

THE ORIGIN OF ROGERS' RAES AND RADIOCARBON SAMPLES

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Studies on the radiocarbon sample from the shroud of Turin

Raymond N. Rogers

Thermochimica Acta 425 (2005) 189–194

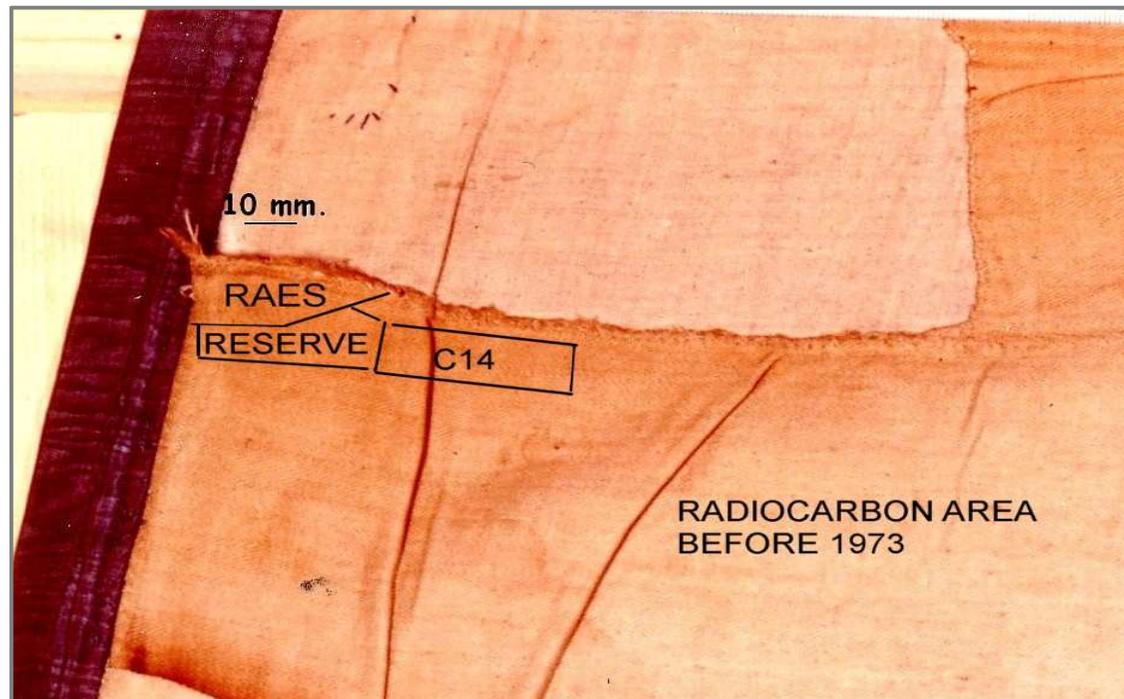
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« The combined evidence from chemical kinetics, analytical chemistry, cotton content and pyrolysis mass spectroscopy proves that the material from the radiocarbon area of the shroud is significantly different from that of the main cloth.

The radiocarbon sample was thus not part of the original cloth and is invalid for determining the age of the shroud ».

Rogers' « material from the radiocarbon area »:

- 14 yarn segments from the Raes sample : ***the Raes threads***.
- Samples of both warp and weft threads from the center of the radiocarbon sample : ***the radiocarbon threads***.



OBJECTIVE OF THE PRESENTATION

Doubts and questions about the Raes and radiocarbon samples used by Rogers



Are the Rogers' Raes samples genuine Shroud samples?



How was it possible for Rogers to obtain samples from The « center of the radiocarbon area » ?



Is there a chain of custody for those samples ?

THE DOCUMENTS



The Luigi Gonella Collection
Gonella's Archives 1978-2000
Photographs: Franco Faia
Courtesy of Giovanni Gonella

The Rogers' Collection
© STERA, Inc.
Courtesy of Barrie Schwartz

The Holy Shroud Guild Archives: <http://holyshroudguild.org/>
Courtesy of Giorgio Bracaglia.

SUMMARY OF ROGERS' FINDINGS: COTTON



© Th. Heimburger. Raes # 7. Cotton fibers

Many cotton fibers in the radiocarbon area.
The Shroud is « almost pure linen » (Rogers)

Confirmed by Rogers, Brown, Villareal (LANL) and Thibault Heimburger.

