

THE SHROUD OF TURIN: BRIDGE BETWEEN HEAVEN AND EARTH?

by

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***This article, originally published in the April 1999 (Volume 22, no. 2) issue of The Journal of Religion and Psychical Research, was submitted to Barrie Schwartz for inclusion on the web site. Barrie requested clarification regarding scorching of artifacts in purported Spontaneous Human Combustion (SHC) events as it relates to the mechanism of image formation on the Shroud, which according to most scientific interpretations, excludes scorching. The additional paragraph, following the original text of the article, attempts to respond to this query. This version also makes changes in some of the referenced citations by Benford and corrects several typos in the original version. In addition, the photos at the end have also been added to this version.*

The enigmatic cloth known as the Shroud of Turin, long believed by many to be the burial cloth of Jesus and by others as a medieval forgery, is still a much-discussed topic in religious and scientific circles. Those who believe it to be a forgery seemingly were backed by the evidence of a Carbon-14 (C14) dating performed in 1988, when three independent labs pronounced that the results indicated that the linen dated only back to 1260-1390 CE, with a 95% confidence rate (Damon, 1989).

However, many scientists and researchers questioned the validity of the results from the very beginning (Tribbe, 1989; Marino, 1989). To this day, many scholars believe that the results of that single, isolated test do not correspond with the weight of the evidence found in a multi-disciplinary study performed in 1978 by a group known as the Shroud of Turin Research Project (STURP), consisting of many scientists who were working on the USA's space and nuclear programs and which studied the cloth for five days around the clock using the best scientific equipment of the day. STURP, which has spent over 250,000 hours analyzing the data they gathered, concluded that the image was not the product of an artist (Tribbe, 1983, 151).

The Shroud is, in fact, the most intensely studied artifact in human history. The STURP team, comprised of members of varying religious beliefs and some of whom believed they would quickly discover the Shroud to be a fraud, was not the group of religious zealots that some skeptics have made them out to be. The group had members of various religious affiliations and of varying degrees of religious piety. It is reasonable to assume that if the Shroud were a forgery, they would have discovered it and announced it to the world. Some in the group, no doubt, would have been more disappointed at this than others. Science, like religion, strives to find the truth, no matter how uncomfortable it might be. No one, whether scientist or theologian, is totally objective; everyone has preconceptions and biases with which to contend. However, one has to try to minimize one's own biases and seek the truth as objectively as possible, based on the evidence. While STURP may have not done the investigation to everyone's

satisfaction, they did provide a plethora of new data to better evaluate the authenticity of the Shroud, publishing their findings in various peer-reviewed scientific journals.

One skeptic, Dr. Walter McCrone, who had been a member of STURP at one time, claims that the Shroud is only a medieval painting, based on his analysis of sticky-tape samples of the Shroud (he did not directly examine the whole cloth and reported many of his findings in a journal that he publishes). He said in a recent article that none of the other members of STURP (despite the multi-disciplinary makeup of the group and the fact that they worked in the nuclear and space programs of the USA) "is trained to study a complex image like the Shroud"! (McCrone, 33) If the logic of such a statement seems puzzling, one must realize that where the Shroud of Turin is concerned, emotional, religious and scientific stakes are extremely high, because the ramifications of possibly having the authentic burial cloth of Jesus are enormously significant. The Shroud brings us in touch with the deepest questions of life: Who am I? What is my destiny? Does God exist? Is there life after death?

No matter one's religious belief or whether one believes the Shroud to be authentic or not, it can have powerful effects. Several members of STURP, who are Jews, believe the cloth to be authentic (i.e., that it wrapped Jesus) but have not converted to Christianity, although they continue to study it. Many proponents of the Shroud have studied the Shroud for 40 years or more. One of the authors of this article (Marino) has spent over 20 years in his research. Some agnostics and atheists have been known to have ostensibly converted to Christianity from their study of the Shroud. (It should be acknowledged that other spiritual factors are also at work in such cases.) A few originally believed the Shroud to be authentic but now believe it to be a fraud and campaign vigorously against it.

