

# The Image on the Shroud: Natural, Manufactured, Miracle or Something Else?

Andrew Silverman

[www.lightoftheshroud.com](http://www.lightoftheshroud.com)

## Abstract

Those who postulate that the Shroud image was manufactured have been unable to suggest any manufacturing process which could account for key macroscopic and microscopic features of the image. If it was not manufactured then how did the image form?

There would seem to be two main schools of thought regarding how this could have happened. Some scholars believe that it was an unusual combination of already recognised natural physical processes e.g. the Maillard reaction occurring as a result of putrefaction e.g. Rogers or electrical discharge as a result of seismic activity e.g. De Liso. Others postulate that it might have been a miraculous event occurring as a result of divine intervention and possibly associated with resurrection. In this paper I present a third possibility. Developments in quantum theory and cosmology have led some eminent scientists to postulate that consciousness, awareness and will are far more than incidental products of the material universe but may be fundamental to existence itself.

Andrei Linde<sup>1</sup> a renowned professor of physics at Stanford University recently suggested that discoveries in physics might suggest that consciousness might have a fundamental role to play in existence.

The Shroud image is, as far as we know, a unique phenomenon in human history. There is abundant evidence to suggest that the Shroud may have been the burial cloth of the historical Jesus of Nazareth. If we consider what he taught and how he lived might there be clues in this regarding how the Shroud image formed? In this paper I will discuss the possibility that the Shroud image may have been caused by a short intense burst of electromagnetic radiation from the body that was contained in the Shroud and discuss whether this might be consistent with speculations regarding the nature of matter, space and time which have previously been suggested by physicists including those quoted in this paper. Empirical research on Near Death Experiences<sup>2</sup> may support the notion that physical death is not the end of the mind. Since the image on the Shroud appears to have occurred after the death of the man on the Shroud I would suggest that the question of whether consciousness survives physical death does at least have some relevance to Shroud studies.

Could it be that the image on the Shroud might be the single most important piece of physical evidence to help us discover more about the relationship between mind and matter, the nature of humanity and our relationship to the material universe and to each other?

## Introduction

Many people believe the the image on the Turin Shroud was made by a mediaeval forger and yet all attempts to replicate an image with similar large scale and microscopic features have proved to be spectacular failures. Those who try to produce an image with similar properties have access to 21st Century technology whereas any alleged mediaeval forger would clearly only have had access to the resources of their time. If the image was not manufactured then how did it form?

Those who are convinced that the image was not manufactured tend to fall in one of two camps.

Some believe that the image formed according to natural mechanisms that could in principle be reproduced in a laboratory. For example proponents of the Maillard hypothesis discuss the possibility that the image may have been caused by chemical reactions on the linen resulting from the release of substances from a putrefying corpse. However, nobody has been able to reproduce an image with similar properties in an experimental setting. Also, chemical diffusion followed by a maillard reaction has never been shown to produce an image with such fine resolution and homogeneity. As far as we know, the Shroud image is unique. In the whole of human history this is the only image of its kind.

There are many who say that the image formation process was miraculous and must therefore, of necessity ultimately remain a mystery.

I would argue that the image is a physical phenomenon that can be studied empirically and scientifically and so there is no reason to assume a priori that it must remain a mystery.

The Shroud is probably one of the most intensively studied artefacts in human history and as such, if we are to understand the image formation mechanism we should take account of the evidence that has already been gathered from Secondo Pia through to STuRP and beyond and try to make rational sense of this to form a coherent, consistent picture of what might have happened in a tomb all those many centuries ago to account for the image.

## **Two events: the blood stains and the image**

Empirical research on the blood stains on the Shroud demonstrate that it once wrapped the recently deceased body of a man who had been tortured by being whipped and having a helmet of sharp objects like thorns placed upon his head and had been crucified and also been stabbed in the side of his torso. It is a simple matter of basic forensic pathology to see that he was already dead when the Shroud wrapped him as otherwise he would still have been actively bleeding from the wounds and so the blood stains would have been far more extensive. Considering the evidence from the experiments with clot transfers reported by Dr Gilbert Lavoie<sup>3</sup> we can be fairly specific about the time of death. There could not have been more than around 90 minutes between his death and the time that he was wrapped in the Shroud as after this time there would likely have been no transfer of material from the body to form the blood stains as the blood clots would have dried on the body.

