

## **ADDENDUM TO Chronological History of the Evidence for the Anomalous Nature of the C-14 Sample Area of the Shroud of Turin**

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Link to Original Article: <http://www.shroud.com/pdfs/chronology.pdf>

**Entry: #1**

**Date: 1978**

**Data Category:** General possibility of repairs and C-14 aspects

**Evidence:** Dr. Walter McCrone, the microscopist who believed the Shroud had been produced by an artist, discussed carbon dating the Shroud with Harry Gove, the inventor of the AMS method that was eventually used on the Shroud. According to Gove, McCrone “mentioned that the two pieces removed in 1973 came from the hem of the shroud *and thus might be of more recent vintage* (italics added).” He proposed to get some threads closer to the image. He did not reveal how he planned to do this.”

**Source:** Gove’s book: Relic, Icon or Hoax: Carbon Dating the Turin Shroud (Bristol and Philadelphia: Institute of Physics Publishing, 1996, pg. 22).

**Comments:** Although McCrone later accepted outright the results of the 1988 testing because it supposedly proved his theory about an artist having produced the Shroud, it’s interesting that even he, and at a relatively early date, believed that the area from which the sample was actually taken, might have contained repairs. McCrone was chastised by some for trying to deal directly with King Umberto of Italy, who owned the Shroud before bequeathing it to The Vatican at his death in 1983, instead of going through the appropriate channels (for example, see Kenneth Stevenson and Gary Habermas’ The Shroud and the Controversy, Nashville: Thomas Nelson Publishers, 1990, pp. 46-47). Gove discusses throughout his book many of the political and personal issues pertaining to McCrone’s involvement in the Shroud.

**Entry: #2**

**Date: 1984**

**Data Category:** C-14 aspects

**Evidence:** STURP submitted to the Turin authorities 26 proposals for testing, one of which would be the C-14 test.

**Source:** Gove’s book: Relic, Icon or Hoax: Carbon Dating the Turin Shroud (Bristol and Philadelphia: Institute of Physics Publishing, 1996, various pages; see for example pp.164-165).

**Comments:** Gove was of the opinion that only the C-14 testing should be done, using the logic that the other 25 tests proposed by STURP would be affected if the Shroud was only 600 years old as opposed to 2,000 years old. Although that doesn’t necessarily follow, Gove was able to help persuade the Turin authorities that the C-14 test in isolation would be better. This was ironic, since ultimately Gove’s lab was not included among the three selected to perform the C-

14 tests. Given the current controversy about the C-14 results, there's no doubt that the other 25 tests would have been able to provide some much-needed answers, not only about the C-14 question, but other aspects as well. One sentence by Gove describing STURP's 26 point proposal is telling regarding his feelings about STURP: "Adler then described the magnitude of the *attack* (italics added) STURP wished to launch on the shroud—there would probably be four or five 'conservation textile people' involved—in addition to many other experts and observers." One can only wish that STURP, which had more experience with the Shroud than any other group, could have performed all of its proposed tests.

**Entry: #3**

**Date: 1985-1986**

**Data Category: C-14 aspects**

**Evidence:** Authors Kersten & Gruber write,

"In 1982 the STURP members formed a committee to deal with the possibility of a C-14 dating test. They were of course spurred on by the fruitful results of the investigations of 1978. Dinegar led the committee. Including Gove there were six institutions specializing in the dating of minute samples which were interested in the enterprise: Rochester, Tucson, Oxford and Zurich, all working with the AMS technique, and Brookhaven and Harwell, which favoured the gas counter technique. Under the supervision of the British Museum, the feasibility of a dating experiment on the Shroud by the six laboratories was to be examined. The directors of the institutions all agreed that no single laboratory should be allowed to perform the dating test, and that a variety of techniques should be used. Then the laboratories were each given two cloth samples of about 100 mg, without being told their age; one was Egyptian from 3000 BC and one Peruvian from AD 1200. The Zurich institute was 1000 years off the mark, because the cloth was not cleaned properly. This showed how critically dirt and other contamination can influence a reliable dating test. All the laboratories gave far too recent a date for the Peruvian sample. Without any explanation it was just swapped for another one.

These preparations for a 'water-tight' determination of the age of the Turin cloth were not exactly encouraging. The dating results of the six laboratories for this 'test run' were announced in June 1985, at the 12<sup>th</sup> International Radiocarbon Conference Dating in the Norwegian town of Trondheim.

In the meantime the STURP members worked out an extensive research programme. A total of twenty-six researchers was proposed, to obtain definite answers to eighty-five crucial lines of inquiry. Besides the C-14 dating a diverse range of physical, chemical, optical and other valuable experiments was offered. The race to the best start positions for a new analysis of the linen began. Everyone wanted to take part. Many different interests were involved. There were some who wanted nothing to do with a radiocarbon dating test: hardened sceptics pointed out that some 20 per cent of the entire material consisted of biologically foreign matter, which could influence the sensitive dating result considerably. The STURP researchers intended the dating to be just *one part* of their comprehensive, interdisciplinary analysis. Yet other researchers wanted just the C-14 test, and this at any price.

The tug-of-war began. Sox (H. David Sox, an American Anglican priest, the author of several Shroud books who had been involved in helping persuade the Vatican to agree to radiocarbon dating the Shroud) calumnied the STURP researchers as 'militarily organized religious fanatics'. In fact they were respectable scientists of the most diverse convictions, even numbering some agnostics. But it was no longer a case of fair treatment or balanced argument. Here motives were at play which were not always transparent, and all too often revealed their less noble origins. At the Trondheim congress Gove spoke the lines fed to him by Sox, proposing that the STURP

group be entirely excluded. The six laboratories agreed. Perhaps the STURP people seemed suspect to them. After all, they had already laid out a whole range of results that spoke for the authenticity of the cloth. Could preconceived judgments have been at play in this phase of the decision-making, which found a cloth in which Jesus lay unacceptable for science? It is difficult to understand. The STURP researchers carried out their investigations in a perfectly neutral manner and based their judgments on the facts. Science itself does not doubt the historicity of Jesus. So there should be no need for mental dislocation before being able to accept an object that was connected with him. After all, it was not a question of some paranormal object, things occult or even a miracle, with which science as we know currently has its problems. On closer inspection the decision of the radiocarbon lobby against the collaboration of STURP seems to be based on professional vanity.

