



**THE ENIGMA OF THE APPARENT AGE OF
THE SHROUD OF TURIN GIVEN THE 1988
RADIOCARBON DATING: FOLLOWING THE
TRAIL OF NUCLEAR PHYSICS WHERE
EVER IT MAY LEAD.**

BY JEFFREY SKURKA

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In 1905 with
little or no
notoriety
Albert
Einstein was
working in the
obscurity of the
Swiss Patent
Office...

Gedankenexperiment

Thought Experiment

1905: Miracle Year – Wunderjahr

On a Heuristic Viewpoint Concerning the Production and Transformation of Light

Photoelectric effect

On the Motion of Small Particles Suspended in a Stationary Liquid, as Required by the Molecular Kinetic Theory of Heat

Brownian motion

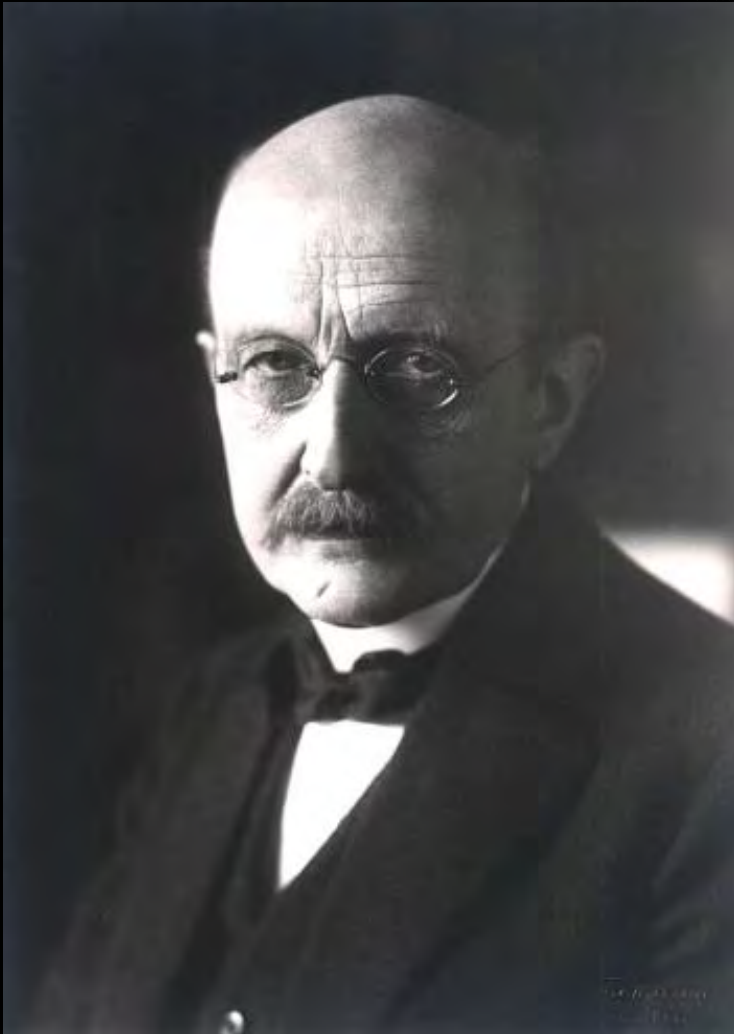
On the Electrodynamics of Moving Bodies

Special Relativity

Does the Inertia of a Body Depend Upon Its Energy Content?

Matter Energy Equivalence: $E = mc^2$

At the time Einstein's theories almost went unnoticed by the scientific community...



Max Karl
Ludwig Planck

Considered to be the
father of Quantum
Theory

*But what does this have to
do with the Shroud of Turin
and radiocarbon dating... ?*

Everything!

20 Years of Letter Writing

The Most Reverend Giovanni Saldrinni, Cardinal, 14 November 1995

John Jackson, PhD 7 February 1996

The Most Reverend Giovanni Saldrinni, Cardinal, 27 February 1996

Mrs. Rebecca Jackson, 25 June 1996

The Holy Shroud Guild, 27 June 1996

M. Sue Benford, 5 November 1997

Thomas E. Klocek 10 July 1998

August D. Accetta, Shroud Center of Southern California MD 24 July 1997

Ken Roberts, The Ken Roberts Company, 6 February 1999

August D. Accetta, MD, e-mail correspondence 8 February 1999

Mrs. Margret Karcher, 3 February 2000

20 Years of Letter Writing Cont.

The Honorable Rush Holt, US Congressman 11 January 2001

Mr. Andre' Lemaire, Biblical Archaeology Society 15 December 2002

The Most Reverend Aris Shirvania, Armenian Patriarchate 25 February 2004

His Holiness John Paul II, Pope, 3 February 2005

Daniel Sewell Ward, PhD, Library of Halexandria, 9 September 2005

Stanton T. Friedman 6 August 2005

Simeon Hein, PhD & Ron Russell, Institute for Resonance 20 August 2005

Lisa Randall, PhD, Harvard University, Brane Theory, 16 December 2005

Angi Christensen, IC FBI e-mail 11 January 2006

Carol Miller, John Templeton Foundation 13 January 2006

The Honorable Rush Holt, US Congressman 16 January 2006

Department of the Air Force, 1 February 2006

Barrie Schwartz, 28 December 2006

Producers of "What the Bleep do we Know?" 27 November 2007

The Most Reverend Severino Polletto, Cardinal 10 September 2009

Barbra Frale, PhD, Segreto Vaticano, 27 January 2010

Dame Isbel Piczek, Construction Art Center 2 February 2010

Reason for Studying the Shroud of Turin

The reason for continuing a scientific studying the Shroud of Turin is not to prove its authenticity, but discover who and what our physical bodies are on the quantum level and possibly a way of traveling through space-time fast than the speed of light. My own personal investigation has moved past the physical science of the Shroud of Turin and given me new insights of understanding such as the mechanics of the DNA molecule on the quantum level, cosmology, nuclear physics and space-time travel.

1898 - The First Photograph



Secondo Pia (1855 in –1941) was an Italian lawyer and amateur photographer. He is best known for taking the first photographs of the Shroud of Turin on May 28, 1898 and, when he was developing them, noticing that the photographic negatives showed a clearer rendition of the image.

There is a *direct mathematical relationship* between body image on the linen and the distance from the body.

- As discovered by Dr. Jackson
- Confirmed by VP-8 Image analysis, resulting in a 3D effect.
- Supports the *Inverse-square Law* as possible mechanism for image formation.



John Jackson, PhD Torino, Italy 1978

The Shroud of Turin during an Exhibition



A Summary of STURP's Conclusions

After years of exhaustive study and evaluation of the data, STURP issued its Final Report in 1981. The following official summary of their conclusions was distributed at the press conference held after their final meeting in October 1981:

No pigments, paints, dyes or stains have been found on the fibrils. X-ray, fluorescence and microchemistry on the fibrils preclude the possibility of paint being used as a method for creating the image. Ultra Violet and infrared evaluation confirm these studies. Computer image enhancement and analysis by a device known as a VP-8 image analyzer show that the image has unique, three-dimensional information encoded in it. Microchemical evaluation has indicated no evidence of any spices, oils, or any biochemicals known to be produced by the body in life or in death. It is clear that there has been a direct contact of the Shroud with a body, which explains certain features such as scourge marks, as well as the blood. However, while this type of contact might explain some of the features of the torso, it is totally incapable of explaining the image of the face with the high resolution that has been amply demonstrated by photography.

The basic problem from a scientific point of view is that some explanations which might be tenable from a chemical point of view, are precluded by physics. Contrariwise, certain physical explanations which may be attractive are completely precluded by the chemistry. For an adequate explanation for the image of the Shroud, one must have an explanation which is scientifically sound, from a physical, chemical, biological and medical viewpoint. At the present, this type of solution does not appear to be obtainable by the best efforts of the members of the Shroud Team. Furthermore, experiments in physics and chemistry with old linen have failed to reproduce adequately the phenomenon presented by the Shroud of Turin. *The scientific concensus is that the image was produced by something which resulted in oxidation, dehydration and conjugation of the polysaccharide structure of the microfibrils of the linen itself.* Such changes can be duplicated in the laboratory by certain chemical and physical processes. A similar type of change in linen can be obtained by sulfuric acid or *heat*. However, there are no chemical or physical methods known which can account for the totality of the image, nor can any combination of physical, chemical, biological or medical circumstances explain the image adequately.

A Summary of STURP's Conclusions Cont.

by the best efforts of the members of the Shroud Team. Furthermore, experiments in physics and chemistry with old linen have failed to reproduce adequately the phenomenon presented by the Shroud of Turin. The scientific consensus is that the image was produced by something which resulted in oxidation, dehydration and conjugation of the polysaccharide structure of the microfibrils of the linen itself. Such changes can be duplicated in the laboratory by certain chemical and physical processes. A similar type of change in linen can be obtained by sulfuric acid or heat. However, there are no chemical or physical methods known which can account for the totality of the image, nor can any combination of physical, chemical, biological or medical circumstances explain the image adequately.

Thus, the answer to the question of how the image was produced or what produced the image remains, now, as it has in the past, a mystery.

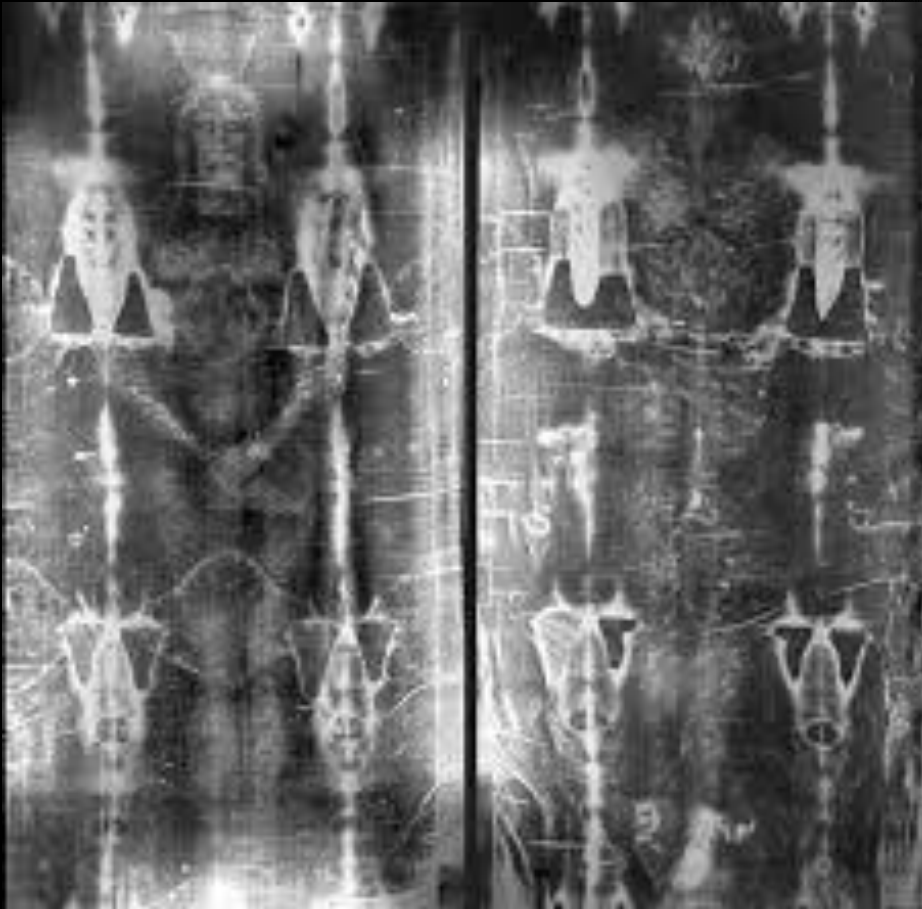
We can conclude for now that the Shroud image is that of a real human form of a scourged, crucified man. It is not the product of an artist. The blood stains are composed of hemoglobin and also give a positive test for serum albumin. The image is an ongoing mystery and until further chemical studies are made, perhaps by this group of scientists, or perhaps by some scientists in the future, the problem remains unsolved.

A closer look...

*The scientific concensus is that the image was produced by something which resulted in oxidation, **dehydration** and **conjugation of the polysaccharide structure of the microfibrils of the linen itself.***

*A similar type of change in linen can be obtained by sulfuric acid or **heat**. However, *there are no chemical or physical methods known which can account for the totality of the image, nor can any combination of physical, chemical, biological or medical circumstances explain the image adequately.**

1931 Photographs



Petrus Soons, MD was able to obtain first generation photographic plates of pictures that were taken by Giuseppe Enrie in 1931. When digitizing the plates they found more data from the time lapsed photographic process than was expected. By manipulating the focal length of the data obtained it would appear that there is additional images on the linen cloth He describes the image as a Quantum Bio-Hologram.

Roman coins placed on the eyelids

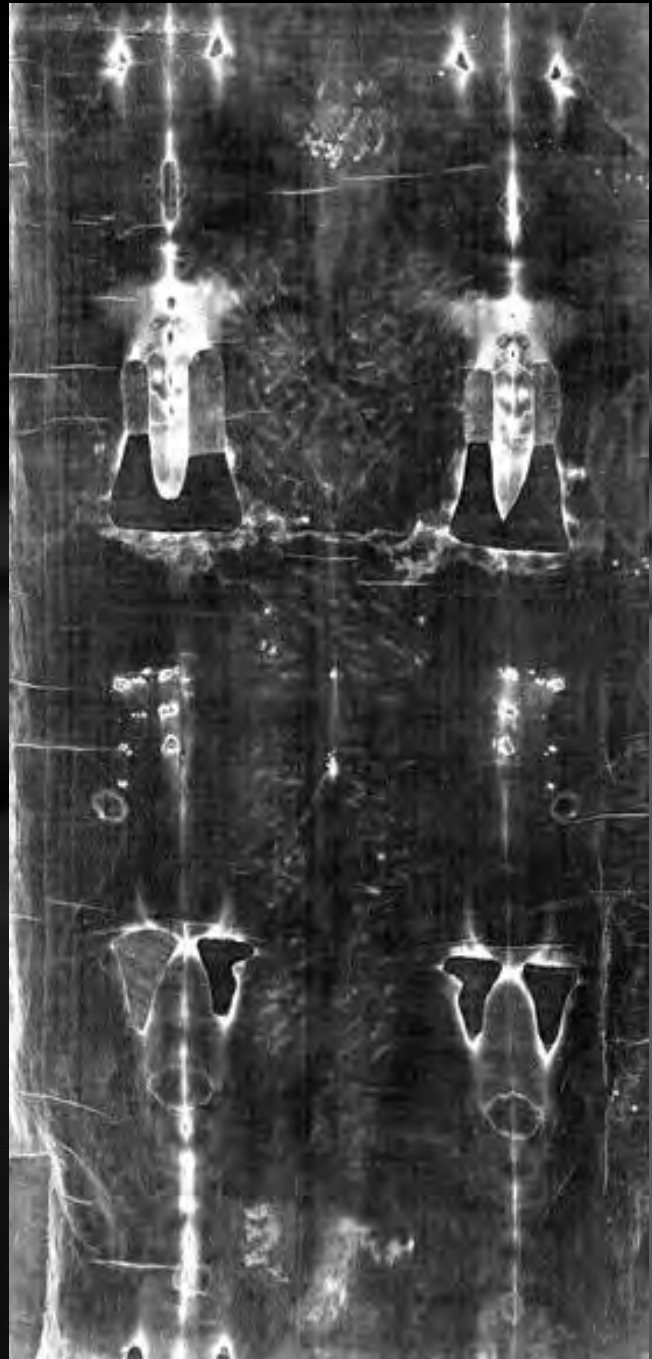


It has been suggested that Roman coins were placed over the eyelids of Jesus. In a previous slide we saw that the propagation of neutrons through space follows an *inverse-square law*, as do the *effects of electric and magnetic fields*. Substances that are negligibly affected by magnetic fields are known as *non-magnetic* substances. They include *copper*, aluminum, gases, and plastic.