SUMMARY OF ROGERS' FINDINGS: DYE



Dye on cotton fiber. Raes thread. Rogers' collection. © STERA, INC.

A unique Alizarin/gum dye on both Raes and radiocarbon threads
not found elsewhere on the Shroud.

Rogers finding, confirmed by Brown.

SUMMARY OF ROGERS' FINDINGS: LIGNIN/VANILLIN

Phloroglucinol-HCl Wiesner test

- No lignin detectable in the Shroud
- No lignin detectable in ancient linen (Dead Sea scrolls linen)
- Lignin easily detected in Raes fibers
- Lignin easily detected in the 1534 Holland cloth and other Medieval samples

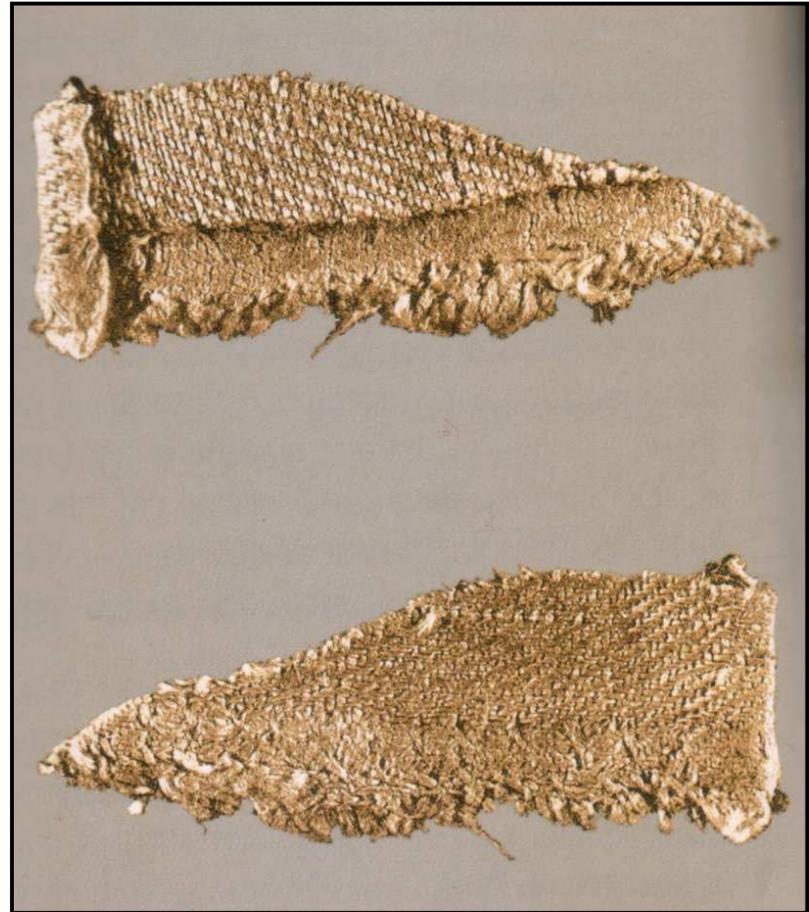
Chemical-age predictive model



**The Shroud is much older than the medieval Raes/radiocarbon area
(1300-3000 years old)**

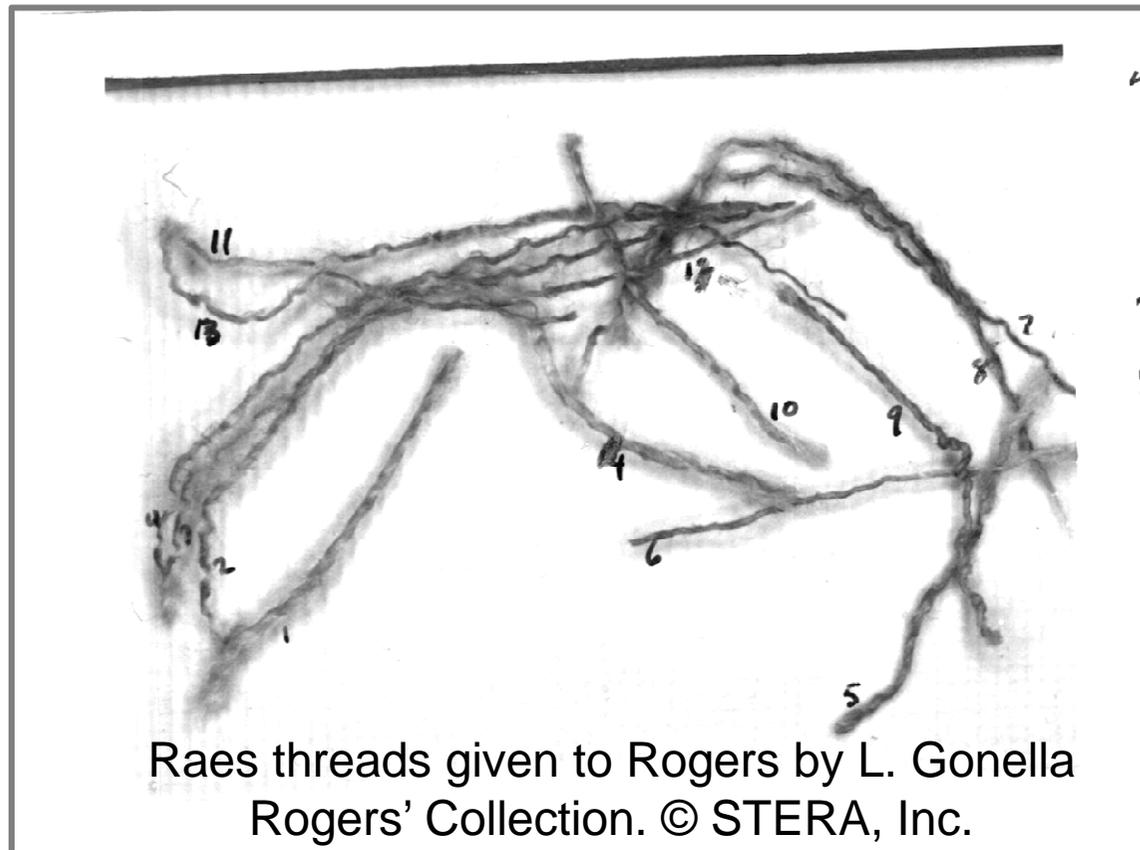
HISTORY OF THE 1973 RAES SAMPLE (1)

- November 1973: cutting. To G.Raes.
- November 73- February 74: Raes study
- 1973- 1976: samples (part1+part2) in Raes desk. Not in safe. Samples « *seen and handled by several people* » (Gonella)
- October 1976: samples back to Turin In safe.
- 1979: Rogers asked Gonella for the samples (*not only threads*). Gonella agreed.

