISTORICAL CONSEQUENCES at Paris 2002

Sindonology.org's Shroud Scope

The screenshot shows a web browser window displaying the Shroud Scope application. The browser's address bar shows the URL `sindonology.org/shroudScope/shroudScope.shtml`. The page title is "Shroud Scope, a Tool to Analyz...". The navigation menu includes "Home", "Shroud Scope", "Introduction", "Archives", "Papers", "Reviews", "Related Relics", and "Contact". The main content area features a large image of the Shroud of Turin with a vertical scale on the left and a control panel on the right. The control panel has a "Base Layer" section with radio buttons for "Enrie Negative Horizontal", "Enrie Negative Vertical", "Durante 2002 Vertical", "Durante 2002 Horizontal", "Face Only Vertical", "Face Only Horizontal", and "Enrie Negative 3D Vertical". Below this is an "Overlays" section with checkboxes for "Photomicrographs (32)", "Burn Holes (1532 A.D.)", "Poker Holes", "Major Bloodstains", and "Carbon Dating Sample". The bottom right corner of the application has three icons: "Panning", "1.4 Measure", and "Permalink".



A Survey Of The Markings

- We Will Use Mario Latendresse's Website <http://sindonology.org/> and particularly the Shroud Scope to capture examples of markings. If they are too faint we'll enhance their contrast or otherwise manipulate them to make them clearer.
- Let's Start A Survey Of The Markings On The Shroud. We'll Call Each Feature By The Commonly Used Names



A Quick Survey Of Markings

- Clean Linen
(i.e. places free of dirt and marks)
- Burn and Scorch Marks
- Water Stains
- Blood Stains
- Banding Phenomenon
- Various Dots and Dirt
- Wrinkles and Fold
- Patches and Stitching

Face From Sindonology.org

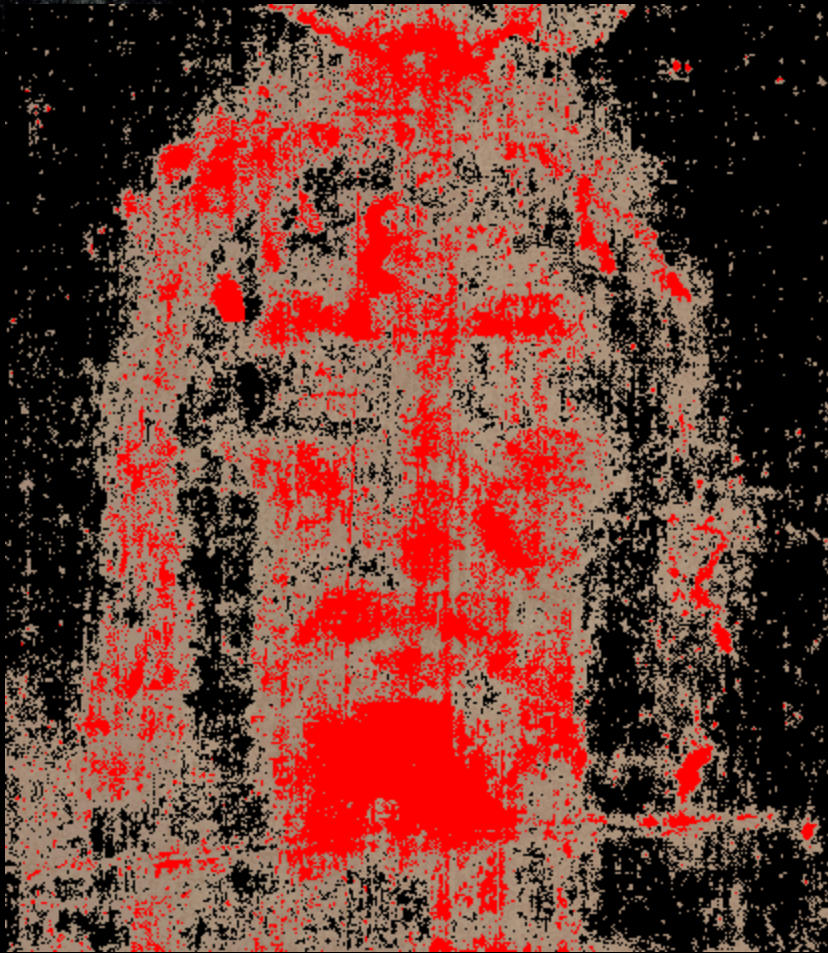


RGB .png image from clipping



same image converted to 16 colors

The 16 Colors With RED Injected And A False Color Combination



BLOOD = RED, CLOTH = BLACK
IMAGE = no-change



BLOOD= 1,7,11,16 IMAGE=2,4,6,9,10,12
CLOTH = 3,5,8,13,14,15



A Forensic Test

- We have multiple gospel accounts of the passion and death of Jesus Christ
- If the shroud is authentically the burial shroud of Jesus Christ it must corroborate those accounts at least in substance
- Preferably it should, if authentic, enlarge our understanding in some ways



Gospel Event Chronology

- Beaten
- Scourged
- Crowned With Thorns
- Carried His Cross
- Nailed to the Cross
- Died
- Pierced

Beaten

- **Luke 22:63-65**
- **The men who were guarding Jesus made fun of him and beat him. They blindfolded him and asked him, “Who hit you? Guess!” And they said many other insulting things to him.**

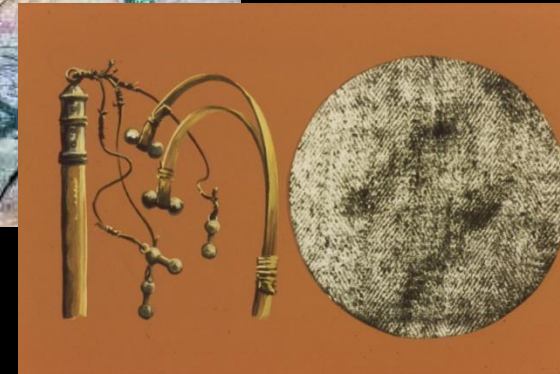
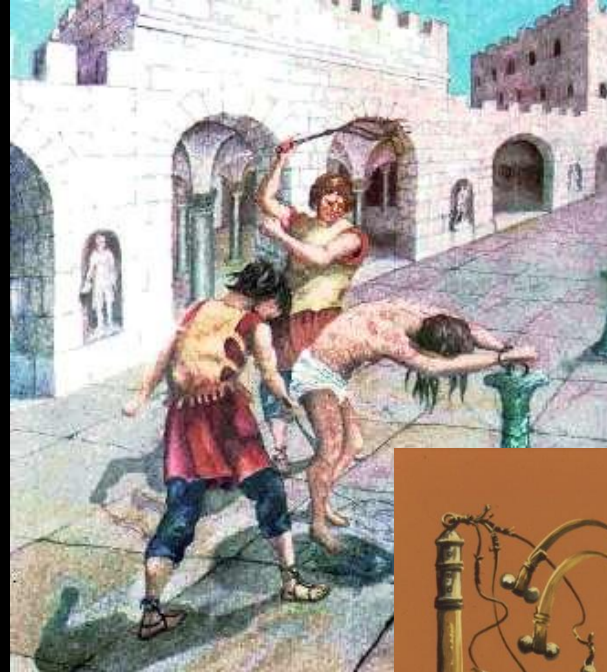


Crowned With Thorns



Then Pilate's soldiers took Jesus into the governor's palace and the whole company gathered around him. They stripped off his clothes and put a scarlet robe on him. **Then they made a crown out of thorny branches and placed it on his head**, and put a stick in his right hand; then they knelt before him and made fun of him. "Long live the King of the Jews!" they said. They spat on him, and took the stick and hit him over the head. When they had finished making fun of him, they took the robe off and put his own clothes back on him. Then they led him out to crucify him.

Scourged



- 120 strokes or more from an instrument of torture that appears to match a pair of Roman flagrums

The Scourging and Crucifixion

Scourging Depiction Derived From The Shroud by

Giulio Ricci



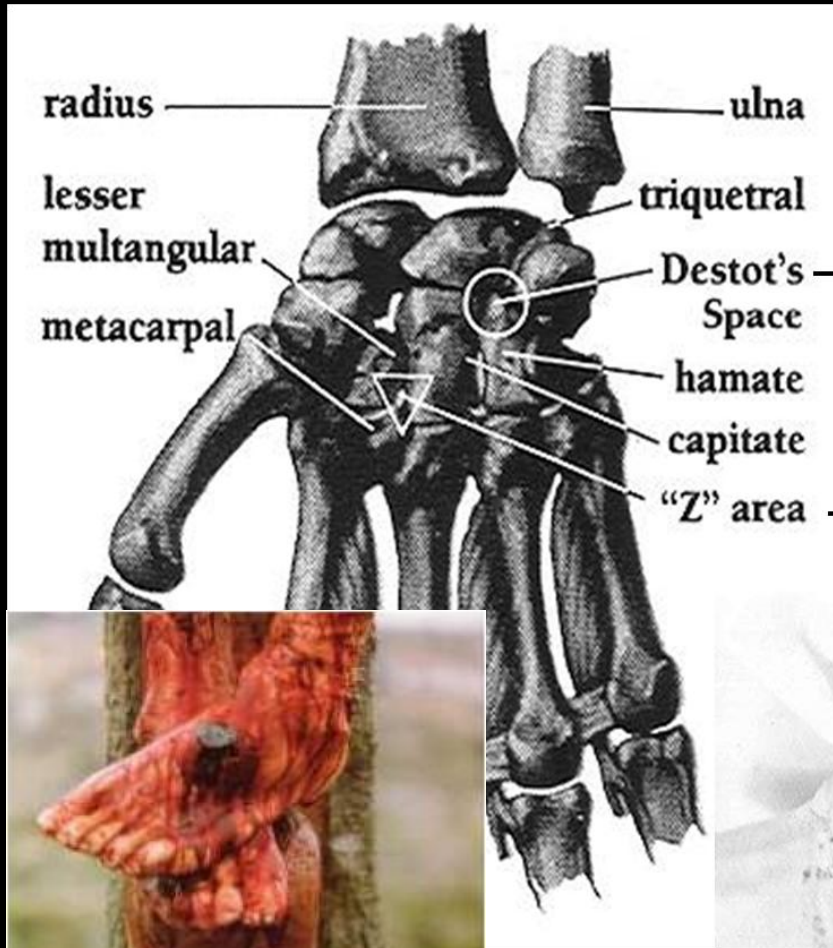
Area of Abrasion
from Carrying
the Patibulum
(Crossbeam)