Despite the claims of skeptics, compelling documentation exists for believing that the Shroud could be the actual burial cloth of Jesus. Some of the strongest arguments include:

- 1) The controversial methodology of the C14 tests of 1988 are cause for doubt about the capacity of the dating to accurately reflect the cloth's age;
- 2) The fact that no one has satisfactorily explained all of the characteristics of the image on the Shroud (even though each of the various critics, whose methods are mutually exclusive, claim to have done so, yet do not account for all the scientific findings);
- 3) Experiments by Russian researchers show that linen, exposed to similar conditions as the Shroud during the fire 1532, may influence C14 content thus making the linen appear younger than would otherwise be the case (Kouznetsov *et al.*, 1996);
- 4) The theory that the image was caused by radiation emitted at the Resurrection (which would affect the C14 content) is still plausible. Definite similarities exist between the image on the Shroud and some images left behind after the atomic bomb explosions at Hiroshima and Nagasaki in 1945 (Committee of Japanese Citizens...1978, 266-273). Another comparison between the resurrection and nuclear events is found in the fluctuations of C14 levels of clothing exposed to the Nagasaki atomic blast (detailed later in this article);

- 5) Research by Italian researchers Mario Moroni, Francesco Barbesino and Maurizio Bettinelli (Moroni *et al.*, 1998), combining the theories listed in Numbers 3 and 4 above, shows that a piece of linen with a calendar age of 160 BCE (plus or minus 60 years) that was exposed both to high temperatures and irradiated produced a C14 reading of 1230 CE (plus or minus 50 years), which mirrors the Shroud's dates (if authentic) of a calendar age of about 30 CE and a C14 reading of 1260-1390 CE. The key to this theory is to be able to postulate how, in the case of the Shroud, the resurrection event produced sufficient radiation to leave a detailed three-dimensional image while, at the same time, contributed specific scientific data that enunciate the origin of image.
- 6) Shroud research, in various disciplines, continues unabated with new and compelling evidence for its authenticity constantly being discovered (Wilson, 1998). (For the latest up-to-date information on the Shroud via the Internet, see <http://www.shroud.com>, a superb site produced by the documentary photographer of the STURP team.)

Some claim that an image formed by the Resurrection is outside the realm of science. Perhaps this is a classic case of why science needs religion. Neither discipline can discern all truth; each needs the other to fill in gaps. Science can tell us things about the Shroud that religion cannot, and religion can tell us things about the Shroud that science cannot. As many scholars have pointed out, there is no real conflict between science and faith, as God is the author of both. It is true that we cannot solve all mysteries, even using science and faith in tandem. Some actually do not want to see the mystery of the Shroud solved. But is it possible that by combining certain scientific and religious knowledge, the basic solution to the enigma of the Shroud can be found?

Down through the ages, people have claimed divine inspiration for their religious and even for their scientific insights. Among the latter, the important discoveries that were attributed to spiritual revelations include: Nikola Tesla: alternating current; Albert Einstein: general theory of relativity (which came after his special theory of relativity); and Jonas Salk: polio vaccine. The former would be too numerous to mention. The co-authors of this article met when one (Benford) claimed to be receiving divine inspiration for both religious and scientific insights. One obviously has to be cautious about such claims, but one cannot simply dismiss such claims outright because they seem incredible.

Benford claims to have received psychic revelations from Jesus on the Shroud as well as many spiritual matters. She said that Jesus called the Shroud a "fingerprint." Anyone claiming to receive divine revelations has to consider that they are being deceived. When a friend asked her if she was sure it was Jesus, not the devil, she brought the question to Jesus. He said to her, "You are right to be skeptical. Believe no image, including mine, that steers you away from my one true message." When Benford asked what that message was, she was told, "The answer is always love. Any other answer is not of God no matter who says it."