Revealing Signs



Dame Isabel Piczek
Particle Physicist/Artist



Revealing Signs Cont.

1) The hermetic separation of the two images Frontal and Dorsal without any overlap.

2) The lack of anatomical distortion of the naked Body projected on the Shroud.

—These both indicate that the Shroud was forced absolutely taut and precisely parallel with some kind of horizontal entity running in the center.

—Also is apparent the presence of an inner Enclosure, AN ISOLATED SYSTEM, with all that this Isolated System would indicate or even enforce.

3) It is clearly visible on the Shroud Images, especially on the Dorsal Image, that the muscles of the Body are not crushed and flattened against the stone bench of the tomb.

4) The Body is hovering between the upper and the lower sheet and there is NO TRACE OF GRAVITY.

5) The lack of gravity is also further proven by the Shroud linen. The linen does not fall on top of the Body, but remains in its unnaturally stretched condition at some distance from the body.

Seeing Flesh and Bone Simultaneously

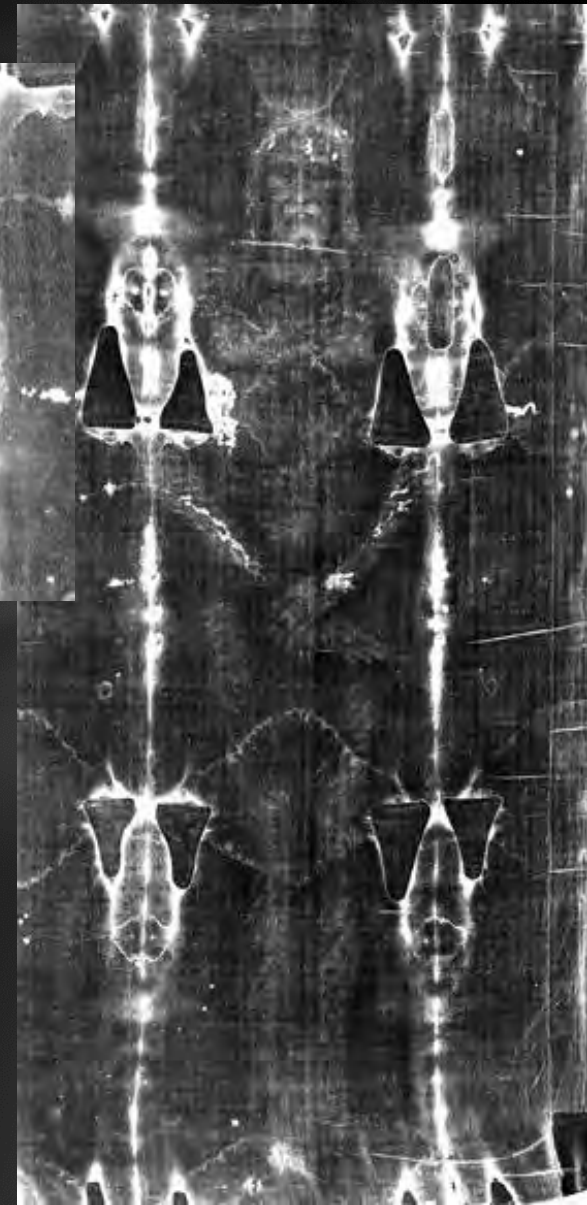
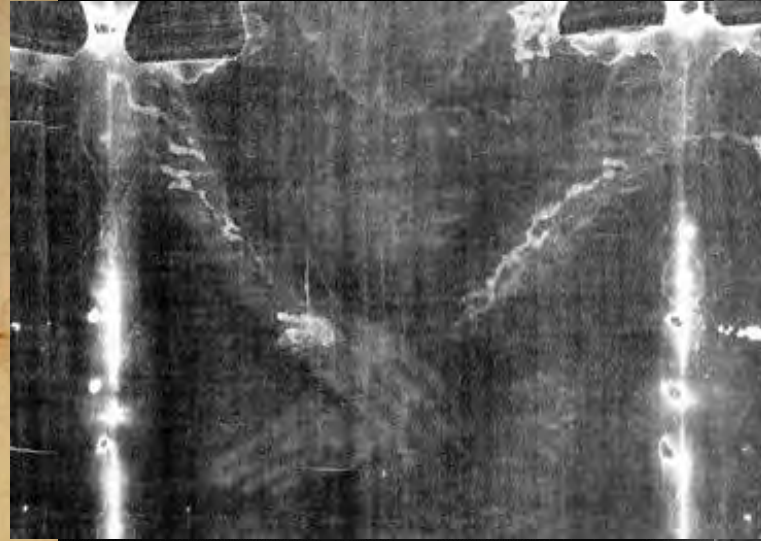
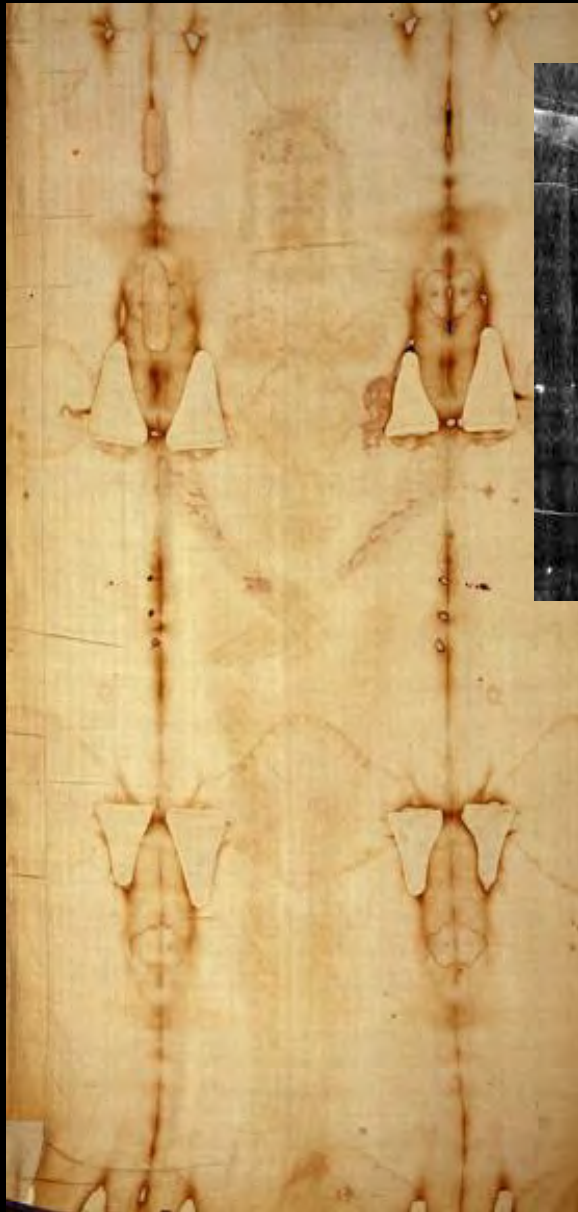
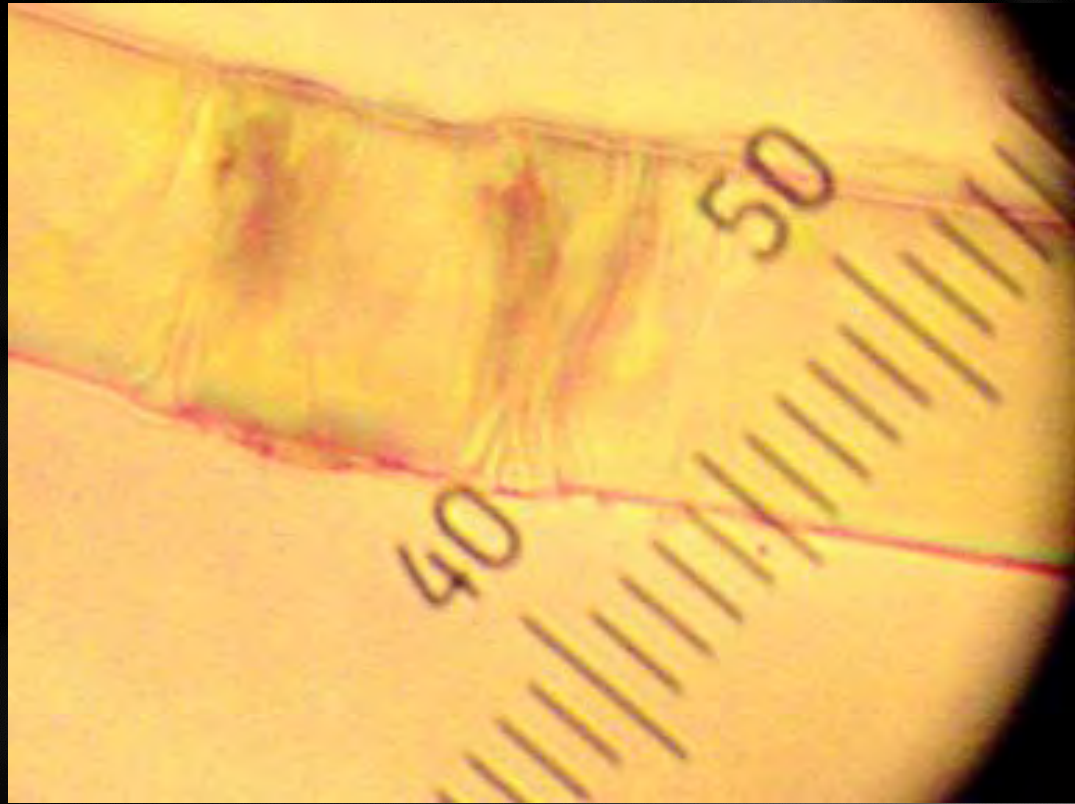


Image from cell wall to cell wall, λ

It has been suggested that the body image is along the entire length of the linen fiber from cell wall to cell wall. This can give us an indication to the frequency when considering the wavelength of energy causing the body image was a multiple of this length from cell wall to cell wall, causing a *resonance* that would have produced large amplitude oscillations in the system storing the vibrational energy.

λ is defined as the wavelength.



Facts About the Body Image

- The body image is anatomically correct and the wounds agree with the passion and crucifixion suffered by Jesus of Nazareth.
- The image is a photographic negative with respect to the contrast of light and dark colors.
- There are no dyes or pigments that were used to create the image.
- The body image is not effected by heat or water.
- The body image is a rapid heating and/or dehydration of a carbohydrate layer on the surface crown of individual linen fibers.
- We could see both flesh and bone simultaneously.
- The body image is best viewed/visible from a distance of approximately 12 feet.
- The body image has dimensional properties with respect to the spatial distance the body was from the cloth, the darkest image is from the tip of the nose.

Facts About the Body Image Cont.

- The body image has a very specific up/down directionality.
- It has properties of a hologram, different focal lengths provide additional 3 dimensional information that is not seen by the unaided eye.
- The body image is displaced along the length of individual plant cells, from cell wall to cell wall.
- There are no flat spots on the dorsal side of the body.
- There are secondary faint images of flowers on the cloth.
- There are solid objects placed over the eyelids, Roman coins have been suggested, and the hollow of the neck that did not interfere with the mechanism that produce the body image.
- It has been suggested that body image is becoming more faint over time.
- Not directly related to the body image, the radiocarbon dating results do not agree with the cloth being manufactured in the first century.

*Neutron
activation,
the guilty
particle!*

The Photoelectric Effect^[Wi]

Einstein states,

“Energy, during the propagation of a ray of light, is not continuously distributed over steadily increasing spaces, but it consists of a finite number of energy quanta localized at points in space, moving without dividing and capable of being absorbed or generated only as entities.”

Einstein noted that the photoelectric effect depended on the wavelength, and hence the frequency of the light. At too low a frequency, even intense light produced no electrons. However, once a certain frequency was reached, even low intensity light produced electrons. He compared this to Planck's hypothesis that light could be emitted only in packets of energy given by hf , where h is Planck's constant and f is the frequency. He then postulated that light travels in packets whose energy depends on the frequency, and therefore only light above a certain frequency would bring sufficient energy to liberate an electron.

Matter Energy Equivalence $E=mc^2$ [Wi]

Einstein considered the equivalency equation to be of paramount importance because it showed that a massive particle possesses an energy, the "*rest energy*", distinct from its classical *kinetic* and *potential energies*. The paper is based on *James Clerk Maxwell's and Heinrich Rudolf Hertz's* investigations and, in addition, the axioms of relativity, as Einstein states:

"The results of the previous investigation lead to a very interesting conclusion, which is here to be deduced. The previous investigation was based "on the Maxwell-Hertz equations for empty space, together with the Maxwellian expression for the electromagnetic energy of space ..."The laws by which the states of physical systems alter are independent of the alternative, to which of two systems of coordinates, in uniform motion of parallel translation relatively to each other, these alterations of state are referred (principle of relativity).

MASS-ENERGY EQUIVALENCE^[Wi]

Matter is composed of such things as *atoms, electrons, neutrons, and protons*. It has intrinsic or rest mass. In the limited range of recognized experience of the nineteenth century it was found that such rest mass is conserved. Einstein's 1905 theory of *special relativity* showed that it corresponds to an equivalent amount of *rest energy*. This means that it can be converted to or from equivalent amounts of *other (non-material)* forms of energy, for example *kinetic energy, potential energy, and electromagnetic radiant energy*. When this happens, as recognized in twentieth century experience, rest mass is not conserved, unlike the *total mass or total energy*. All forms of energy contribute to the total mass and total energy.

For example an *electron* and a *positron* each have rest mass. They can perish together, converting their combined rest energy into *photons* having *electromagnetic radiant energy*, but no rest mass. If this occurs within an isolated system that does not release the photons or their energy into the external surroundings, then neither the total *mass* nor the total *energy* of the system will change. The produced *electromagnetic radiant energy* contributes just as much to the *inertia* (and to any weight) of the system as did the *rest mass* of the *electron and positron* before their demise. *Conversely, non-material forms of energy can perish into matter, which has rest mass.*

Matter Energy Equivalence Cont. [Wi]

The equation sets forth that energy of a body at rest (E) equals its mass (m) times the speed of light (c) squared, or $E = mc^2$.

If a body gives off the energy L in the form of radiation, its mass diminishes by L/c^2 . The fact that the energy withdrawn from the body becomes energy of radiation evidently makes no difference, so that we are led to the more general conclusion that The mass of a body is a measure of its energy-content; if the energy changes by L, the mass changes in the same sense by $L/9 \times 10^{20}$, the energy being measured in ergs, and the mass in grammes.

[...]

If the theory corresponds to the facts, radiation conveys inertia between the emitting and absorbing bodies.”

Heat^[Wi]

In physics, *heating* is transfer of *energy*, from a hotter body to a colder one, other than by work or transfer of matter. It occurs spontaneously whenever a suitable physical pathway exists between the bodies. The pathway can be direct, as in *conduction* and *radiation*, or indirect, as in convection and circulation.

Kinetic Theory explains transfers of energy as heat as macroscopic manifestations of the *motions and interactions of microscopic constituents* such as *molecules and photons*.

Kinetic Energy^[Wi]

In physics, the *kinetic energy* of an object is the *energy* that it possesses due to its *motion*. It is defined as the work needed to accelerate a body of a given mass from rest to its stated velocity. Having gained this energy during its acceleration, the body maintains this kinetic energy unless its speed changes. The same amount of work is done by the body in decelerating from its current speed to a state of rest.

In *classical mechanics*, the kinetic energy of a non-rotating object of mass m traveling at a speed v is $KE = \frac{1}{2}mv^2$. In *relativistic mechanics*, this is only a good approximation when v is much less than the *speed of light*.

Model of a Helium Atom^[Wi]

The relativistic size of the nucleus of the helium atom compared to the cloud of electrons orbiting the nucleus at the speed of light is very small.