Blood on frontal image
(enhanced)
from "The Real Face of Jesus"
documentary
by Ray Downing



Nailed To The Cross



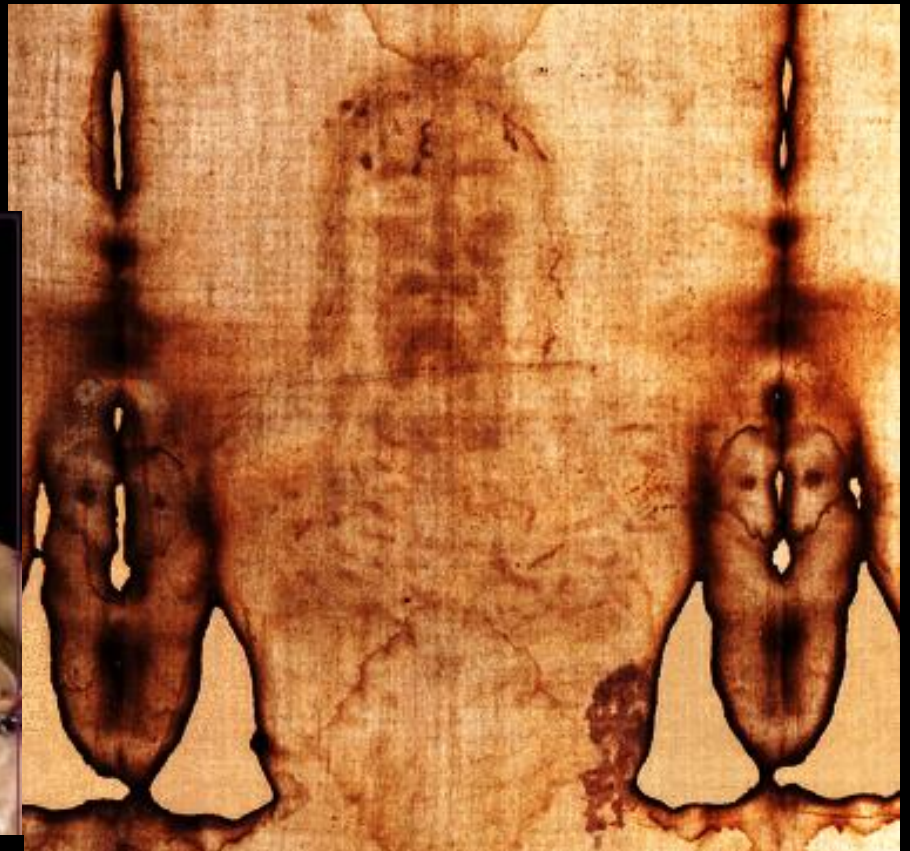
**No Thumbs Visible
Nailed Through Wrist**

Jesus Dies On The Cross

- Two directions of blood flow along the arms



Pierced

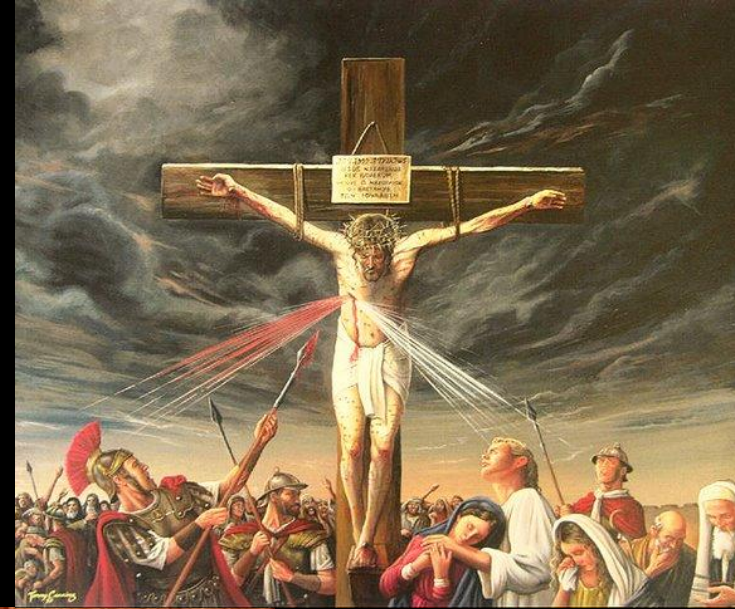


John 19:34 “But one of the soldiers opened his side with a lance, and immediately there came out blood and water.”



A Flow of Blood and Water

John 19:34 “But one of the soldiers opened his side with a lance, and immediately there came out blood and water.”



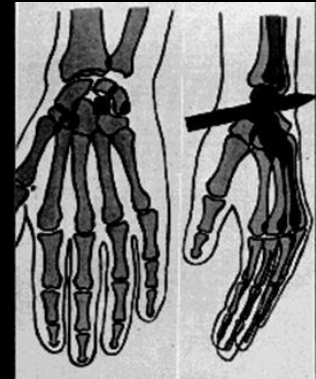


A Short Intermission

Let's Take Ten Minutes Or So

Discussion

- The image on the shroud is consistent with the accounts of the Passion
- Information gleaned from the shroud is actually more detailed than the gospel accounts
 - Nails through the wrists
 - Details of the scourge
 - A crown of thorns that covers the head



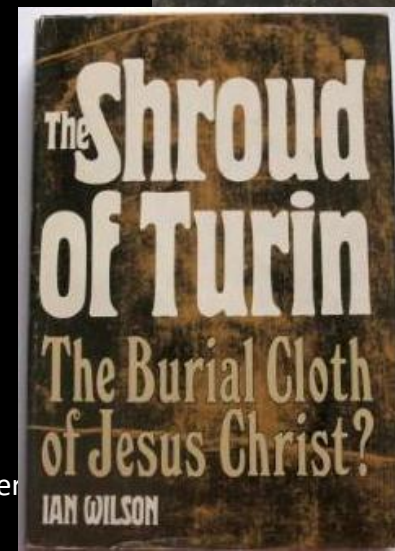
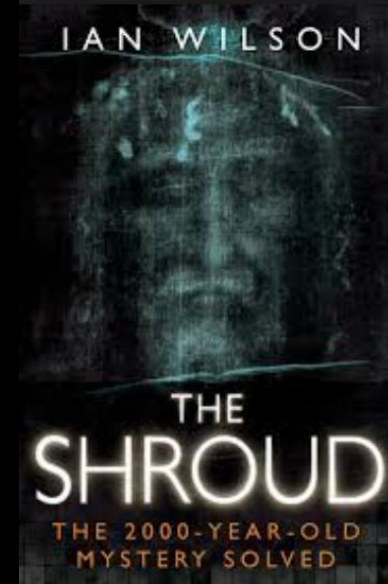


Resources: People

- The number of people who have and continue to study the shroud is very large. These include people from many different disciplines.
- We're going to skim through some of the people who we'll see later in our course
- Then we'll look at some of the on-line resources that are available

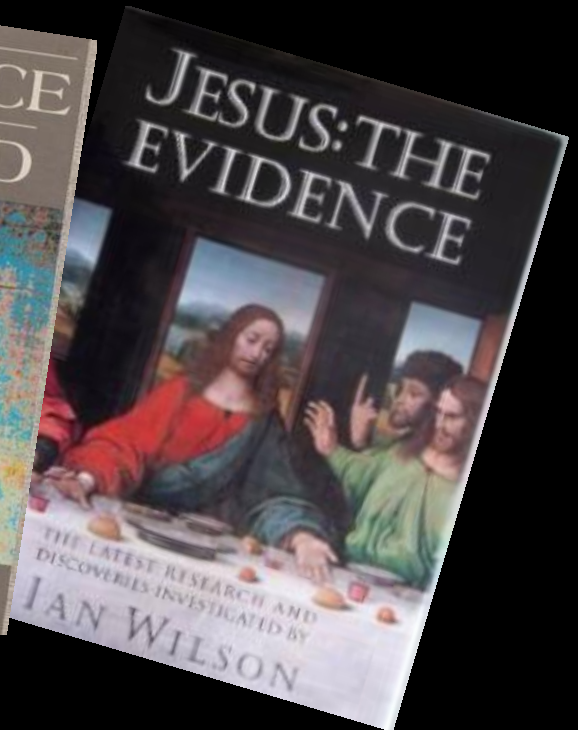
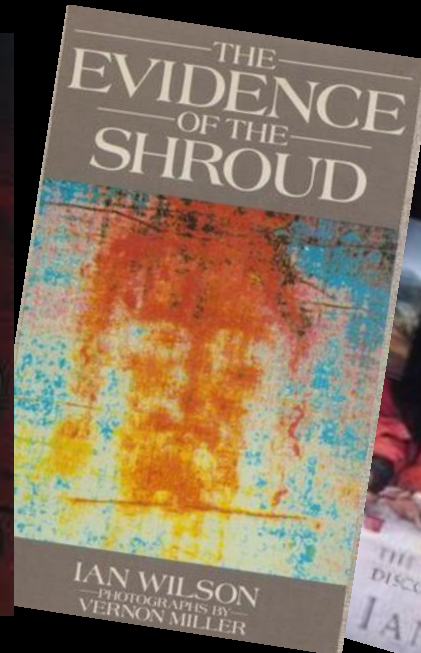
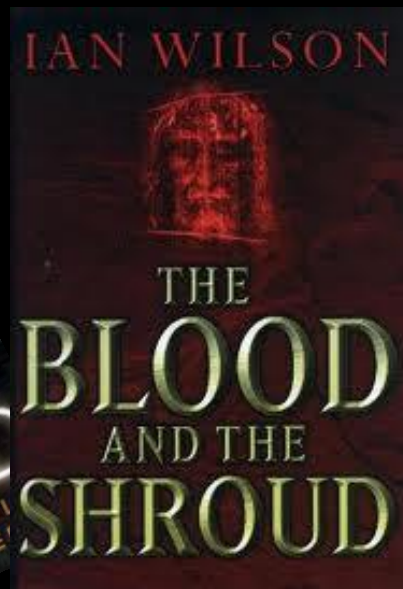
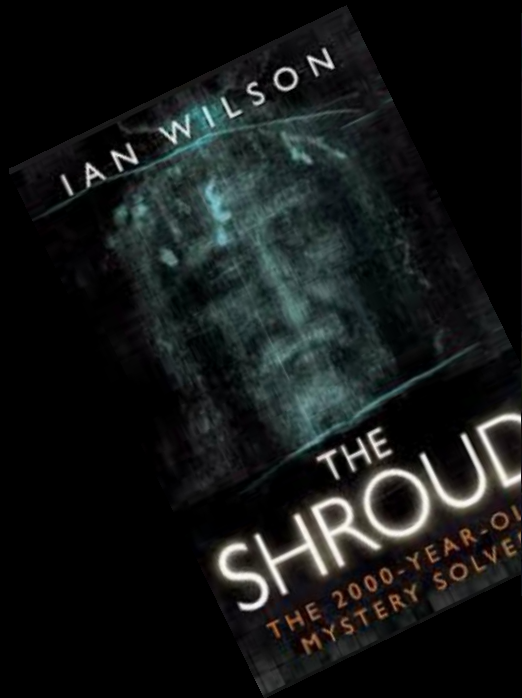
Resources: People