While at Trondheim the representatives of the six laboratories drafted a protocol, which was accepted by all:

1. The British Museum would assume the coordinating role in the investigation, and act as 'guarantor' for a correct performance.
2. STURP members could cut the specimens from the cloth, so that they would not feel completely excluded.
3. The British Museum would provide two control specimens from cloths of known age. All three specimens, including those of the Shroud, were to be unravelled, so that they could no longer be identified.
4. The British Museum would receive a written assurance from the laboratories that they would inform no one of the results except those authorized by the Museum.
5. The laboratories could use the methods they considered best for preparing the samples, but were to keep a precise record of all the details.
6. The results were to be communicated to the Holy See before publication.

Dinegar of STURP, who was present in Trondheim, insisted that the radiocarbon dating should only be done after the analysis of the fibre components proposed by the STURP researchers Heller and Adler. The C-14 specialists threw out his suggestion, claiming that any further examination would be absurd as long as the age of the cloth was not settled. Obviously the STURP people were to be portrayed as fantasizers and undermined. Sox was even angry that they were allowed to be present at the sampling, while Gove declared in a polemical speech that he would abandon everything if STURP had any role other than the one allotted. At least now it was clear where the lines were drawn. Nothing remained of the team spirit for which scientists are often praised, nor of their dedication to the pursuit of knowledge, or the search for a variety of techniques to do justice to a complex problem. At Trondheim the declaration of war was on the table.

The next stage was the involvement of the Pontifical Academy of Sciences. It is not clear who approached the scientific experts of the Vatican, but their involvement is only logical when one considers that after Umberto's death in 1983 the relic passed into the hands of the Vatican. What is strange is the unconvincing role that their president, Prof Carlos Chagas, was to play. The Vatican agreed to a conference between the Academy and the scientists who were interested in the dating test. Chagas was to organize it. Strangely enough he delegated this task not to a member of the Academy, but to Vittorio Canuto, an astrophysicist at the NASA Institute for Space Studies in New York, who was his private adviser. Together they decided against the STURP proposals and in favour of the Trondheim protocol.

At this point one has to ask what possible motives could have lain behind this. STURP members had already presented a lot of excellent research, their dedication and their thorough command of the subject matter were known. Their own proposals included a C-14 dating test as part of a more comprehensive project, and this would certainly have increased the significance of

the individual experiment. As far as the Turin cloth was concerned, Gove and the radiocarbon specialists were considered to be complete amateurs. Most of them did not even know the general facts about its history and the research already done. The 'test run' under the watchful eye of the British Museum had turned out to be a disastrous farce, leading one to expect any number of problems, and the behaviour of the researchers themselves had so far been marked by pride and conceit.

The developments over the ensuing period were accordingly muddled. In spring 1986 Canuto committed the indiscretion of passing Gove a confidential letter from Prof Luigi Gonella, the scientific adviser to Turin's Cardinal Ballestrero. Gove passed it to his friend Sox, who actually published it. In this letter Gonella accused Gove of trying to secure research funds for his institute in Rochester from the National Science Foundation, the largest science funding trust in the USA, by posing as the director of the six laboratories. In the midst of these intrigues Dinegar announced to Gove that the Vatican Secretary and the Pontifical Academy of Sciences had accepted the STURP project! To complete the confusion, on 13 April an article by the journalist Peter Jennings appeared in Britain claiming that Chagas had personally spoken out against a radiocarbon test. After the diplomatic tug-of-war between the parties, probably themselves not knowing by now who was on who's side, the conference of carbon experts --the conclave of the carbonists --took place in late September 1986. Representatives from the six radiocarbon laboratories and other scientists, including some from STURP, took part. But no one was invited from the Turin Centro Internazionale di Sindonologia, the largest association of sindonologists.

While Gonella continued to insist that the taking of specimens should be integrated with the whole STURP programme, Gove was adamant. The carbon test could not be postponed any longer, and any further undertaking would just delay things. The representatives of the institutions pointed out that the test should be a so-called blind test. In a blind test the researchers do not know which piece is the actual test object and which samples are control specimens. In this way conscious or unconscious manipulation, or prejudicial treatment of the different specimens, was to be prevented. Gonella made it clear that it was not Turin but the laboratories which were insisting on a blind test, 'so they would feel protected from the press'.

After three days the participants came to the agreement that seven institutions should be involved in the dating, with five using the AMS technique and two using the other methods. The British Museum was to supply a control sample. Original cloth and control samples were to be handed over to the individual laboratories after being unthreaded so as to be unrecognizable. Three institutions were to assume the supervision: the Pontifical Academy of Sciences, the British Museum and the Archiepiscopal Ordinariat of Turin. At a certain date after the examination all the laboratories were to pass on the data from their experimental results to three institutions for statistical analysis: the Pontifical Academy of Sciences, the British Museum and the Istituto di Metrologia G. Colonnetti (IMGC) in Turin. In this way stringent scientific criteria were to be ensured, guaranteeing the credibility of the enterprise.

These proposals appear to have been well thought out, although the additional STURP projects were still not out of the way. But the C-14 lobby had won priority for themselves."

**Source:** Kersten, Holger and Gruber, Elmar R. The Jesus Conspiracy: The Turin Shroud And The Truth About The Resurrection (Rockport, MA: Element, 1994, pp. 39-43).

**Comments:** Perhaps the best summary of Kersten and Gruber's description of these Shroud activities is their phrase that "the behaviour of the researchers themselves had so far been marked by pride and conceit." All too often it appears that Shroud research has been set back by the

inability of some of the participants to put aside petty concerns and focus on the scientific method.

**Entry: #4**

**Date: 1985-1986**

**Data Category: C-14 aspects**

**Evidence:** Meacham writes, "During 1985 and early 1986 I had a lengthy correspondence with Gonella over the possible pitfalls of C-14 dating, amplifying on the concerns in my earlier paper on the subject.

**Source:** Meacham's book: The Rape of the Turin Shroud: How Christianity's most precious relic was wrongly condemned and violated (Lulu.com, 2005, pp. 68-69).

