Strange Quark Matter in the Turin Shroud

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Abstract:

Ordinary matter is built of atoms which bears in its center a small nucleus. There in the interior are particles called baryons like protons and neutrons which in turn are made by the union of three quarks, mainly up and down quarks (just two flavors) if an extra different quark is added (strange quark)a three flavor system is formed (up, down and strange), and it iscalled Strange Quark Matter SQM.The possibility that some of these particles could have been captured by the molecules of the Shroud is studied. One of these molecules is 5-Hydroximethyl furfural which resulted from the oxidation and dehydration of the linen cellulose. This yellow-brownish chemical compound which is here proposed as the image chromophore, has a molecular weight of 126 amu and could have absorbed into his nuclei small SQM particles or "nuggets of H-strangelets) having atomic weight of 5 amu, enhancing its molecular weight to 131 amu accounting in this way for the controversial 131 line recorded in a Shroud´s mass spectrum. It is proposed here that a Quark-Gluon Plasma was created in the interior of the Sacred Heart of Jesus when he resurrected that in turn when released in all directions,formed protons neutrons and SQM and electrons as well.

Keyword: Chromophore, Strange Quark Matter, Hydroxi- Methyl- Furfural, Sacred Heart, Plasma Quark-Gluon.

I. INTRODUCTION

The Shroud of Turin has become the most studied artifact on Planet Earth, it is the most important of the relics of Christianity, because it has imprinted the image of a scourge and crucified man who is believed to be Jesus. This cloth has also red marks confirmed to be blood. In 1978, a group of scientist carried out several tests to this linen cloth which wrapped the body of Jesus after his death, a brownish –yellow faint image is visible on its surface. The STURP team as this group of scientists was called, discarded after these experiments were done, that the image was the result of a medieval artist, because neither dyes nor pigments were found forming part of the image. The STURP team concluded that the image was printed on the cloth because of "a low temperature heating

process or a high temperature of extremely short duration insufficient to produce carbonization. These tests were also able to assure that some type of conjugated carbonyl structure was the most likely image-chromophore“(Ref. 1) Nevertheless, they did not determined which compound could be, and its chemical structure was not identified.

One of the clues which gave information about how the image imprint process occurred was the scorches produced by the fire which took place in 1532 while the Shroud was in Chamberry France, where the cloth was kept into a silver reliquary which because of the high temperatures melted producing several scorches which presents visual similarities with the image. The scorches that resulted from the fire, presents three different zones: 1.- the outermost zone consisted of light scorches, presenting slight fluorescence 2.- the middle zone which consisted of severe hard scorches which presents fluorescence and finally 3.- the inner zone which consisted of a completely carbonized zone with no fluorescence at all. The reflectance spectra carried out to the image and to the burns confirmed the visual similarities between the image and the light scorches (zone 1), both presenting the same profile (Figure1). Because of these similarities, the STURP team argued:“this has led to speculate of a common causative agent, suggesting that the linen cellulose had suffered thermal degradation, and the image fibrils were simply more oxidized and dehydrated than the non-image ones, but less oxidized and dehydrated than the scorch fibrils”(Ref. 2).From this, we see that non-image areas presents an oxidation and dehydration as well, produced by the aging of the cloth over the years, even they are slightly oxidized, causing a slight yellowish of the Shroud.

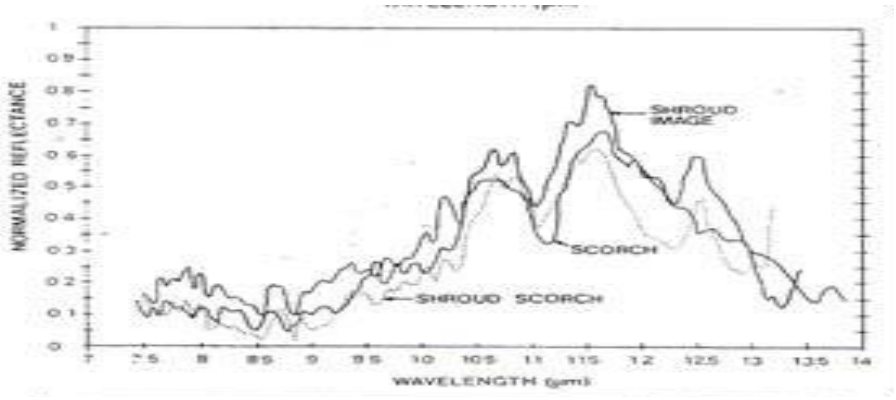


Fig 1 Image and scorch presents similar spectra

It is a fact that same spectrum means same chemical compounds, so it is inferred that the same compounds present in light scorches (zone 1) produced by the 1532 fire, are also present at the image fibrils. Spectra are like fingerprints, two different persons cannot have the same fingerprints, in the same way two different molecules cannot produce the