- Some Individuals And Their Expertise
- Ian Wilson: Historian
 - One of the most prolific writers on the shroud, author of the seminal book:
 - The Shroud of Turin: The Burial Cloth of Jesus Christ
 - Author of Many More Books
 - Originator of the Mandylicon Hypothesis



Ian Wilson

- More Books By Ian Wilson (many more)



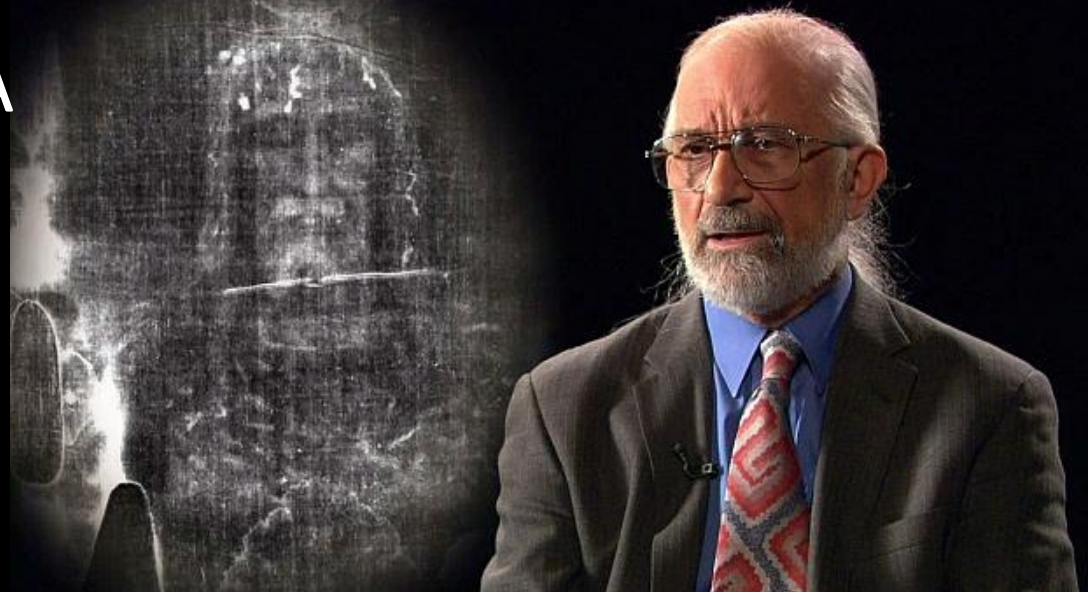
Resources: People

- John Jackson, Ph.D. Physicist and his wife Rebecca
 - Turin Shroud Center of Colorado
 - Leader of the 1978 Shroud of Turin Research Project (STURP) which did definitive science on the shroud
 - <http://www.shroudofturin.com/>



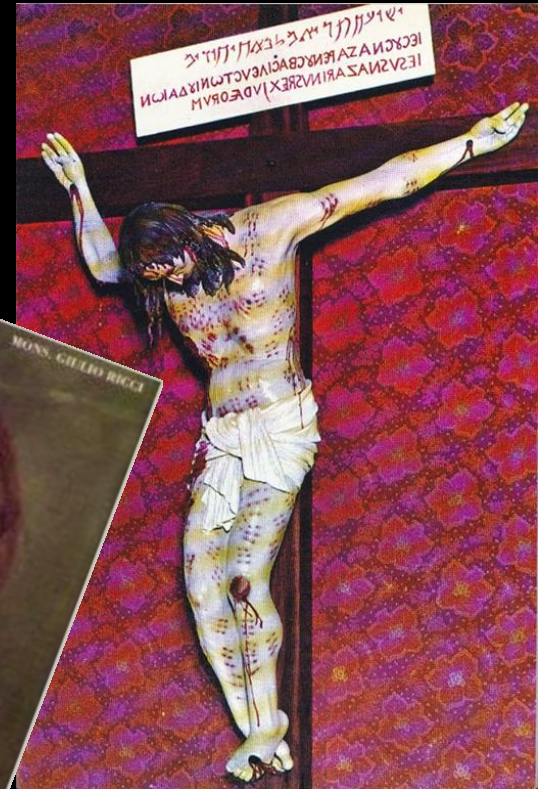
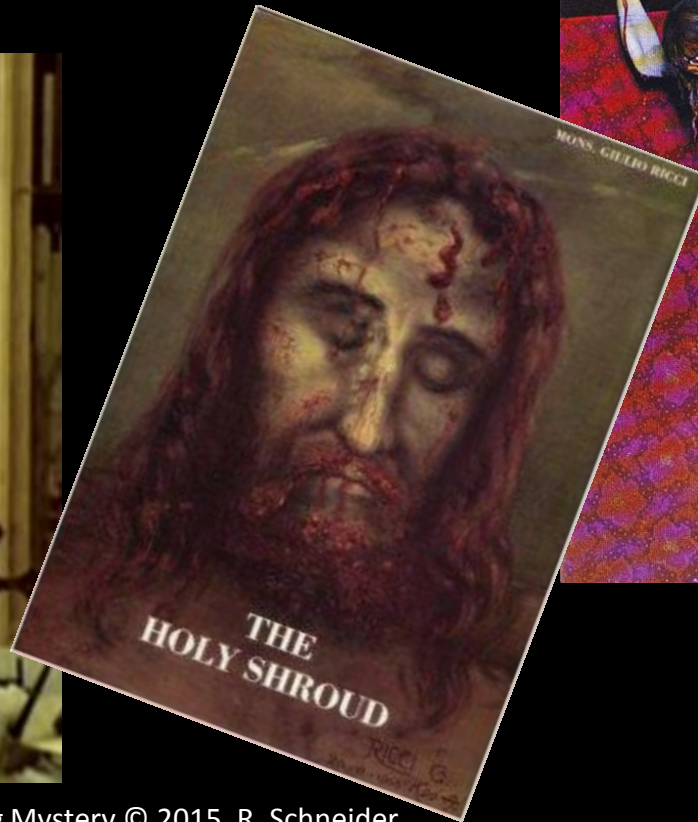
Resources: People

- Barrie Schwartz, Documenting Photographer of the 1978 STURP Team and founder of the web side: www.shroud.com
- Best website on the shroud
- Founder of STERA
 - Shroud of Turin Education and Research Association, Inc.



Resources: People

- Monsr. Giulio Ricci, early shroud researcher. Pioneered realistic crucifixion depictions.



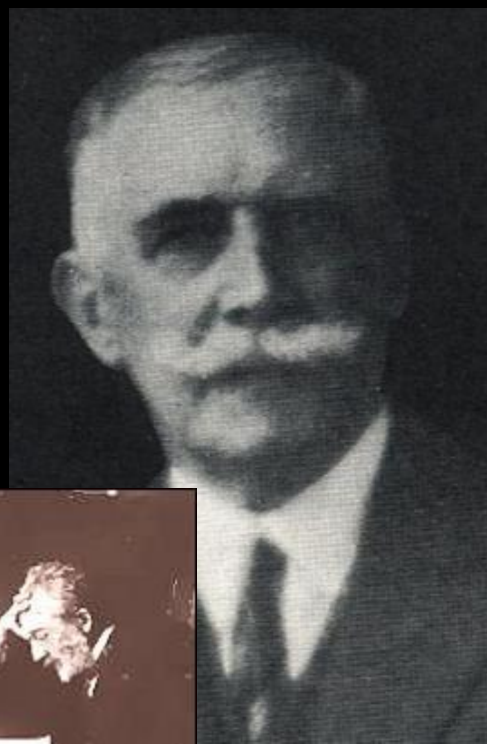
Resources: People

- Paul Vignon (1865-1943) was a French Professor of Biology and an artist. He was a science pioneer studying the shroud after 1898. His work is still significant.