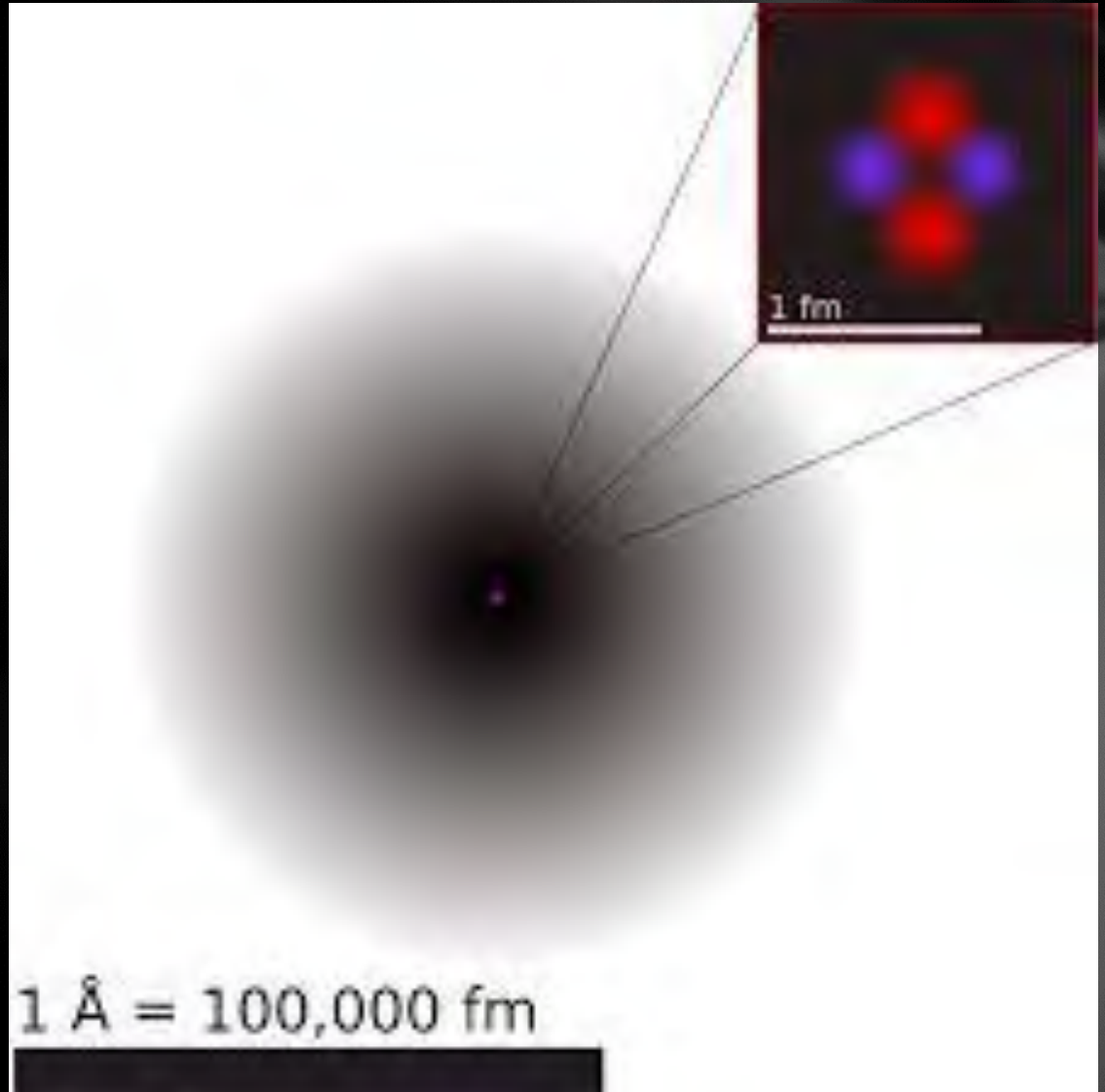
The volume of an atom in the space it occupies is nearly empty space.

A helium nucleus with out electrons is an alpha particle carrying a +2 charge.

2 protons

2 neutrons

femtometre $\text{fm} = 1 \times 10^{-15} \text{ m}$



Properties of a Neutron^[Wi]

The neutron is a subatomic particle.

Symbol n^0 .

Carries no electric charge.

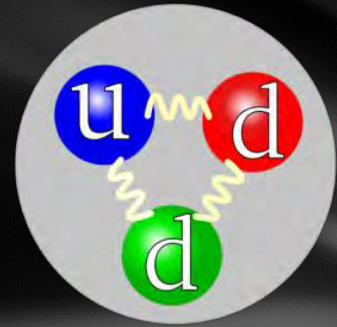
Composition is 1 up quark $+2/3 e$ and 2 down quarks $-1/3 e$.

Mass is slightly larger than a proton.

The neutron number defines the isotope of the element.

Neutrons bound in a nucleus can be stable (depending on the nuclide).

Free neutrons, or individual neutrons free of the nucleus, are unstable.



Neutron Magnetic Moment^[Wi]

Even though the neutron is a neutral particle, *the magnetic moment of a neutron is not zero.*

Since the neutron is a neutral particle, it is not affected by electric fields, but with its *magnetic moment* it is affected by *magnetic fields*.

Neutrons move *antiparallel in magnetic fields*, they don't follow exact lines magnetic flux.

The magnetic moment of the neutron is an indication of its quark substructure.

FREE NEUTRON DECAY ^[Wi]

Free neutrons are unstable and have a mean life time of 881.5 ± 1.5 s, about 14 minutes, 42 seconds.

Decay of the free neutrons is known as beta decay



p^+ defined as a proton

e^- defined as an electron

$\bar{\nu}_e$ defined as an electron antineutrino

Free neutron, the decay energy for this process (based on the masses of neutrino, proton, and electron) is 0.782343 MeV

Other Free Neutron Decay^[Wi]

A small fraction, about one in 1000, of free neutrons decay with the same products, but add an extra particle in the form of an emitted gamma ray:



p^+ defined as a proton

e^- defined as an electron

$\bar{\nu}_e$ defined as an electron antineutrino

γ defined as a gamma ray

This gamma ray may be thought of as a sort of "internal bremsstrahlung" that arises as the emitted beta particle interacts with the charge of the proton in an *electromagnetic* way. Internal bremsstrahlung *gamma ray* production is also a minor feature of beta decays of bound neutrons.

Thermal Neutron ^[Wi]

A thermal neutron is a free neutron with a kinetic energy of about 0.025 eV (about 4.0×10^{-21} J or 2.4 MJ/kg, hence a *speed of 2.2 km/s*), which is the energy corresponding to the most probable velocity at a temperature of 290 K (*17 °C or 62 °F*), the mode of the Maxwell-Boltzmann distribution for this temperature.

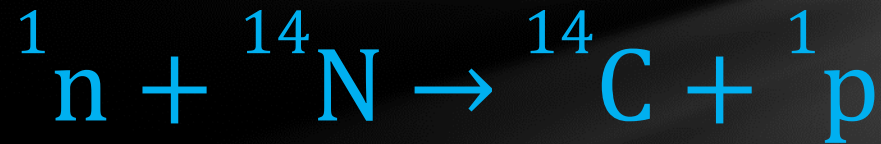
Thermal neutrons have a different and often much larger effective *neutron absorption* cross-section for a given nuclide than fast neutrons, and can therefore often be absorbed more easily by an atomic nucleus, creating a heavier, often unstable isotopes of the chemical element as a result of neutron activation.

Neutron Activation^[Wi]

Neutron activation is defined as the process in which neutron radiation induces radioactivity in materials, and occurs when *atomic nuclei capture free neutrons*, becoming heavier and entering excited states. The excited nucleus often decays immediately by emitting gamma rays, or particles such as *beta rays* (electrons emitted from the nucleus), alpha particles, or fission products and neutrons in nuclear fission. Thus, the process of neutron capture, even after any intermediate decay, often results in the formation of an unstable activation product.

Natural Production of Carbon-14 in the Atmosphere^[Wi]

Carbon-14 is produced in the upper layers of the troposphere and the stratosphere by *thermal neutrons* absorbed by nitrogen atoms. When cosmic rays enter the atmosphere, they undergo various transformations, including the production of neutrons. The resulting neutrons (^1n) participate in the following reaction:

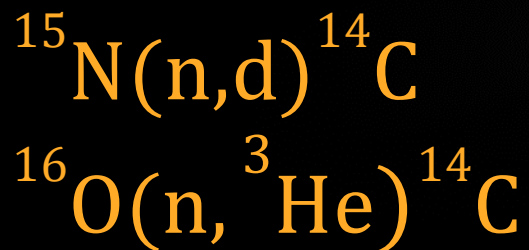


The highest rate of carbon-14 production takes place at altitudes of 9 to 15 km (30,000 to 50,000 ft) and at high *geomagnetic latitudes*.

Other ^{14}C Production Routes^[Wi]

Thermal Neutrons	Natural Abundance, %	Cross Section, b
$^{14}\text{N}(n,p)^{14}\text{C}$	99.6%	1.81
$^{13}\text{C}(n,\gamma)^{14}\text{C}$	1.10%	0.0009
$^{17}\text{O}(n,\alpha)^{14}\text{C}$	0.038	0.235

Fast Neutrons



Radiocarbon Dating^[Wi]

Radiocarbon dating is a method of determining the age of an object by using the properties of *radiocarbon*, a radioactive isotope of carbon.

It depends on the fact that radiocarbon, often abbreviated as ^{14}C , is constantly being created in the atmosphere by the interaction of *cosmic rays* with atmospheric *nitrogen*. The resulting *radiocarbon* combines with atmospheric oxygen to form radioactive carbon dioxide, CO_2 . This is then incorporated into plants by photosynthesis, and animals acquire by eating the plants.

When the animal or plant dies, it stops exchanging carbon with its environment, and from that point the amount of ^{14}C it contains begins to reduce as the ^{14}C undergoes radioactive decay.

The *half-life* of ^{14}C (the time it takes for half of a given amount of ^{14}C to decay) is about *5,730* years.

Beta Decay^[Wi]

In nuclear physics, *beta decay* (β decay) is a type of radioactive decay in which a *neutron* is transformed into a *proton*, or vice versa, inside an atomic nucleus. This process allows the atom to move closer to the optimal ratio of protons and neutrons. As a result of this transformation, the nucleus emits a detectable *beta particle*, which is an *electron or positron*.

Beta decay is mediated by the weak force. There are two types of beta decay, known as *beta minus* and *beta plus*. Beta minus (β^-) decay produces an *electron* and *electron antineutrino*, while beta plus (β^+) decay produces a *positron* and *electron neutrino*; β^+ decay is thus also known as *positron emissions*.

An example of electron emission (β^- decay) is the decay of *carbon-14* into *nitrogen-14*;



REPORTED RESULTS OF THE 1988 RADIOCARBON DATING



^{14}C Sample Location on the Shroud

The Raes fragment was removed in 1973.



Approximate locations of questionable area used for C-14 dating in reference to full frontal portion of the Shroud. © 1978 Barrie Schwartz

Expectation of the results of the 1988 radiocarbon dating:

When determining the ratio of carbon12 measured to radioisotope of carbon14 the experiment would either:

date the cloth from the first century during the crucifixion and resurrection of Christ, *possibly* authenticating the linen burial shroud of Jesus.

or

date the cloth to some other time period in history. In this case to the middle ages confirming the linen Shroud of Turin to be a medieval forgery.

Hypothesis of ^{14}C Production

A different explanation rather than an expectation:

Through a mechanism in nuclear physics known as radiative capture the mass of ^{14}C was increased through neutron activation by the bombardment of ^{14}N atoms, that are contained in the DNA of the plant cell nuclei of the flax fiber, by thermal neutrons. Not that there was an apparent decrease in the age of the linen cloth as measured by the radiocarbon dating but an increase in the measured mass of ^{14}C isotopes of carbon atoms.

Experiments with Neutron Irradiation

T.J. Phillips in 1989 had already advanced the hypothesis that a neutron flux could be the cause of the strong increase in ^{14}C .

Subsequently, our team started a fruitful collaboration with Professor Jean Baptiste Rinaudo of the Faculty of Medicine of Montpellier. He presented a model in order to explain both the formation of the Shroud and the increase in ^{14}C . (They irradiated linen from a Lyma mummy with a neutron flux of $1 \times 10^{13} \text{ n/cm}^2$)

According to this model, a sudden disintegration of the deuterium nuclei, which are present on the surface of the body, may have originated protons and neutrons. The first ones could be the origin of the image, the second ones could be the cause of the increase in ^{14}C . On the basis of this hypothesis, we estimated the proton flux necessary to produce the coloring of the Shroud and, from this value, we calculated the corresponding neutron flux.

Experimental Evidence of ^{14}C Production

Conclusions

The most evident result of our research is the increase of the ^{14}C content after neutron irradiation⁶ and the impossibility, even with the most severe pretreatments, to reach the "historic" age (calibrated on dendro-chronological curves) of the non irradiated sample (TO-13583 - 40/10/0 BC).

Therefore, if an irradiation had happened, the result would explain the anomalous data obtained in the analyses of the Shroud made in 1998.⁷

It is evident that the ^{14}C content increases with the increase of the neutron flux. The sample TO-12553 (Table V), although subjected to a cleaning pretreatment with a yield of 7.8%, shows a result of the ^{14}C content greater than the sample TO-5305 (Tab.III).

John 20:4-7

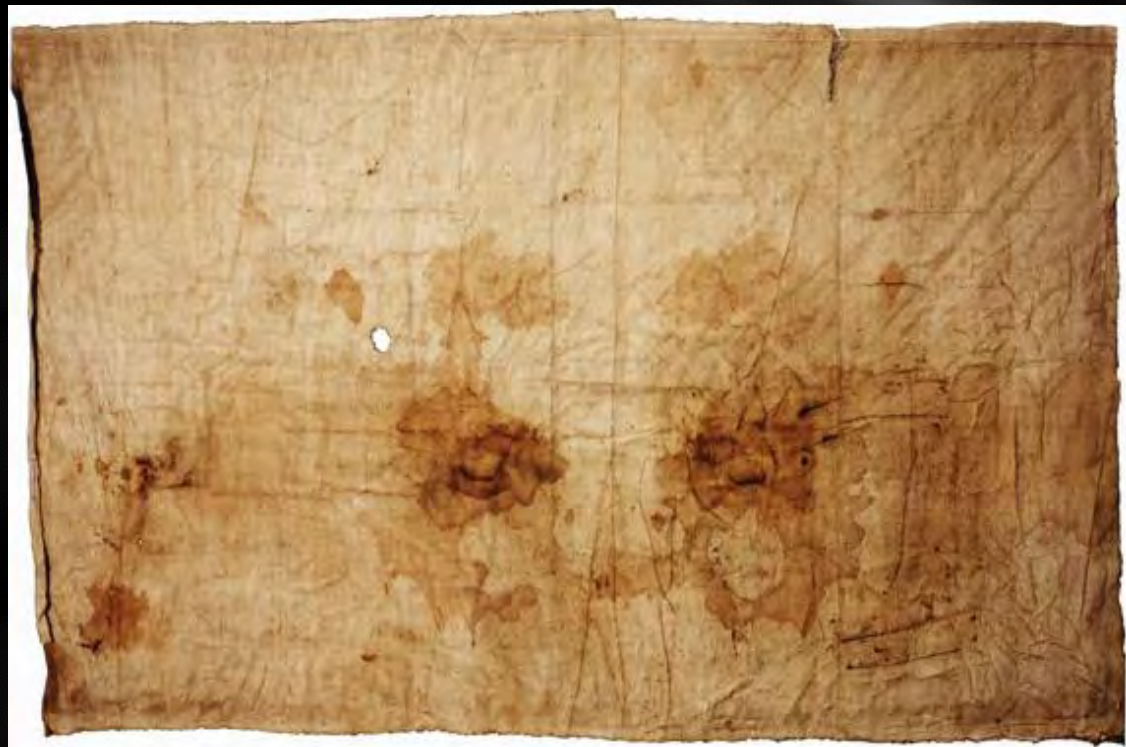
⁴They both ran, but the other disciple outran Peter and reached the tomb first; ⁵and stooping to look in, he saw the linen cloths lying there, but did not go in. ⁶Then Simon Peter came, following him, and went into the tomb; he saw the linen cloths lying, ⁷and the napkin, which had been placed on his head, not lying with the linen cloths but rolled up in a place by itself.