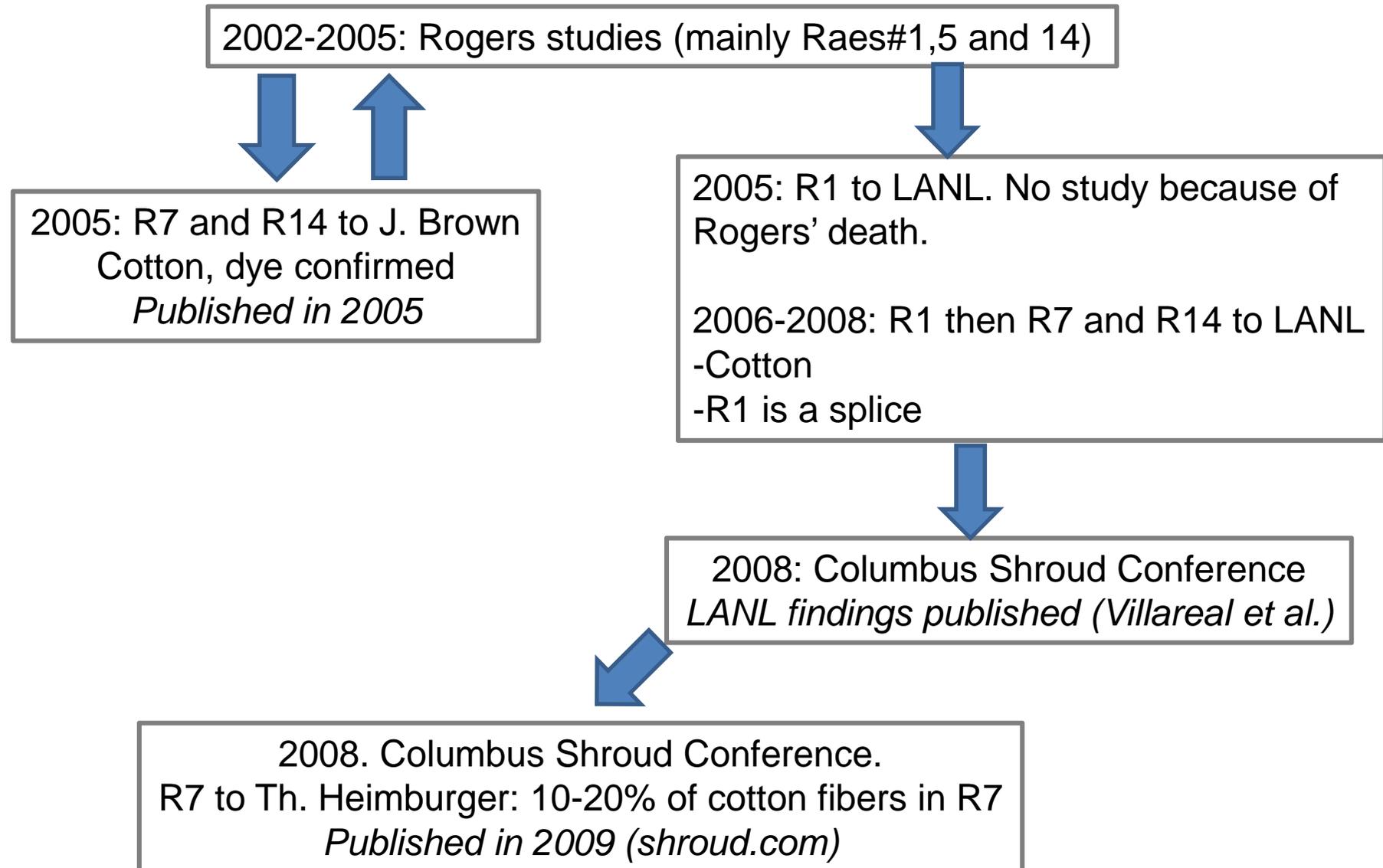


HISTORY OF THE 1973 RAES SAMPLE (2)

- October 1979: Mons. Ballestrero *directed* Mons. Caramello to give Gonella several threads from the Raes samples (Rinaldi, HSG Archives)
- 14 October 1979: Gonella hand delivered 14 Raes threads to Rogers



HISTORY OF THE 1973 RAES SAMPLE (3)



AUTHENTICITY OF RAES SAMPLES (1)

Gonella's doubts based on rumors: “..A relative of Gilbert Raes *had been overhead* to say: “we all have pieces of the Shroud now” (Gonella cited by Nitowski, 28 April 1986. HSG Archives)

Nitowski (Sister Damian of the Cross) looked at Raes#5 and claimed that it was actually “S” twisted *because* it “showed a “Z” twist through the microscope and any image in the microscope is reversed”.

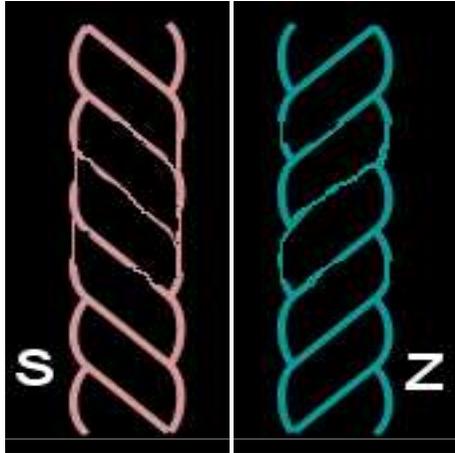
Did a switch or substitution occur in Raes home between 1973 and 1976 ?