-- studied marks on ancient paintings that had features similar to the shroud

-- first to attempt an explanation of the 3D aspects of the image



Paul Vignon



Yves Delage

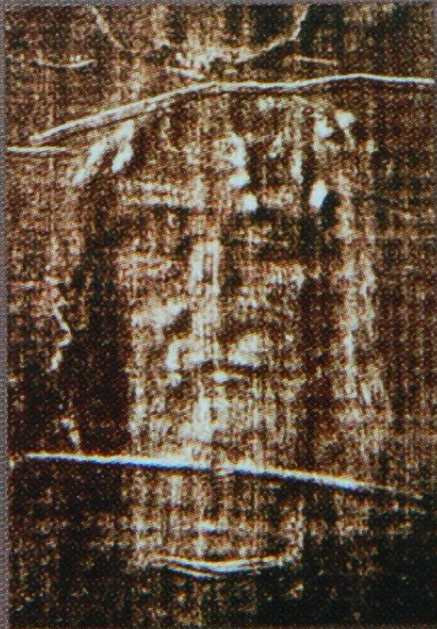
Resources: People

- Russ Breault, shroud researcher, lecturer, and author
 - Shroud Encounter website
<http://shroudencounter.com/>
 - Shroud University
<http://www.shrouduniversity.com/>

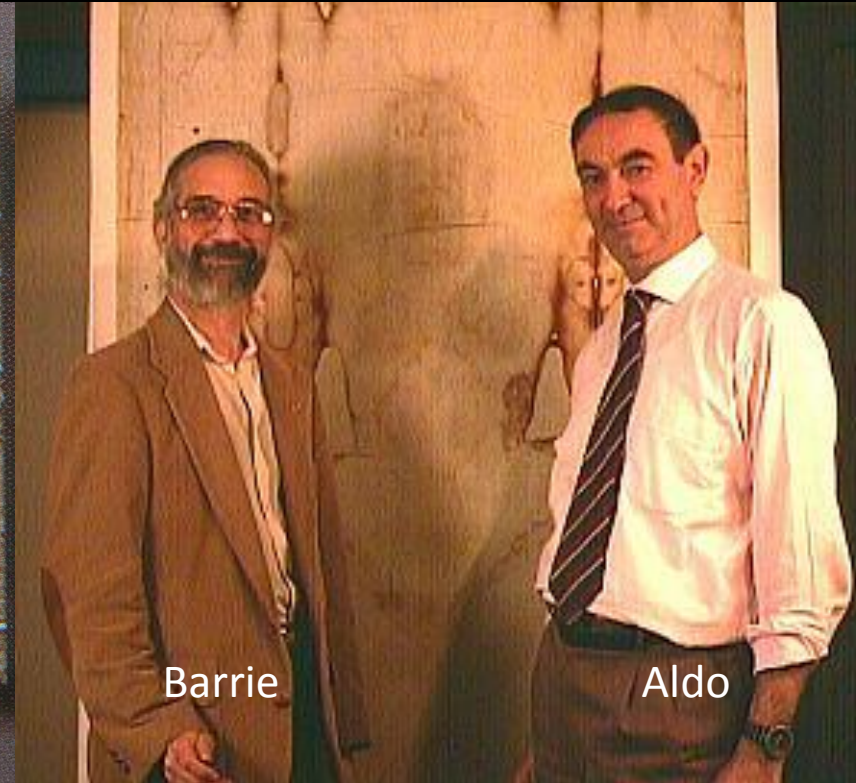


Resources: People

- Aldo Guerreschi, professional photographer who did work on water stains and photo-relief



1998, Guerreschi

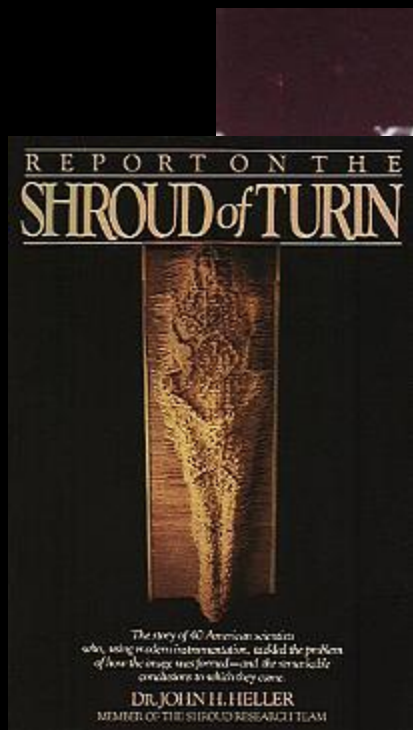


Barrie

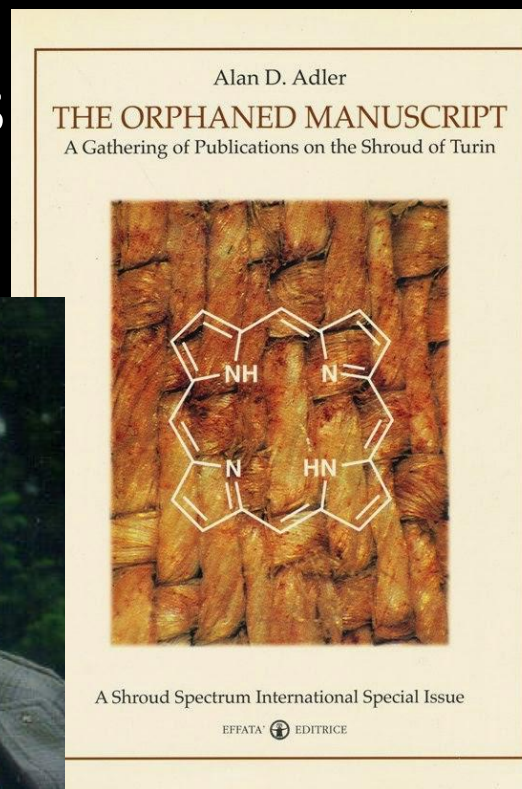
Aldo

Resources: People

- John Heller, Biophysicist and Alan Adler, blood chemist
- Friends in life major & contributors

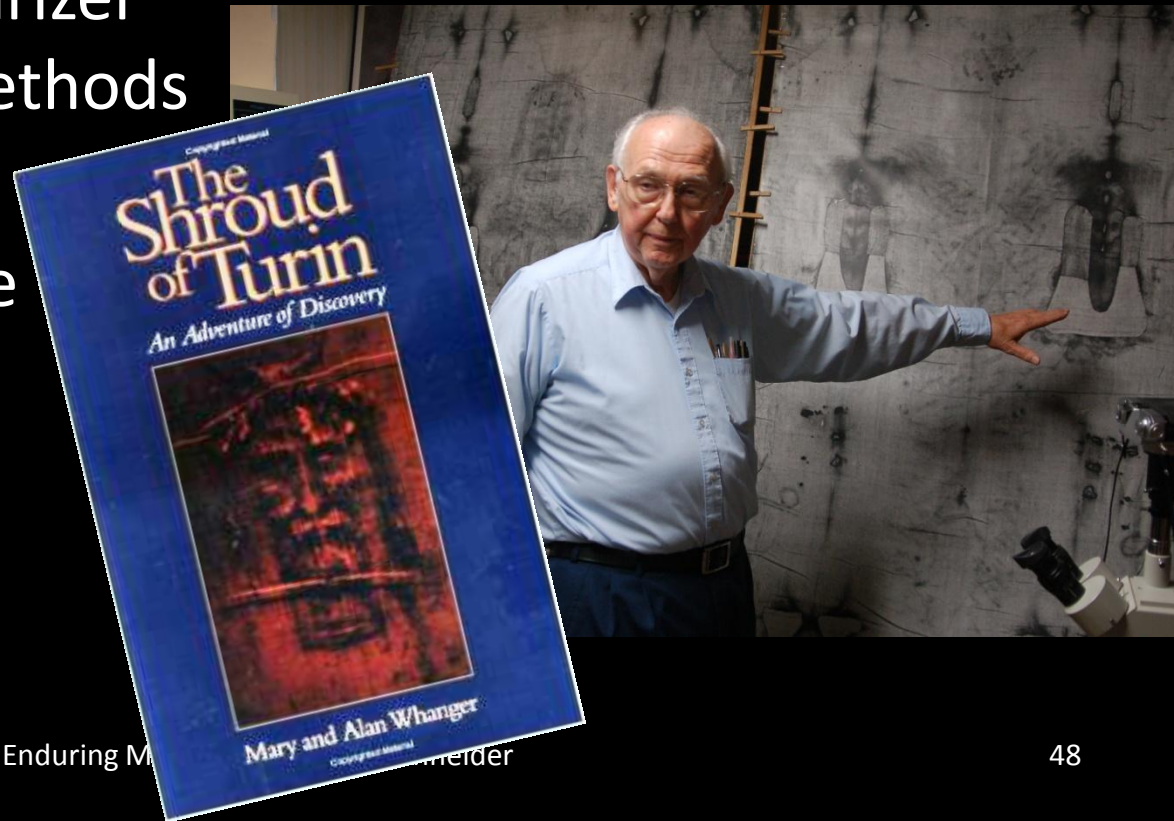


John Heller



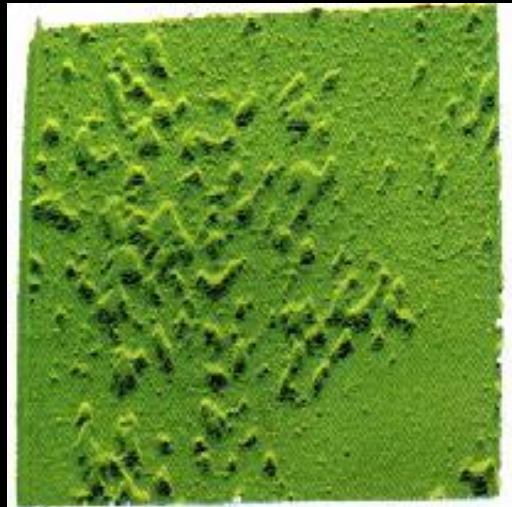
Resources: People

- Alan Whanger and his wife Mary and the Council for Study of the Shroud of Turin
 - Pioneered polarizer comparison methods
 - Focuses on faint suggestive images