A childhood cancer survivor, Benford, despite handicaps, went on to become the strongest woman in the world, in the 97-pound weight class in the sport of Powerlifting. According to her, this is an indication of God's traditional penchant for using the weak to spread his message. She says that because of an overemphasis on our weakness and

sinfulness, we have lost sight of the fact that we can be and are called to be godlike. Jesus said in the gospel of John that his disciples would do greater things than he did (John 14:12). Many of the early Church Fathers were fond of saying some variation of the idea that "God became man so that man might become God."

Benford has subsequently spearheaded some interesting research regarding several phenomena that may tie into the Shroud, including gamma radiation counts surrounding humans during alternative healing therapy and the controversial human superhyperthermic carbonization, more popularly known as Spontaneous Human Combustion (SHC), in which human bodies ignite and burn from within, usually, but not always, causing death to the victim. Benford has recently hypothesized a possible link between SHC and a well-documented medical condition known as toxic epidermal necrolysis (TENS) (Norman, 1999). Some will find it heretical and blasphemous to link what happens to a SHC victim to what happened to Jesus in the Resurrection, but an objective analysis of the scientific data will show that while there is not an exact correspondence, there are aspects of SHC, that can help explain how the Resurrection may have happened from a scientific perspective. She has recently submitted several manuscripts, some co-authored by scientists from The Ohio State University and the University of Arizona, to various peer-reviewed medical journals on her research (Benford *et al.*, *Alternative Therapies in Health and Medicine, Journal of New Energy, 1999*).

The Benford theory of the resurrection event and, thus, image formation on the Shroud is supported by work that was based upon the STURP model and proposed by Italian researcher Mario Moroni and French biophysicist Jean-Baptiste Rinaudo. Their theory, supported by experimental data, suggests that the C14 date was rejuvenated (modernized) via exposure of the linen to neutron radiation followed by a thermic (fire) event (1532 CE). Rinaudo further proposes, and demonstrates, that the image was created by a proton radiation. He states that "the breaking of the Deuterium (heavy hydrogen) nucleus implied a double radiation of equal intensity: protons which had oxidized cellulose and neutrons which could have enriched the linen in radiocarbon." (Rinaudo, 1998) Deuterium can be found on Earth, although in a very small quantity (.015% of natural hydrogen is deuterium).

Rinaudo's research also demonstrated that the energy source "could not be situated outside the inner space of atoms since, given the small efficient section of the reaction, the energy required would have destroyed the Shroud. The required energy could only come from the inner space of atoms . . ." (Rinaudo, 1998)

A couple fundamental questions about the Shroud, and the Moroni and Rinaudo theory, still remain. In order to liberate protons and neutrons from heavy hydrogen, the energy required would be on the order of 2 MeV. Neither Moroni nor Rinaudo indicate how such a large amount of energy came to exist inside the atoms of Jesus' body.

Equally as mystifying is the exact vertical nature of the Shroud's image. Rinaudo states, "this called for correlated virtual gamma rays polarized in a vertical plane, so as to

produce a proton emission along the oscillation axis of the electromagnetic field." (Rinaudo, 1998) In other words, radiation emitted at a 180-degree angle from the body.

Rinaudo concludes with a profound question, "why did virtual quanta appear around a certain number of Deuterium nuclei at the body surface of the man buried, and why did they break, in such a way that he would leave us his image?" (Rinaudo, 1998) The answer to Rinaudo's question may be found by expounding upon the Benford theory of radiogenic metabolism and the role of radioactivity elements within our bodies.

