

Special Features

X-File on the Shroud

Canadian Scientist Thaddeus Trenn interviewed on how the body in the Shroud might have Dematerialized....

*On 20th May Shroud researcher **Dr. Thaddeus Trenn**, who is Director of the Science and Religion Course Programme at the University of Toronto, was interviewed by award-winning TV and radio producer/presenter **Linda Moulton Howe**, for the cyberspace web-site Earthfiles (<http://earthfiles.com>). Dr. Trenn, who has an M.A. in Physics and a Ph.D. in the History of Science, has found particularly interesting the arguments of US chemist **Dr. Giles Carter**, the first, but by no means the last, to observe an X-ray quality to the Shroud's image, as suggested by the particularly skeletal appearance of the hands. Linda Moulton Howe accordingly pressed Dr. Trenn to elaborate on how he thinks that X-ray energy should be considered as having been associated with 'the primary dematerialization event' (i.e. the Resurrection), by which the Shroud image may have been formed:*

Dr. Trenn: This is terribly hypothetical. I'm just simply saying I see the X-ray phenomenon as a secondary event taking place after the primary event that I'm talking about. That's where I come in with Carter and the others. I'm starting with [the notion] there was a triggering event that will release at the secondary follow-on event such things as the X-rays that Giles Carter has noted.

Interviewer: *Right. And the primary event which, as Dr. Carter says, could be the process of resurrection which science has no knowledge about, but is at least a handle to place on it. So we're trying to understand what this process of resurrection might have been that left this image on this linen?*

Dr. Trenn: Right. And my suggestion is that if you were to allow for the possibility that the strong force could be overcome -- in other words, an influx of energy in the amount we already know that it has to be (1% of the mass) - if that could somehow happen, then certain things would follow. And one of them is that the binding of the protons and neutrons would no longer hold. You would have a separation of the basic nucleons of matter. All your nuclei would come unstuck. And therefore, all these secondary phenomena such as the release of X-rays would take place. That's how it is. He [Giles Carter] called it the Resurrection Event. I'm simply saying, all right, you can call it that. But there is a physical process here that if we could control in some way -- we can't, but if it could be somehow controlled, that would happen.

Interviewer: *And that's why the dematerialization?*

Dr. Trenn: And that's why the dematerialization.

Interviewer: *And if you were going further with the hypothesis to give a word picture of what might happen to a body that would be dematerializing this way -- what do you think we might see?*

Dr. Trenn: Well, you'd see the following -- first of all, you would see no more body. It would instantly be gone. All you would have is protons and neutrons in various states of energy and other particles that would come such as pions- they would be about ten to the minus twenty-second seconds -- you would have the release of pions and muons, heavy electrons. These could in short range bombard the cloth and produce the effect you do see on the image.

Interviewer: *Would you agree that it appears to be as much an X-ray as a photograph?*

Dr. Trenn: I know it's very controversial, but X-rays can make an image.

Interviewer: *And then the issue would be: what force in the universe could contain that amount of energy influx to cause a dematerialization?*

Dr. Trenn: Yes. And I don't think there is any in Nature. I don't think it's going to be repeated. I doubt very much if you are going to see us being able to control this sort of thing. It's a problem, it really is! And I'm not saying I have the answer here by any means. I'm just saying that if you do allow for various things, including the X-rays that very likely are coming out. How could they possibly come out unless there was a prior event of that sort?

Interviewer: *That excited the X-rays... ?*

Dr. Trenn: Right.

Interviewer: *Within the bones and teeth... ?*

Dr. Trenn: Right, exactly. Where are these X-rays going to come from? And they would naturally come as a spin-off from this kind of primary event.