Raes#5 as received by Kohlbeck and Nitowski. © Holy Shroud Guild.

AUTHENTICITY OF RAES SAMPLES (2)

Nitowski was wrong about Raes #5



“S” is the **mirror** image of “Z” and vice-versa.

Through the microscope you see the **inversed** image (180° rotation), **not the mirror image**.

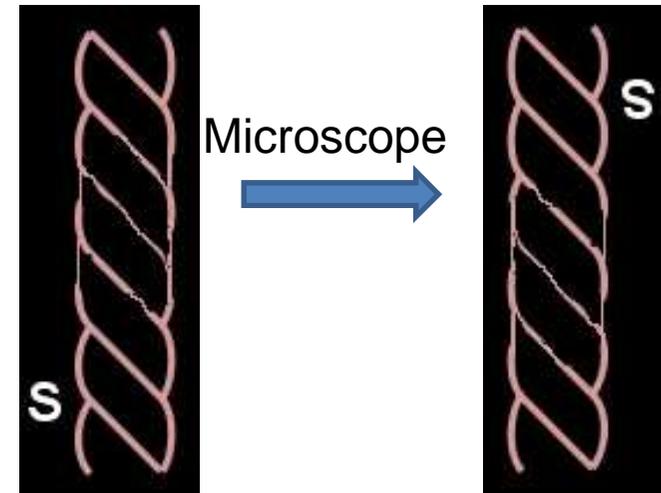
“S” remains “S” and “Z” remains “Z”



Image of “S”



...Through the microscope



AUTHENTICITY OF RAES SAMPLES (3)



(1)



(2)



(3)

(1) R5 through the microscope. Rogers

(2) R5 through the microscope. Nitowski

(3) R5 macrophoto. Rogers

Raes #5 is “Z” spun and has a “heavy coating” (Nitowski)...likely the dye later discovered by Rogers.

AUTHENTICITY OF RAES SAMPLES (4)

- No substitution of the samples themselves
- No evidence of switching of the threads. No reason.
- Characteristic indentations of the Raes threads (3:1 weave)
- Same anomalous characteristics found in the radiocarbon samples (dye, cotton) taken 15 years later.



Raes # 1. splice



Raes # 6



Raes # 9



Raes # 11

All photographs from Rogers Collection.© STERA, Inc.

ROGERS' RADIOCARBON SAMPLES (1)

PRESENTATION



“ A solid piece of plastic...I suspect this was made by Adler”
(Rogers)



-A weft thread, about 4 mm. in length.

-A warp thread, about 15 mm. in length.

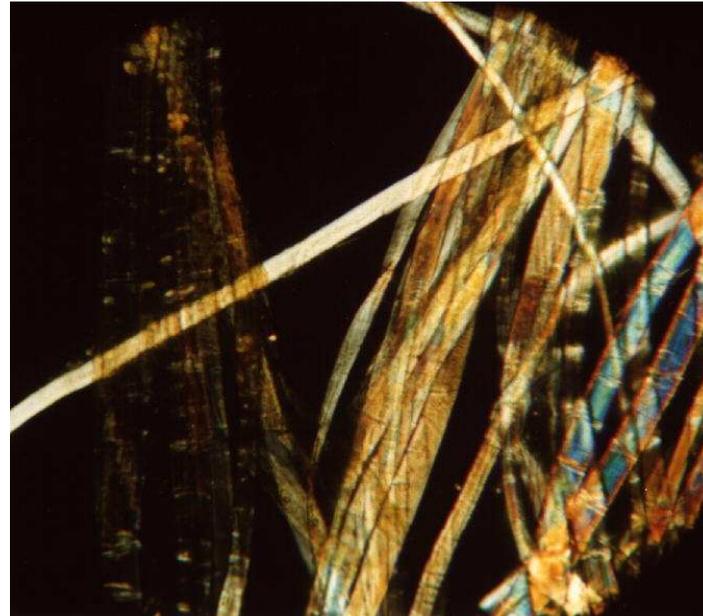
Photos from the Rogers'Collection.© STERA, inc.

ROGERS' RADIOCARBON SAMPLES (2)

MICROSCOPY



Warp. Incrustated fibers. Cotton



Warp (Pol.Light). Many cotton fibers.



