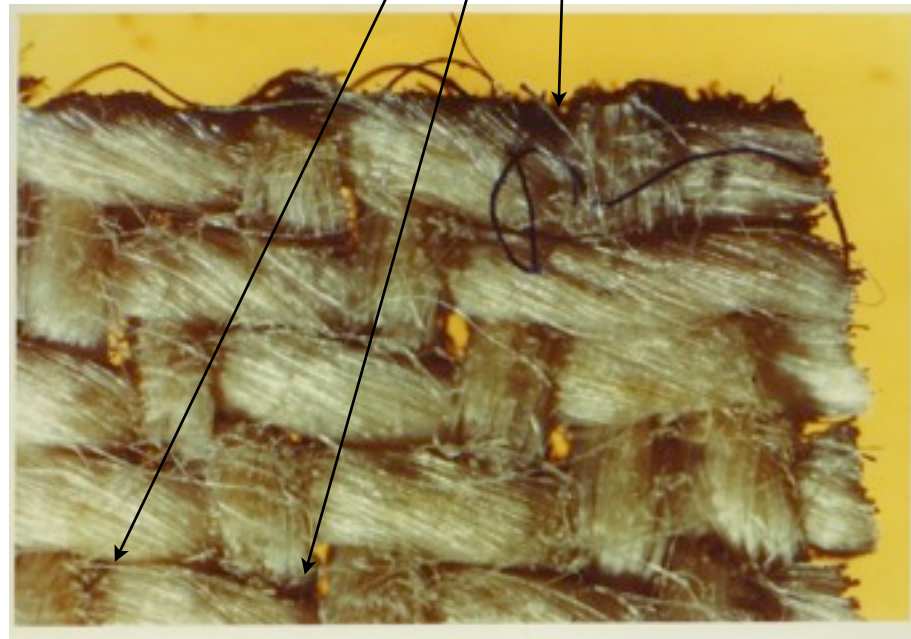
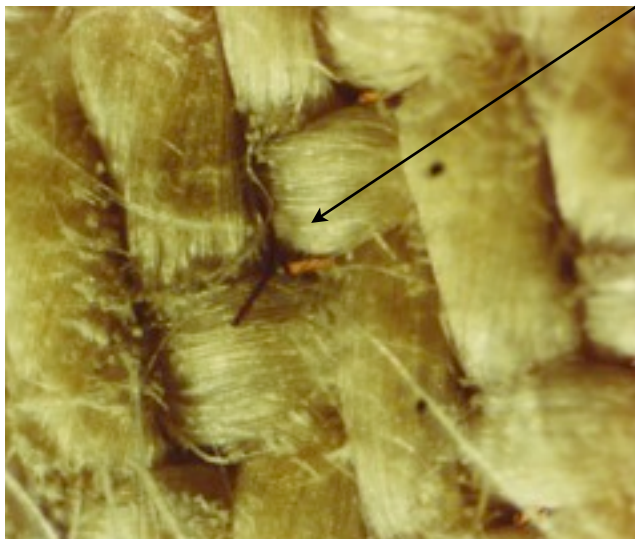
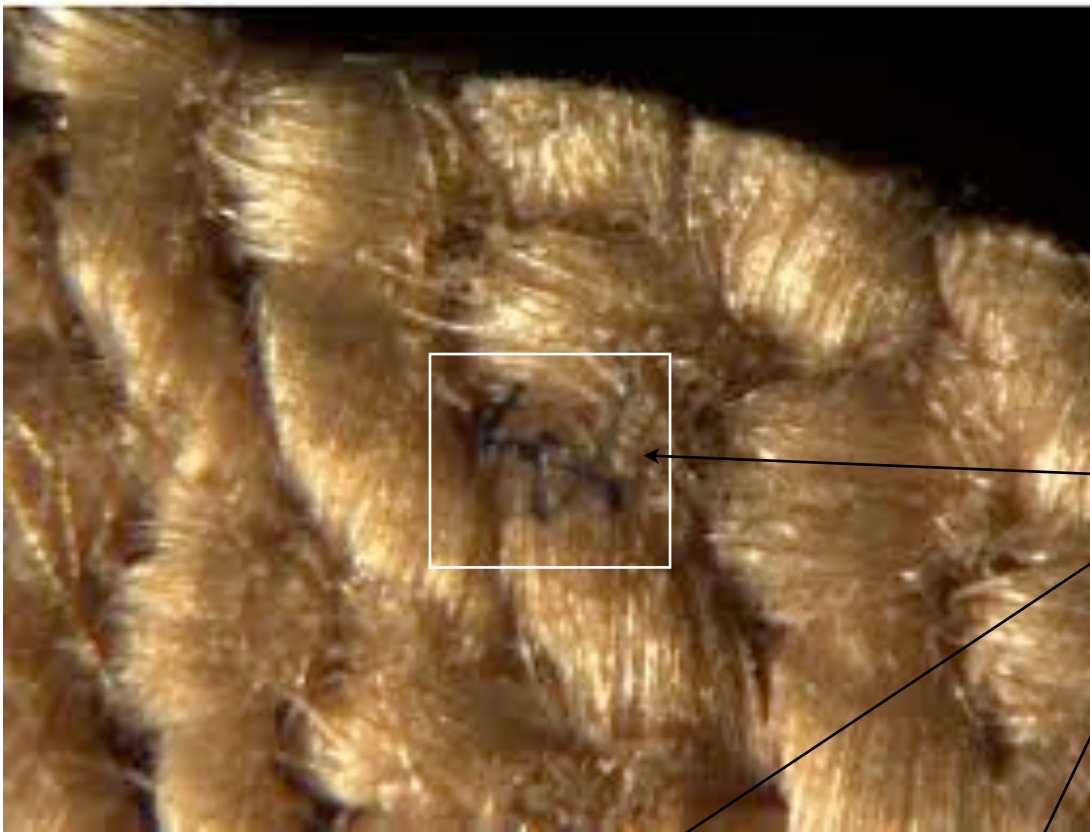


