

# **Behind the Scenes of a New Smithsonian Channel Shroud Documentary**

By

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I think I should first remind everyone that this is a television program we are talking about and not a scientific paper or journal article. As I have said countless times before in articles and editorials, a television documentary is not the best place to obtain accurate Shroud information. Documentaries must first be entertaining or networks will reject them. Many directors on many documentary shoots have said to me, "Let's not get too technical!" You also have to remember that many hours of footage were made during course of the production before it was edited into the 44 minute program you now see. Getting the full story (and getting it right) in an entertaining 44 minutes is not an easy task, and the resulting program will not only reflect these legitimate time restraints but also any biases (or lack of understanding) on the part of the producers, writers, director and editor. They are neither scientists nor sindonologists themselves nor do they have a vested interest in the Shroud. They spend the time to do their research, write a script, produce a professional quality program and then move on. By their nature, documentaries can only, at best, give us a tiny glimpse into what is truly a complex topic. You try to explain the Shroud to someone in less than an hour! This article will give you a behind-the-scenes look at the events that took place over the two days in which I participated in the taping of this program and my personal assessment of the results and conclusions that were reached.

In March of 2012 I received an e-mail from a representative of Blink Films in London who explained they were developing a new Shroud documentary for the Smithsonian Channel here in the U.S. and for the Discovery Channel and BBC Worldwide. He stated that he wrote to me because "two recent studies (one discovering new writing and another supposing the outline of a Roman nail in the image) both used photographs that were provided by you." That was my first clue that we might be discussing the work of Barbara Frale.

After several long distance phone conversations, and because they stated they would be taking a strictly scientific view of the Shroud (perhaps allowing us to get a little "too technical" for a change), I responded that I would be interested in participating. In May 2012 I was contacted by the associate producer of the program. He explained that they would like me to come to England and take part in the evaluation of the Maillard reaction theory in an experiment they had designed at a forensic anthropology laboratory using porcine specimens (pigs). He never gave me any details or asked for any input in the design of the experiment, nor did he mention the participation of Luigi Garlaschelli or Nicholas Allen or Barbara Frale. Frankly, that is quite typical of most production companies, who keep the details of their programs close to their vest, even from the participants. That's probably even more the case when the participants are expressing opposing points of view on a controversial topic like the Shroud. So I agreed to take part and arrived in London at 6:55am on July 12, 2012 (just a week before the start of the Summer Olympics).

After a brief rest and a meal (but no sleep), I was taken to the beautiful Crypt on the Green under the old (1792) St. James Clerkenwell Anglican Church in London. The old converted crypt in the basement is now used as a meeting hall for local events and as a studio for some film and video shoots, and was where the on-camera interview with me would be conducted. The questions they asked began to give me a clue as to the direction the program would take. They asked me about the work of Luigi Garlaschelli and what I thought of his results. They asked about the proto-photography theory of Nicholas Allen. They asked about the supposed inscriptions and "death certificate" claimed by Barbara Frale.

When the camera rolls and they ask you a question, you can't stop to consult your notes or check a web reference before answering. You must extemporaneously state the answer in a brief, concise and articulate manner. You simply do the best you can do and have to leave it at that, hoping the editor will be kind when he selects your sound bites. And this was all the more complicated by a lack of sleep and a trans-Atlantic airplane ride just a few hours behind me. Still, I spent three hours answering their many questions before we packed up and left rainy London for the three hour drive to the Salisbury Plain (famous for Stonehenge) and the town of Swindon, where the next part of the program would be taped.

Early the next morning, after my first good night's sleep in several days, we drove to a Ministry of Defense military installation in Shrivenham that housed the Cranfield Forensic Institute, where we met with Dr. Anna Williams, a Ph.D. forensic anthropologist and the director of the laboratory. She had agreed to help in the experiment by preparing and handling the porcine specimens and allowing the producers to tape the sequences at her facility. England has very strict rules about using animals for experiments outside of specially authorized facilities so this was one of the few places the experiment could be performed.