**Comments:** Meacham comments, "In this correspondence with Gonella, I continued to hammer the issue of sampling strategy and possible contamination. I pointed out that the edges are anomalous in my view because they were much more subject to handling, in more intimate contact with wooden boards when the Shroud was mounted, and may have been treated to prevent or repair unraveling." But I thought a sample from the edge could still be used, as long as it was not the only one: "The sampling strategy that I would hope for would aim at four distinct areas -the charred cloth, the adjacent uncharred cloth, an edge sample (the size of Raes', for CO2 proportional counting), and a thread sample (the size of Baima's, for AMS)" (Baima Bollone of the Centro Internazionale Di Sindonologia in Turin). In comparing to these other samples previously removed, I hoped to soften his opposition to "punching holes all over the cloth" as he put it once. But I sensed that the correspondence was not actually sinking in. In one of his replies he asked me what part of the Shroud I thought would not be affected by the forms of contamination I had enumerated; in another he stated that such concerns needed to be quantified, otherwise they would be merely speculative. He failed to understand that these concerns are normally dealt with by archaeologists and geologists **after** rogue dates have occurred. What was needed for the Shroud was an approach that minimized the likelihood of getting an aberrant date. He wondered 'why should the Shroud be considered any more likely to be contaminated than any other sample routinely dated by C-14?' I responded that the principal and very important difference is that the Shroud is unprovenanced, has been in so many different handling situations, in contact with so many diverse substances, subject to such extremes in temperature and humidity, unlike an object that has been buried in a stable matrix for several thousand years. And of course; another huge difference was that, unlike ordinary samples from an excavation, with the Shroud it would be very difficult to go back and collect more samples to study the problem once it had arisen. Ultimately, these same questions were discussed at the Turin meeting, and not entirely satisfactorily resolved. The pity is that Gonella involved himself so deeply in this matter and took charge at the final stage, committing a huge error in the choice of sampling site and the number of samples. At the higher level of responsibility is (Cardinal) Ballestrero, who delegated too much power to Gonella and failed to see the dangers in this. In retrospect, the decision to carbon date samples from only one region of the Shroud---a region so subject to handling and stress that it was an obvious candidate for earlier undocumented reweave/repairs---was a serious mistake.

**Entry: #5**

**Date: 1986**

**Data Category: C-14 aspects**

**Evidence:** Meacham's significant paper "Radiocarbon Measurement and the Age of the Turin Shroud: Possibilities and Uncertainties" is published (accessible at <http://www.shroud.com/meacham.htm>)

**Source:** Meacham's book: The Rape of the Turin Shroud: How Christianity's most precious relic was wrongly condemned and violated (Lulu.com, 2005, pg. 59).

**Comments:** Meacham comments in his book regarding the paper: "The point that I hoped to drive home is that there are many things that can go wrong with C-14 dating; for some the cause is unknown, while the others are grouped under the terms "rogue dates." It is important for anyone wishing to understand the normal archaeological use of C-14 to know that a single date or even a series of dates on a single object or feature is seldom if ever cited to answer important questions about the age of a culture or a site. To put a single radiocarbon date in the position of being the ultimate arbiter of the age of the Turin Shroud is a blatant departure from the way C-14 is normally used. There are simply too many pitfalls. This was not a position that went down well with the hotshots from the radiocarbon labs."

**Entry: #6**

**Date: 1986**

**Data Category:** General possibility of repairs and Possibility or direct evidence of invisible reweaving

**Evidence:** Discussing preparations for the 1986 planning meeting in Turin, Gove writes, "Tite felt there should be a textile expert present, if samples were to be taken, to make sure that we were getting a piece of cloth from the main body of the shroud on which the image was imprinted *and not a rewoven area or a patch*" (italics added).

**Source:** Gove's book: Relic, Icon or Hoax: Carbon Dating the Turin Shroud (Bristol and Philadelphia: Institute of Physics Publishing, 1996, pg. 90).

**Comments:** It's ironic that even with someone as significant as Tite cautioning against picking an area that might be rewoven, and even though a textile expert was present, the authorities ended up choosing an area that the evidence seems to be indicating was rewoven.

**Entry: #7**

**Date: 1987**

**Data Category:** C-14 aspects

**Evidence:** When changes were made to the original protocol for dating the Shroud, Gove wrote to Pope John Paul II: "The procedure that the Cardinal of Turin is suggesting is bound to produce a result that will be questioned in strictly scientific terms by many scientists around the world who will be very skeptical of the arbitrarily small statistical basis when it is well known that a better procedure was recommended. Since there is great world expectation for the date of

the Shroud, the publicity resulting from a scientifically dubious result will do great harm to the Church. We respectfully urge your Holiness to persuade the Cardinal of Turin that the scientific advice being given to him is not shared by the world experts in this field. He should be urged to see the advice of the eminent scientific organization expressly created to advise you, namely the Pontifical Academy of Sciences that enjoys the respect of the scientific world at large. Rather than following an ill advised procedure that will not generate a reliable date but will rather give rise to world controversy, we suggest that it would be better not to date the Shroud at all.”

**Source:** Gove’s book: Relic, Icon or Hoax: Carbon Dating the Turin Shroud (Bristol and Philadelphia: Institute of Physics Publishing, 1996, pg. 219).

**Comments:** As noted earlier, the Pontifical Academy of Sciences was not allowed to take part, despite its obvious status as a Vatican science resource. Controversy did ensue after the results were released and has not abated to this day.

**Entry:** #8

**Date:** 1987

**Data Category:** C-14 aspects

**Evidence:** Meacham writes, “I heard from several sources that the number of labs was going to be cut to three, and that STURP and other groups would not be allowed to run any of its planned testing until after the C-14 dates were announced. This was a sad state of affairs, as STURP was the main group studying the relic. Clearly Michael Tite of the British Museum was only in *the* picture as a referee of sorts; he would not be directly involved in the sample-taking or in the interpretation of the results. Sensing an opportunity for a small group to play a role in the project, I contacted two Italian archaeologists I knew --Roberto Ciarla and Maurizio Tosi--both of whom had worked in the Middle East. Together we formulated a proposal to be involved in the sampling and in the final interpretation of the results. Unfortunately Gonella did not take up this offer, and in the end chose his colleague Riggi, plus two textile experts who knew nothing about the Shroud, to assist in selecting the sampling site. This was a terrible decision on the part of Gonella, matched only by his equally appalling handling of the announcement of the results.”

**Source:** Meacham’s book: The Rape of the Turin Shroud: How Christianity’s most precious relic was wrongly condemned and violated (Lulu.com, 2005, pg. 83).