Interviewer: *And then it is the question just like talking about white and black holes -- is this a singularity? a unique event?*

Dr. Trenn Right. And I have to say I think it is, but again, how can I prove it? You can't really prove it. Such things, if they only happen once, obviously you can't prove it. But I'm looking for a physical trigger that could allow for -- if there are X-rays, these are physical things. Then why couldn't there be a physical prior event? And what would that look like? And that's why I've come up with this idea. But there's another reason -- and that's John Jackson's idea - I don't know if you have read about this, but he sees distortions in the Shroud that indicate what he calls the collapsing of the Shroud on the body itself. And it would have to happen almost instantaneously for these kinds of distortions to happen. And then, one of the other gentlemen -- Goldstein, or Goldberg -- came up with the blood hypothesis -- that the blood on the Shroud was in fact de-coupled from the body itself in such a way there is no pulling away of the fibrils. And how could this happen unless the body sort of disappeared instantly? In other words, it wasn't pulled out of there. Nobody taking the body out.

Interviewer: *Right, and that the blood has this remarkable sharpness to it.*

Dr. Trenn Exactly. And you put those three things together and you come to the conclusion, I think, that something happened instantaneously that made it disappear! Not that it was taken out, but it disappeared.

Interviewer: That the body literally disappeared leaving the blood intact with the Shroud?

Dr. Trenn Correct. And the x-rays would be a natural spin-off of such a disappearing. Well, what would that disappearing look like in terms of physics. And then you do the calculation back and you find there is only one way -- and that is for the units of matter that we ordinarily call nucleons of matter -- decouple. And the only way to get that is to overcome the strong force. Incredible, as it seems, we can back out into this Nowheresville -- it's an impossible situation. But, that's what you're left with.

Interviewer: *I see. and then you get to, as Dr. Carter said, 'what is the process of Resurrection?' Which we have as a huge mystery. And that in that process of resurrection that could be a singularity, you are saying there could have been an influx of energy equal to that in, say the fission of an atomic bomb. But an influx into the body from a source unknown that would have de-coupled the neutron, proton level - and that would have been instant dematerialization...?*

Dr. Trenn Weak dematerialization, as opposed to, for example, that any particular nucleon like hydrogen would be evaporated.

Interviewer: *But this would have affected the body literally disappearing molecularly from inside the shroud which would have collapsed on the stone with the blood still intact on the shroud, but the whole body would be gone?*

Dr. Trenn Yes, instantaneously. Like really instantaneously. So that when the collapsing takes place in John Jackson's idea, that it would in fact be measuring -- the distortion that he measured -- is actually an indication of the speed with which the body by gravity would be collapsing on top of the (cloth). And the body would be disappearing. In other words, gravity is still pulling on the cloth. And the image of those x-rays and what I'm going to suggest, a special electron, a heavy electron -- I call them muons -- would be a by-product also of this...

Interviewer: *Dematerialization?*

Dr. Trenn Dematerialization that would impinge on a cloth that is moving, moving down.

Interviewer: *Has anybody ever examined the cave that is still...?*

Dr. Trenn Good question. This is something that several people have suggested. Shouldn't you then in the Sepulchre, shouldn't you find some sort of distortion? This is a wonderful idea, and you could have changes in the isotopic distribution on the surface of the walls. You could imagine unusual isotopic conformities there.

Interviewer: *In the stone?*

Dr. Trenn : In the stone. Yes.

Interviewer: *Would there be an increase in neutrons present?*

Dr. Trenn I would have thought so. It would be captured, these neutrons, would be captured by other elements. But again, that's a question for geologists and others who are more competent in that sort of thing than I. But I think there could be effects that you should explore.

Interviewer: *And so, a hypothesis could be made that if there was a dematerialization event where the shroud was inside the cave that today we would still be able to find an elevated number of neutrons in that cave wall?*

Dr. Trenn Not necessarily the neutrons, but in elements that were able to capture these neutrons, you may see a ratio of the isotope of that particular element skewed slightly from the normal. Some of them would be heavier. You wouldn't necessarily find neutrons. You would find neutrons captured by some other nucleus. So you would find some heavy nuclei of a particular element, like silicon for example, then you would find heavy silicon. It would be neutrons captured some how by elements in the cave, in the rock.