Sudarium of Oviedo^[Wi]

It appears in John 20:7 “and the napkin, which had been on his head, *not lying with the linen cloths but rolled up in a place by itself.*”

Its mention in *570 AD* by Antoninus of Piacenza, who writes that the Sudarium was being cared for in a cave near the monastery of Saint Mark, in the vicinity of Jerusalem.

Results of the *2007* radiocarbon dating dates the linen to around *700 AD*. *But why?*



Cathedral of San Salvador Oviedo, Spain

But how can this be... ?

Other similarities between the Shroud of Turin and Sudarium of Oviedo

Contain AB blood.

In the *ultraviolet fluorescence* photographs taken of the Sudarium, it is evident that what has been designated as blood regions do not appear to fluoresce. This similar behavior can also be noted in the ultraviolet fluorescence photographs of the Shroud.

Pollen samples from both cloths share members of certain species – one example is the thorn bush *Gundelia tournefortii*, which is indigenous to the Mideast. 27.3% of the total number of pollen spores found on the Shroud of Turin were from this plant.

Gundelia tournefortii^[Wi]

The **gundelia** is a spiny, thistle-like flowering plant, any of several species of the genus *Gundelia*, in the sunflower family (Asteraceae), particularly *Gundelia tournefortii*. It is found in the semi-desert areas of Lebanon, Syria, Palestine, Israel, Jordan, Iraq, Iran, Azerbaijan, Armenia, and Anatolia.

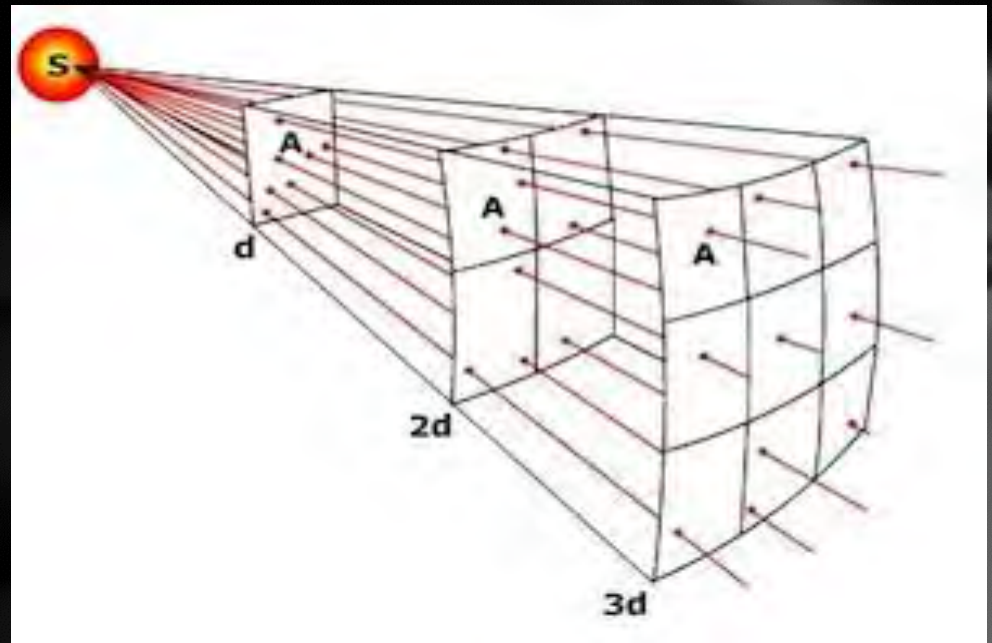


Inverse-Square Law^[Wi]

In physics, an *inverse-square law* is any physical law stating that a specified physical quantity or intensity is inversely proportional to the square of the distance from the source of that physical quantity. In equation form:

$$\text{Intensity} \propto \frac{1}{\text{distance}^2}$$

The divergence of a vector field which is the resultant of radial inverse-square law fields with respect to *one or more sources* is everywhere proportional to the strength of the local sources, and hence zero outside sources. Propagation of neutrons through space follows an *inverse-square law*, as do the *effects of electric and magnetic fields, light and sound*.



Results of the radiocarbon dating of the Shroud of Turin in combination with the Sudarium of Oviedo:

Is the smoking gun of the resurrection!



CORRECTED RESULTS OF THE 1988 RADIOCARBON DATING



Neutron Shielding^[Wi]

Neutron Ionization mechanisms and properties

Neutron radiation is often called *indirectly ionizing radiation*

Because a neutron doesn't carry a charge they are difficult to shield using materials of higher atomic numbers such as *lead or steel*, which are *transparent* to thermal neutrons.

Materials with lower atomic numbers are the most effective shielding materials such as materials with a *high hydrogen content*, e.g. *hydrocarbons, polyethylene, hard plastics, paraffin wax, oils, and water*.

Neutron Diffraction^[Wi]

Like all quantum particles, *neutrons* can exhibit **wave** phenomena typically associated with *light* or sound. Diffraction is one of these phenomena; it occurs when waves encounter obstacles whose size is comparable with the wavelength. *If the wavelength of a quantum particle is short enough, atoms or their nuclei can serve as diffraction obstacles.*

Magnetic scattering

Although *neutrons* are uncharged, they carry a spin, and therefore interact with *magnetic moments*, including those arising from the electron cloud around an atom. ***Neutron diffraction*** can therefore reveal the microscopic *magnetic scattering of a material.*

Magnetic scattering does require an atomic form factor as it is caused by the much larger electron cloud around the tiny nucleus. *The intensity of the magnetic contribution to the diffraction peaks will therefore dwindle towards higher angles.*

Neutron Diffraction Cont.^[Wi]

Hydrogen, null-scattering and contrast variation

Neutron diffraction can be used to establish the structure of low atomic number materials like *proteins* and *surfactants* much more easily with lower flux than at a synchrotron radiation source. This is because some *low atomic number materials* have a *higher cross section for neutron interaction* than higher atomic weight materials.

Resonance^[Wi]

In physics, **resonance** is the tendency of a system to *oscillate* with *greater amplitude* at some *frequencies* than at others. Frequencies at which the response amplitude is a relative maximum are known as the system's *resonant frequencies*, or *resonance frequencies*. At these frequencies, even small *periodic* driving forces can *produce large amplitude oscillations*, because the system stores *vibrational energy*.

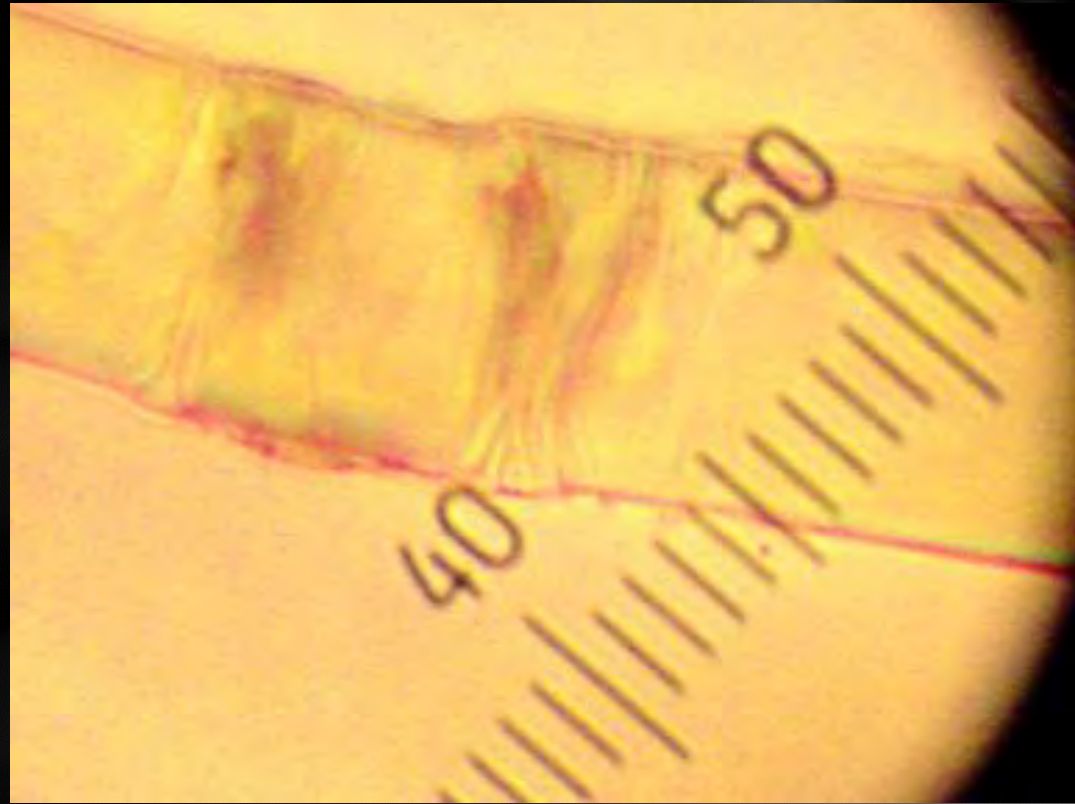
Resonance occurs when a system is able to store and easily transfer energy between two or more different storage modes (such as *kinetic energy* and potential energy in the case of a pendulum). However, there are some losses from cycle to cycle, called damping. When damping is small, the resonant frequency is approximately equal to the *natural frequency* of the system, which is a frequency of unforced vibrations. Some systems have multiple, distinct, resonant frequencies.

Resonance phenomena occur with all types of vibrations or *waves*: there is mechanical resonance, acoustic resonance, *electromagnetic resonance*, *nuclear magnetic resonance (NMR)*, *electron spin resonance (ESR)* and *resonance of quantum wave functions*. Resonant systems can be used to generate vibrations of a specific frequency (e.g., musical instruments), or pick out specific frequencies from a complex vibration containing many frequencies (e.g., filters).

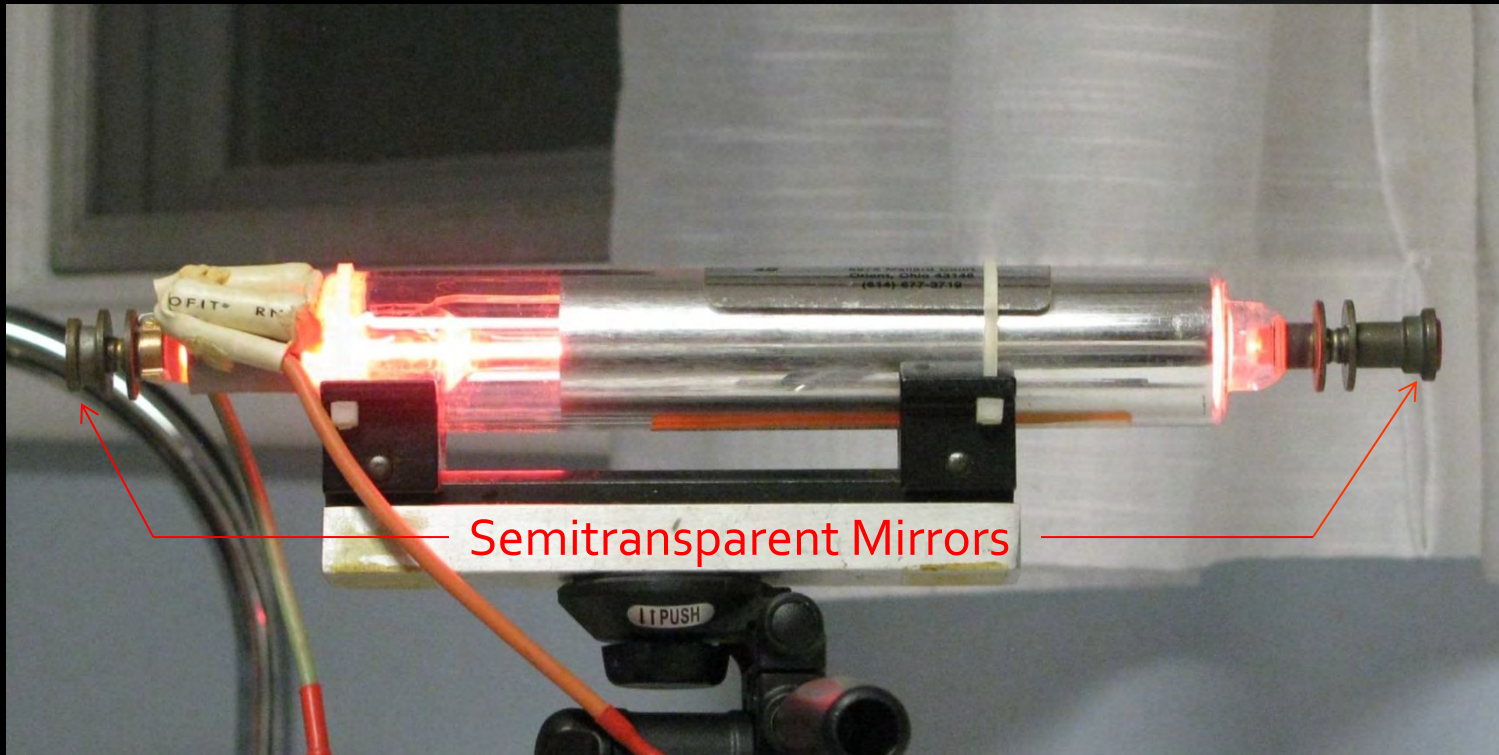
Image from cell wall to cell wall, λ

It has been suggested that the body image is along the entire length of the linen fiber from cell wall to cell wall. This can give us an indication to the frequency when considering the wavelength of energy causing the body image was a multiple of this length from cell wall to cell wall, causing a *resonance* that would have *produced large amplitude oscillations in the system storing the vibrational energy.*

λ is defined as the wavelength.



LASER



Light Amplification by Stimulated Emission of Radiation – a laser produces monochromatic light by creating a standing wave between semitransparent mirrors at the end of the tube at a multiple of the wavelength of the light being emitted. Although only a few milliwatts in power a laser is capable of delivering large amounts of power because the amplitude of the wave is increased because all of the photons are in phase. HeNe LASER 632.8 nm.

Magnetism, electricity, and special relativity^[Wi]

As a consequence of Einstein's theory of special relativity, electricity and magnetism are fundamentally interlinked. Both magnetism lacking electricity, and electricity without magnetism, are inconsistent with special relativity, due to such effects as *length contraction*, *time dilation*, and the fact that the magnetic force is velocity-dependent. However, when both electricity and magnetism are taken into account, the resulting theory (electromagnetism) is fully consistent with special relativity. In particular, a phenomenon that appears purely electric or purely magnetic to one observer may be a mix of both to another, or more generally *the relative contributions of electricity and magnetism are dependent on the frame of reference. Thus, special relativity "mixes" electricity and magnetism into a single, inseparable phenomenon called electromagnetism, analogous to how relativity "mixes" space and time into spacetime.*

All observations on electromagnetism apply to what might be considered to be primarily magnetism, e.g. perturbations in the magnetic field are necessarily accompanied by a nonzero electric field, and propagate at the speed of light.

Magnetic force^[Wi]

The phenomenon of *magnetism* is "mediated" by the *magnetic field*. An electric current or *magnetic dipole* creates a *magnetic field*, and that field, in turn, imparts *magnetic forces* on other *particles* that are in the *fields*.