**Comments:** The shocking exclusion of STURP from the process---and failing even to ask STURP’s advice on a suitable C-14 sample Shroud location---were errors as serious as the decision to choose only one sample region for the carbon dating.

**Entry:** #9

**Date:** 1987

**Data Category:** C-14 aspects

**Evidence:** Cardinal Ballestrero wrote an official letter to all participants of the 1986 Turin conference and said, "... some participants in the Workshop ... stepped out of the radiocarbon field to oppose research in other fields, with implications for the freedom of research of other scientists and on our own programs for the Shroud conservation that asked for thorough deliberation. Besides, when the competent Authorities advised me they deemed we ought to proceed with three samples, a concerted initiative was taken to counter the decision, with the outcome of a telegram sent to H.E. the Cardinal Secretary of State and myself by some participants in the Workshop, a telegram where the meaning of my introductory words at the Workshop was heavily misinterpreted."

**Source:** Meacham's book: The Rape of the Turin Shroud: How Christianity's most precious relic was wrongly condemned and violated (Lulu.com, 2005, pg. 84).

**Comments:** Here Cardinal Ballestrero alludes to what Meacham calls the various "obstructionist maneuvers" that occurred during the Shroud C-14 dating planning process. See next entry for an elaboration from the point of view of authors Kersten & Gruber.

**Entry: #10**

**Date: 1987**

**Data Category:** C-14 aspects

**Evidence:** Kersten and Gruber write, "On 10 October 1987 Cardinal Ballestrero wrote to the seven laboratories and told them that he had received the go-ahead from the Holy See for the experiment. But now suddenly the procedure looked completely different. All that was left of the agreement made a year before was the role of the British Museum as procurer of control samples. The most interesting and certainly the most unexpected change was the total exclusion of the Pontifical Academy of Sciences. Chagas was now only to be admitted to the sampling as personal guest of Cardinal Ballestrero. There was not a word about precautions to prevent the specimens being swapped; and this even though this precise danger had been addressed in an article which appeared shortly before, which had excited a lot of attention--accusations, discussion and apologia--and must still have been fresh in the organizers' memory. No mention was made either of the Swiss textiles expert Flury-Lemberg, who was originally to have taken the specimen from the relic. Only Tite of the British Museum was left as guarantor of the correctness of the procedure. Neither the Pontifical Academy nor the IMGC would take part in the analysis of the final data. This too was to pass exclusively into the hands of Tite. Only three laboratories--Tuscon, Oxford and Zurich--were selected; a decision which had apparently been reached as far back as May. All three worked with the newer AMS technique.

Harry Gove, who had assumed the role of sole leader of the radiocarbon investigation, was furious. He fired off letters to the Pope, the journal *Nature* and the British Museum. His colleague Harbottle at the Brookhaven laboratory also aired his disappointment. They had both worked to develop the classical technique further as a method for small samples. The exclusion of the Harwell laboratory baffled the others, because it had the most experience of them all, and was renowned for the most precise datings. In their joint letter to the Pope, Gove and Harbottle classed this decision as scientifically short-sighted. The original Turin protocol with the seven laboratories would eradicate errors like those at the Zurich laboratory during the 'test run' .it would be better to do nothing at all, they added, rather than dare to go ahead with such a

truncated experiment. In another letter of protest Robert Otlet of the Harwell laboratory voiced the suspicion that someone in Italy wanted to obstruct the course of science. Reducing the number of laboratories to three would lead to a scientific catastrophe. 'It is,' he wrote, 'like ordering a bulldozer to run over an archaeological dig site before you had examined it.' The rumour spread that the Vatican had restricted the test to three laboratories in the hope of obtaining contradictory results. Gove accused the Archbishop of having a false advisor. He said Gonella was not qualified for the post, he was nothing but a 'second-class scientist'. Gonella countered that they were dealing with a real 'radiocarbon Mafia', who were seeking their own advantage."

**Source:** Kersten, Holger and Gruber, Elmar R. The Jesus Conspiracy: The Turin Shroud And The Truth About The Resurrection (Rockport, MA: Element, 1994, pp. 44-45).

**Comments:** Kersten & Gruber, add "One thing emerges from these reactions. The excluded parties felt deeply offended, and did not hesitate to speak out against these decisions, taken by anonymous backroom men at the Vatican, and to attack their 'adversary'."

**Entry: #11**

**Date: 1988**

**Data Category:** C-14 aspects

**Evidence:** Meacham writes, "Elsewhere Gove commented on STURP's desire to "characterize the sample" before it was dated by saying "whatever that means." **This** was the absolute nonsense! Clearly he had no concept of or interest in investigating the chemistry of a sample prior to running it through the standard pretreatment. The three selected labs were equally blinkered, they would conduct no research on where the sample should come from, and they planned to treat their prized Shroud fragment largely as they would any other archaeological specimen.

By March of 1988, a shroud of secrecy (so to speak) was drawn over all arrangements for dating. There were rumors, but hard information was lacking until late April when press reports confirmed that samples had been taken. The senior representatives of the three labs been summoned to Turin and were present as observers at the sample taking. They were called to the Cathedral at 4:30am and the operation began. A lively discussion ensued between Gonella and Riggi on the one hand and the two textile experts, Vial and Testore, on the other concerning where the sample should be taken. One of the textile men is said to have asked, on noting the dark stain on the chest [blood stain from the wound in the side], 'what's this?' Gonella and Riggi finally decided to cut a single strip approximately 1 cm wide by 8 cm long, weighing 300 mg., right next to the small cut that had been made in 1973 at the corner of the cloth to provide the textile expert Raes with a sample. The reason, as Gonella told Al Adler, was that "the Shroud was already cut there." Adler called this the worst possible reason. The sample was adjacent to a seam that joins the main body of the Shroud with the side strip, which seems to be of the same cloth but was attached by a stitched seam at some unknown time. This seam had to be trimmed away by Riggi before dividing the sample into equal segments to give each lab.