During times of cellular stress, intracellular energy requirements increase as the cell strives to maintain metabolic equilibrium. The Benford *et al.* experiments demonstrated that, at these times, there might also be an increase in gamma absorption to compensate for the disrupted primary energy cycle (Benford *et al.*, 1999). In tissues, the cell water absorbs most of this gamma radiation, largely because there is more water in the body than any other molecule. The radiation causes one of the oxygen - hydrogen bonds in the water to split, leaving a single electron on hydrogen and one on oxygen, thus creating two radicals: H. is a hydrogen radical (or hydrogen atom), and .OH is a hydroxyl radical. The latter is the most reactive radical known to chemistry. Modern medicine has dubbed these partial molecules "free radicals." (Halliwell and Gutteridge, 10)

Free radicals have one or more unpaired electrons. Unpaired electrons make the species more attracted to a magnetic field (they are said to be "paramagnetic"). This, in turn, gives free radicals a highly reactive nature. Free radicals are observed in oxidation reactions, combustion reactions, and many other biological reactions. A common feature of the reactions of free radicals with nonradicals is that they tend to proceed as chain reactions, where one radical begets another (Halliwell and Gutteridge, 10-20).

It is well known that ionizing radiation, such as gamma rays, will generate free radical production in human tissues. In addition, research suggests that over fifty diseases promote the formation of free radicals. Traumatic injury also leads to increased free radical formation; specifically, mechanical (e.g., crushing) injury to tissues can cause cells to rupture and release their contents, including transition metal ions, into the surrounding area (Halliwell and Gutteridge, 416-488).

Also of relevance is the way in which Jesus died, via crucifixion following torture. Evidence suggests that the outcomes of traumatic or ischemic injury to the brain can result in release of iron ions into the surrounding area. These ions facilitate further damage to the surrounding areas by accelerating free radical reactions.

The typical reaction of free radical electrons, as discussed, is for the unpaired electron to pair with another electron. However, this is not the only possible reaction. Unpaired electrons also seek to annihilate with positrons, their antimatter counterparts. This reaction creates two 511 KeV gamma rays, which are emitted in opposite directions (a 180-degree angle). Thus, theoretically, several simultaneous annihilations within a cell could provide enough energy to liberate neutrons and protons from deuterium. But where does the elusive positron come from inside a cell?

One little-known fact is that our bodies naturally contain radioactive elements. One Japanese study determined that contributions of each radionuclide to the total effective dose are potassium-40 or K40 (63%), lead-210 or Pb210 (16%), and Polonium-210 or Po210 (16%) (Shiraishi and Yamamoto, 700-704). An often ignored or unrecognized feature of K40 is that it decays to Ar-40 via both electron capture (termed EC) and positron emission. In the Auger electron spectrum of K40 EC decay, the most notable group is the 200 ev L-Augur group with a range in water of 8 nm and an occurrence rate per 100 K40 decays of 16 (11.2%). This represents the second largest group of decay events next to beta radiation at 89 (62.2%) per 100 K40 decay events (Moore and Sastry, 3556-3559). Accordingly, the localized absorbed energies cluster around the K40 decay sites with the major impacts occurring when intracellular K40 levels are highly concentrated.

In comparison to Plutonium (Pu238-239) in the air of the lungs, which produces one disintegration each 500,000 seconds, e.g., one decay per 5.8 days, K40 produces 50 disintegrations per second. This represents, in the lungs alone, 25,000,000 times more decays from K40 than plutonium equating to, possibly, 483,840 positron emissions (11.2% of total K40 decays) per day (Luckey, 1999). These occurrences in and around intracellular free radical electrons within the water and deuterium molecules could, theoretically, produce highly energized annihilation events.

This accumulation of radioactive isotopes within the cell serves as a basic component of radiogenic metabolism and, may also, be accelerated in times of stress or disease. When accompanied by increased free radical production, the chance for a positron - electron reaction multiplies. Similarly, documented ingestion of known radioactive materials, e.g., potassium supplements, will further increase the matter - antimatter potential.

In keeping with our theory, a possible scenario explaining the resurrection event is that the free radical electrons annihilated with the positrons from radioactive decay generating sufficient energy to effectuate an intracellular nuclear reaction. According to Rinaudo's hypothesis, this reaction may have been promulgated from within the deuterium atoms. The fact that an "earthquake" was reported in the vicinity may indicate a geomagnetic flux that increased the reactivity of the paramagnetic radicals.