Resources: People

- Fr. Francis Filas, S.J. explored the idea that coins are on the eyes of the man of the shroud
- Speculative Finding of a Pontus Pilate lepton



Resources: People

- Max Frei, Swiss Criminologist, pioneer of tape sampling, discovered pollens on shroud

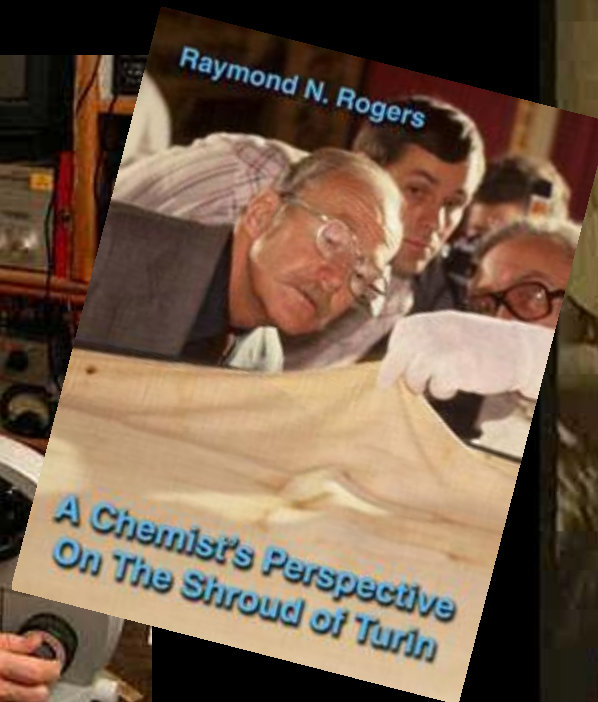
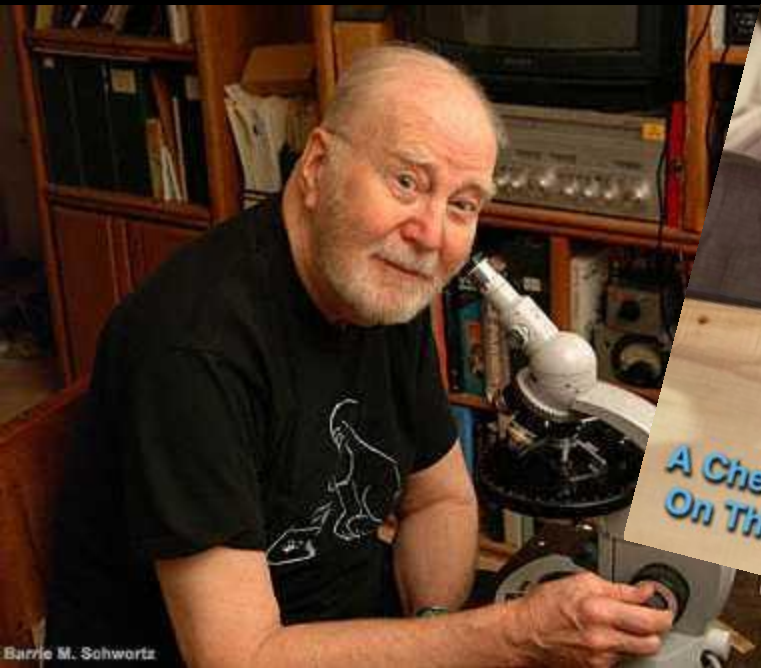
The places where pollens have been found by Dr. Frei: +		France, Italy	Mediterranean area	Constantinople	Urfa/Edessa (Anatolia)	Jerusalem & environs	Iran - Turan	Arabia	Sahara	Regions of North Africa	
Other areas where the same plants grow: • →											
↓ Alphabetic list of all the plants whose pollens have been found on the Shroud:											
1	Acacia albida Del.					+					• Plant of deserts Most frequent around the Dead Sea
2	Alnus glutinosa Vill.	•									
3	Althaea officinalis L.	•	•			+					Halophyte
4	Amaranthus lividus L.	•									
5	Anabasis aphylla L.					+	•	•			• Plant of deserts, halophyte. Frequent in South Palestine
6	Anemone coronaria L.		•			+					
7	Artemisia Herba-alba A.				+	+	•	•			• Plant of semideserts; Most frequent in the east of Jerusalem.
8	Atraphaxis spinosa L.				+		•				• Plant of deserts: Iran, Turan, Anatolia
9	Bassia muricata Asch.					+					
10	Capparis spec.		•		+	+	•				• Plant of semideserts; Frequent on rock debris and old walls
11	Carduus personata Jacq	•									
12	Carpinus betulus L.	•									



c 1978 Barrie M. Schwartz

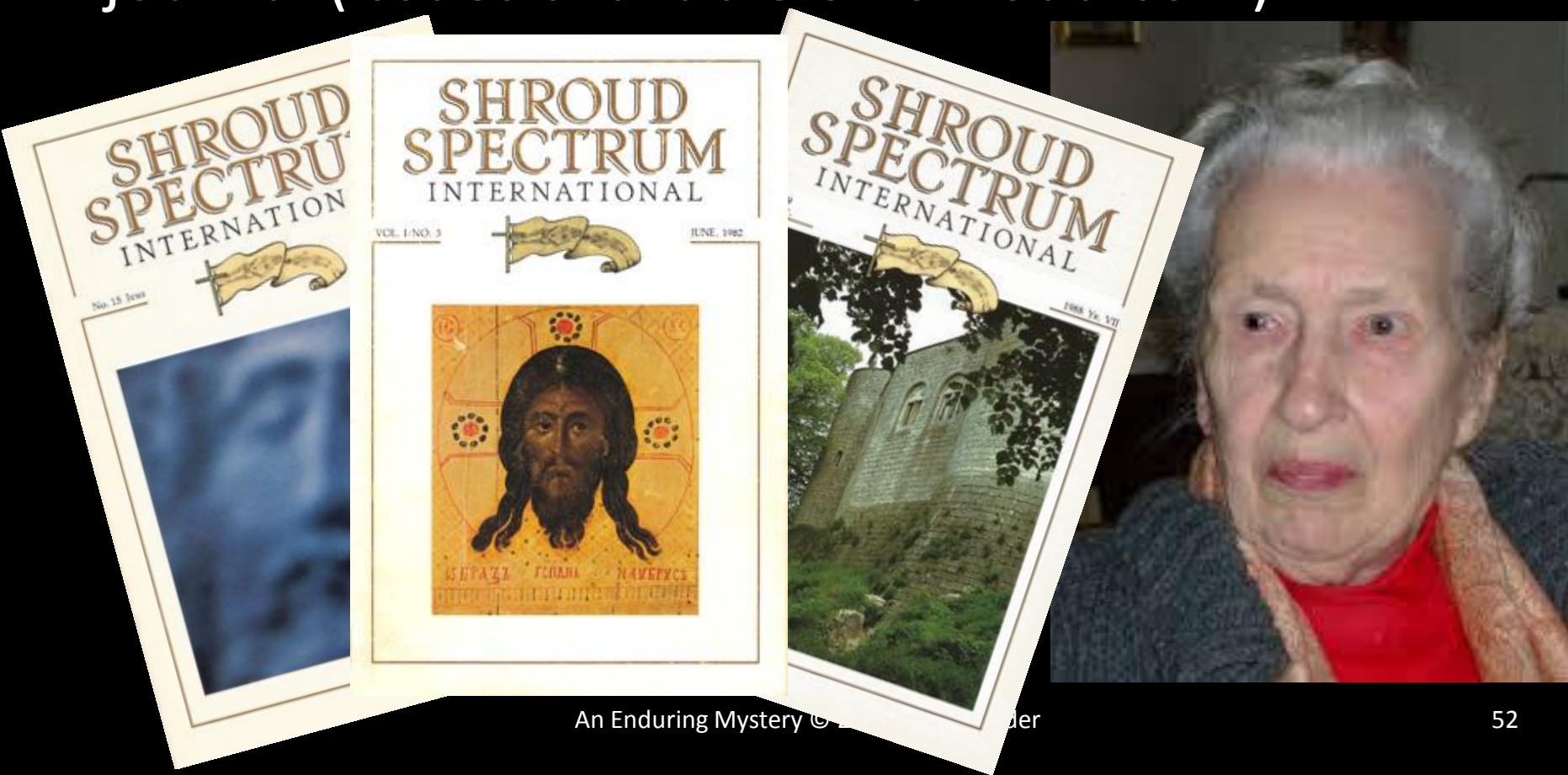
Resources: People

- Ray Rogers (1927-2005), Los Alamos Chemist, member of the STURP team and author of important ideas about the image formation process <http://www.shroud.com/pdfs/rogers10.pdf>



Resources: People

- Dorothy Crispino (1916-2014), founder and editor of Shroud Spectrum International, peer reviewed journal (issues available on shroud.com)