One of the most interesting observations about the image is that there is no image underneath the blood stains<sup>4</sup>. This implies that the image formed after the blood stains. The obvious conclusion from this is that the image must also have formed after the death of the man of the Shroud.

Whereas the blood stains form by a simple contact process, the image could not have been a contact process as many of the areas of the body which we see on the image could not have been in contact with the cloth as there would be many non-contact recesses. Also, we do not see the type of distortion or 'mask of agamemnon' effect we would expect to see when we look at the image on the flattened Shroud.

## **The upright man**

Research by Dr Paolo Di Lazzaro and his team at the atomic energy research institute of E.N.E.A. at Frascati, Italy suggests to many people that the image may have been formed by a short, intense burst of radiant energy which emanated from the dead body that was contained in the Shroud<sup>5</sup>.

If you look at the image on the Shroud then you are looking at the image of an upright man<sup>6</sup>. The hair is hanging down on his shoulders, not behind his head as it would be if he were laying supine. Also there is no discernible flattening of the soft tissues on the dorsum of the body on the image as there would have been if, for example the calves

and the buttocks had been compressed against the slab. Even if rigor mortis had still been present at the time when the image formed this would not have prevented flattening if the body were horizontal as rigor mortis only affects muscle and does not affect skin or subcutaneous fascial layers. The body appears to be upright and somehow suspended above the ground. The position of the feet is not the position that would be seen if he were standing. As the blood stains happened after the bodily death of the man on the Shroud and the image happened after the blood stains, it would appear that the dead body may somehow have risen into a vertical, suspended position and then there may have been a short intense burst of radiant energy which emanated from the body to produce the image.

The evidence that the body was upright when the image formed and also that the image may have been formed by a burst of radiant energy from the body have both only become apparent within the past few decades. They would clearly not have been obvious to people in mediaeval times. It is interesting that the historical Jesus of Nazareth is reported, at least anecdotally, to have at times had a reduced 'enforcedness' or inertia (mass) of his body, or at least not to have been affected by gravity in the usual way<sup>7</sup>. He is said to have walked on the water and also he is said to have been seen spontaneously to rise above the ground. Also he is reported to have been seen to shine brightly (when on the mountain with Peter, James and John).

## **The light that shines in the darkness**

A recent scientific paper<sup>8</sup> presented research based on a multi-centre study on awareness experienced by people during cardiac arrests. It demonstrated that while the brains of people during cardiac arrest were not active people were still experiencing consciousness and were able actively and accurately to perceive events that they could not have known about if they were not conscious. They related these events afterwards to others. Several studies have confirmed that brain activity ceases within seconds of a cardiac arrest<sup>9</sup>. Many people find evidence like this a compelling reason to consider that the mind might not need the brain in order to exist and also that death may not be the end of us as sentient individuals<sup>2,9</sup>.

It is interesting that many people<sup>2</sup> relate an experience of a bright light during their 'near death experiences' and they sense that this light contains all knowledge and is full of compassion.

Could there be a connection between the light that people experience in NDEs and the light which may have physically formed the image on the Shroud?

Perhaps to be able to answer this question we might need to consider some of the properties of light. Relativity tells us that at the speed of light space and time when seen as the separation between points or the interval between 'moments' of time cease to exist as such as all locations in the path of the light exist together<sup>10,11</sup>. From the 'point of view' of light there is no separation in space or in time between origin and destination. In the space-time diagrams used in relativity light is said to exist on the 'null' cone where the term 'null' refers to this nullification of separation.

The physical universe is, of course, the arena of separation. There can not be separation without space and there can not be space without separation. We all exist as individuals in separation as 'awareness' and 'free will' We are bounded by our own patterns of restriction and limit that define each of us as individuals within separation<sup>7</sup>.

People often assume that the physicist's definition of consciousness must be a materialistic one and they assume that all physicists must think that the brain makes the mind. Many neurobiologists do indeed think that the brain makes the mind but they can not account for how this might work and indeed quantum theory suggests to many physicists that consciousness may be more fundamental in existence than matter itself!

Two of the founders of quantum physics Max Planck and Erwin Schrödinger were interviewed in 1931 by the British newspaper 'the Observer'. They were asked "do you think that consciousness can be explained in terms of matter and its laws". Max Planck's reply<sup>12</sup> was "I regard consciousness as fundamental. I regard matter as derivative from consciousness. We can not get behind consciousness. Everything that we talk about, everything that we regard as existing postulates consciousness."