In addition, the heightened magnetic field strength may have aligned the radicals such that the ensuing gamma radiation, emitted during the electron - positron annihilation, was at a 180-degree angle with the earth's gravitational field. This would explain the precise vertical impact of the protons that created the image now seen on the Shroud.

The fact that the linen cloth was not harmed by the annihilation aftereffects indicates that Jesus' cells had a high crystal-scintillating capacity. In other words, much more light than heat was released during this unique singular event, thus transforming the Nazarene into the "Christ." It is important to note that the word "Christ" and the word "crystal" both stem from the same root definition, "Great Fire." (Bayley, 122). What greater fire is there

than one that releases all light and no heat as was apparently the case with Moses' burning bush, which represented God? (Ex. 3:2-3)

Substantiating this theory would require that similar events have occurred which would indicate the same mechanism at work, albeit, possibly a different, e.g., more heat than light, result. Such is the case of SHC. In the textbook on free radicals entitled, *Free Radicals in Biology and Medicine*, the authors state, "Theoretically, the complex organic compounds of the human body should immediately combust in the oxygen of the air (as occult magazines, such as *The Unexplained*, occasionally claim that people have done) but the spin restriction and other factors slow this down, fortunately!" (Halliwell and Gutteridge, 13) But what if the combustion event is not dependent on electrons providing both of the energetic components?

Simply defined, SHC is the ignition and burning of a mass independently of contact to any burning body. Literally, hundreds of reports have been documented over the years of cases in which human beings purportedly burst into flames or dissolve into ash for no discernible reason (Arnold, 1995).

Cases of SHC have many features that distinguish them from other fire victims:

1. The burning is never spontaneous in routine fires. There is always an ignition source present in the vicinity of the victim.
2. In SHC, the body is normally more severely burned than one that has been trapped in a routine fire. The burns are not distributed evenly over the body, the extremities are usually untouched by fire, whereas the torso usually suffers severe burning. Often the burning seems most pronounced in body areas displaying disease or disability.
3. In many cases, the torso is completely destroyed, the bones being reduced to ash. In SHC, the rate of total body burning is much faster than in the hottest burning crematoriums.
4. In SHC, the combustion is localized to the body. Almost no fire damage is done to other objects in close proximity to the body excluding thermal effects to high hydrogen containing elements such as water (dehydration), plastics (melting, charring, dehydration) and waxes (melting). Often the victims' clothes, and other highly flammable items, are left unscathed by the fire.
5. In over sixty percent of the reported cases of SHC, a measurable geomagnetic flux has occurred in the same time period and location as the event.

Benford *et al.* have scientifically evaluated one cellulose-containing artifact (a book dust jacket) that was retrieved from the SHC event in March 1986 that took the life of George Mott of Crown Point, NY. Results of the data indicate that the book's front cover, evenly coated black, may represent a high-energy photonic burst. According to infrared spectral analysis, this created a diol dehydration effect resulting from an acid, possible proton radiation, similar to that on the Shroud of Turin (Benford and Arnold, 1999).

The high-hydrogen containing plastic coating on the front of the book jacket, which is still intact on the back of the book jacket, appears uniquely affected by the event. A three-dimensional effect exists on the spine of the book whereby it appears, under light

microscope, that the diminished intensity of the blackening is due to fewer particles being irradiated. This correlates with similar observations on the Shroud (Rinaudo, 1998).