Warp. Dye on the fibers.

ROGERS' RADIOCARBON SAMPLES (3)

CHAIN OF CUSTODY*

- December 1988: **Gonella** sent a package containing threads from the April 1988 radiocarbon samples to Alan Adler
- January 1989 until June 2000: **Alan Adler**
- June 2000: portion of those threads to **Steve Mattingly** who received them but did not even look at them.
- November 2001: Mattingly sent back the samples.
- November 2003: **Rogers** asked for the samples
- December 2003: **Larry Schwalbe** gave Rogers the samples
- January 2004: Rogers called and asked where were taken the samples **Gonella** himself answered "*from the center of the radiocarbon sample*".

Chain of Custody maintained. All documents in safe.

* Source: Confidential letter from Tom D'Muhala to Barrie Schwartz, dated April 7, 2014

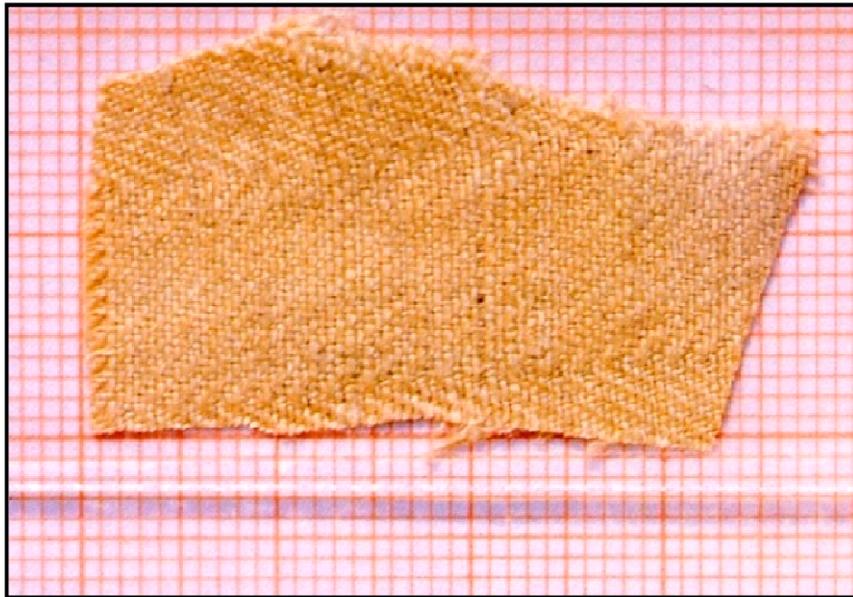
ROGERS' RADIOCARBON SAMPLES (4)

Origin of the Rogers' radiocarbon samples

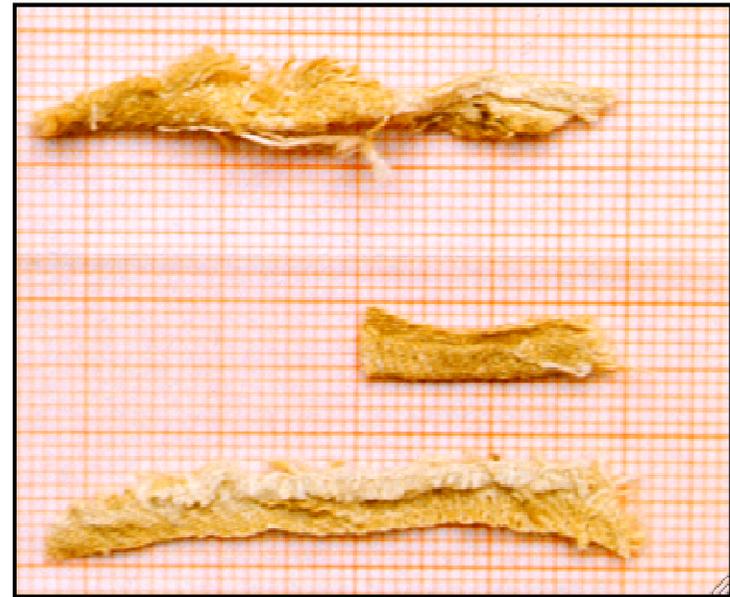
L.Gonella: “ They come from the center of the radiocarbon sample”
How is it possible ?