Schrödinger's reply<sup>13</sup> to the same question was "consciousness can not be accounted for in physical terms. Consciousness is absolutely fundamental. It can not be accounted for in terms of anything else."

Leibniz used an analogy of a mill. You can walk around a mill and see the parts of it and through understanding the function of the parts of the mill you could understand the mill as a whole and what it does. However if you try to extend this method to the brain you can look at different parts of it but it will not explain to you how it could generate the experience of consciousness. Leibniz' book 'The Monadology' in which this point was made was written in 1714, three hundred years ago. Clearly our understanding of the brain and its electro-chemical pathways has made great progress since then but it is interesting that neurobiologists can still not account for how the brain could generate consciousness. I would argue that the brain generates consciousness no more than a radio sings a song when you switch it on! A song is played by the radio but it does not write the song or sing it and it is not capable of experiencing 'meaning' in the song.

Quantum theory has demonstrated through the EPR experiment for example that matter does not have properties (such as position, momentum etc.) until they are observed<sup>14</sup>. Consciousness is necessary for matter to exist and therefore it is not unreasonable to

suggest that consciousness does not rely on matter for its own existence. The empirical evidence from NDE research also supports this idea<sup>9</sup>.

Physicist Andrei Linde of Stanford University pointed out in his textbook on inflationary theory that if you apply Schrödinger's equation to the universe as a whole then without a conscious observer you would have a 'dead' universe which does not change in time and in which nothing happens. In an interview<sup>15</sup> he recalls how his publisher told him that if he did not remove this reference to the fundamentality of consciousness that he might lose the respect of his colleagues. He pointed out that if he did remove it he would lose his own self respect. In point of fact he left this in the text book and he is still a highly esteemed, respected physicist. Schrödinger<sup>16</sup> pointed out that 'mind is always now' Time is a product of the mind. In saying this I am not suggesting that time is imaginary but pointing out that just as matter relies on consciousness for its existence, time does also. If time is a product of consciousness then it could be argued as in fact Schrödinger did argue, that mind can not be a product of time and can not be ended by or in time and so must therefore be eternal<sup>16</sup>, without beginning or end!

We only and always experience the 'now', the present. We feel as though the past is a separate 'place' because we remember it, but if you think about your memories the strange thing is that you only ever experience your memories in your 'present' i.e. in the 'now'<sup>7</sup>. The past is contained within the present inasmuch as the present state is influenced by what has gone before and the 'future' also exists within the present as *potentiality*. I would argue that the reason it is a potential rather than an 'actual' is because we have free will and so it is not pre-determined.

Two physics professors, Rosenblum and Kuttner wrote a fascinating book<sup>14</sup> called 'Quantum Enigma' in which they demonstrate that in experimental quantum physics you can see the effects of freedom of will as according to the choices made by the experimenters the properties of the matter that they are examining can be determined (notwithstanding the random properties of quantum theory you can still determine the type of answer that you will get by your choice of experimental method). At first sight it might seem that this is obvious as you might assume that the properties of matter already exist but you find out different information about them by looking in different ways. However, it is a simple matter to demonstrate e.g. through the 'double slit' experiment<sup>14</sup> that certain properties could not have existed without them being measured. In the case of the 'delayed choice' experiment, you can even influence events which have 'already happened'!

David Bohm<sup>11</sup> explained that matter is 'frozen light'. He explained this in reference to the fact that at the speed of light all distances in space and intervals of time are nullified. Matter is what happens when light takes on location such that separation of points occurs.

What if our physical existence, our existence as separate individuals is a result of our having become restricted and limited through choices we have made? We have become less than our full potential. As we have seen Schrödinger postulated that mind must be eternal as time itself is a product of mind<sup>16</sup>. This would mean that 'we' (i.e. that which looks out at the world 'from behind our eyes') has no beginning! Empirical evidence suggests that the physical universe did have a beginning at the big bang. If sentient awareness has no beginning and yet the physical universe had a beginning then might the implication be that awareness can exist without the existence of a physical universe? As veridical near death experiences suggest that our minds can continue when our brains are not functioning then perhaps this is not such a bizarre conclusion as it might at first seem to many.

If our existence is eternal and there is no separation without the big bang then we must all be one in that state of existence from which the big bang arose.