Both the SHC artifact and the Shroud of Turin share commonalities with another unique occurrence in radiation after-effect history: the atom bombs of Hiroshima and Nagasaki. In early 1978, STURP researchers in the Los Alamos Laboratory (operated by the University of California for the U.S. Department of Energy) issued a public statement suggesting that one scientific hypothesis "draws an analogy between the mysterious images on the Shroud and the fact that images were formed on stones by the fireball radiation from the atomic bomb at Hiroshima." (Tribbe, 1983, 208-209)

Even more compelling is the scientific link provided by the research of Mario Moroni. In the early 1990s, a cotton sample from a tunic worn by a bomb victim some 1.5 km from the epicenter of the Nagasaki explosion, was evaluated for C14 content at the University of Arizona. The AMS (accelerator mass spectrometry) test, the same method of C14 dating used on the Shroud, demonstrated that the material had been aged by the explosion by about 300 years (Moroni, 1998). According to Russian scientist, Dr. Dmitri Kouznetsov, aging through nuclear radiation, or by decrease of the C14 content via radiation, is due to the powerful energy source that activates numerous changeable chemical processes including "out-gassing" and "pyrolysis" (Moroni, 1998). A similar C14-related aging effect was noted for the Mott book jacket when compared to an identical control sample (Benford and Arnold, 1999).

In an experiment performed by Benford *et al.*, "KF," a survivor of a localized SHC event, was tested for gamma fluctuations during a Polarity therapy session. In February of 1996, she experienced an explosion adjacent to her left shoulder blade, which created a dark smoke that filled her kitchen. She reported feeling "something from the base of my back going up my back." (Arnold, 1997, 27). Her back remained hot and red for only fifteen minutes at which time her skin returned to normal. This event had an eyewitness and was later validated by medical physicians. At the time of the event, KF was on NorPace® for her chronic heart arrhythmia and was taking prescription-strength potassium supplements. Her height and weight were reported as 5'2" and 112 pounds. She was 39 years old at the time of the event (Benford, 1999).

KF was one of ten test subjects who were monitored for gamma fluctuations during healing energy (Polarity) sessions. Of interest to note, is that, the gamma levels decreased more prominently both before and during the session in her heart region than in any other region of her body. Of equal significance is that the total "absorption" was approximately 10,000 gamma counts in 100 seconds. This was greater than drops recorded for any other individual (Benford, 1999).

One hypothesis, in accordance with our theory, is that KF's dysfunctional cardiac cells chronically absorbed high-energy ionizing radiation in an attempt to support an increased energy demand resulting from the arrhythmia. Excessive free radicals were produced, both due to her disease, and from the constant influx of ionizing radiation. Concomitantly, her ingestion of excess potassium created a rich source of positrons.

When in the midst of a stronger than usual magnetic field, and during a time of added stress, an annihilation event took place, creating a localized nuclear reaction. Fortunately for her, this reaction was apparently confined to only a few cells.

Conclusion

Did KF, like so many other SHC victims, experience an event that can be mechanistically compared to the resurrection event of Jesus? And if so, what does that mean to humankind that there is an apparent bio-spiritual link between us and one who was proclaimed to be divine?