same spectrum. So we can conclude that the same compounds are present in both zones, however their mechanism of formation, not necessarily were the same. Thibault showed that in order to obtain a scorch in a cloth (even a light scorch), an intimate contact between a heated template and the cloth is absolutely necessary, in the same way he showed that the superficiality of the fainter scorch at the thread level, is not as superficial as in the Shroud, and most important he showed that light scorches do not present any contrast at all, and thus it does not present any 3D properties as the Shroud´s image does (Ref. 3). So it is true that the same chemical compounds are present in both areas, they had different formation mechanism, so we can rule out that the image visible on the Shroud is the result of covering a hot statue with a linen cloth.

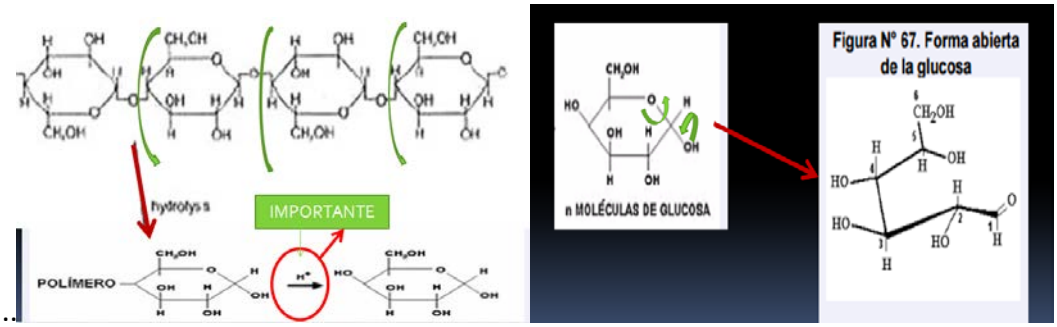
In 2005 an Italian group headed by Paolo D´ Lazaro gave an important step toward the explanation of how the image was imprinted in the Shroud, they obtained the same brownish-yellow coloration with the same superficiality as the Shroud when they irradiated linen cloths with ultraviolet ArF excimer lasers of different wavelength: “the coloration was a function of the irradiation process, showing that short wave radiation modified the electronic structure of linen promoting photolytic degradation of cellulose causing molecular bonds dissociations to promote Shroud´s like chromophoric changes”(Ref. 4).

Having this background in our minds, we can think that after Jesus was laid on the tomb after his death at the third day, a burst of ultraviolet radiation (Ref. 5) consisted of photons were released from within his whole body. This radiation took place in two directions up and down; this kind of behavior is known as orthogonal radiation which imprinted only the front and the back of the image without imprinting the lateral sides of the body. These energetic photons triggered a series of chemical reactions on the Shroud mainly made of cellulose 99% promoting its degradation by oxidizing and dehydrating the Shroud´s fibrils until a brownish yellow chemical compound was obtained imprinting in this way the image observed on it.

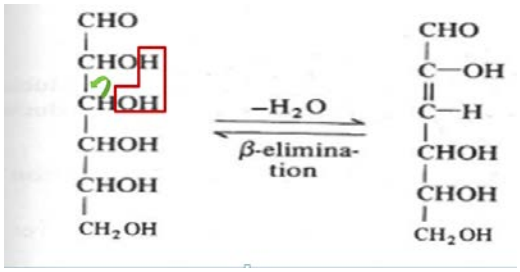
As was mentioned before, the STURP team tests concluded that the brownish yellow substance which gives color to the image (image-chromophore) was produced by an oxidation and dehydration of the linen cloth, so the team argued that this compound should present a conjugated carbonyl structure, but the team never investigated its structure. So let us see the photo-chemical reactions (Ref. 6) triggered by a burst of energy from within the body of Jesus so we can elucidate the chemical structure of the image-chromophore:

2. CHEMICAL REACTIONS:

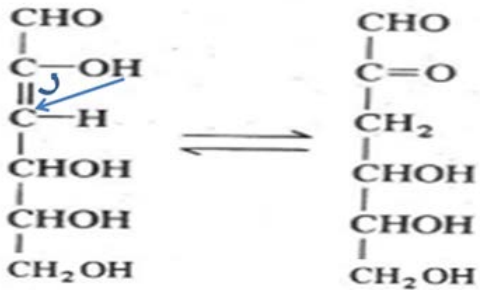
1.- The Shroud is mainly made of cellulose which is a polymer formed by many monomers of glucose joined by glucosidic bonds. After Jesus was wrapped with the Shroud and introduced into the sepulcher, the blood immediately was transferred to the linen cloth; the Shroud remained unaltered during two days. At the third day when Jesus resurrected from death a burst of ultra violet photons uv, were released from within his body breaking the cellulose glucosidic bonds producing open rings free monomers.