Maxwell's equations, which simplify to the *Biot–Savart law* in the case of steady currents, describe the origin and behavior of the fields that govern these forces. Therefore magnetism is seen whenever electrically *charged particles* are in *motion*—for example, from movement of electrons in an *electric current*, or in certain cases from the orbital motion of electrons around an atom's nucleus. They also arise from "intrinsic" *magnetic dipoles* arising from *quantum-mechanical spin*.

The same situations that create *magnetic fields*—charge *moving in a current or in an atom*, and intrinsic *magnetic dipoles*—are also the situations in which a *magnetic field* has an effect, creating a force. Following is the formula for moving charge; for the forces on an *intrinsic dipole*.

Magnetism^[Wi]

Magnetism is a class of physical phenomenon that includes forces exerted by *magnets* on other magnets. It has its origin in electric currents and the fundamental *magnetic moments* of *elementary particles*. These give rise to a *magnetic field* that acts on other currents and moments.

Paramagnetism

In a paramagnetic material there are *unpaired electrons*, i.e. *atomic* or *molecular orbitals* with exactly *one electron* in them. While paired electrons are required by the *Pauli exclusion principle* to have their intrinsic ('*spin*') *magnetic moments* pointing in opposite directions, causing their magnetic fields to cancel out, an *unpaired electron* is free to align its *magnetic moment* in any direction. When an external *magnetic field* is applied, these *magnetic moments* will tend to *align themselves* in the *same direction* as the applied field, thus *reinforcing it*.

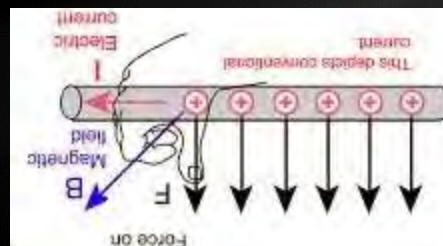
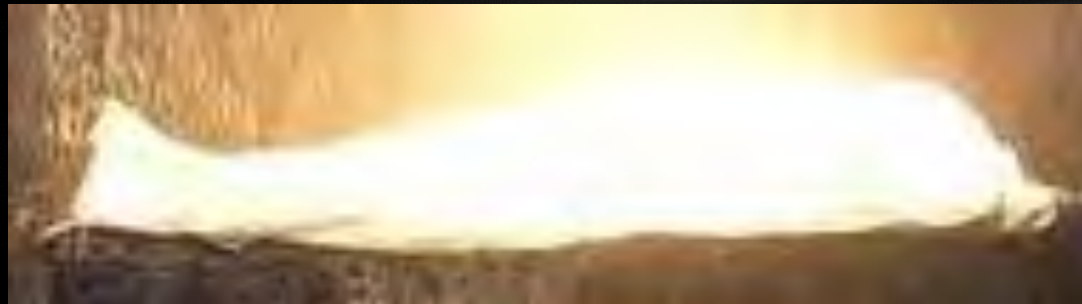
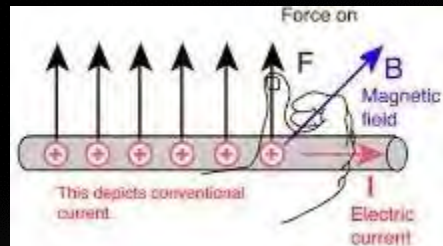
Superparamagnetism ^[Wi]

Superparamagnetism (SPM)

When a ferromagnet or ferrimagnet is sufficiently small, it acts like a single magnetic spin that is subject to Brownian motion. Its response to a magnetic field is qualitatively similar to the response of a paramagnet, *but much larger*.

The Resurrection Event

The electric current is running along the threads of the linen cloth and normal to the surface as is the magnetic field.



The magnetic forces is being produced by the superparamagnetism from the alignment of the unpaired electrons in the corpse of Jesus just moments before the resurrection event giving the body image an up/down directionality.

Hypothesis of Body Image Formation

- Just prior to the resurrection event there was an extremely large magnetic field that was developed in the corpse as the result of a superparamagnetic alignment of *unpaired* electrons, such as with hydrogen and nitrogen atoms, in the body of Jesus.
- *Paired* electrons in the body were also affected by the superparamagnetism which also cause them to align 90 degrees to the superparamagnetism also know as (super)diamagnetism.
- A very large potential energy was built up as magnetic field a result of the alignment of the unpaired electrons. This alignment of the unpaired electrons is what gave the image formation mechanism a high degree of up/down directionality.
- At the moment of the resurrection when the soul of Christ came zooming back into his body the magnetic field collapsed causing an instantaneous release of energy.
- The rapid heating and/or dehydration of the carbohydrate later was caused by the excitation of the hydrogen atoms in the carbohydrate layer on the crowns of the linen fibers by the inelastic collision/scattering from a wave of thermal neutrons being emitted from the body of Christ being directed and governed by the inverse squared law of the superparamagnetic field.

Hypothesis of Body Image Formation Cont.

- The unusual optical properties of the body image are a residual alignment of the unpaired electron spin of the hydrogen and even possibly nitrogen atoms and opposite of the electron spin built up in the body just before the magnetic field collapse from the body of Christ. Also the paired electrons would also have an alignment 90 degrees to superparamagnetism.
- Reflected light culminates at a distance of approximately 12 feet in front of the cloth is why the image seems to disappear at any closer than 12 feet.
- The body image would lose its optical properties a result of the alignment being lost over time possibly just by moving the cloth through earth's magnetic field such as when the cloth is being transported.
- Also, until confirmed the body image should be protected from any extraneous magnetic fields such as magnets and electrical transformers.

Superparamagnetism which is responsible for the image formation on the Shroud of Turin:

Is the smoking finger of God!



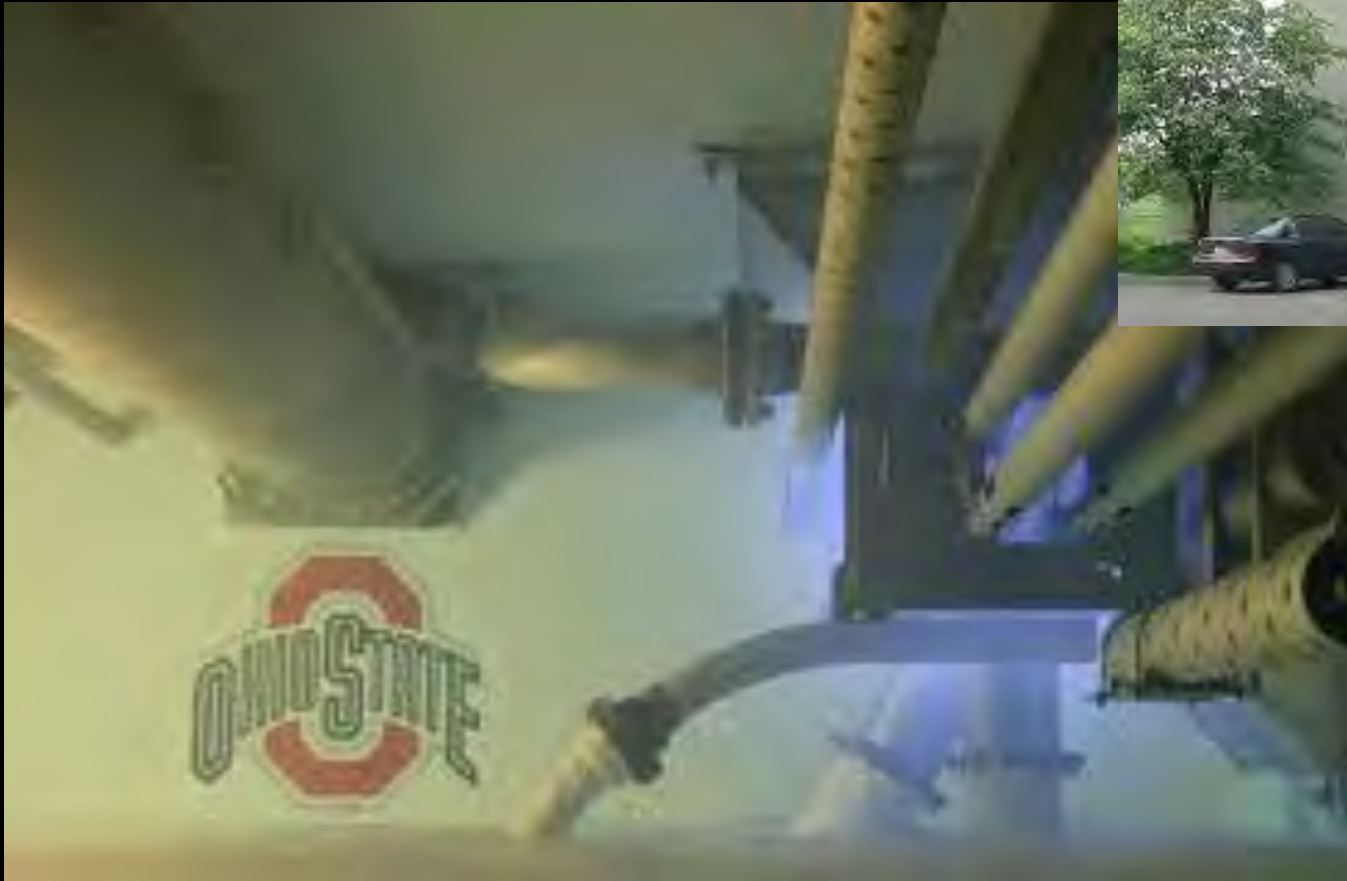
Since I couldn't get an invitation to the party, I was going to seek in the backdoor and go through the kitchen....

1998 - May be my *Wunderjahr*



Jeffrey Skurka, M. Sue Benford, and Br. Joseph Marino
1998 Shroud of Turin Exhibition, Torino Italy

The Ohio State University Nuclear Reactor Lab

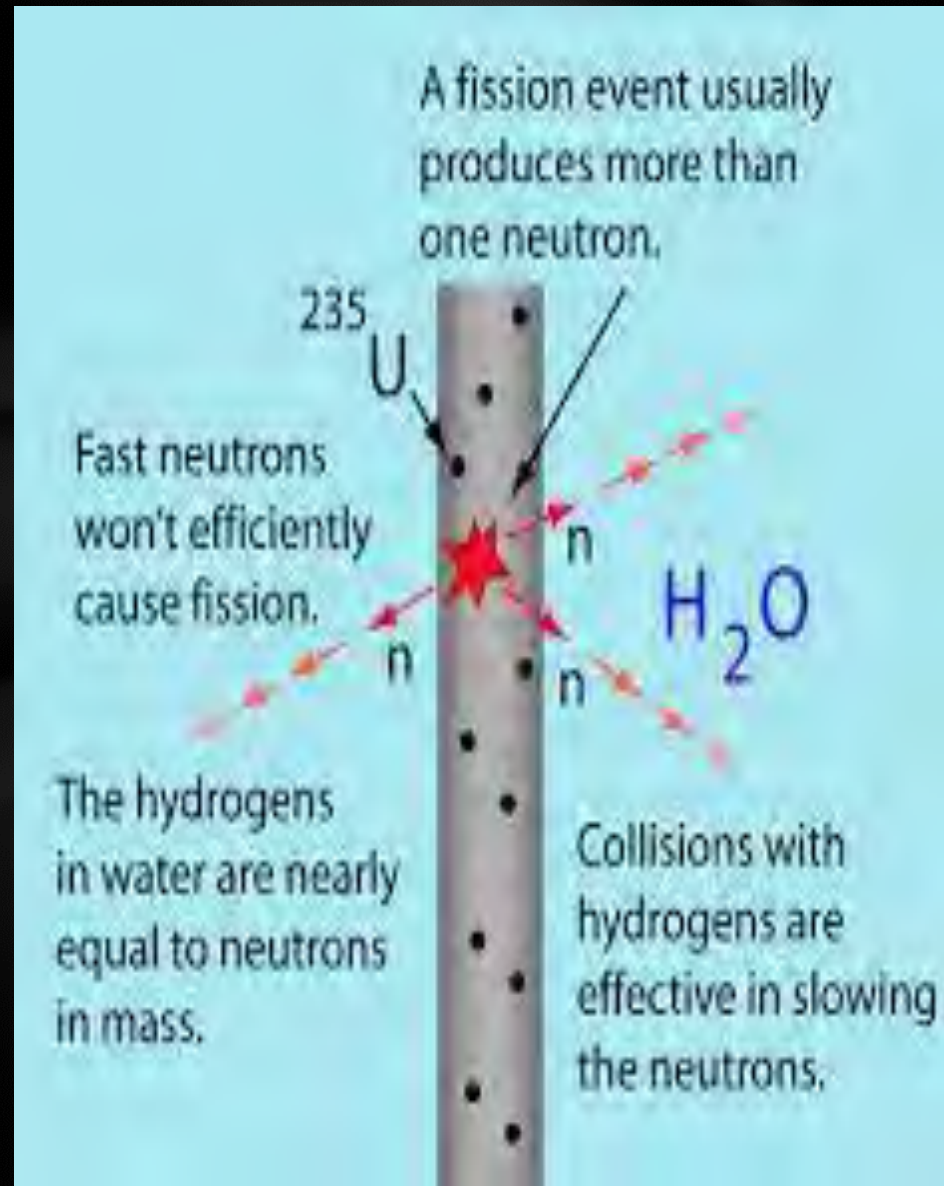


Inside of the fission reactor chamber

Why a Nuclear Power Plant Works

During the fission reaction inside the uranium fuel rods, neutrons are passing through the solid uranium and enter the surrounding water bath. Because hydrogen atoms in the water molecule, H_2O , are similar in mass and have the smallest atomic radii with the greatest probability of colliding with the proton in the nucleus of the hydrogen atom, the neutron gives up its kinetic energy to the hydrogen atom causing it to vibrate faster thereby increasing the temperature of the water. Through a system of piping the heat is ultimately transferred to where steam is produced to drive a turbine of an electric generator.

The water bath is said to moderate fast moving neutrons to thermal speeds.



Inelastic Collision/Scattering^[Wi]

An **inelastic collision**, in contrast to an elastic collision, is a collision in which *kinetic energy is not conserved*.

In collisions of macroscopic bodies, some *kinetic energy* is turned into *vibrational energy* of the atoms, *causing a heating effect*, and the bodies are deformed.

In nuclear physics, an inelastic collision is one in which the incoming particle causes the nucleus it strikes to become excited or to break up. Deep inelastic scattering is a method of probing the structure of subatomic particles in much the same way as Rutherford probed the inside of the atom (see Rutherford scattering).

St. Bernadette of Lourdes

Marie Bernarde
"Bernadette" Soubirous
(1844 – 1879)

Marian apparitions are said to have occurred to St. Bernadette between 11 February and 16 July 1858. During the 17th and last apparition on 16 July 1858 Mary appeared to St. Bernadette in the light of the resurrection.



In the Light of the Resurrection



*17th Apparition of Mary to St.
Bernadette, 16 July 1858*



Vert 495-570 nm, Azure 488 nm

The Coming of Arthur

"But when he spake and cheered his Table Round
With large, divine, and comfortable words,
Beyond my tongue to tell thee--*I beheld*
From eye to eye through all their Order flash
A momentary likeness of the King: 270

And ere it left their faces, through the cross
And those around it and the *Crucified*,
Down from the casement over Arthur, *smote*
Flame-colour, vert and azure, in three rays,
One falling upon each of three fair queens, 275
Who stood in silence near his throne, the friends
Of Arthur, gazing on him, tall, with bright
Sweet faces, *who will help him at his need.*

Alfred, Lord Tennyson (1809-1892)^[Wi]

Alfred, Lord Tennyson entered Trinity College Cambridge, in 1827, where he joined an elite secret society called the

Cambridge Apostles.

The *Coming of Arthur* is one part of twelve narrative poems included in the *Idylls of the King* cycle, published between 1859 and 1885.