What is remarkable is how poor the planning and execution of this project was, despite all the brouhaha and the months of secretive preparations, in addition to the disastrous choice of sampling site and the disastrous decision to take only one sample. It is hard to imagine that, in all the months that had passed since the Turin conference, Gonella had not given due consideration to the location where material was to be removed, and that it was decided only after discussion on the very day of sampling. Riggi was brought in to do the cutting, although he had no

expertise in textiles. Riggi was also given the responsibility of video-taping the proceedings, a conflict of interest one could argue. He would later treat this video as his personal property, and charge the BBC a hefty sum for use of several segments in a documentary. What is even more amazing is that, after all the exhortations by Gonella that the amount of material removed from the relic had to be minimal, Riggi cut **double** what was actually going to be given to the three labs. He then cut the 300 rug strip in half and divided one half into three segments, the other half being retained as a "reserve piece." Presumably, if there were any discrepancies in the results obtained by the three labs, this reserve piece was going to be used for another run. Gove's constant harping on the possibility of lab error or statistical outlier must have registered with Gonella, so he came up with this precaution. My constant harping on the need for a minimum of two sample sites obviously did not sink in, nor did the distinct possibility, as plain as the nose on your face to anyone who has done archaeological dating, that if the first run gave discordant results a second run on the same sample would very probably produce similar results.

Unfortunately, Riggi failed to cut the half into three equal segments. The Arizona sample was only 40 mg, whereas the other two were approximately 50 mg. He then shaved about 10 mg from the reserve. Later, there were significant discrepancies between the weights of sample material made on the spot and by the labs. Even more mind-boggling is that Riggi was allowed to keep the seam trimmings, and to take sticky tape samples from another part of the Shroud with blood stain, and to run his vacuum over the Shroud in a zigzag pattern that he appears not to have planned in advance or plotted at the time. Riggi would later distribute the trimmings and the tape with blood-stained fibers to researchers in Texas, earning a stem rebuke from Ballestrero's successor. His involvement in this operation was a huge mistake on the part of Gonella.

In addition to Riggi's shenanigans, the labs were told the age of the historical known-age control pieces, a fact that rather diminished their value as controls. Paradoxically, the pretense of "blind testing" was maintained for the whole dating exercise, despite the fact that everyone knew that the Shroud weave was easily recognizable. Even if the samples were shredded the Shroud fiber could probably be identified by the labs, since there was so much technical data published by STURP. What happened next simply beggars belief: to maintain the pretense, Ballestrero and Tite took the samples into a private area, out of view of all the people in attendance and of the camera, and put them into vials labeled with numbers. These vials were then brought out and presented to the representatives of the three labs. This secrecy gave rise to the allegation, quite absurd on the face of it, that Tite had conducted some sleight of hand and switched the real Shroud samples with others of medieval age. There are still quite a few Europeans who believe to this day that the samples were substituted and the C-14 date that was later obtained is not from a piece of the Shroud. Loading the vials in private was a totally unnecessary and ridiculous procedure, another major error on Gonella's part.

Standing on the sidelines through the eventful proceedings of that morning were the lab directors: Hall, Hedges, Damon, Donahue and Woelfli. Their only apparent role was that of couriers --to await the delivery of the vials into their hands. No microscopic, physical or chemical examination was done on site, since these could of course be done back in the labs. What is surprising to learn is that, once they had brought the vials back to their respective labs, very little scrutiny of the sample was carried out. Not one lab photographed the samples they received properly, i.e. both sides and with a scale. The samples were examined under a microscope, and a few alien fibers picked out, but no lab reported anything suspicious, even though later a STURP chemist found that threads from the adjacent Raes sample had high levels of aluminum, a high occurrence of cotton fiber intermingled with the linen, some kind of coating or encrustation, a high degree of oxidation, and FTIR spectra markedly different from threads elsewhere on the Shroud. Certainly the labs were not in a position to know all the results of all previous investigations of the Shroud, but they could have consulted with STURP personnel, or they could have requested comparison fibers from other parts of the Shroud. The fact that they did neither indicates an over-confidence in their ability to date the samples through standard

procedures. It seems very likely that this was a huge mistake, and as Ray Rogers of STURP chemist remarked: 'there will be hell to pay when the truth comes out!'

**Source:** Meacham's book: The Rape of the Turin Shroud: How Christianity's most precious relic was wrongly condemned and violated (Lulu.com, 2005, pp. 89-92).

**Comments:** The decision to take the C-14 samples from the one region of the Shroud that "was already cut there," as Meacham writes Gonella told Adler, is unbelievable. There seems to have been no serious examination---before the sample removal---to choose an area of the Shroud that was indisputably original and had not been subjected to reweaving or restoration. Chemist Ray Rogers comment "There will be hell to pay when the truth comes out" will be proven correct if and when the *general public* is ever exposed to the whole truth.

**Entry: #12**

**Date: 1988**

**Data Category:** C-14 aspects

**Evidence:** Author Holger Kersten visited Belgian textile expert Gilbert Raes to discuss the C-14 dating. Kersten quotes Raes, "I cannot understand why representatives of the dating laboratories were present during the sampling in April. As I heard, everything was to be kept in strict secrecy, to avoid influencing the researchers. But the weave of the Turin Shroud is so characteristic that it can be recognized immediately. I think they should have taken the specimens apart to leave only the individual threads; then they really would have been unrecognizable. But as they were anyone could recognize the Shroud specimen at once. That is not a blind test! And then they probably talked among themselves too. If there were differences of 600-700 years, they had to harmonize the results so that the public was not suspicious. I am fairly sure they compared notes. Finally there is still the question why the four other laboratories from the seven originally selected were suddenly excluded! I find more and more reasons to make me doubt the correctness of this dating procedure. What makes me most suspicious is that the laboratories were in contact with each other. I personally do not believe that the cloth can be a forgery, for how could anyone in the Middle Ages have produced a perfect negative?"

**Source:** Kersten, Holger and Gruber, Elmar R. The Jesus Conspiracy: The Turin Shroud And The Truth About The Resurrection (Rockport, MA: Element, 1994, pg. 50).

**Comments:** Here is another opinion from a very qualified scientist that the results obtained from the Shroud C-14 dating are very questionable.

**Entry: #13**

**Date: 1988**

**Data Category:** C-14 aspects

**Evidence:** Meacham posed the following questions to the British Museum:

- 1.) Why did it acquiesce in the reduction of samples to be taken from seven to three, against the recommendations of the Turin Commission?

- 2.) Why did it agree to the elimination of the small counter laboratories, which employ a more reliable counting system?
- 3.) Why did it agree to only one sampling site, thereby raising the possibility of an anomalous zone being dated?
- 4.) Why did it agree to the sampling of a scorched area of the cloth, again in conflict with the recommendation of the Turin Commission?
- 5.) Did it approve the choice of a textile ‘expert’? And is it satisfied that his visual inspection of the sampled area is sufficient to rule out any possibility of a restoration/re-weaving of that area?
- 6.) Why did it not follow its own guidelines in the inter-comparison experiment and insist that samples be taken well away from selvages? Or is 2-3 cm. considered to be ‘well-away’?