Resources: People

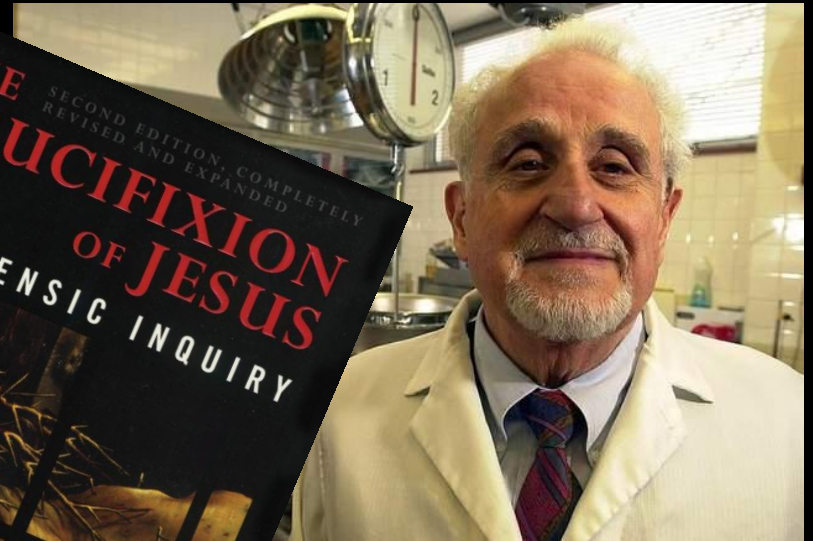
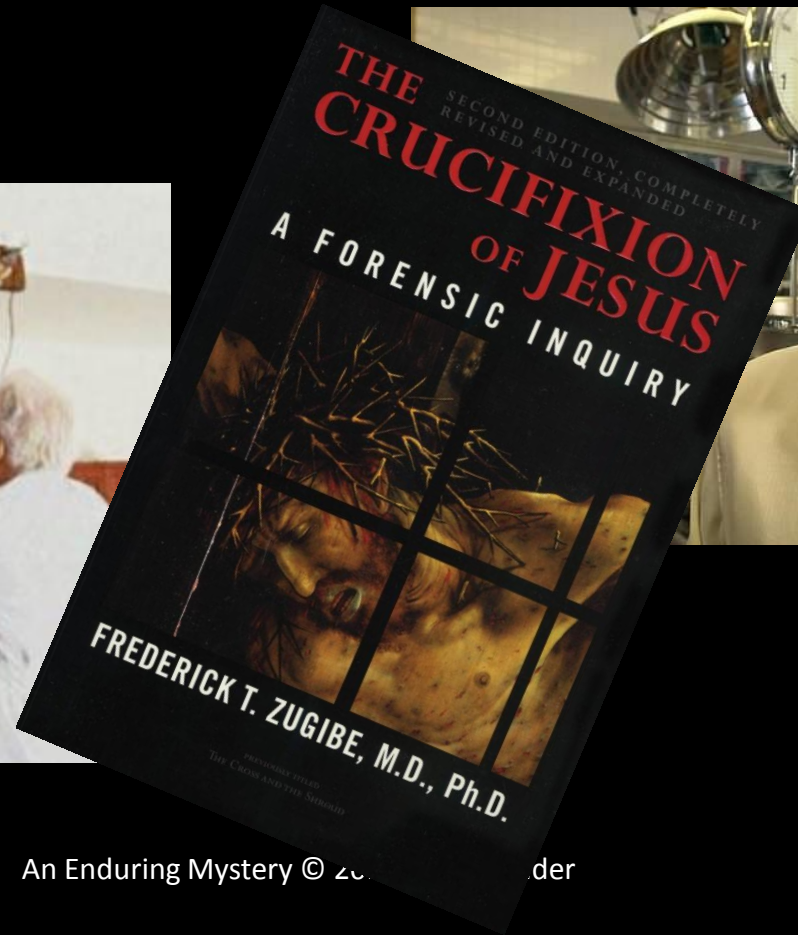
- Petrus Soons and Pete Schumacher the two masters of shroud 3D



<http://vimeo.com/40036132> 3D animation

Resources: People

- Fred Zugibe, M.D., Ph.D. (1928 – 2013) forensic scientist studied crucifixion



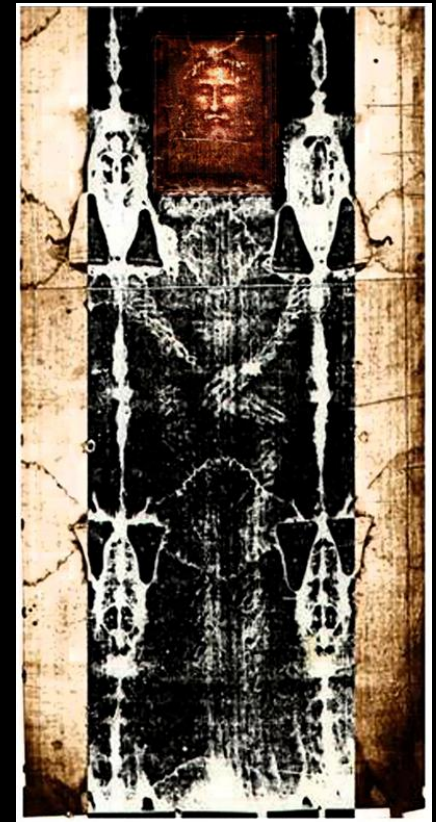
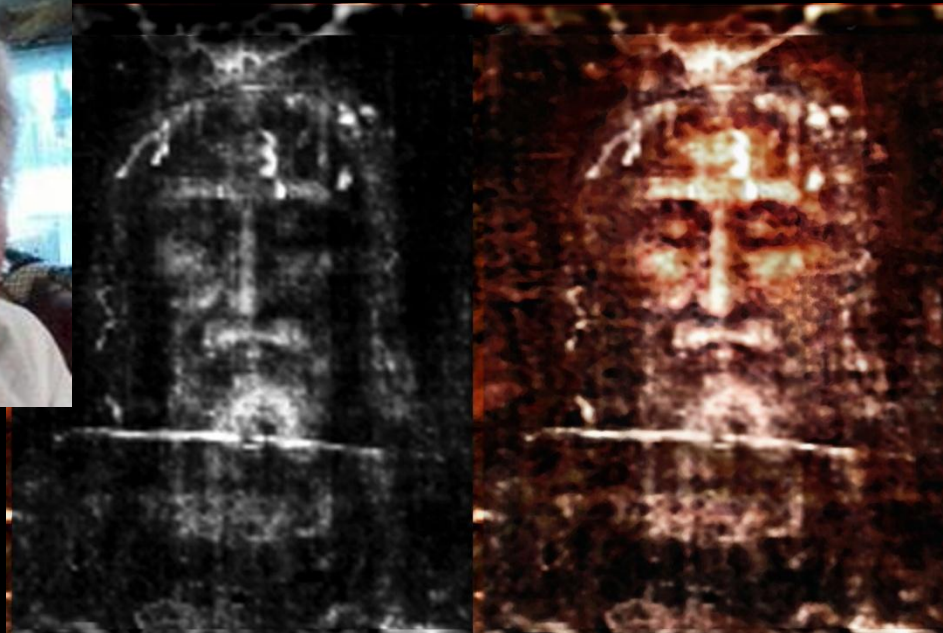
Resources: People

- Joe Marino and Sue Benford pioneered theories about problems with C14 samples



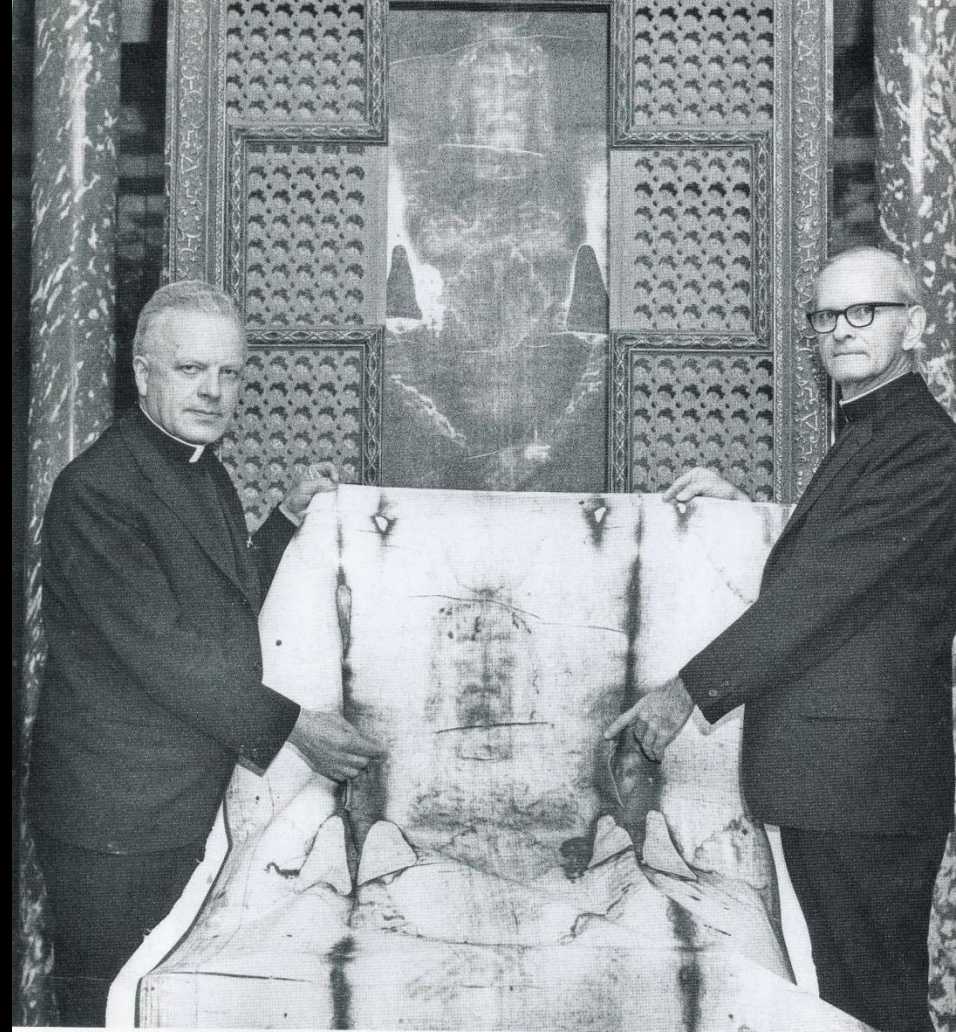
Resources: People

- Roger Basset, artist, works to try to discover the image of Jesus within the shroud "noise" without distorting the information