Interviewer: *So if you could get the rock or piece of the wall in the cave and analyze it for isotopic ratio anomalies...*

Dr. Trenn There you go, that's exactly it. You've got it.

Interviewer: *Well, the church is supposed to allow the Shroud to be shown again in the next few months. Is there any possibility that you and others could try to do some more testing during that time?*

Dr. Trenn: I can't do any testing. I've talked this point up for the last 5 years to various sources and maybe someone is going to take it in. But there is a way to test, a very simple way, without damaging cloth to check the uniformity or homogeneity of carbon-14 throughout the cloth, say in the width. Is there a profile? Is there some kind of differentiation that is non-uniform? If it's non-uniform, then by definition, the assumption that was made in the 1988 dating is flawed. The labs weren't to blame. It's just that they assumed what every normal scientist will assume -- that the sample they had is representative of the whole.

The Editor acknowledges indebtedness to the web-site Earthfiles, and Dr.Thaddeus Trenn, for use of this interview, also to Joe Marino for bringing the interview to my attention

About the Dr. Giles Carter referred to in this interview

In 1982 Dr.Carter authored a paper 'Formation of the Image on the Shroud of Turin', published in the American Chemical Society Volume on Archaeological Chemistry, 1983. A specialist in X-ray fluorescence, he analyzed hundreds of ancient coins and metal objects by this method, and became Professor of Chemistry at Eastern Michigan University, retiring as Professor Emeritus in 1995

Radiocarbon Dating Scientists 'showed a complete arrogance of other disciplines and a blind faith in a piece of technology'

British Scientist Peter Carr on the Dating of the Shroud, and the Formation of its Image.

As a scientist qualified in Physics, I have spent many years in charge of technical laboratories carrying out research and development into electronics and underwater acoustics, exercising technical judgement and take decisions on topics where information was incomplete,

balancing the probability of one 'fact' against another and looking for self consistency in the result. It is this expertise that I bring to the topic of The Turin Shroud.

Following the 1988 Carbon Dating tests, the scientists reported their findings, giving the age as 1260 to 1390, therefore the cloth was mediaeval. This was the limit to their remit, to date the cloth. But they exceeded their remit by making comments about the nature of the cloth, i.e. that the shroud was a mediaeval forgery. In making such a sweeping statement, they showed complete arrogance of other disciplines and a blind faith in a piece of technology. No self respecting scientist would be so bold. They ignored, or were ignorant of the wealth of historical information that shows that a cloth of some form has been in existence for many centuries, and it predates the carbon dates. The carbon dating information should have been presented along side all other information, and an objective discussion taken place.

Once the furore had died down following the publication of the carbon tests, people applied their minds to establish possible sources of error. There have been a number of conspiracy theories, the strongest one being that the shroud samples had been replaced by samples taken from the Cope of Saint Louis of Anjou, which is known to date from 1300. It is unfortunate that the procedures used by the team in taking the samples left them open to this type of criticism. But it not a case that withstands closer examination, as samples taken from the Shroud are readily recognisable. It was most unfortunate that the scientists conducting the test did not have an experience PR man alongside them to gauge public reaction before the event. Scientists in high places are strangely naive.

The strongest challenge to the carbon results has come from the work of **Dr Leoncio Garza-Valdès** on the grounds that the fibres of the Shroud are covered with a bioplastic coating which increases the level of Carbon 14 in the threads, which therefore skews the dating. This impurity has come about by continuous handling over the centuries.

This is an area of research worth pursuing. It does mean that any fabric sample sent for carbon testing should be examined for the presence of such a coating, even the reference samples used in the 1988 tests. I have always considered the dating that was obtained on the St Louis cope as indicative that the measurement technique of the AMS equipment was accurate. In other words it measures the correct level of C14. This is not the same as saying that the overall dating process was correct, as will be seen from the next section. But this implies that there was no significant bioplastic impurity on the sample from the Cope.