From the Luigi Gonella Collection, we know that all of the remaining samples cut on April 21, 1988, were kept in safe by Gonella and Riggi **with the (non-written) authorization of Cardinal Ballestrero.**

This includes:



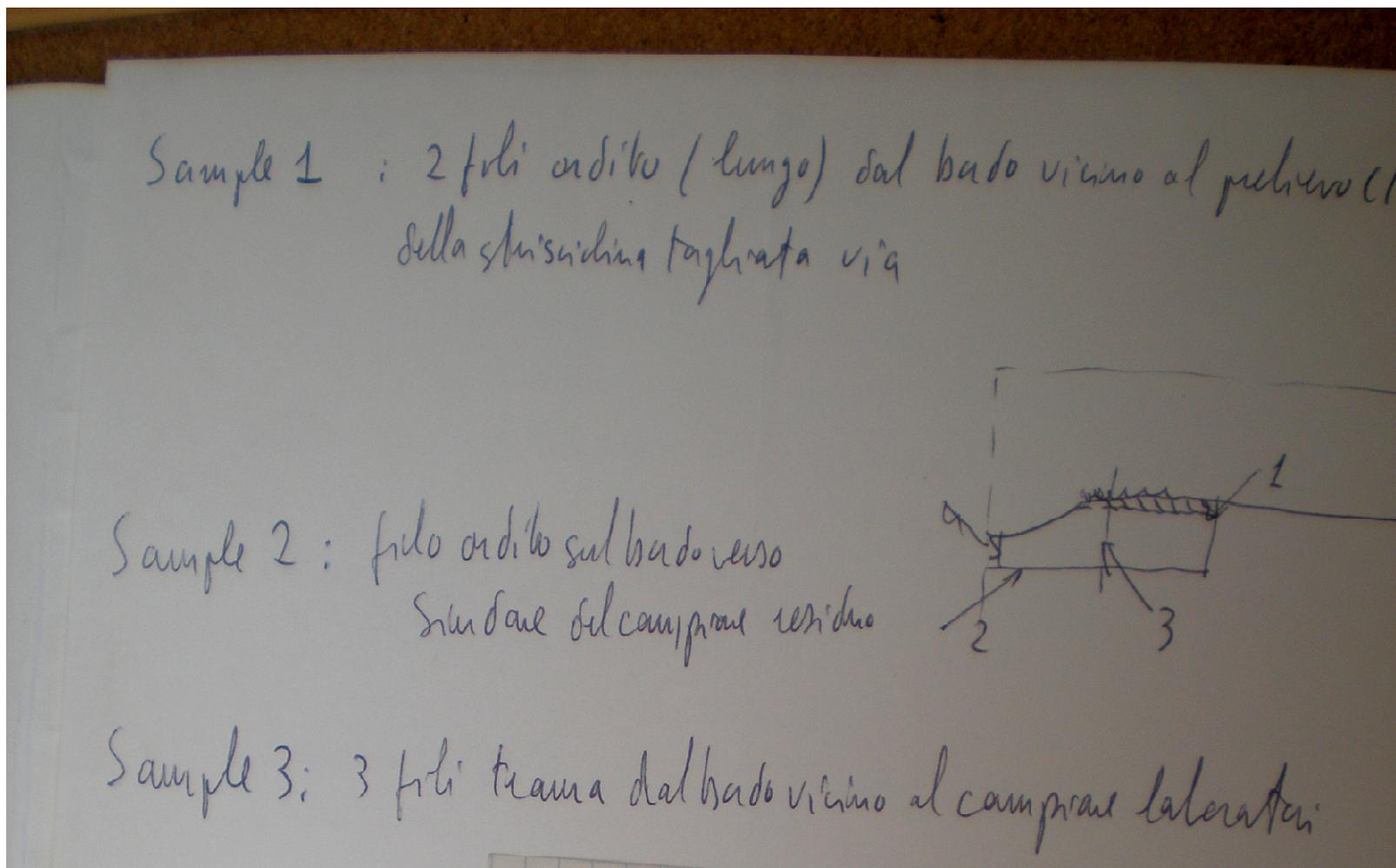
The Reserve sample (Photo: Riggi)