James Clerk Maxwell (1831-1879)^[Wi]

In October 1850, already an accomplished mathematician, Maxwell left Scotland for the University of Cambridge.

At Trinity he was also elected to the elite secret society known as the *Cambridge Apostles*.

His most notable achievement was to formulate the classical *theory of electromagnetic radiation*, bringing together for the first time *electricity, magnetism, and light* as manifestations of the same phenomenon.



OSU Nuclear Reactor Core in Action

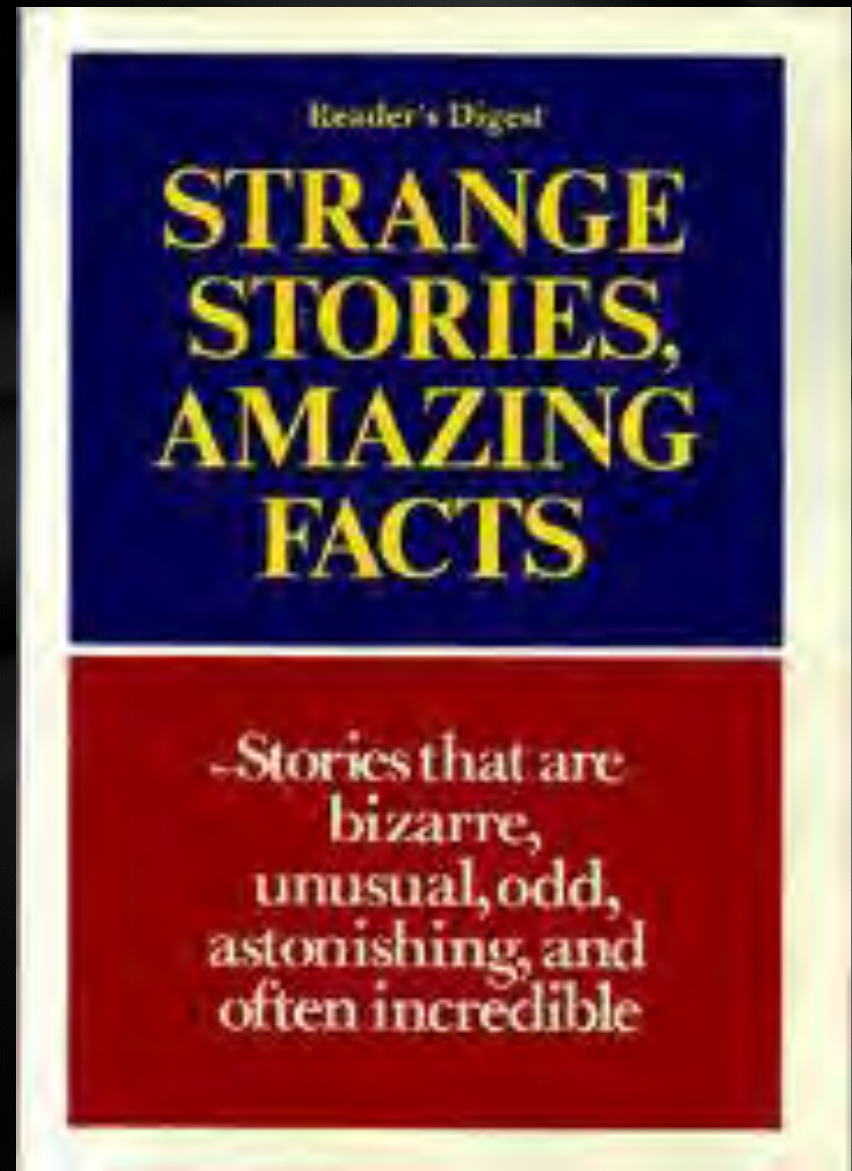


Blue glow of the water bath during the fission reaction when the reactor is in operation. You can actually see the Inverse-square Law in effect at a distance.

Strange Stories, Amazing Facts (SSAF)

Published in 1976 by Reader's Digest Association, in Pleasantville New York.

On page 379 was an article on the Shroud of Turin entitled ,
“Whose Image?”



Whose Image? [RD]

FOOTSTEPS INTO THE UNKNOWN

BARNEY DUFFY'S CURSE

Two soldiers ignored it . . . and died

Barney Duffy was a giant of a man. He towered over the two young soldiers, uttering a terrible curse: "Take me or report me, ye red-coated, lily-livered lice! Aye! And then I'll hang—but hear me curse on ye! So surely as ye do this, before me corpse has hung a week on King's Town gallows, ye'll meet a violent death, the pair of ye!"

Duffy, an Irishman, had been imprisoned by the British on Norfolk Island, in the Pacific Ocean, about 900 miles northeast of Sydney, Australia. The island is one of the most beautiful in the world, but its past is a long tale of blood.

Scores of its present residents claim they have seen ghosts: ghosts of the descendants of the *Bounty* mutineers, who outgrew tiny Pitcairn Island and moved to Norfolk in the 19th century, and ghosts of rebellious Irish convicts, hanged there after the British authorities shipped them from Botany Bay.

The convict's life was a continuous night-

mare. Men got 50 lashes for possessing tobacco or singing. They ate with their fingers and drank water from buckets. Those sentenced to hang thanked God for deliverance, while the remainder prayed not for freedom but for death.

Barney Duffy escaped from this hell and hid in a hollow pine in the thick rain forest. He emerged at night to raid the vegetable gardens of the settlement. His beard and hair were long and matted, and he had just a few rags to cover himself, when the two soldiers, who were out fishing, discovered him.

They shrugged off his curse and pushed him back to the settlement with their muskets. Duffy was hanged, and two days later the soldiers went to fish at the same spot near the hollow pine. Shortly after, a foot patrol found their bodies, battered and broken, drifting in the tide nearby.

To this day Norfolk Island maps show Barney Duffy Gully, where two soldiers ignored Barney Duffy's curse and paid with their lives.

WHOSE IMAGE?

Photographic evidence of Christ's death

In a reliquary in the chapel of the dukes of Savoy at Turin Cathedral lies a piece of cloth, measuring 14 feet 5 inches by 3 feet 8 inches, which faintly bears the back and front images of a man.

Approximately four times a century the cloth is put on display, and thousands of pilgrims flock to see it. They believe that they are gazing on the features of Jesus Christ.

The Holy Shroud of Turin is one of the most closely guarded and controversial Christian relics in the world. If it is genuine, it is certainly the most precious.

It is believed to be the linen in which Christ's body was placed in the tomb, after His crucifixion. His image appears to have imprinted itself on the cloth, as if it were a photographic plate.

Whether the shroud is genuinely that of Christ or not, it has been the subject of many investigations, which have uncovered some amazing facts and posed intriguing questions.

The shroud is believed to have been kept in

hiding for three centuries during the early Christian persecutions. Later, it was acquired by the Byzantine rulers of Constantinople, where it remained until the city fell in 1204.

It was taken by Crusaders to Besançon Cathedral, in the French province of Doubs, where it narrowly escaped being destroyed by fire in 1349.

Finally, the shroud was presented to the dukes of Savoy in 1432. After being slightly damaged in another fire, this time at the ducal palace, it was removed to the cathedral at Turin, where the dukes had another residence. It has been kept there since 1578.

The first photographs

In 1898, Secondo Pia, an archeological photographer, took the first pictures of the shroud and found to his astonishment that his negative plates gave a much clearer image of the figure than the image that appeared to be on the cloth.



IS THIS THE FACE OF CHRIST? The image captured in the age-old piece of cloth treasured at Turin Cathedral is certainly remarkable. Is it also a photographic record of Christ's death?

Dr. Yves Delage, a distinguished French physician, began an investigation into the relic and presented his findings to the French Academy of Sciences in 1902.

His colleague, Paul Vignon, suggested that the stains on the shroud were caused by perspiration and spices, with which the cloth was impregnated.

Dr. Delage reported that the image was a perfectly detailed portrayal of the body of a man who had undergone a brutal series of tortures, culminating in the agony of crucifixion.

The face bore the marks of several blows; the nose was injured; there was severe bruising and swelling of the right cheek; the right eyelid was sharply contracted; and bloodstains on the forehead and back of the head indicated that the skin had been punctured by some kind of sharp instrument.

The whole body, with the exception of the face, hands, and feet, was covered with marks that suggested scourging by a two-thonged lash, studded with balls of lead or bone, and administered by two people. These marks were particularly severe on the chest and abdomen. The shoulders had wounds that would be likely after the man had carried a heavy object. Both knees were cut, as if from heavy falls. There were bloodstained wounds, which could have been caused by nails, in both wrists and feet.

Wrist wounds

The wrist wounds were just behind the heel of the hand. A large wound on the right side, between the fifth and sixth ribs, was clear, and there was a corresponding stain of blood and a colorless liquid, possibly fluid from a pierced lung.

Book Jacket from SSAF



Book jacket recovered from a fire scene that occurred on 26 March 1986 in Crown Point, Essex County, New York by Larry Arnold.

1998 ¹⁴C Dating Results of SSAF

BETA ANALYTIC INC. UNIVERSITY BRANCH
 33 S.W. 74 COURT
 MIAMI, FLORIDA, USA 33155
 PH: 305/667-5167 FAX: 305/663-0964
 E-MAIL: beta@radiocarbon.com

DR. M.A. TAMERS and MR. D.G. HOOD

REPORT OF RADIOCARBON DATING ANALYSES

Ms. M. Sue Benford September 23, 1998
 Dublin, Ohio October 23, 1998

Sample Data	Measured C14 Age	C13/C12 Ratio	Conventional C14 Age (*)
Beta-122601	106.8 +/- 0.6 % modern	-23.3 o/oo	106.5 +/- 0.6 % modern
Beta-122602	105.8 +/- 0.6 % modern	-24.9 o/oo	105.7 +/- 0.6 % modern

SAMPLE #: Book Cover "test"
 ANALYSIS: Standard-AMS
 MATERIAL/PRETREATMENT:(paper): acid/alkali/acid
 COMMENT: reported result indicates an age of post 0 BP and has been reported as a % of the modern reference standard

SAMPLE #: Book Cover "Control"
 ANALYSIS: Standard-AMS
 MATERIAL/PRETREATMENT:(paper): acid/alkali/acid
 COMMENT: reported result indicates an age of post 0 BP and has been reported as a % of the modern reference standard

Dates are reported as RCYBP (radiocarbon years before present, "present" = 1950 A.D.). By international convention, the modern reference standard was 95% of the C14 content of the National Bureau of Standards' Oxalic Acid & calculated using the Libby C14 half life (5568 years). Quoted errors represent 1 standard deviation statistics (68% probability) & are based on combined measurements of the sample, background, and modern reference standards.

Measured C13/C12 ratios were calculated relative to the PDB-1 international standard and the RCYBP ages were normalized to -25 per mil. If the ratio and age are accompanied by an (*), then the C13/C12 value was estimated, based on values typical of the material type. The quoted results are NOT calibrated to calendar years. Calibration to calendar years should be calculated using the Conventional C14 age.

EXPLANATION OF THE BETA ANALYTIC DENDRO-CALIBRATION PRINTOUT

CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

Variables used in the calculation of age calibration → (Variables: C13/C12= :Delta-R= :Glob res= :lab. multi=1)

Laboratory Number: Beta-12345

Conventional radiocarbon age: 2400 +/- 60 BP

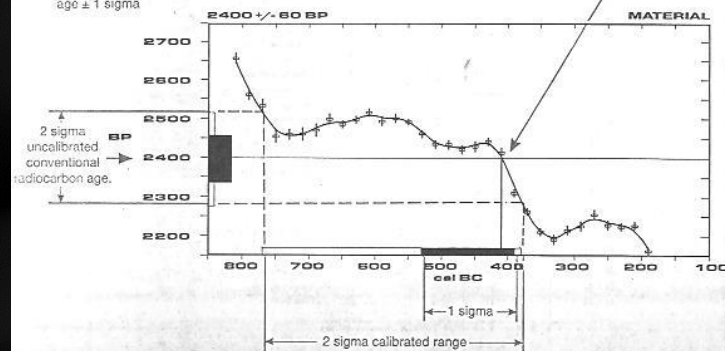
The recommended calibration age range to be used for interpretation → **Calibrated result: (2 sigma, 95% probability) cal BC 770 to 380**

Intercept data:

Intercept of conventional radiocarbon age with calibration curve: cal BC 410

The calibration result of the conventional radiocarbon age ± 1 sigma → **1 sigma calibrated result: (68% probability) cal BC 530 to 390**

The intercept between the conventional radiocarbon age and the calibrated calendar time scale curve.



References:

- Pretoria Calibration Curve for Short Lived Samples
- Vogel, J.C., Fuls, A., Visser, E. and Becker, B., 1993, Radiocarbon 35(1), p73-86
- A Simplified Approach to Calibrating C14 Dates
- Talma, A.S. and Vogel, J.C., 1993, Radiocarbon 35(2), p317-322
- Calibration - 1993
- Stuiver, M., Long, A., Kra, R.S. and Devine, J.M., 1993, Radiocarbon 35(1)

Beta Analytic, Inc., 4985 S.W. 74th Court, Miami, Florida 33155

Reporting results (recommended):

- List the conventional radiocarbon age with its associated 1 sigma standard deviation in a table and designate it as such.
- Discussion of ages in the text should focus on the 2 sigma calibrated range.

Results: 2400 ± 60 BP, the uncalibrated conventional radio carbon age (± 1 sigma)

Matthew 3:11-12

11 “I baptize you with water for repentance, but he who is coming after me is mightier than I, whose sandals I am not worthy to carry; he will baptize you with the Holy Spirit and with fire. ¹² His winnowing fork in his hand, and he will clear his threshing floor and gather his wheat into the granary, but the chaff he will burn with unquenchable fire.”

Inner Fires^[RD]

FOOTSTEPS INTO THE UNKNOWN

home." One day the family visited the British Museum, and in the Egyptian galleries Dorothy ran wild.

For no apparent reason she began kissing the feet of statues, clinging to mummy casts, and screaming, in a voice that her mother recalled as sounding "strange and old," that she wanted to be left with "my people."

On another occasion Dorothy was shown a photograph of the temple built by Seti I. She immediately told her father that the temple was her "real" home—a conviction she never lost.

Dorothy claimed that she had known Seti and that he was a kindly man. As her convictions grew, Dorothy began to learn how to read hieroglyphics at the British Museum. She surrounded her teacher with her ability to learn the symbols and explained she was not learning a new language, only relearning a language she had forgotten.

In 1939 Dorothy married an Egyptian and went to live in Egypt. They named their only child, a boy, Seti, and Dorothy called herself Um Seti—mother of Seti.

For 20 years she worked as an archeological research assistant. In 1952 she made her first pilgrimage to Abydos, the site of Seti's temple and the tomb of Osiris.

A "homecoming"

She was quite unable to read modern Egyptian, but when her train stopped near a range of limestone hills, she knew she had arrived at the right place. Dorothy described her first sighting of the temple as a "homecoming." In 1954 she returned to Abydos to live out her life. She helped with the upkeep of the temple and prayed daily to Osiris, which made her his sole living devotee.

INNER FIRES

Strange cases of human incendiary bombs

On an October evening in the late 1990's, a pretty 19-year-old secretary, dancing with her boyfriend in a London discotheque, suddenly burst into flames.

As though driven by an inner storm, she burst furiously from her back and chest, enveloping her head and igniting her hair. In seconds she was a human torch, and before her horrified companion and other people on the floor could

By 1973 she had even obtained permission from the temple curators that when she died she would be buried in the grounds of the temple she called home.

But belief in reincarnation is by no means unique. Many people at some time have the feeling they have done something or been somewhere in a previous life, but they cannot explain how or when.

In 1956, during a two-hour sitting with Welsh hypnotherapist Arnall Bloxham, a teenage English girl named Ann Ockenden suddenly began talking of a previous life as a man in a land where people were decapitated with scythes and animal teeth.