The black thread
Pam Moon © October 5th 2014

Donna Campbell identified the small black thread on the Oxford sample of the Shroud of Turin: 'Since it doesn't seem to be woven into the fabric, its function could have been for stitching.' *Consideration to the Uniformity and Effects of the Fabric in the Shroud of Turin*.

The black thread is also seen on the Arizona sample (left) Professor Timothy Jull and Rachel Freer-Waters 2008 *Investigating a Dated piece of the Shroud of Turin*, Radiocarbon, 52, 2010. It appears blueish in the Barrie Schwartz 2012 images: *Report on the STERA, Inc. - University of Arizona Radiocarbon Dating Laboratory Macro Photography - 30 August 2012*. The black thread is illustrated on the Oxford samples below Professor Christopher Ramsey 2014 (p2575_9; p2575_2; p2575_8). <https://archdams.arch.ox.ac.uk/?c=1203&k=1bcd90a8b>

Donna Campbell's research has opened up the line of enquiry for the following pages.

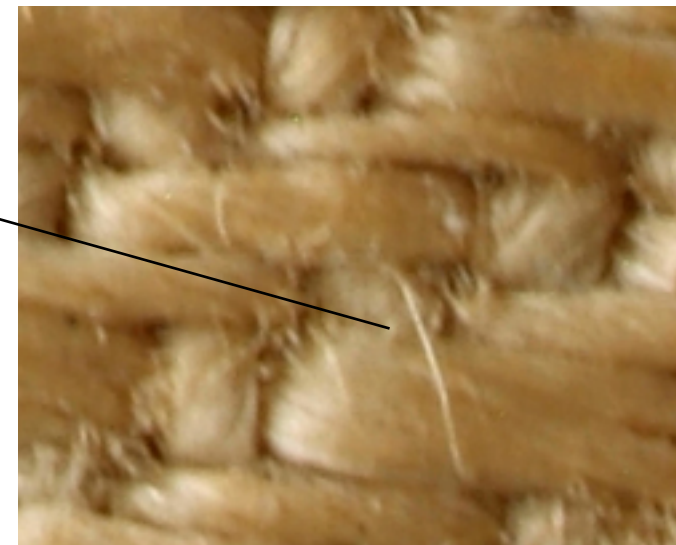


Arizona

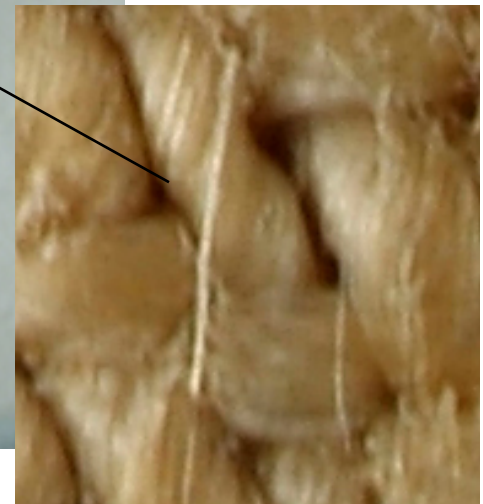
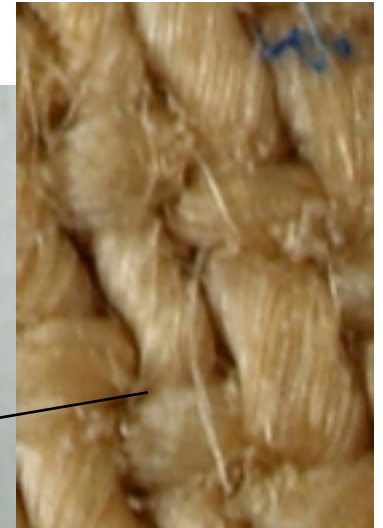
On the front face of the Arizona sample photographs taken by Barrie Schwartz available online: <http://www.shroud.com/pdfs/arizona.pdf> the thread in the detail below right may be too large to be a Shroud fibre. An large Oxford black thread is shown for comparison trying to create the same magnification (six yarns by three yarns).



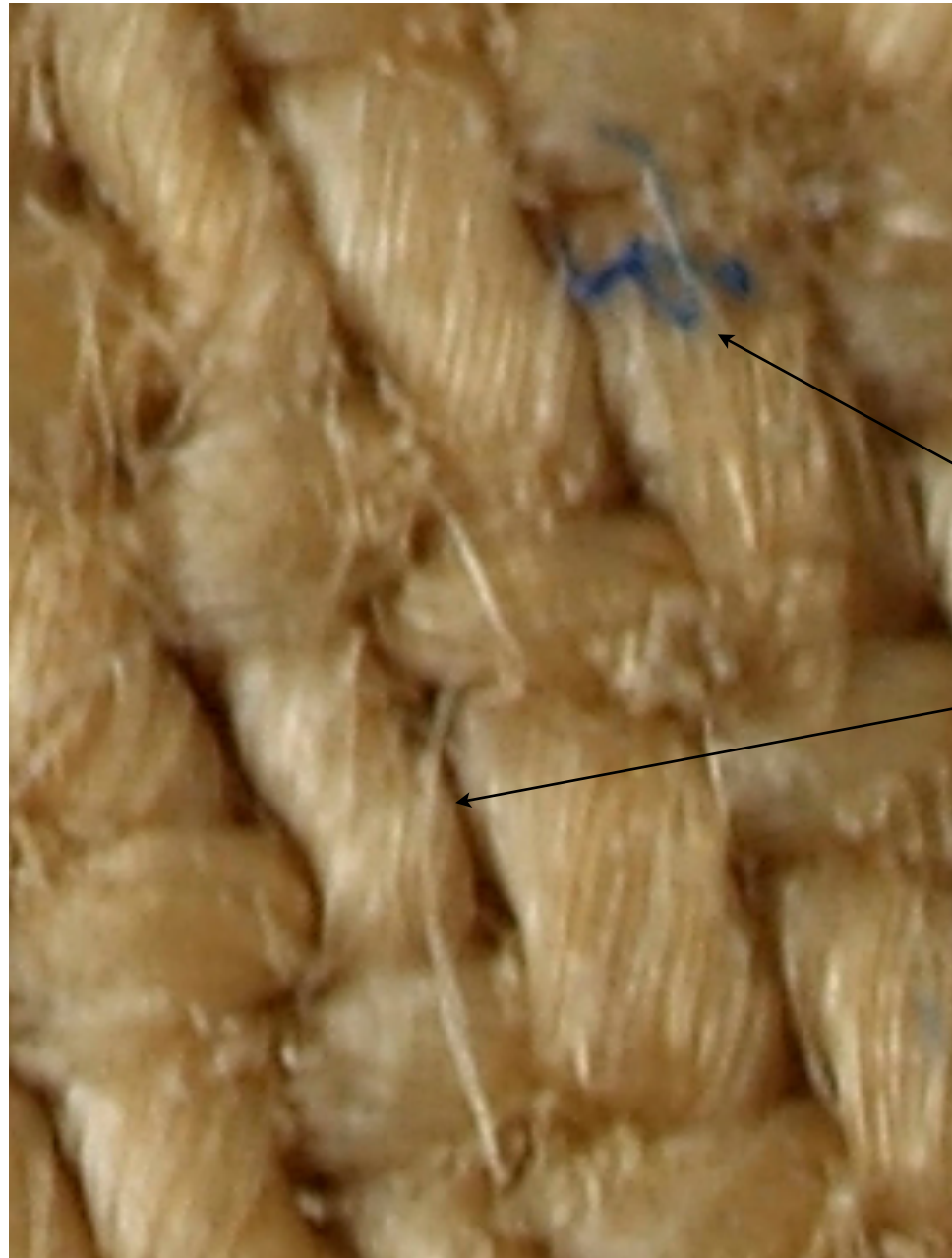
Shroud images ©1978 Barrie M. Schwartz
Collection, STERA, Inc.