The first thing we taped that morning was in the outdoor area of the facility where two dead pigs had been placed, partially exposed to the elements, with the linen cloth samples draped over their sides. They were laid on the bare ground in a wood frame shed that was covered with a thin plastic film, but had open sides. It had been raining off and on for several days and the ground was soft and muddy and the humidity was quite high. There was also a steady breeze blowing which would seriously impact any type of gas diffusion and I immediately realized that this test was



completely inappropriate for comparison with the Shroud, since the body it had covered had been placed in a dry, sealed tomb. At that moment I had my first doubts that we would get any results at all. (Above: Dr. Anna Williams, her assistant and several crew members prepare to tape the decomposing pig sequences).

The program producer explained that the linen had been made by a British textile expert following the ancient method of retting and manufacturing. He provided no further details and I never met the textile expert herself. After it was woven, half the material had been treated with *saponaria officinalis* or soapwort (based on the analysis of Ray Rogers in his proposed Maillard reaction theory) and the other half left untreated.

Dr. Williams explained that the covered pigs had now been lying outside for nearly two weeks but that some linen samples had been removed from them after three days. By the time I arrived, the two specimens were severely decomposed, covered with maggots and black beetles and exuding the terrible odor of decomposition. The remaining linen draped over the pigs was completely soaked through with bodily fluids from the corpses and I immediately informed the producers that those samples would not be valid for comparison with the Shroud, since the Shroud linen shows no signs of liquid decomposition. That left only the linen samples that had been removed after three days as viable samples to test.

After taping the exterior scenes around the pigs, we went back to Dr. William's laboratory to examine the three-day linen samples she had removed earlier. I was very pleased when the director told me the first test we would perform on the samples was a repeat of Rogers' ammonia experiment, in which a drop of ammonia is placed on both *saponaria* treated and untreated linen samples. The ammonia evaporated and disappeared from the untreated sample, leaving no stain or mark. The test on the *saponaria* treated sample resulted in a yellow stain where the ammonia drop was placed, which remained permanently visible after the sample had dried, corroborating Rogers' observations exactly. This experiment was well documented in the program. Remember that an important part of the scientific method is repeatability, so I was encouraged by these results.

Next we examined the three-day porcine samples for any staining or images. These were cut into approximately 12" x 18" pieces, but there was no indication of where on the pigs the linen had lain. Remember that I was not present when these were put in place or removed. However, from watching the program, it appears these were placed on the flank of the pig. Unfortunately, there are no



prominent features in that area of the pig's anatomy that might create any kind of image on the linen. Obviously, it would have been ideal to place the linen over the pig's face and snout where more complex physical contours exist. For that, and the other reasons already stated, I understood from the outset that we were unlikely to see any imaging taking place on these samples.

All that remained was for us to examine the treated linen samples to determine if there was any type of staining or discolorations on the surface fibers. Fortunately, there was a nice microscope and computer system in the lab that I was permitted to use to examine the samples. I set up the scope and Dr. Williams and I spent some time looking at the samples on the computer screen (and grabbing digital frames for the producers to use in the program itself). It was quickly apparent that some of the outer fibers of the saponaria treated samples showed a yellow surface discoloration, consistent with the Mark Evans photomicrographs of the Shroud made in 1978. The untreated samples did not. This was not just my opinion, but that of Dr. Williams herself. Sadly, none of her comments (which were all videotaped) made it into the final edited version. Truthfully, at the time I was quite pleased that she immediately saw and identified the discoloration and was looking forward to seeing her comments included in the program. I was disappointed to find them absent, because I didn't want the program to give the impression that it was only me that could see the results. We all did.

After making these observations, we all agreed that we could conclude a Maillard reaction prompted by a decomposing body could indeed cause such a discoloration effect on saponaria treated linen. Although we didn't create an image, we certainly could see the surface coloration on the linen fibers. I thought at that point we were finished, but then the producers popped their next surprise on me.

They brought out several wrapped packages, opened them up and showed me some image samples on linen that had been provided to them by Nicholas Allen and Luigi Garlaschelli, each representing their own individual techniques for "duplicating" the Shroud's image. Frankly, to my reasonably well-trained eye, neither looked anything like the actual image on the Shroud. I have been fortunate to see the actual cloth on four different occasions in my lifetime and of course, in 1978, I photographed it and studied it up close and personal for five days and nights. You become pretty familiar with an image after studying it for 35 years!