Reborn after three centuries

Another of Bloxham's clients claimed she was the daughter of Charles I and Queen Henrietta Maria. Although this anonymous woman had not studied history, she was able to give accurate details of the court of French King Louis XIV, where she and her "brother," Charles II, lived in exile.

Ardour Gardham, an English psychiatrist, has recorded the story of a woman he calls Mrs. Smith. From her teens Mrs. Smith had recurrent dreams of a former life as the wife of a 17th-century French Catholic preacher. The Catholics were a heretical Christian sect that soon became the subject of much persecution by the Inquisition. History records that most of the Catholic preachers and followers were killed in a massacre. And Mrs. Smith's most fearsome nightmare was that of being burned to death at the stake.

Mrs. Smith knew nothing of the Catholics, but in 1944 she described the clothes they wore. She described them as green or blue robes—which they were.

beat out the flames, she died from first-degree burns.

With his burned hands swathed in bandages, her boyfriend testified at the inquest: "I saw no one smoking on the dance floor. There were no candles on the tables, and I did not see her dress catch fire from anything. I know it seems incredible, but it appeared to me that the flames burst outward, as if they originated within her

body." Other witnesses agreed with him, and the mystified coroner's verdict was curiously "death by misadventure, caused by a fire of unknown origin."

Rare, but real

Such terrifying cases of what seems to be spontaneous human combustion are fortunately rare—but they have been reported throughout history. In southeastern England, in the 17th century, an elderly woman was found burned to death in her cottage. But though the heat must have been intense, nothing else in the cottage—not so much as the bedclothes on which she lay—was even scorched.

"No man knoweth what his doth portend," said one observer, he then burned darkly at divine retribution, though for what he did not say.

More recently, an English building contractor was diving past one of his construction sites and saved through the car window; a moment later he simply burst into flames. Similarly, another Englishman was found totally incinerated in the cab of his truck.

The London *Daily Telegraph* reported: "Police witnesses testified they had found the petrol tank full and unharmed by fire, the doors of the cab opened easily, but the interior was 'a veritable furnace.' The coroner's jury declared they were unable to determine how the accident occurred."

Reynold's News, a few years later, recorded the tragic death of a London man who, while walking along the street, "appeared to explode. His clothes burned fiercely, his hair was burned off, and the rubber-soled boots melted on his feet."

Costly damage

Not always, it appears, are these human incendiary bombs only self-destructive.

The late Prof. Robin Beach, of the Brooklyn (New York) Polytechnic Institute, founder of the electrical consultant agency Robin Beach Engineers Associated, believed that these unfortunate people are inadvertently responsible for fire damage costing millions of dollars each year. One of his clients was an Ohio factory owner whose plant was suddenly breiveted with as many as eight small fires in one day.

One of Professor Beach's solutions was to persuade each of the factory's employees in turn to step onto a metal plate while holding an

electrode; at the same time he took readings from an electrostatic voltmeter.

One of the workers was a young woman, recently employed, when she stepped onto the metal plate, the meter showed a tremendous jump. She registered 30,000 volts of electrostatic electricity and a resistance of 500,000 ohms. Wisely, Professor Beach recommended that she be transferred to some part of the factory where she would not come in contact with combustible materials.

The professor, an authority on explosions and static electricity, explained that under certain conditions—walking on carpets during dry winter weather, for example—almost anyone can build up an electrostatic charge of several thousand volts. Hence the shock we sometimes experience when touching a car door or other metal surface. Usually, the electricity is harmlessly discharged through the ends of the hair; however, the professor maintained, there are some people—maybe one in 100,000—whose abnormally dry skin permits them to generate an excessive charge.

Danger to others

People carrying static charges may be highly dangerous. They may, for example, be the detonators that touch off explosions in hospital operating rooms whose atmosphere contains a mixture of anesthetic vapor and air. In 1966 it was estimated that such explosions result annually in approximately 1,000 deaths. The accumulation of static electricity from the clothing of hospital personnel was judged to be a hazardous factor.

In addition, the professor is convinced that workers in ordinance factories and petroleum refineries should be tested to discover whether they have the type of skin that retains electric charges more persistently than others.

He quoted an instance in which a man proved to be a hazard to himself: "In one case I investigated, a driver decided to see if the battery of his car needed filling with water. It was a dry, cold fall day, and the man walked a short distance on a concrete driveway, raised the hood of his car, and unscrewed the caps of the battery. There was an immediate explosion as he touched off the hydrogen gas escaping from the battery of the recently parked car. He was severely injured."

But while Professor Beach's ingenious theories may well account for many mysterious fires,

Article on the Inner Fires/Spontaneous Human Combustion (SHC), SSAF pages 387-389.

Inner Fires (cont.)^[RD]

FOOTSTEPS INTO THE UNKNOWN

and explosions hitherto ascribed to arson or sabotage, a strong element of mystery remains.

Against natural law

Did the unfortunate girl on the dance floor really burst into flames from "within," as her companion testified? Electrical engineers have pointed out that no known form of electrostatic discharge could possibly have such an effect. The fate of the old woman in her cottage, and

that of the truck driver, are also in flat contradiction of natural law; both bodies were utterly consumed by fire, yet their inflammable surroundings were completely undamaged by the flames that had engulfed them.

Are there then human beings who possess complex physiological constitutions and who are electrodynamic beings so charged with energy that they may be potential victims of spontaneous combustion—or even human bombs?

THE ELUSIVE BRIDEY MURPHY

A case of reincarnation . . . or a total recall of childhood?

When a Colorado businessman and amateur hypnotist put a local housewife into a trance, it sparked off some startling revelations—and launched a search for a woman who had supposedly died almost a century earlier.

The housewife was called Ruth Simmons (her real name has never been revealed), of Pueblo, Colorado, and, speaking as "Bridey Murphy," in 1952, she told the story of her childhood, marriage, death, and funeral in 19th-century Ireland—and her rebirth in the United States 59 years later.

The hypnotist was Morry Bernstein, who wrote the bestselling book on the case, *The Search for Bridey Murphy*, which was published in 1956.

Bernstein used a technique called hypnotic regression, during which the subject is gradually taken back to childhood. He then attempted to take Ruth back one step further, before birth, and suddenly was astonished to find he was listening to Bridey Murphy.

The rambling tale began in 1866 when Bridey was eight years old and living in a house in Cork. She was the daughter of Duncan Murphy, a lawyer, and his wife Kathleen. At the age of 17 she married lawyer Sean Brian McCarthy and moved to Belfast.

Saw her own funeral

Bridey told of a fall that caused her death—and of watching her own funeral, describing the tombstone and the state of being in life after death. It was, she recalled, a feeling of neither pain nor happiness. Somehow, she was reborn in the United States, although Bridey was not clear how this event had happened.

Ruth Simmons herself was born in the Midwest in 1923, had never been to Ireland, and did not speak with even the slightest hint of an Irish accent.

The "facts" related by Bridey were not fully checked before the publication of Bernstein's book. However, once the book had become a bestseller, almost every detail was checked by reporters who were sent to Ireland to track down the background of this elusive woman.

No official records

It was then that the first doubts about the "reincarnation" began to appear.

Bridey gave her birthday as December 20, 1798, in Cork, and the year of her death as 1864. There was no official record of either event, nor was there any record of a wooden house, called the Meadows, in which she said she lived. Indeed, most houses in Ireland are built of brick or stone.

She pronounced her husband's name as "Sean" but said it could also be "Shawn." Sean is pronounced "Shawn" in Ireland. Brian, which is what Bridey preferred to call her husband, was the middle name of the man to whom Ruth Simmons was married.

But some of the details did tally. For instance, her descriptions of the Antrim coastline were accurate. So, too, was her account of a journey from Belfast to Cork. She said she went to St. Theresa's Church. There is one where she said it was—but it was not built until 1911.

The young Bridey shopped for provisions with a grocer named Barr. It was discovered that such a shop had existed.

Despite the holes in Bridey's story, it was still a remarkably detailed account of life in 19th-

George I. Mott, (November 20, 1927 – March 26, 1986) ^[Wi]



George Mott was a firefighter who burned to death in his home outside Crown Point, New York, in 1986. He is often cited as an example of *spontaneous human combustion*. His body was consumed along with the mattress he was lying on leaving an implausibly *shrunk skull* and a piece of rib cage.

Fire investigators suggested that the death was either caused by a gas leak or an electrical arc that shot out of an outlet and set fire to Mott. He was 58 years old when he died.

Home sweet home... maybe?

The area in which George Mott's house is located is very near the birthplace of the electric age in the hamlet of Ironville, now part of the town of Crown Point, in Essex County, New York on the western shores of Lake Champlain.

The hill has a high concentrations of permanently magnetized iron ore and supplied not only the material for the USS Monitor, the Union Civil War Ironclad, but also the steel used for the wire rope of the Brooklyn Bridge.

The hill is also infamous for the light show during thunderstorms given the frequency in which lightening strikes the ground.

It was reported that ball lightening was seen by the people evacuating the house when the Hammond Homestead burnt down to the ground in 1878.



George Mott's living room



George Mott's house



George Mott's bed where his ashes and shrunken skull were found. The fire inspector noted in his report that there was no direct damage to the ceiling directly above the bed.

George Mott's shrunken skull



George Mott's skull found among the coil springs of the mattress he was laying on when he died.

TV on top of chest of drawers



The melted plastic cabinet of the TV, given its high *content of hydrogen atoms*, is an important clue and compelling evidence of thermal neutrons were being emitted during the cremation of George Mott's body

Evidence of Neutron Activation^[Ablaze]

- Everything in the refrigerator was melted, although operating during the time of fire investigation.
- The butter and plastic butter dish were melted.
- An unopened packet of hot dogs encased in plastic packaging appear as if they were par boiled.
- Dehydrated remains of two bananas on top of the refrigerator.
- Dixie cup holder in bathroom was cut in half by heat; now hangs in a twisted mass on the wall and partly lays on the vanity counter amid the scattered paper cups.
- Transistor radio's polyester chassis melted and dripped onto the upraised toilet lid below.
- A desktop adding machine's hard plastic casing is grotesquely melted next to a brown plastic laundry basket.
- A telephone, partially melted; and a thirteen-inch portable television set that collapsed into itself, its chassis a mass of melted plastic that pulled away from the picture tube.
- Water was missing from the bowl of the toilet.

Ashes to Ashes, Star Dust to Star Dust

ASHES TESTED FROM CREMATED REMAINS OF SHC VICTIM
Approximate contact time 60 days.



Film - Scattered Ashes

KODAK
Ultra Speed D
Safety Film



Film - Without Ashes

Developed: 29 June 1998
Duke M. Rakich D.D.S.
7215 Sawmill Road, Suite 210
Dublin, OH 43016

Without a research budget or access to university laboratories a *heuristic* approach.

A Closer Look



Film - Scattered Ashes



Film - Without Ashes

A professor of radiology at the Ohio State University Medical School (a socially acceptable paraphrasing) when asked why the ashes exposed the x-ray slides stated that it appeared to be an abortion reaction of high energy particles rather than an emission of beta particles due to the half life decay of carbon-14 isotopes.

Heuristic, not *Ad hoc*

The previous slide was a test performed for a proposed non-destructive experiment designed to test if the mass of ^{14}C varies throughout the body image on the Shroud of Turin following the properties of the inverse-square law and neutron activation. Given that the beta decay of the ^{14}C isotopes to ^{14}N would be so small and difficult to measure accurately the variable in the measurement that is easily changed is time. By placing high speed x-ray film in near contact with the linen cloth for a period of say 2 months, without any sources of light or radiation, the film exposed to neutron beta decay could give a possible high resolution photograph of the corpse of Jesus during the moment of the resurrection.

In 1996 I wrote several letters to Shroud of Turin researchers proposing this experiment and the experiment is now being recycled with an apparent addition of sandwiching the linen cloth and x-ray sides *between two lead plates*.

Its important to understand the properties being tested and why the experiment was designed resulting in a positive test with images on the x-ray sides of the scattered ashes; therefore, I would highly suggest not using lead plates if this experiment is conducted for a favorable outcome. Please contact me for details if this experiment is being proposed and any chance of actually being conducted.

Heuristic Vs. *Ad hoc*^[Wi]

Heuristic ("find" or "discover") refers to experience-based techniques for problem solving, learning, and discovery that find a solution which is not guaranteed to be optimal, but good enough for a given set of goals. Where the exhaustive search is impractical, heuristic methods are used to speed up the process of finding a satisfactory solution via mental shortcuts to ease the cognitive load of making a decision.

Ad hoc is a Latin phrase meaning "for this". It generally signifies a solution designed for a specific problem or task, non-generalizable, and not intended to be able to be adapted to other purposes.

***Ad hoc* hypothesis**

In science and philosophy, *ad hoc* means the addition of extraneous hypothesis to a theory to save it from being falsified. *Ad hoc* hypotheses compensate for anomalies not anticipated by the theory in its unmodified form. Scientists are often skeptical of theories that rely on frequent, unsupported adjustments to sustain them. *Ad hoc* hypotheses are often characteristic of *pseudoscientific* subjects such as homeopathy.

Mary Reeser (1884-1951) ^[Wi]

Mary Reeser's body was found on July 2, 1951 at about 8 a.m. At the time she was living an apartment in St. Petersburg, Florida.

Reeser's remains, which were largely ashes, were found among the remains of a chair in which she had been sitting. Only part of her left foot (which was wearing a slipper) and her backbone remained.

Reeser's *skull* had survived and was found among the ashes, but *shrunk* (sometimes with the added descriptive flourish of 'to the *size of a teacup*').



Enter Prof. Wilton M. Krogman^[Wi]

Wilton Krogman was a professor of Physical Anthropology at the School of Medicine at the University of Pennsylvania

In a 1961 article for *The General Magazine and History Chronicle of the University of Pennsylvania*, Krogman wrote extensively about the Reeser case. His remarks included:

"I find it hard to believe that a human body, once ignited, will literally consume itself -- burn itself out, as does a candle wick, guttering in the last residual pool of melted wax [...] Just what did happen on the night of July 1, 1951, in St. Petersburg, Florida? We may never know, though this case still haunts me. "With regard to Reeser's shrunken skull, Krogman wrote:

"[...]The head is not left complete in ordinary burning cases. Certainly it does not shrivel or symmetrically reduce to a smaller size. In presence of heat sufficient to destroy soft tissues, the skull would literally explode in many pieces. I have never known any exception to this rule. "Krogman concluded:

"I cannot conceive of such complete cremation without more burning of the apartment itself. In fact the apartment and everything in it should have been consumed. [...] I regard it as the most amazing thing I have ever seen. As I review it, the short hairs on my neck bristle with vague fear. Were I living in the Middle Ages, I'd mutter something about black magic."

Mary Reeser - all that's left...



Common Elements in Human Body

Name	Symbol	Atomic No.	Electron Configuration
Hydrogen	H	1	1s ¹
Helium	He	2	1s ²
Carbon	C	6	[He] 2s ² 2p ²
Nitrogen	N	7	1s ² 2s ² 2p ³
Oxygen	O	8	1s ² 2s ² 2p ⁴
Phosphorous	P	15	[Ne] 3s ² 3p ³
Calcium	Ca	20	[Ar] 4s ²

Chemical Composition of Bone: $(\text{Ca}_{10}(\text{PO}_4)_6(\text{OH}_2))$

Properties of the Fundamental Forces

- The *strong interaction* is very strong, but very short-ranged. It acts only over ranges of order 10^{-13} centimeters and is responsible for holding the nuclei of atoms together. It is basically attractive, but can be effectively repulsive in some circumstances.
- The *electromagnetic force* causes electric and magnetic effects such as the repulsion between like electrical charges or the interaction of bar magnets. It is long-ranged, but much weaker than the strong force. It can be attractive or repulsive, and acts only between pieces of matter carrying electrical charge.
- The *weak force* is responsible for radioactive decay and neutrino interactions. It has a very short range and, as its name indicates, it is very weak.
- The *gravitational force* is weak, but very long ranged. Furthermore, it is always attractive, and acts between any two pieces of matter in the Universe since mass is its source.