The reverse of the Arizona sample appears to show threads which may be too large to be Shroud fibres.



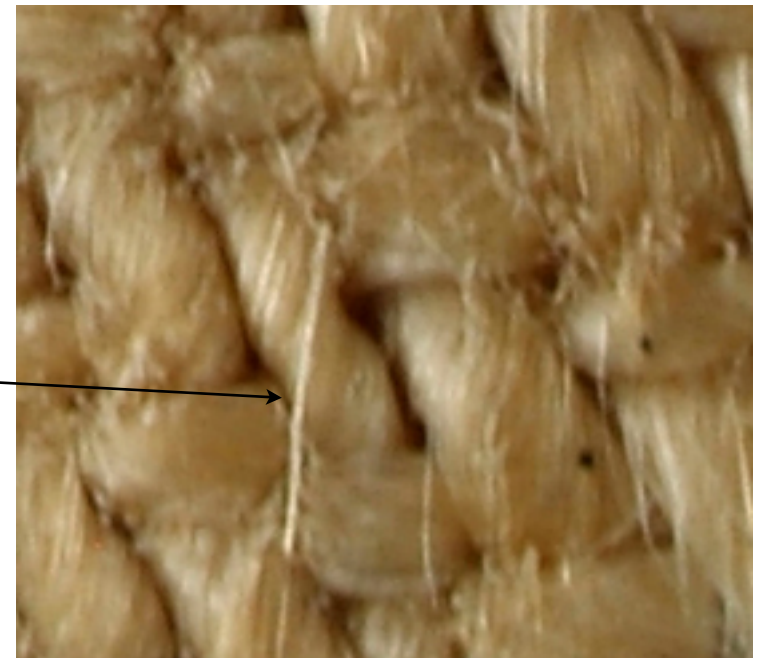
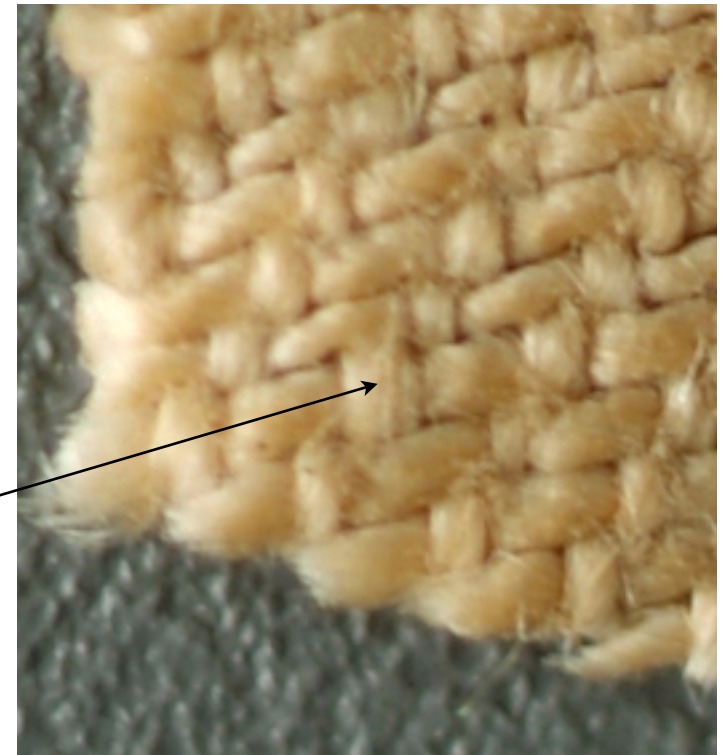
In the detail the large black/ blue thread has a similar or slightly smaller diameter to the flax coloured thread close to it.