**Source:** Meacham’s book: The Rape of the Turin Shroud: How Christianity’s most precious relic was wrongly condemned and violated (Lulu.com, 2005, pp. 95-96).

**Comments:** Meacham concluded his letter to the British Museum by saying, “Clearly the full weight of the Museum’s expertise was not brought to bear on the project and its involvement does not add any credibility to the results.” Given the events of the past 20 years, Meacham appears to have been very accurate of his assessment. We do not believe the British Museum’s reputation has been enhanced by its role in the C-14 dating of the Shroud.

**Entry: #14**

**Date: 1988**

**Data Category:** C-14 aspects

**Evidence:** Gove writes: Rinaldi had told me that Ian Wilson, author of the most authoritative and, in some ways, the most fanciful, book on the Turin Shroud, was opposed to the use of only three labs and he might have some influence with Gonella, so I phone Wilson on Monday 11 January 1988. He said he had spoken to Gonella and had raised the question of there being no representatives of the small-counter labs involved in the dating. He tried to persuade Luigi to include the small-counter labs—specifically Otlet’s. Gonella told him that no more than three samples could be taken from the shroud. Wilson said that Hall (Edward “Teddy” Hall of Oxford, now deceased) was certainly going to agree to do it. The publicity he would receive from dating the shroud would be too tempting for Hall to resist...”

**Source:** Gove’s book: Relic, Icon or Hoax: Carbon Dating the Turin Shroud (Bristol and Philadelphia: Institute of Physics Publishing, 1996, pg. 229).

**Comments:** Hall’s motivation was not an isolated incident in the C-14 situation. See for example, entries 15, 16 and 17 that follow.

**Entry: #15**

**Date: 1988**

**Data Category:** C-14 aspects

**Evidence:** Gove writes: "...Damon returned my call. He said he would be in London on Wednesday 20 January and that Donahue would arrive the next day. He said that they would make demands of Gonella that would make the whole affair workable. I, of course, had continued to hope that perhaps at least Arizona would decide not to go along with Gonella's dictate but it was pretty clear from talking to Damon that they were going to proceed. I knew Damon to be a person of considerable rectitude and decency. Apparently the lure of dating the Turin Shroud was so great it overcame his previously expressed reservations. He had said he was opposed to limiting the number of laboratories to be involved to three, but he now seemed neither remorseful nor contrite about changing his mind. I was surprised and saddened."

**Source:** Gove's book: Relic, Icon or Hoax: Carbon Dating the Turin Shroud (Bristol and Philadelphia: Institute of Physics Publishing, 1996, pp. 231-232).

**Comments:** In Gove's eyes, this was an ethical compromise by Damon.

**Entry: #16**

**Date: 1988**

**Data Category:** C-14 aspects

**Evidence:** Gove writes, "...Olet said that Teddy Hall and Sir David Wilson (Wilson is director of the British Museum) were members of the millionaire's club so that one had to be very careful in dealing with them. (He may have to be but I do not.) He said he was still worried about the possibility of collusion between the British Museum and Oxford." A few pages later, Gove continues, "On 18 March I talked to Ted Litherland. He had just come back from a trip to Oxford and he said that he had had a grand dinner at Teddy Hall's house but Hall seemed a bit ill at ease. He was defending his stand on the whole carbon dating enterprise on the grounds that Tite was involved. There was a four year plan that was prepared for Hall's Oxford lab, that stated Oxford was 'chosen' to date the shroud and this was reason enough to support the lab. Ted said Hall would be retiring in the next year or so and Tite was the top contender to replace him. That was the first time I had heard of this possibility and it turned out to be true. No wonder Tite made no objection to only three labs being involved as long as one of them was Oxford!"

**Source:** Gove's book: Relic, Icon or Hoax: Carbon Dating the Turin Shroud (Bristol and Philadelphia: Institute of Physics Publishing, 1996, pp. 234 and 248, respectively).

**Comments:** Gove suggests here that Tite's "top contender" status to replace Hall at Oxford might have influenced Tite's acceptance (representing the British Museum, overseer of the testing) of the 4-lab plan that included Oxford. See also entry 21 in this addendum.

**Entry: #17**

**Date: 1988**

**Data Category:** C-14 aspects

**Evidence:** Gove writes, “On 25 April at 11 am, Harbottle called. He had learned from Otlet that the shroud samples had been removed on 21 April 1988. Hall had flown into London on 25 April with the samples in hand and he received a lot of publicity. The archbishop had been, according to Harbottle, furious about Hall’s trying to commercially capitalize on the venture. Harbottle also said that the BBC were going to film the measurements at Zurich. He said that, according to Otlet, there was no possibility this time of any outliers because the three labs would consult together so the answers would come out the same...”

**Source:** Gove’s book: Relic, Icon or Hoax: Carbon Dating the Turin Shroud (Bristol and Philadelphia: Institute of Physics Publishing, 1996, pg. 252).

**Comments:** There have been many questions and suspicions regarding the raw data release by the labs. See entry #15 in the main section of this article.

**Entry: #18**

**Date: 1988**

**Data Category:** C-14 aspects

**Evidence:** Gove is recounting Paul Damon’s description of the sample taking: “Riggi was to remove the sample, but it took two hours to decide where it should be taken. Everyone knew it would be near the spot on the hem where Raes’ sample had been removed and that is where it was finally cut.”

**Source:** Gove’s book: Relic, Icon or Hoax: Carbon Dating the Turin Shroud (Bristol and Philadelphia: Institute of Physics Publishing, 1996, pp. 260-261).

**Comments:** It’s amazing that despite the elaborate planning meeting held in Turin in 1986, authorities discussed where to take the sample from for two hours at the time of sample taking. They ended up choosing an area that many had recommended avoiding and had the required thorough chemical analyses been performed or had STURP been consulted, the conclusion that the sample was anomalous might have been made in 1988. Now, over 20 years later, based on all the accumulated new evidence, the original results are clearly in doubt.