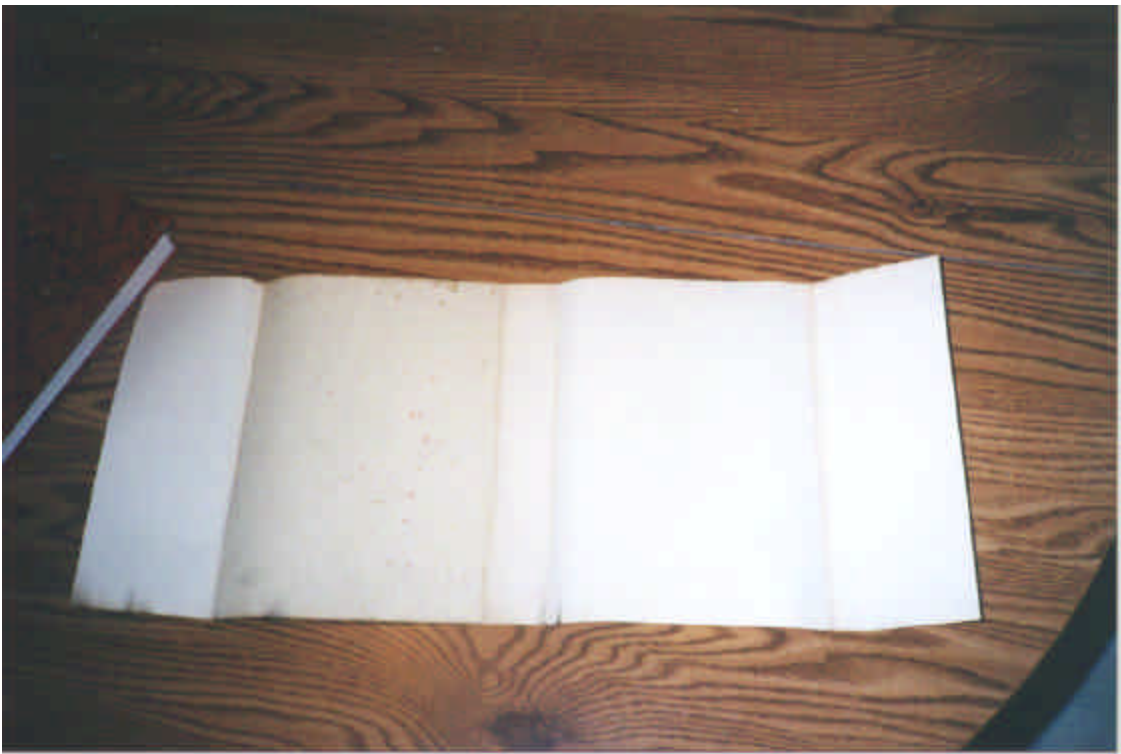
It seems especially significant that life arises as a consequence of the energy produced during the cosmic process of symmetry restoration, regardless if that symmetric point is deemed the "zero-point field" or "source" or the "Almighty Creator." Matter and antimatter, both propelled materials from the symmetry are, individually, chaotic and incomplete. The annihilation returns these half-energies to their full potential and to a non-chaotic, or peaceful, state. It is this state that we know of as "eternal" and in which space and time lose all definition. Indeed, we are emergent products of symmetry restoration, both in terms of religious and scientific definition. Our theory, quite possibly, provides a mechanism by which to perceive, measure and monitor this graceful act of symmetry restoration.

Are we on the verge of demonstrating the unimaginable -- humankind's destiny as fledgling "gods." Like fetuses developing within the mother's womb, our spiritual bodies journey the same ongoing process until, when matured as fully developed Christs or crystals, the two opposites become one and return to its Creator, not as an inferior creation, but as an equal in the light of God. Was this, perhaps, the meaning behind Jesus' teachings when he proclaimed, "Is it not written in your Law 'I have said you are gods?'" (John 10:34)

**It is important to note that in many cases of SHC, nearby flammable objects, such as parched wood, newspapers and even the victim's clothing, are not scorched by the combustion event. Evidence from two cases examined by one of the authors (Benford) supports this supposition. In the first case, the undershirt worn by a survivor of an unusual "explosion" behind her left shoulder (KF) revealed no indication of scorching (see photo of KF during gamma radiation testing session). The second case, involving both macroscopic and microscopic evaluation of a book dust jacket recovered from the George Mott SHC event in 1986, revealed that only the top layer of plastic coating, on the exposed side of the book, was thermalized, without undue scorching or burning of the cellulose (linen) layers beneath the coated layer (see photos of book jacket). Clearly, SHC events do not necessitate scorching or burning of nearby materials.



Book dust jacket (outer cover) recovered from George Mott SHC event of 1986 illustrating uniform macroscopic and microscopic changes that proportionally diminish down the spine of the book



Mott book dust jacket (inner cover) demonstrating minimal macroscopic and microscopic effects to the underlying cellulose layers of the book jacket



K.F., a survivor of SHC, being measured for gamma radiation levels in May 1998--Her undershirt reflected no scorching or burning after her SHC event

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