Diamagnetism^[Wi]

Diamagnetism appears in all materials, and is the tendency of a material to oppose an applied magnetic field, and therefore, to be repelled by a magnetic field. However, in a material with paramagnetic properties (that is, with a tendency to enhance an external magnetic field), the paramagnetic behavior dominates. Thus, despite its universal occurrence, diamagnetic behavior is observed only in a purely diamagnetic material. In a diamagnetic material, there are no unpaired electrons, so the intrinsic electron magnetic moments cannot produce any bulk effect. In these cases, the **magnetization** arises from the **electrons' orbital motions**, which can be understood classically as follows:

When a material is put in a **magnetic field**, the electrons circling the nucleus will experience, in addition to their *Coulomb* attraction to the nucleus, a *Lorentz force* from the **magnetic field**. Depending on which direction the electron is orbiting, this force may increase the *centripetal force* on the **electrons, pulling them in towards the nucleus**, or it may decrease the force, pulling them away from the nucleus. This effect systematically *increases* the *orbital magnetic moments* that were aligned opposite the field, and decreases the ones aligned parallel to the field (in accordance with *Lenz's law*). This results in a **small bulk magnetic moment**, with an opposite direction to the applied field. Note that this description is meant only as an *heuristic*; a proper understanding requires a *quantum-mechanical* description.

Note that all materials undergo this orbital response. However, in *paramagnetic* and *ferromagnetic* substances, the *diamagnetic effect is overwhelmed* by the much stronger effects caused by the *unpaired electrons*.

A New Concept in Nuclear Physics

The cause for the bodies burning with strong evidence of neutron activation throughout the fire scenes is that the super diamagnetic force was so strong and caused such a large magnetic moment that the Lorenz Force over came strong interaction of the nucleus and pulled the nucleus apart. It was then the repulsive force of the protons that caused the neutron to be accelerated to thermal velocities being driven from the nucleus and antiparallel to the magnetic field.

The reason the shrunken skulls were left behind is because calcium is a much large atom with a greater strong interaction at the nucleus and the Lorenz force was not strong enough to over come the strong interaction. As a result the paired electrons being pulled toward the nucleus collapsed the physical diameter of the calcium atoms causing the shrunken skulls. The skulls remained shrunken due to a permanent magnetic moment left in the paired electrons.

This is why the ashes are attracting free neutrons to them and the neutrons then decay via beta decay exposing the film.

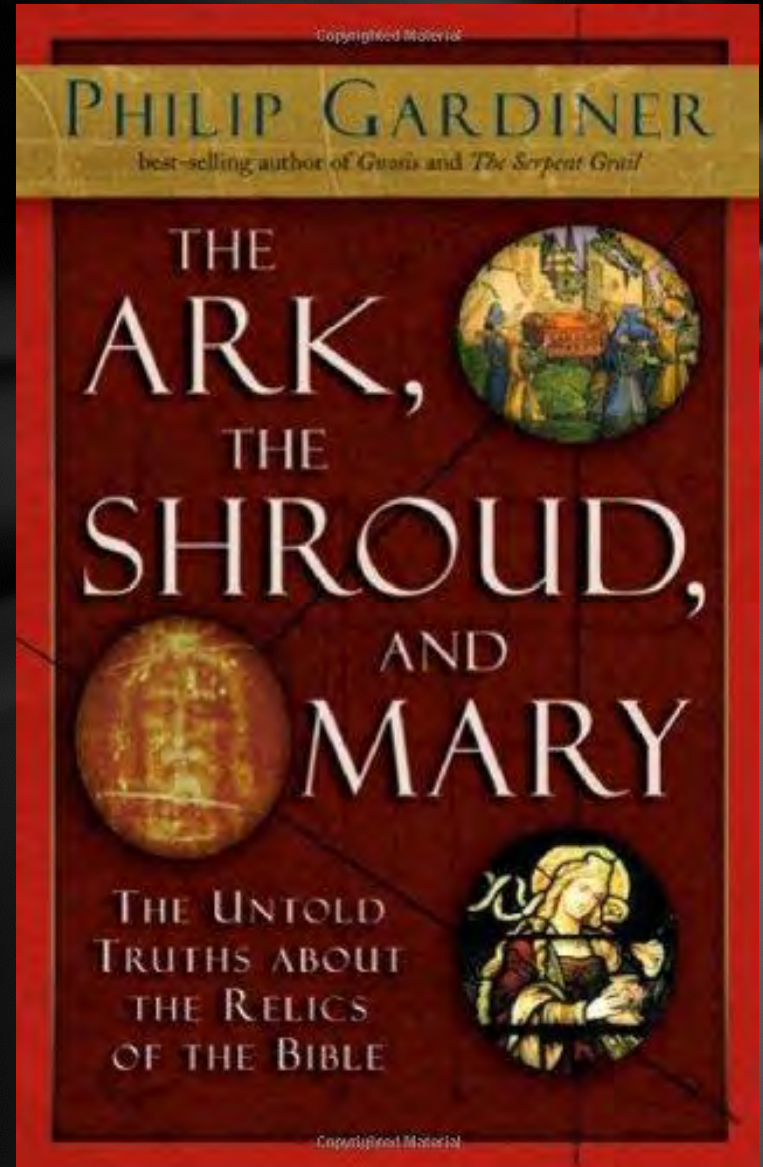
Historical Trail of Neutron Activation

Philip Gardiner stated that he had no intention of writing “*The Ark, the Shroud and Mary.*”

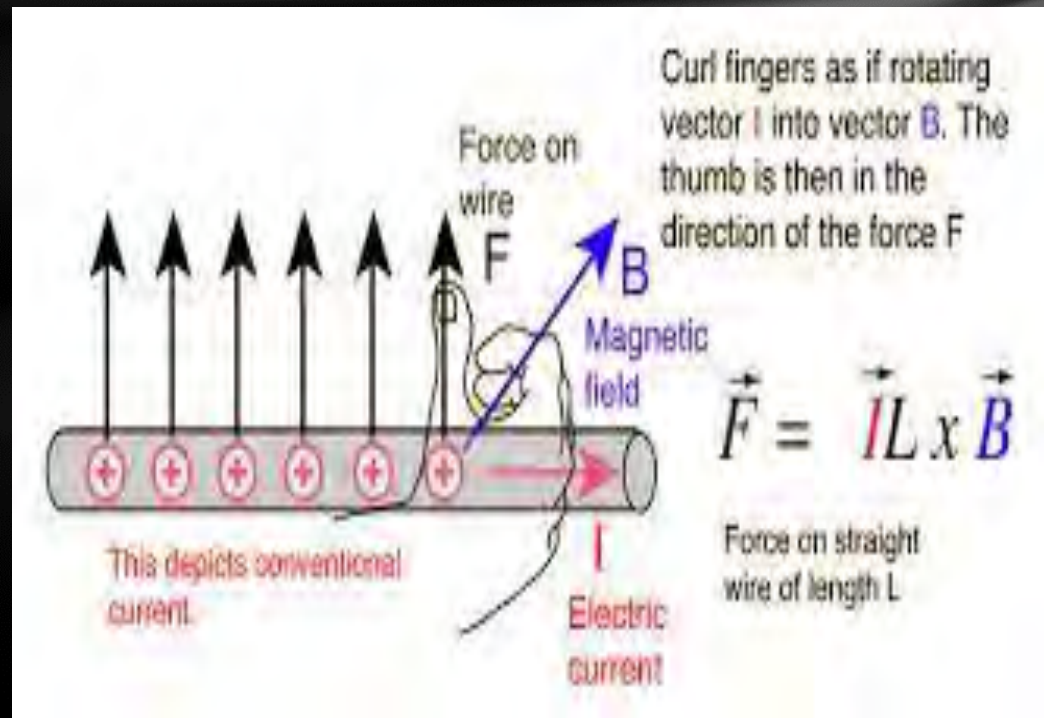
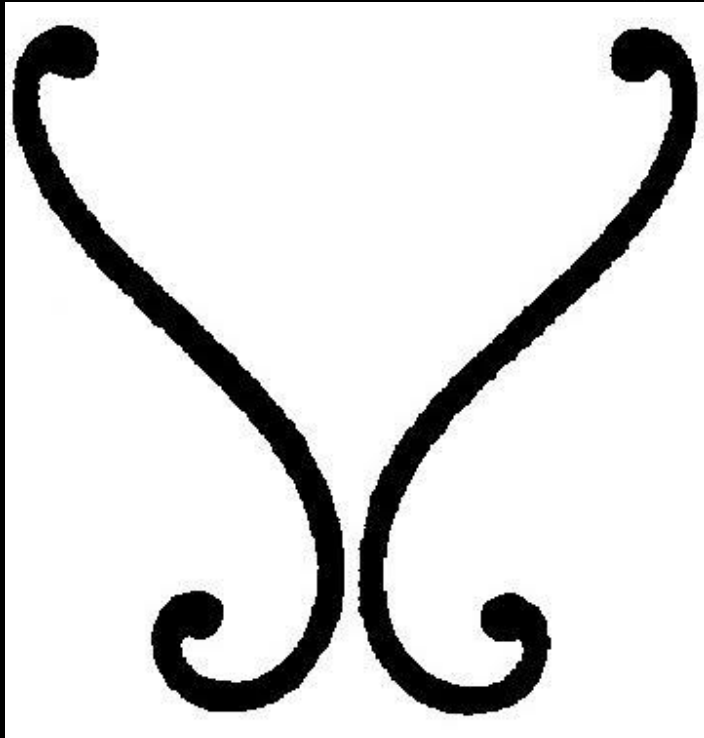
While sitting in a hotel lobby in England conducting research for another book he was approached by a gentlemen that started up a conversation.

After a while, this gentleman showed him a parchment he said had been in the possession of the Knights Templar and even a much older organization.

In the text of the parchment, it was explained the image on the Shroud of Turin is the result of what would be known today as *neutron activation*.



The Curl of a Magnetic Force



Edward Leedskalnin^[Wi]

Edward Leedskalnin
(Latvian: *Edvards Liedskalniņš*) (January 12, 1887, Stāmeriena parish, Livonia; December 7, 1951, Miami) was an *eccentric* Latvian emigrant to the United States and amateur sculptor who single-handedly built the monument known as Coral Castle in Florida. He was also known for his *obscure* theories on *magnetism*.



Other Examples of SPM & SDM

Coral Castle Homestead, Florida

A few teenagers claimed to have witnessed Edward Leedskalnin's work, reporting that he had caused the blocks of coral to move like hydrogen balloons. The only tool that Edward spoke of using was a "perpetual motion holder."

In a paper he wrote explaining his understanding of why the stone blocks moved was a diagram showing the alignment of the magnetic curl.



The Thirty Ton Stone.

Mach's Principle^[Wi]

In theoretical physics, particularly in discussions of gravitational theories, **Mach's principle** (or Mach's conjecture) is the name given by Einstein to an imprecise hypothesis often credited to the physicist and philosopher Ernst Mach.

Mach's principle says that this is not a coincidence—that there is a physical law that relates the motion of the distant stars to the local inertial frame. If you see all the stars whirling around you, Mach suggests that there is some physical law which would make it so you would feel a centrifugal force. There are a number of rival formulations of the principle. It is often stated in vague ways, like “mass out there influences inertia here”. A very general statement of Mach's principle is *"Local physical laws are determined by the large-scale structure of the universe."*

This concept was a guiding factor in Einstein's development of the general theory of relativity.

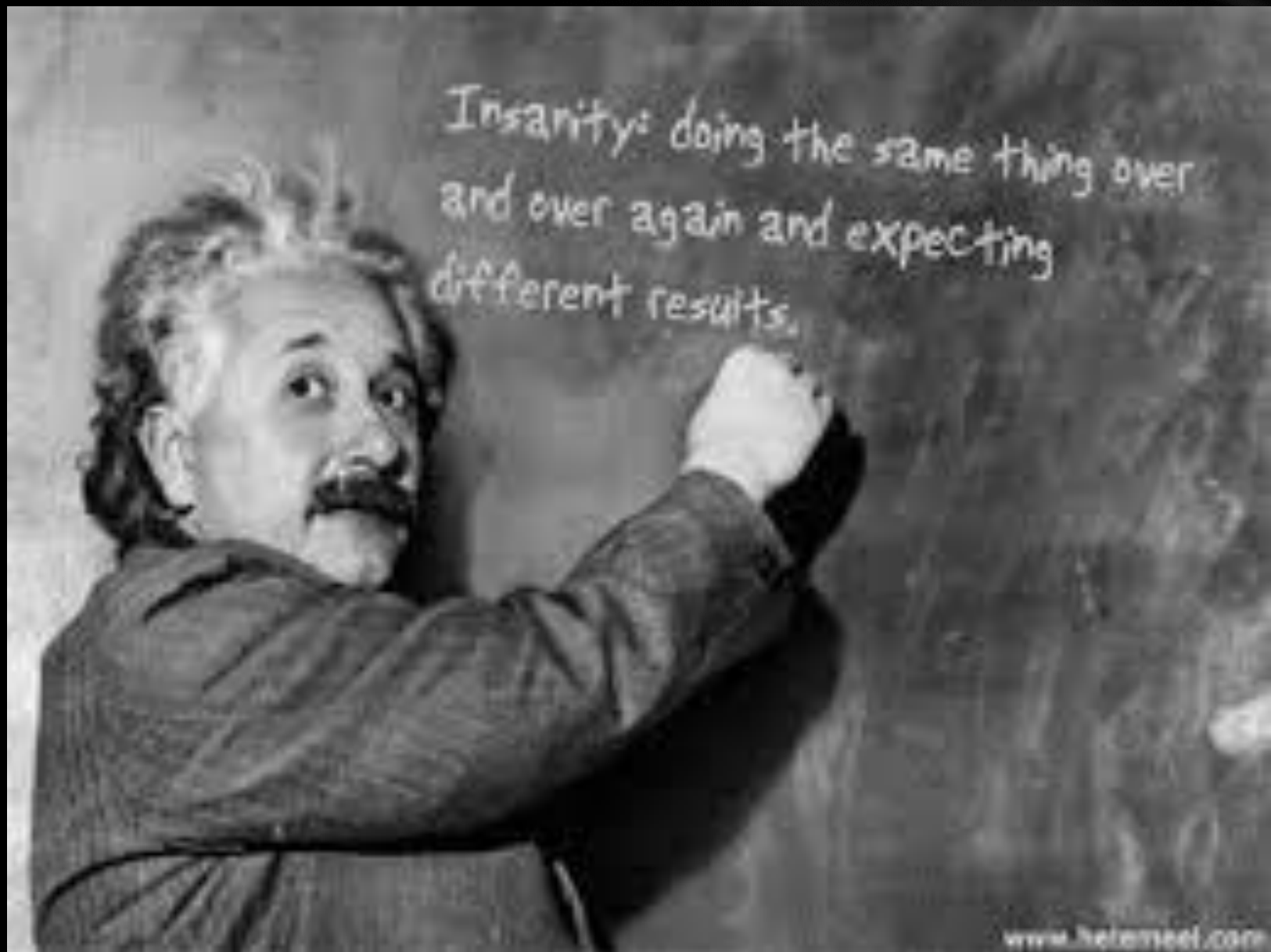
Scientific Method/Science & Exploration



Lightning strikes produce free neutrons, and we're not sure how... Low energy neutrons not due to cosmic rays or any other previously known source.

<http://arstechnica.com/science/2012/03/nuclear-lightening>

Some final advice from Albert Einstein



Q.E.D.

*Quod Erat
Demonstrandum*

“which had to be demonstrated!”