**Entry: #19**

**Date: 1989**

**Data Category:** C-14 aspects and Possibility or direct evidence of invisible reweaving

**Evidence:** Kersten sent photographs of the Zurich specimen “Z1,” one of the samples dated in 1988, to Belgian textile expert Prof. Gilbert Raes to compare with photographs of the sample that Raes had received in 1973. Kersten quotes Raes, “I have compared the specimen which I received in 1973 with Prof Wolfli’s photos. I must state that the general appearance is quite different. What could be the difference for this difference? In each case the main difference lies

in the differing number of threads per centimeter in the directions of warp and weft. It is not easy to count the number on a photograph, but I did not find the same number as on the piece I received in 1973. *I many conclude from it that the two specimens cannot come from the same item* (italics added). That is my impression when looking at the specimens.”

**Source:** Kersten, Holger and Gruber, Elmar R. The Jesus Conspiracy: The Turin Shroud And The Truth About The Resurrection (Rockport, MA: Element, 1994, pg. 61).

**Comments:** Raes findings fit well with the theory of an invisible reweaving in the C-14 sample area. See entry #27 in the main section of the original article as well as entry #22 below in this addendum. (Note: sometimes Prof. Wolfli’s name is spelled by other writers as “Woelfli.”)

**Entry: #20**

**Date: 1989**

**Data Category:** C-14 aspects

**Evidence:** Kersten listed to a tape of a talk that Dr. Michael Tite of the British Museum gave to the British Society for the Turin Shroud. Kersten writes, “Finally the audience was allowed to ask questions. Besides various questions about a possible contamination of the cloth specimens, one of those present said that he was surprised to read in David Sox's book that Tite and the Cardinal had signed a document which expressly declared that the specimen of cloth really did come from the Turin Shroud. He asked: 'Does such a document really exist?' Tite's reply, in his exact words was: 'I don't know, I'd have to go back to the video.' The questioner said again: 'But according to him it was signed by yourself!' Tite replied: 'Well I was going to say I'd have to go back to the video, this is why we had a video taken, I mean I have a feeling that I did sign something, yes, which is why I had a video taken!' Laughter in the hall. One might consider it strange that the person guaranteeing the experiment could no longer remember anything about this extremely important detail.

Moreover it would be quite pointless to refer to the video on this point, since there were (according to Tite's statements) no witnesses present at the distribution of the specimens in the containers, and so that procedure was not filmed. Surely Dr Tite must at least have remembered that. Tite was obviously disturbed and somewhat ruffled. Chairing the discussion that evening was Ian Wilson, and he was polite enough to pass quickly over the embarrassment and ask if anyone had any further questions.

A member of the audience then raised the question whether the laboratories had been in contact with each other during the test phase. After categorically denying it at first, Tite admitted that there had probably been leaks contrary to the agreement, and in the ensuing unrest in the hall he conceded that the so-called blind test too was really no blind test! Surely he must have known this already before the sampling, when he was supposedly unable to organize the procurement of identical fabrics. Why then stage the whole show with the secret packing of the samples in the containers away from the public eye? What purpose could such play-acting have served? There is no reasonable answer to this question. The responsibility for the exchange of information among the laboratories, which Tite admits to, also rests on his shoulders. He was the guarantor, the referee so to speak, who was supposed to see that the agreed experimental procedure was exactly adhered to.

**Source:** Kersten, Holger and Gruber, Elmar R. The Jesus Conspiracy: The Turin Shroud And The Truth About The Resurrection (Rockport, MA: Element, 1994, pp. 39-43).

**Comments:** Kersten adds, “In the event it was as if no agreement were followed at all.”

**Entry: #21**

**Date:** 1989

**Data Category:** C-14 aspects

**Evidence:** Kersten & Gruber write, “The International Scientific Symposium of Paris on the Turin Shroud took place in the Centre Chaillot Galliera, in the presence of many illustrious sindonologists and other researchers. In front of the conference centre, a stone’s throw from the Champs d’Elysees, the members of the Contre-Reforme Catholique (CRC, Catholic-Counter Reformation) distributed pamphlets with the provocative title *The Carbon-14 Affair* and still more provocative contents. In this they accused Dr Tite of fraud, saying he had switched Shroud fragments in the sacristy. Shortly thereafter Tite was appointed to succeed Prof Hall as Director of the Oxford Radiocarbon laboratory, which had been set up with a donation of £1 million 'from unknown benefactors'.”

**Source:** Kersten, Holger and Gruber, Elmar R. The Jesus Conspiracy: The Turin Shroud And The Truth About The Resurrection (Rockport, MA: Element, 1994, pp. 87-88).

**Comments:** See also entry #16 in this addendum regarding the Tite/Hall situation.

**Entry: #22**

**Date:** 1989

**Data Category:** C-14 aspects and Possibility or direct evidence of invisible reweaving

**Evidence:** Kersten was investigating photographs of one of the Oxford samples used in the 1988 dating compared to a photo of the entire piece that had taken before they were divided up for the 3 labs. Kersten writes,

“In the meantime I had approached a firm in Waldkirch which had developed an instrument which can precisely analyse the thread thickness, thread numbers etc. of a textile by optically running over a piece of the cloth. Would it also be possible to compare photographs of textiles in this way, using the video shrink image processor 1 (V SIP 1)? The attempt was made, but it was foiled by the surface of the photographs, which was obviously not suitable for extracting the information: the light beam was reflected, producing just black images.

In Waldkirch they referred me further to the Institute of Textile and Process Engineering in Denkendorf near Stuttgart. At this institute the staff attempted a precise optical analysis. In their expert opinion given on 19 December 1989, the investigators, P. Ehrler and Z. Cai first said that the optical impression of the two fabric patterns was different. The reason for the difference was not clear though, since it might also be due to the photographic process or the reproduction. Sample A (colour photograph of the entire piece removed in Turin) had a looser structure (large gaps between the weft threads) and a shorter floating thread than Sample B (the Oxford sample). On both samples the researchers counted the same number of warp threads between the two 'peak' threads, forty-one. But they found a difference in angle of the peak. On Sample A it was

about 59°, on Sample B about 65°. 'This difference may also have been caused by a difference in thread thickness, or by differences in tension which may arise when laying the sample out on a surface.

The Denkendorf scientists made a further observation of great interest: 'The impression of a matching type of weave contrasts with the impression of a dissimilar pattern of fabric.' The cause of the dissimilar pattern of fabric was the varying thickness of the warp threads of Sample B. 'This arrangement of thick and thin warp threads cannot be found on Sample A.' Finally the textile scientists come to the conclusion: *'The said differences cause us to state that the samples are not identical'* (italics added)."