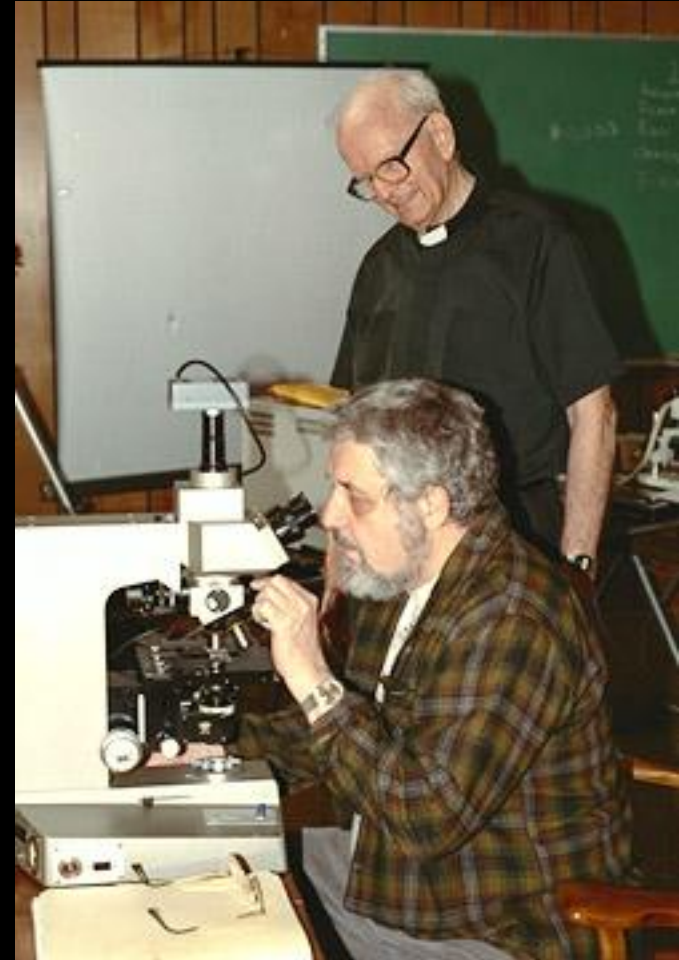
Resources: People

- Fr Peter Rinaldi (1911-1993) and Fr. Adam Otterbein (1916-1998) founders of the Holy Shroud Guild were largely responsible for the success of the 1978 STURP work



Resources: People

- Fr. Adam Otterbein (1915-1998) with Al Adler
 - Fr. Otterbein was the "go-to" guy at the Holy Shroud Guild for many many years
 - I met him at a shroud conference at Elizabethtown College in 1985
 - I had corresponded with him before that, just missing the STURP window





Resources: People

- Dan Porter, web-master at shroudstory.com one of the most active discussion blogs on the Shroud of Turin
 - Met Dan in 2008 at the Columbus, Ohio shroud conference

<http://shroudstory.com/>



Resources: People



- Mario Latendresse is a computer scientist and the author of the excellent shroud site sindonology.org which include the application: Shroud Scope
- The Shroud Scope application lets you make measurements on the shroud and pan over some of the most high resolution images of the shroud that are available. Just for illustration I clipped a good many of the images used in this presentation from Shroud Scope

Resources: People

- Dan Scavone, historian whose theories about the shroud's history have greatly informed my own understanding



Resources: People

- Jack Markwardt, attorney, historian, and author especially focused on the early history of the shroud



<http://www.shroud.com/pdfs/Markwardt-refl.pdf>

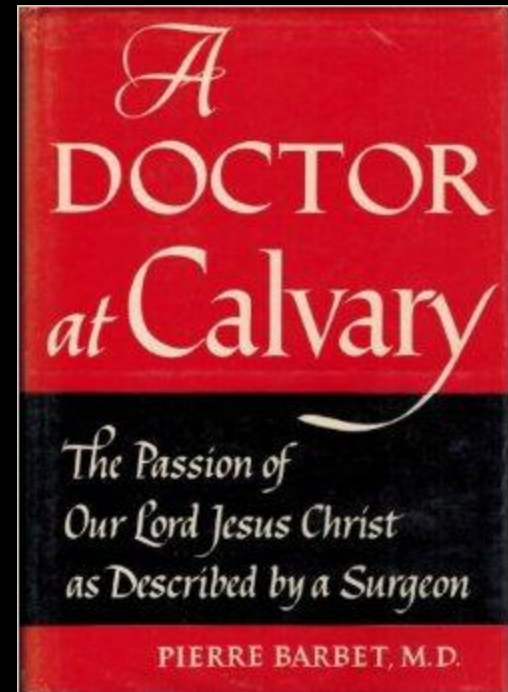
Resources: People

- Paul Maloney, archeologist and General Projects Director of the Association of Scientists and Scholars International for the Shroud of Turin (ASSIST)
 - he was instrumental, together with others, in bringing the Max Frei Collection of Shroud sticky tapes to the United States in 1988



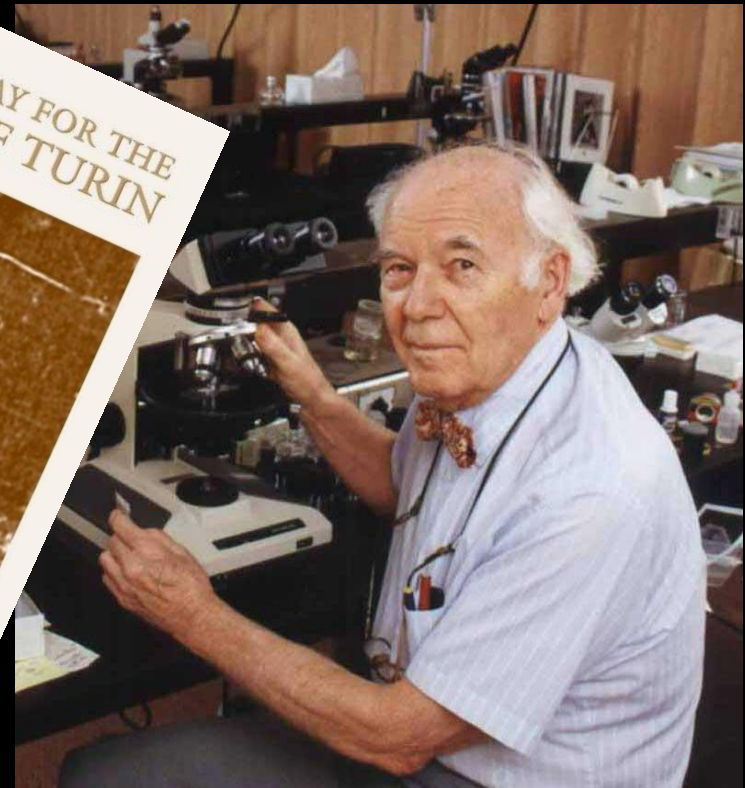
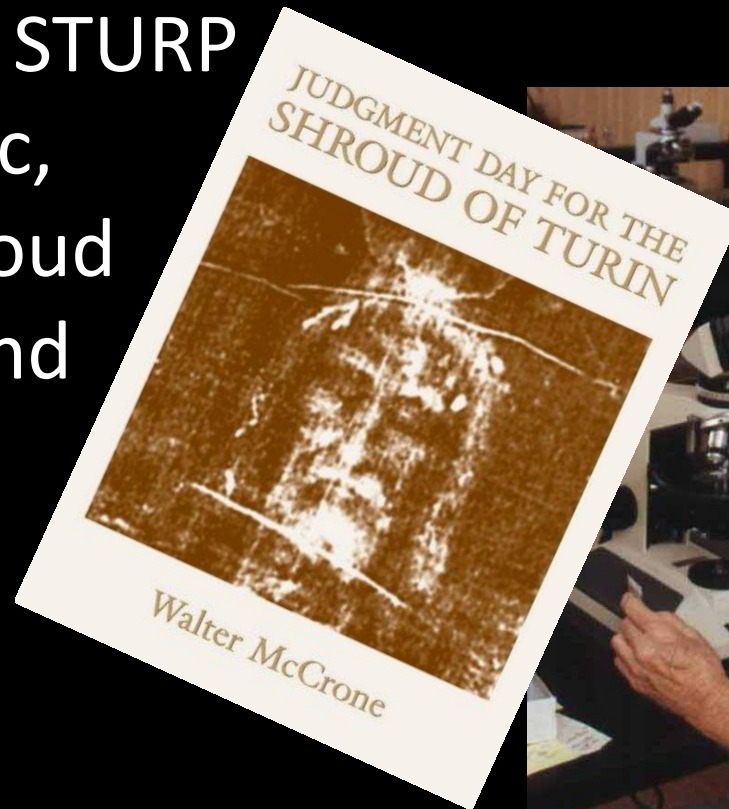
Resources: People

- Dr. Pierre Barbet (1884-1961) was a French physician, chief surgeon at Saint Joseph's Hospital in Paris. He was a pioneer in the medical study of the shroud.