The hypothesis that I currently favour concerns enhanced Carbon 14. Put in its simplest terms, it suggests that during the formation of a shroud there is a radiation process that enhances the level of the radioactive carbon isotopes. The evidence in support of this is the image on the nylon mattress cover as produced in 1981 at the Jospice hospice, Thornton, near Liverpool, exhibiting markings of the back, thighs and part of the neck of a man. But the most significant aspect was the obscuring of the markings by the left arm and hand which was placed underneath the body . This indicated a 'radiation from the body' which was being partially obscured by the arm and hand. Further information on the nature of the image on the Turin Shroud indicates that the fibres have been damaged as if by a scorch. Also the work by Jackson & Jumper purport to show a radiation law from which they can regenerate a three dimensional picture.

Now if there is a form of radiation during the formation of a shroud, and if it can effect the level of carbon isotopes, then it immediately renders the method of carbon dating as inadmissible for dating of shrouds. Some interesting work has been done along these lines. For example, the work done by **Dr Kitty Little** at the UKAERE during the 1950s. By radiating fibres with neutrons she observed a change in colour of the fibres to that of a straw colour as on the shroud. She remarked that the radiation would have the effect of forming extra carbon 14 on the fabric.

More recently some work has been done by French scientists and reported on the web site set up by Barrie Schwartz. This web site led me to the correspondence of **Rinaudo** and **Rouvillois**. Jean-Baptiste Rinaudo had undertaken some experimental work to show that a flux of 9×10^{12} particles per square cm would raise the level of Carbon 14 by 25%. Which is sufficient to skew the elapsed time measured in the carbon dating from 2000 years to 700 years. He also showed that such a radiation flux created a reddish brown marking on the cloth. Mr Rouvillois, who is a nuclear scientist, now retired, did some simple calculations to show that such a radiation flux could be produced from a small amount of Deuterium, although he was not proposing that this was necessarily the reaction. It was a calculation to show that sufficient energy is contained in quite small masses of material. This work is of sufficient interest that I have produced extracts below.

From: 'A Point Of Nuclear Physics About The Shroud Of Turin' by Gildas Rouvillois, Consulting Scientist, Louveciennes~Paris, France

A paper published in August 1995 by the **Revd Laurentin** in the French weekly *Famille Chrétienne* describes a tentative explanation of the much controversial dating of the Shroud by J.B.Rinaudo, who is both a Catholic priest and a teacher of physics. Rinaudo surmises that simultaneous fluxes of protons and neutrons could explain at the same time the imprint on the cloth (by the protons) and the 13-century slip of time of the carbon 14 nuclei (by the neutrons). Through experimentation conducted in the CEA* laboratories, Rinaudo evaluates at 9.10^{12} (nine times ten to the twelfth) particles per square centimetre the necessary fluxes, and suggests that they might originate in the spontaneous disintegration of the deuterium nuclei contained in the body of the man in the shroud. To irradiate a cloth of 5 square meters (order of magnitude) with a flux of 9.10^{12} particles/cm², one needs 9.10^{17} reactions (using only a few micrograms of deuterium, a tiny part of the body content), giving off an energy of $3.28.10^{18}$ MeV, or 525 kilojoules (to simplify our point, we neglect in a first approximation the contribution of the highly energetic secondary reactions with reaction products He3 and T).

Translated in equivalent TNT, this energy amounts to 125 grams of high explosive. To explain the shape of imprint on the cloth, the source of radiation should be punctual rather than distributed. So, this energy is enough to cause a conspicuous "flash", but also a severe blow to a body already bruised and wounded by the flagellation and the crucifixion. As a standard of comparison, the Israeli secret services burst off terrorist Ayache with 50 grams of explosive concealed in his Motorola phone. As regards the C14 dating itself, besides the 3 labs officially in charge of the analysis (Oxford, Tucson and Zurich), a fourth lab got independently the same results (years 1260/1390). I mean the Centre d'Etudes des Faibles Radioactivites (joint lab CEA/CNRS), of which one can hardly question the experimental expertise and scientific credentials.