**Source:** Kersten, Holger and Gruber, Elmar R. The Jesus Conspiracy: The Turin Shroud And The Truth About The Resurrection (Rockport, MA: Element, 1994, pp. 93-94 and 99).

**Comments:** Kersten adds, "So they noted a difference in optical impression, due to a looser structure in the Oxford sample compared with the original cloth, and due to a difference in thread thicknesses. This finding agreed with what Prof Raes had already said about the Zurich sample. Moreover, the two sections compared had a 6° difference in the angle of the herringbone structure. The threads visible differed in thickness, and there were certain differences in the relative thread thicknesses of warp and weft." Kersten goes on to say, "We went on to do a second comparison of the weave structure of the Oxford sample with the original cloth. In the first test we had tried to line up the obliquely running gaps in the fabric (which produced the typical herringbone pattern) on both sections, and then found that the individual threads could not be matched up one to one; in other words the two weaves had a different compactness .... More discrepancies were clearly visible along the edges of the two photo sections. This made patently clear for any lay person what the expert opinion had previously stated: that the two sections, which should have been completely identical, differed quite visibly in the closeness of their weave and in the thickness of the individual threads."

See also entry #27 in the main section of the original article as well as entry #19 above in this addendum.

**Entry: #23**

**Date: 1990**

**Data Category:** C-14 aspects

**Evidence:** The Vatican makes an announcement that it would consider proposals from researchers and scientists for new scientific tests on the Shroud. Meacham writes, "The statement called the C-14 results 'strange' and pointed out that they conflicted with previous scientific findings.

**Source:** Meacham's book: The Rape of the Turin Shroud: How Christianity's most precious relic was wrongly condemned and violated (Lulu.com, 2005, pg. 111).

**Comments:** Meacham adds, "I sent a copy of my proposal already submitted in 1989, but alas this apparent openness to new research was closed as suddenly as it had appeared, for reasons known only to the inner sanctum of the Curia. The new archbishop of Turin, Cardinal Saldarini, made it known that only proposals regarding the conservation and preservation of the Shroud would be considered." In 2000, a similar call for proposals was again put out. Nothing was

heard about it again until the 2005 Dallas Shroud conference, when Monsignor Ghiberti made an announcement at a special dinner that the proposals were now being considered by The Vatican. It's hard to understand why the Church moves so slowly when they themselves have initiated requests for proposals and when positive news about the Shroud undoubtedly would provide encouragement to members of the Church and possibly even bring new converts.

**Entry: #24**

**Date: 2005**

**Data Category:** C-14 aspects

**Evidence:** Meacham write, "...I doubt that anyone with significant experience in the dating of excavated samples would dismiss for one moment the potential danger of contamination and other sources of error. No responsible field archaeologist would trust a single date, or a series of dates on a single feature, to settle a major historical issue, establish a site or cultural chronology, etc. No responsible radiocarbon scientist would claim that it was certain that all contaminants had been removed and that the dating range produced for a sample was without doubt its actual calendar age. The public and many non-specialist academics do seem to share the misconception that C-14 dates are absolute."

**Source:** Meacham's book: [The Rape of the Turin Shroud: How Christianity's most precious relic was wrongly condemned and violated](#) (Lulu.com, 2005, pg. 55).

**Comments:** Unfortunately, Meacham is right that many in the public and academia share the misconception the 1988 C-14 dating for the Shroud was somehow absolute and the cloth is a medieval fake. Without a doubt, much of this misconception began as a result of the "case closed" attitude of Professor Ed Hall of Oxford and his colleagues when the C-14 results were announced---and Hall's encouragement to any who doubted Oxford's results should also join the Flat Earth Society. Twenty years have gone by since this announcement, with the media spotlight primarily on the "we told you so" professional Shroud debunkers. However, especially over the past five years, those with experience in Shroud research, textile experts, chemists, physicists, and some of the participants in the original C-14 dating have been publicly airing growing doubts about the 1988 results. Excellent TV documentaries such as the December 2008 Discovery Channel show "Unwrapping The Shroud: New Evidence" have begun to awaken the public and perhaps even the debunkers to the fact that the Shroud of Turin has not yet been satisfactorily radiocarbon dated.

**Entry: #25**

**Date: 2005**

**Data Category:** C-14 aspects

**Evidence:** Meacham cites Gonella as writing, "At the beginning ...they [the radiocarbon labs] had guaranteed us the utmost seriousness and completeness in the analysis, as well as promising to collaborate with the custodian of the Shroud, the Archbishop of Turin and with his scientific advisor, the undersigned. Seized however by a feverish desire for celebrity, they began to renege on their promises: no further interdisciplinary investigations; just the carbon 14 test. They even

badgered Rome, bringing pressure to bear so that Turin would have to accept their conditions. ...Scientifically, I would have been happier and have my mind at ease if the dating operation had been carried out in the context of comprehensive, wide-ranging and thorough chemical and physical investigation of the Shroud as originally planned. The carbon-14 laboratories preferred to work independently and they did not wish to collaborate with other scientists, something that, from the point of view of scientific methodology, left me greatly puzzled and certainly not satisfied.”

**Source:** Meacham’s book: The Rape of the Turin Shroud: How Christianity’s most precious relic was wrongly condemned and violated (Lulu.com, 2005, pg. 77).

**Comments:** Meacham does not cite the source for Gonella’s statement here.

## CONCLUSION

**Entry:** #26

**Date:** 2008

**Data Category:** General possibility of repairs, Evidence of anomalous nature of C-14 corner, Possibility or direct evidence of invisible reweaving, and C-14 aspects

**Evidence:** Ray Rogers, in his last published work, wrote, “The combined evidence from chemistry, cotton content, technology, photography, ultraviolet fluorescence and residual lignin proves that the material of the main part of the Shroud is significantly different from the radiocarbon sampling area. The validity of the radiocarbon sample must be questioned with regard to dating...the cloth. A rigorous application of scientific method would demand a confirmation of the date with a better selection of samples.”

**Source:** Rogers’ posthumous book, A Chemist’s Perspective On The Shroud of Turin (Lulu.com, 2008, pg.76).

**Comments:** ROGERS’ COMMENTS SAY IT ALL.