The trimmed samples (Photo: Riggi)

ROGERS' RADIOCARBON SAMPLES (5)

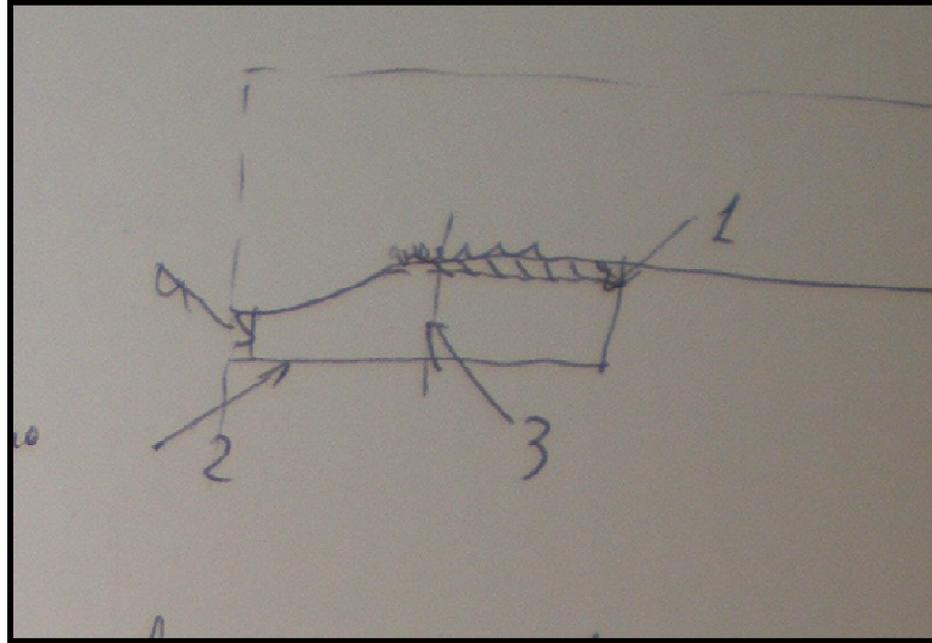
An important Document in L. Gonella Collection



L. Gonella Collection. Not dated (obviously written after April 21, 1988).
Not signed but the writing is that of Gonella.

ROGERS' RADIOCARBON SAMPLES (6)

An important Document in L. Gonella Collection (translation)



“Sample 1: Two long warp threads from the trimmed band close to the C14 sample.

Sample 2: One warp thread from the border of the reverse side of the reserve sample.

Sample 3: three weft threads from the edge near the sample [given to] the laboratories”.

Luigi Gonella

There is little doubt that those samples were the samples given to Adler by Gonella.

Some of them were then given to Rogers.

Rogers' warp thread came either from the trimmed band (sample 1) or from the reserve (sample 2). Rogers' weft thread came from the reserve (sample 3).

CONCLUSION

Rogers' findings are based on authentic samples from the Raes/radiocarbon area

-There is no reason to doubt the authenticity of the Raes samples sent back to Turin in 1976. There are many reasons to support the authenticity of those samples. The threads given to Rogers by Gonella were threads excised from those samples on the order of Card. Ballestrero.

-The two warp and weft Rogers radiocarbon threads are genuine threads from the reserve (or perhaps from the trimmed band for the warp). They were sent by Gonella, who had kept them in safe with the authorization of Card. Ballestrero. The Chain of Custody has been maintained.

Rogers: the radiocarbon area is not representative of the shroud

Textile experts: no repair. The radiocarbon area is representative of the Shroud

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graph TD; A[Rogers: the radiocarbon area is not representative of the shroud] --> C[The Shroud must be re-dated: - Samples from different areas - Multidisciplinary approach - Preliminary modern scientific tests needed.]; B[Textile experts: no repair. The radiocarbon area is representative of the Shroud] --> C;
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The Shroud must be re-dated:

- Samples from different areas
- Multidisciplinary approach
- Preliminary modern scientific tests needed.

ACKNOWLEDGEMENTS

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Barrie Schwortz

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Giulio Fanti



Prof. L. Gonella with Card. Ballestrero
In Memoriam

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