It is a very simple matter to show that if the levels of Carbon 14 had been increased at the time of formation of the shroud, then the Carbon dating method could not be used. In fact what is crying out to be done is some checks to be made on shroud cloths to see if there are enhancements.

The British have an ideal opportunity to do this by checking the levels of carbon isotopes on the remarkable image produced on a mattress cover at the Jospice hospice in the early 80s. I have recently been put in touch with **Father Francis O'Leary**, custodian of this mattress cover, and research is thereby under way, the findings from which I hope to be able to report to the BSTS at a later date.

In the mean time, an interesting event has recently occurred. A report in a December 98 issue of the *Daily Telegraph* (London), reported an occurrence of “Spontaneous Combustion” at Honfleur in Normandy. This was discovered on November 17 and from the limited record, it seems to follow the classic circumstances of so-called spontaneous combustion, in that the woman's body was almost completely consumed. Other items in the room including sheets were untouched. It was reported as having striking similarities to the incident that took place in Florida in 1951.

Now I have no experience of this phenomenon, but it seems to me that if a body can generate intense heat from within itself, then it is possible to cause shroud imprinting !his is an important question that should be put to the test. Therefore I pose the question:-

‘Is there any evidence of enhanced carbon isotope levels in the materials surrounding the body at Honfleur ’?

I have put this question to a number of people including Gildas Rouvillois in Paris. Mr Rouvillois has made a request to the French police scientists and has offered his services as a consultant. I am very much dependent on Mr Rouvillois for these tests to be carried out, for I have no contact in the scientific or police departments in France.

What has been discussed in the previous sections has been of a factual and logical nature. But this does not mean that I consider this to be totally a scientific topic to be worked at until it finally yields an answer. On the contrary, I believe that the scientific pursuit of this may encourage the younger generation to look at the historical life of Jesus and appreciate his death and its purpose with more understanding than appears at present. I also believe that there is an urgency as we approach the start of a new millennium, in that we don't carry forward a baggage of unnecessary misconceptions and teachings that may hold people back from an understanding of Christianity.

BSTS member Peter Carr's interest in the Shroud began some forty years ago. He was for many years in charge of technical laboratories carrying out research and development in electronics and underwater acoustics. He is now retired and lives in Sherborne.

A 7th century Reference to the Shroud?

What exactly was the ‘Sudario’ mentioned by Bishop Braulio of Zaragoza? by Mark Guscini

One of the passages in the letters of **Braulio of Zaragoza** has often been quoted in Shroud circles as an early reference to either the Shroud or the *sudarium*. However, the passage as quoted is not clear, and indeed could be used both in favour of the cloth's survival or against it. The reason for this is that the passage in question has been taken completely out of context, one of the verbs in the original Latin has been incorrectly translated, and Braulio has even then been misquoted.

The passage reads as follows in Latin: "*Sed et illo tempore notuerunt fieri multa quae non habentur conscripta, sicut de linteaminibus, et sudario quo corpus Domini est involutum, legitur quia fuerit repperitum, et non legitur quia fuerit conservatum: nam non puto neglectum esse ut futuris temporibus inde reliquiae ab apostolis non reservarentur, et caetera talia.*"

This can be translated as follows: "But many things happened in those times that were not written about, like the linen cloths and the shroud in which the body of the Lord was wrapped. We read that it was found, but we do not read that it was kept, for I do not think that it would be ignored so that the apostles would not have kept it as a relic for future times".

The first matter that needs to be cleared up is exactly which cloth Braulio was talking about. He uses the word *sudarium*, which in John's gospel is not the full length burial cloth or shroud, but the smaller face cloth, which according to all the evidence is kept today in Oviedo, Spain. However, it is clear that Braulio is the victim of the medieval confusion of *sindon/sudarium* - he says that the body of the Lord was wrapped in it, and the relative *quo* is singular, so it must refer back to *sudario* and not to *linteaminibus*. Braulio's *sudarium* is our Shroud, the full length burial cloth. Furthermore, Braulio does not say at any time that the cloth's whereabouts are not known - he does not even mention where they are or are not kept.