The only legitimate and scientific comparison I could make of these samples was with the microscope, so I subjected them to the same examination I had given the porcine sample. Using the same magnification and lighting, we started with the Garlaschelli sample and it only took a few seconds to see the dramatic differences between his results and the image on the Shroud. The fibers in his results were stained dark brown and red and the stains had a shiny, metallic-like reflective quality and covered more than just the surface of the fibers. Dr. Williams commented immediately that this was dramatically different than the Shroud image and we all agreed. Once again we grabbed frames for the producer's use in the program. Sadly, they did not allow me to keep a set of the photomicrographs we took, since they apparently would have needed written approval in advance from both Allen and Garlaschelli.

Next we examined Nicholas Allen's sample. We could clearly see a difference between the Shroud image and his results, which covered more than the surface of the fibers and permeated deep into the weave of the fabric, but were more yellow in color and more subtle and less defined than Garlaschelli's results. Again Dr. Williams stated she could see a difference and once again, we all agreed. When we

completed this final examination, the director called, "It's a wrap" and that was it. My involvement in the program was over.

After loading all the equipment into our vehicles, we made the 3 hour drive back to London, where I was dropped off at a hotel not far from Heathrow airport. The following morning I was on a plane back to the U.S. and had no further contact with the producers, other than to provide them with the still images from our collections that they had chosen to use in their program. Ironically, the program aired in Australia around Easter time and more recently in the U.K., but I didn't see the finished program until just last week, on May 16, 2013, when I received a DVD copy in the mail from Blink Films. The program has yet to air in the U.S. (as far as I know).

So, in the end, what did it all accomplish? Did we *prove anything*? The Maillard reaction experiment was not properly carried out to test for image formation, due to the incorrect environment in which the pigs were placed and perhaps, the manufacture, treatment and placement of the linen samples themselves. Consequently, there was no way to fairly compare the Maillard results with Allen and Garlaschelli's finished images, except under the microscope. That is not really a very comprehensive comparison in my opinion, but the only one that was available to me.

Had I known in advance that was their plan, I could have easily provided a set of guidelines that might have helped them better design their experiment. However, with their limited time and budget and the restrictions in England on doing animal experiments, that might not have been possible anyway.

One particular frustration I personally had with the program was that the proto-photography theory was even brought up again. I believed it had been put to rest years ago and could easily have provided the producers with my 2000 article, [Is the Shroud of Turin a Medieval Photograph?](#) I definitely would have recommended a detailed comparison of Allen's camera obscura results directly to the global image on the Shroud itself to see the dramatic and obvious differences. If the overall results are not consistent with the Shroud's actual image properties, then microscopic comparison becomes irrelevant.

Just because the raw materials existed in medieval times that might have allowed for the creation of such a photographic image, doesn't mean that the state of human knowledge had advanced far enough at that time for someone to actually do so. We know that silicon existed in the medieval era, but no one at that time had the knowledge to turn it into computer chips! And not one bit of silver was found on the Shroud using sophisticated and sensitive spectral analyses. STURP certainly would have found some traces of silver had the entire Shroud ever been coated with a silver based light sensitive emulsion. Of course, I had no advance warning that we would be dealing with Allen or Garlaschelli's work. This was not really a scientific endeavor after all, but rather, the making of a science oriented television program.

Yet the program was still able to accomplish two things that I consider to be of some value. First, we were able to repeat Rogers' ammonia experiment and ultimately obtained the exact same results. Repeatability is important in science. We were also able to demonstrate that saponaria treated linen

*could* be affected by the amines coming from a decomposing body and the surface fibers of the linen *could* be discolored in a manner similar to the image on the Shroud. That at least, is a small step forward in exploring the image formation mechanism of the Shroud and not a bad contribution for a television documentary. Whether or not this mechanism can create a coherent image like that on the Shroud however, still remains unresolved.

As always, in the end it will be the viewers who will have to decide for themselves whether the program is interesting and whether or not it helps them better understand the Shroud. If nothing else, it certainly demonstrates that understanding and duplicating the chemical and physical properties of the image on the Shroud of Turin is not an easy task. But I certainly don't believe the program actually *proves* anything. Like somebody once said, "That's entertainment!"

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