The rotating thread/fibre.

The thread marked with the arrow right looks large in comparison to the yarn it covers. It runs vertical to the sample as it is shown right (Fig 1).

By Fig 2 that thread has become dislodged and alters orientation by $90.^{\circ}$

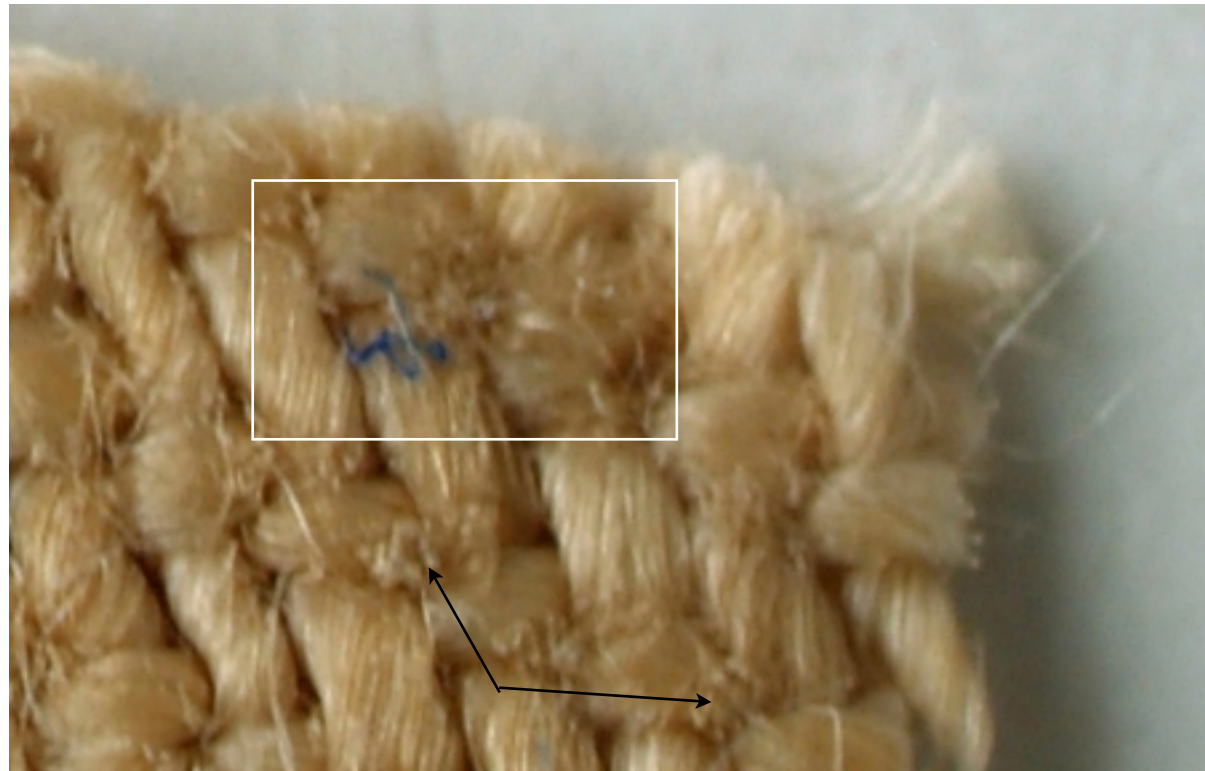


Conclusion

There is evidence of black threads visible on both the Oxford and Arizona samples. It is possible that there is also evidence for flax coloured threads. These threads are not original to the Shroud weave.

The presence of stitching threads raises various questions:

1. How extensive are they? They can possibly be seen front and back but how many hidden threads run through the samples?
2. When were they sewn into the samples? Are they 16th/19th/20th century?
3. Why are they present? Do they stabilize the Shroud yarns and if so why did the Shroud need stabilizing? Was it unwoven at some point?
4. Finally there are many areas where the Shroud fibres appear fuzzy (below) and where there are large numbers of broken threads (see arrows). What processes did the Shroud undergo before it was stitched? Cotton fibres have been documented (for example: *Investigating a Dated piece of the Shroud of Turin*) but how many additional flax fibres were added in the sample by the repair? They would be impossible to detect.



With thanks to Barrie Schwartz, Professor Timothy Jull and Rachel Freer-Waters, Professor Christopher Ramsey, Donna Campbell and Thomas Ferguson Irish Linen.