There is a substantial body of evidence to suggest that the Turin Shroud was the burial cloth of the historical Jesus of Nazareth. He said that the most important piece of advice he could give us was to 'love our neighbour as ourself'. Perhaps he knew that ultimately our neighbour *is* our self and that this 'love' which he referred to was the recipe for undoing the limitation that we had placed upon ourselves in making separation, space and time happen. We continue to divide based upon selfishness, materialism, racism etcetera but he taught about another way of living which united rather than divided and perhaps the image on the Turin Shroud is evidence that he put his life where his words were and lived according to that principle too.

Perhaps what he referred to as his 'father' and also as *our* father was that state of perfect union and 'peace' (i.e. absence of enforcement) without which we could not exist.

We are all aware of something which I would argue is a 'primary' cause and that is our freedom of choice! Whether or not we notionally believe in freedom of will we all act as though freedom of will exists. Why would we hold people accountable for their actions, for which we bestow credit or blame? To do this implies that we tacitly assume that they could 'have done otherwise' They only could have done otherwise if they have freedom of will. If we do have freedom of will then tautologically we all have the power of mind over matter as it is our minds that make the decisions which can influence our actions. If free will is natural then why do people think that 'mind over matter' is supernatural or 'miraculous'?

A decision made with free choice is by definition one which has no cause to be other than itself and it therefore involves primary causation which is the power of all power.

What we call force, in physical terms is secondary causation. If you choose to topple the first in a line of dominoes then your choice will make the first one fall but the force exerted by the first domino upon the second and by the second upon the third and so on is the cause for all the other dominoes to fall. Ultimately though it was your decision that made them all fall.

What if matter is frozen light that has become frozen as a result of the restriction that we have taken on in becoming separate? Jesus of Nazareth was showing us through what he taught and by how he lived how we could undo that restriction through caring and compassion and through recognition that our neighbour *is* ourselves. Perhaps if we were able completely to follow that example then, as he said, 'nothing would be impossible for us'

The report of walking on the water is particularly interesting in that Peter is also said to have walked upon the water. Even more interesting is that Peter is said to have started to sink when he had a moment of doubt. This would be consistent with the notion that our freedom of will or attitude of mind is like a 'lens' or a filter that allows or disallows the 'light' into us. This might be the same light which people see in NDEs and also could be the light that persists everywhere for all time as the interface between our state of separation and the original state of union from which we came. What we have done in making a physical universe and making ourselves as individuals is to make shadows and restrictions that define us as individuals and limit us. We call this limitation the ego.

Perhaps the result of the life that the man of the Shroud had lived meant that he was able to undo the force of his atoms and allow this light to shine through him. Atoms are frozen light which may be frozen because of our restrictions. It is these restrictions which divide us so maybe what he taught and how he lived is a recipe for 'unfreezing' light such that his body shone brighter than the Sun for a few nanoseconds in that tomb in Jerusalem all those centuries ago. To this day we have a record of this event on the Shroud which was present as a 'silent witness'. The light that formed the image on the Shroud may be the same light that people see in near death experiences and the same light may potentially exist in all of us as human beings.

If all the energy contained in the mass of a 70 kilogram man had been released this would have made an explosion bigger than all the nuclear bombs that have ever been detonated but all that would have been needed for the Shroud image to form would be a very slight release of the energy that was contained in the atoms. I use the word slight advisedly. Extrapolations from the data of Di Lazzaro et al<sup>5</sup> would suggest that the light that may have formed the image on the Shroud would be similar in amount to that



produced by a 34 thousand billion watt laser. However, this is still slight compared to the total potential energy that could be released from 70 kilograms of mass according to Einstein's mass-energy equivalence relationship  $e=mc^2$ .

Everything in this physical universe tends to move inexorably from prior states of order into greater extents of disorder and chaos as described by what physicists call the second law of thermodynamics. Perhaps Jesus knew about this as he referred to the physical universe as a place of 'moths, rust and thieves' where nothing lasts forever. He also claimed that there was another way. A way of existing where there were no moths, rust and thieves and where existence is eternal. He said that the most important thing he could tell anyone to help them to achieve this eternal status was to love our neighbour as our self. This was not a religious platitude but is perfect mathematical reason. My suggestion is that we have become restricted through division and we have become less than we were by limiting ourselves to our *selves* and our egos. If we were able to recognise the limitless and eternal value of *all* humanity and live and act out of that recognition then perhaps we might be getting closer to the original and eternal state of existence that he referred to as our father and as the source of all being. Perhaps he himself summed up what happened in that tomb in the best and simplest way when he said "the light of the body is the eye- if therefore thine eye be single thy whole body shall be full of light"

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