Resources: People

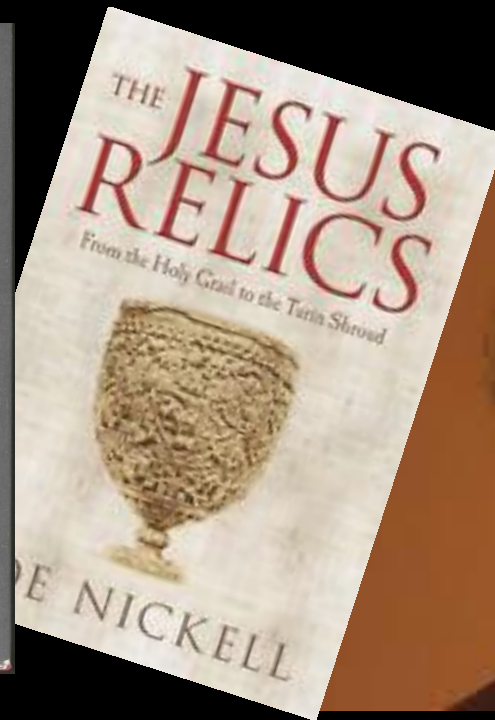
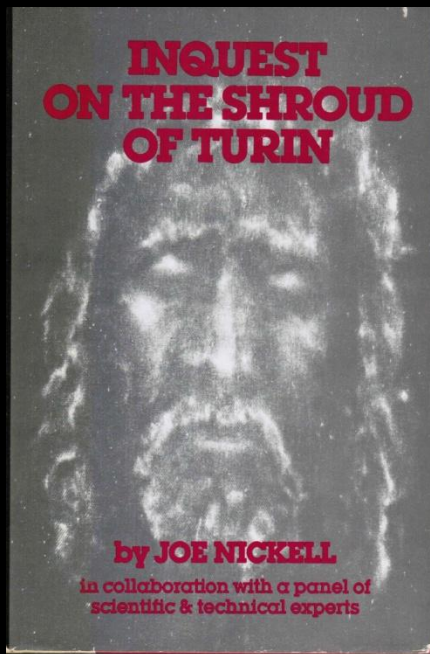
- Walter McCrone (1916-2002) microscopist worked with STURP tapes, skeptic, believed shroud was some kind of painting



<http://www.holyshroudguild.org/drmccrone5.html>

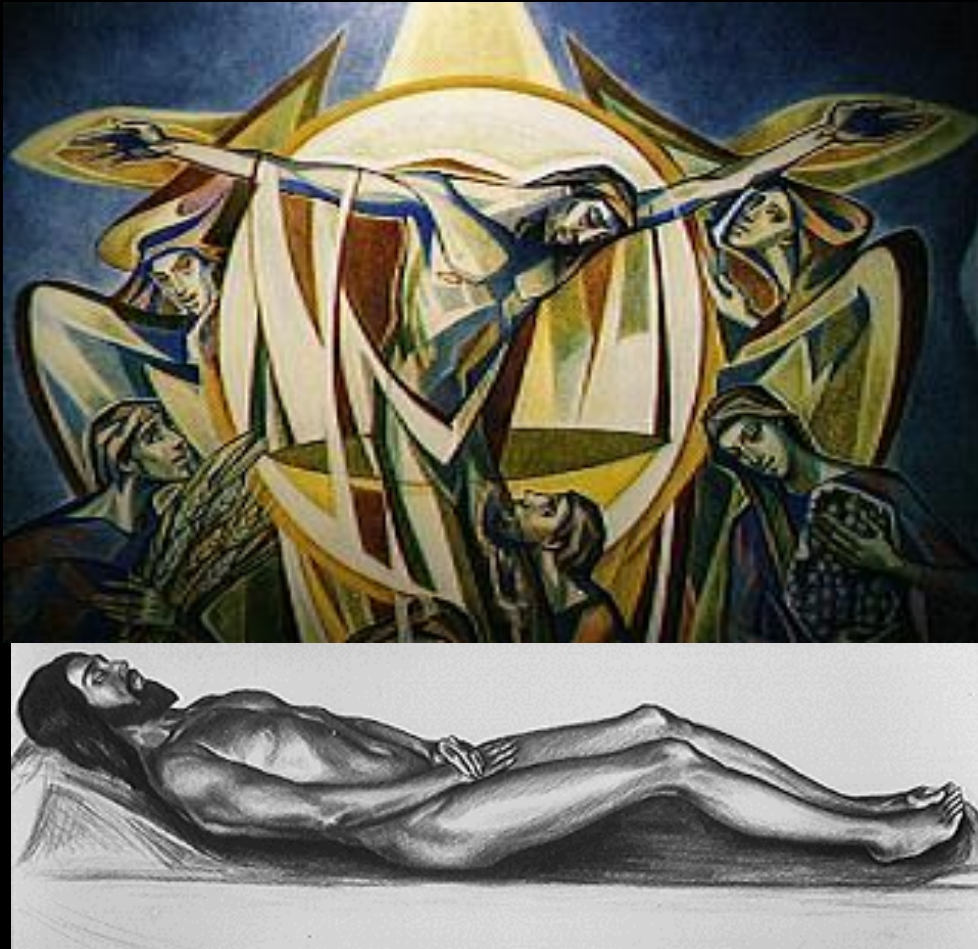
Resources: People

- Joe Nickell (1944 -) prominent shroud skeptic. Has tried to duplicate shroud using bas-reliefs and rubbings with mixed success



Resources: People

- Isabel Piczek, artist and physicist



Resources: People

- William Meacham, archeologist and critic of the 1988 Carbon Dating and subsequent "restoration" fiasco

The Rape of the Turin Shroud

William Meacham



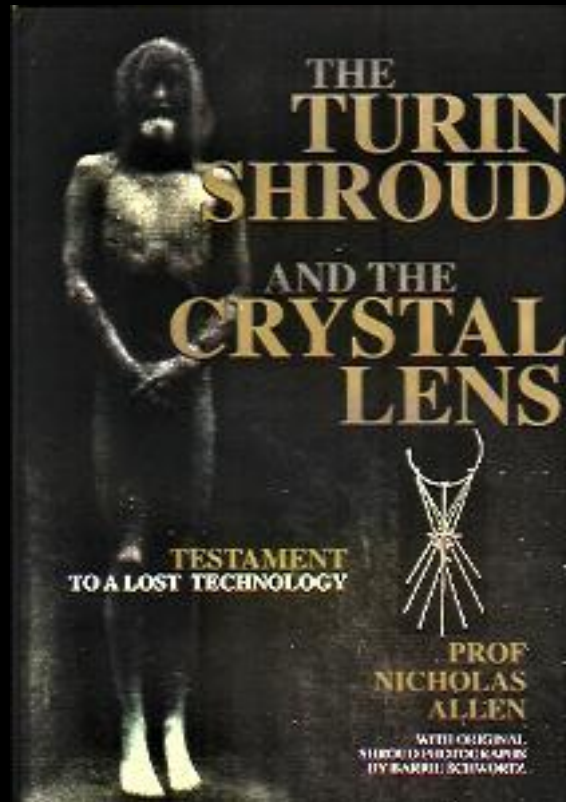
How Christianity's most precious relic was wrongly condemned, and violated.



William Meacham and Stephen Mattingly

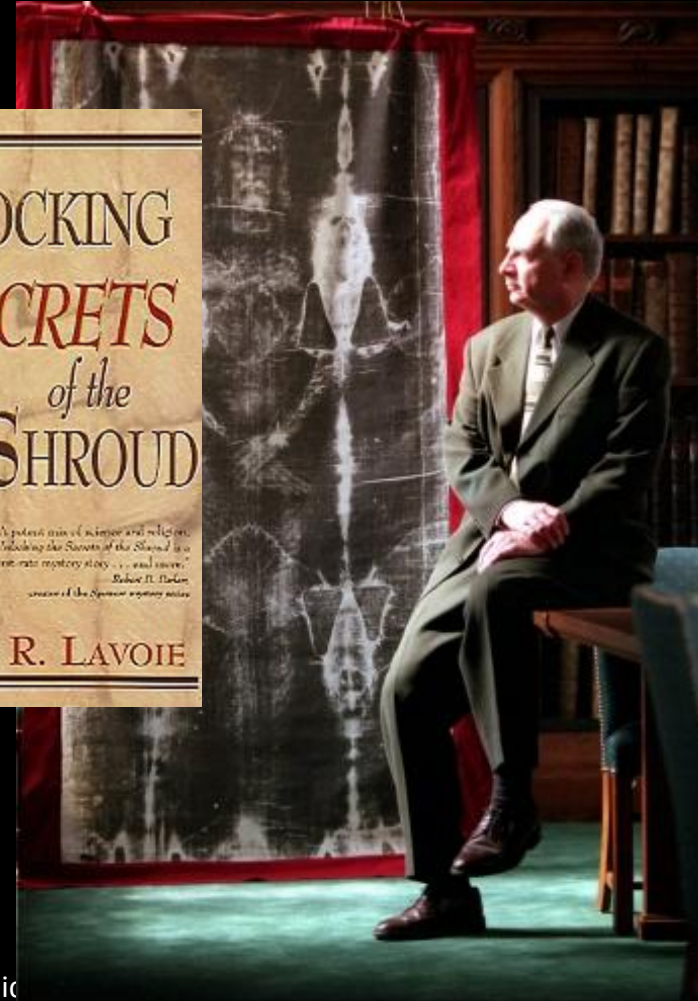
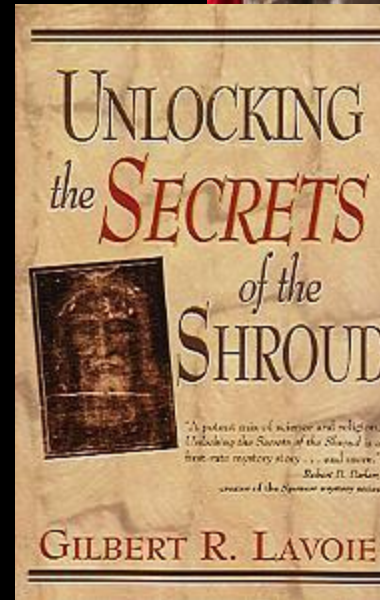
Resources: People

- Nicholas Allen, is the shroud an early photograph? Made one, you decide.



Resources: People

- Gilbert Lavoie, blood expert
 - blood mysteries solved
 - timing critical



Resources: People

- Giulio Fanti, Associate Professor, Department of Mechanical Engineering, Padua University, Italy
 - a very active researcher
 - interesting image theories
 - working to pioneer alternative dating methods





Next Time

- **SCIENCE MEETS THE SHROUD**
- Let's look at a few resources
 - Websites www.shroud.com
 - Books www.amazon.com
 - Blogs www.shroudstory.com
- Any Last Minute Questions?