The chronological order in this passage has been thought to be the logical one - first the cloth(s) was (were) found (i.e. in the tomb), but none of the four evangelists wrote that they had been kept. As will be seen below, this order is incorrect when the passage is taken in the context of Braulio's letter as a whole. Before looking into this, some background information about the letter would not be out of place.

The exact years of Braulio's birth and death are not known. He died some time between the years 646 and 651, having been bishop of Zaragoza for the last twenty years of his life. Along with Isidore of Seville and Ildefonso of Toledo, he was one of the greatest ecclesiastical figures of seventh century Visigothic Spain. His correspondence with Isidore appears in many manuscripts, but the majority of the letters can only be found in one ninth century manuscript, unknown before the eighteenth century. This codex is kept today in León in the north of Spain.

The letter in question is addressed to Taius, who eventually succeeded Braulio as bishop of Zaragoza. Taius had been to Rome looking for unknown works of Gregory the Great, and while there was impressed with the great amount of relics of the blood of Christ that he saw. He started to wonder about these relics, and whether or not all the blood shed in life returns to the body at the physical resurrection. If the blood does return to the body, then logically all these relics would have to be false as all Christ's blood would have returned to his body at the resurrection. This was the subject of a letter he wrote to Braulio, and the reply from the bishop is the letter we are now dealing with. The letter belongs to the end of Braulio's life as at the beginning he complains about his failing eyesight and other physical ailments. The immediate answer is that the relics are not necessarily false. Not all the blood shed in life returns to the body at the physical resurrection.

This leads the bishop on to talk about another relic - the column which Jesus was tied to while being flogged (whether or not this column was real or false does not affect the argument - for Braulio it was real and he argued from this standpoint). According to Braulio, Jerome had seen this column impregnated with the blood of Christ, and nothing is written in the gospels about its being kept. Through all of Braulio's letters, the importance he places on the written word is evident, although as here, he admits things that are not written.

The order of events here is crucial here to understanding what Braulio says immediately afterwards about the Shroud. First, Jerome saw the column, second, nothing was written about it in the gospels. The later event is mentioned before the earlier one. Straight away Braulio introduces the example of the Shroud. First, the later event - it was found. Second, the earlier event - the gospels do not record that it was kept. In the context of the whole letter,

what Braulio is saying is that the fact that it was not written in the gospels is not necessarily an argument against its being authentic.

This interpretation is further supported by two points of Latin grammar and translation. First, the verb "*repperitum fuerit*" - this is the passive of the verb "*reperio*", meaning to find something that had been lost, or to discover something that was not known beforehand. This nuance is specially evident when the verb is used in the passive voice as here. There are many classical examples of the verb used with this meaning. It is hardly a meaning that can be applied to the disciples' seeing the cloths in the tomb, as they were neither hidden nor unknown. They were right there for anyone to see. Secondly, the word "*nam*" - this means "for" or "as", and placed where it is in the sentence can only be taken as an explanation for how the Shroud had survived and been found.

Braulio was writing towards the middle of the seventh century, just over a century after the Mandylion had been discovered in Edessa, during the rebuilding after the floods of 525. In fact, this is one of only two occasions when the Shroud can be said to have been found after being lost, the other being in France in the 1350's after a silence of almost 150 years, but this was long after Braulio's time. The bishop of Zaragoza must have been referring to the discovery of the Shroud in Edessa, which in turn means that the image called the Mandylion was taken to be the burial cloth of Christ as early as the seventh century.

*Mark Guscini, who lives in Spain, is author of **The Oviedo Cloth** published last year by the Lutterworth Press. He will be presenting a paper at the Richmond Conference*