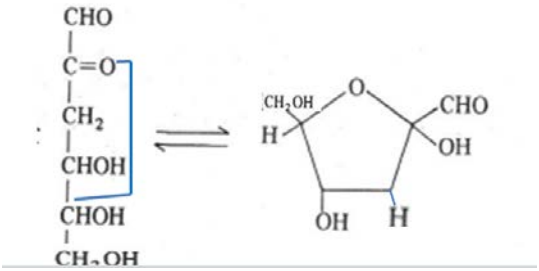
2.-Immediately the open ring monomers of glucose loose a molecule of water suffering a dehydration by means of a β-elimination (between the second and third carbon) forming an enolate



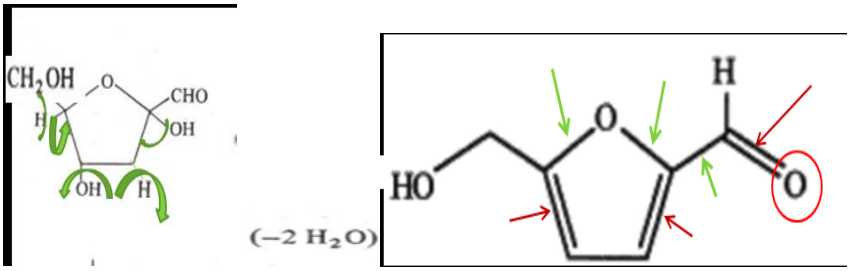
3.- Carbon 2 suffers oxidation by losing an Hydrogen



4.-Next, the open structure of glucose formed a cyclic structure between carbon 2 and 5 and a furfural ring was obtained. In this step, a Hydrogen at carbon 5 was loose causing its oxidation:



5.-Finnaly the molecule of furfural loose two molecules of water suffering dehydration and a chemical compound: 5-Hydroxi-metil furfural HMF was obtained:



This HMF compound presents a yellow-brownish coloration (Ref. 7), which bears a carbonyl group into its chemical structure, presenting a series of single and doubles alternated chemical bonds called conjugated bonds. Because this compound fulfills all the requirements of the STURP team, we propose it to be the Shroud´s image- chromophore. The molecular weight of this chemical compound is 126 amu.

This molecule of HMF was recorded as a 126 line in a pyrolysis mass spectrum (Figure 2) carried out by the STURP team from the back ankle zone (zone 1 EB) (Ref 8). In this spectrum is also visible a 96-line which corresponds to the furfural molecule which resulted after the HMF suffered deformylation breaking its chemical bonds and then losing a formylate group, producing in this way furfural (mw=96 amu).

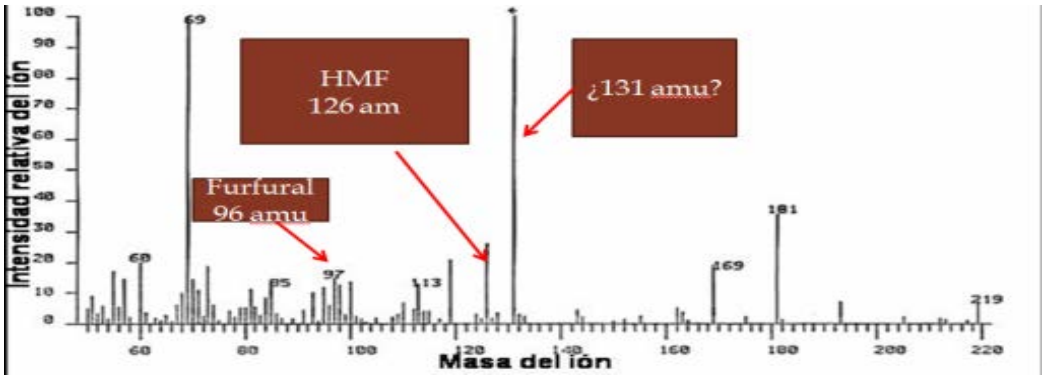


Fig 2 Back ankle pyrolysis mass spectrum

3. **THERE IS A UNKNOWN COMPOUND IN THE SHROUD**

Now, it is also observed in this mass spectrum, a controversial 131-line which in fact is the largest one and has resisted explanation. Several hypotheses have emerged in trying to explain which chemical compound could be. Some Shroud´s researches have postulated several possible explanations in trying to explain what this line could be. As for example Ray Rogers in the first instance, proposed that 131-line could be the amino acid Hydroxiproline: "incidentally the pyrolysis mass spectra of sample from apparent blood spots showed Hydroxiproline peak at ms 131 a pyrolysis product of animal proteins" (Ref 9). But as Latendrese commented about this 131-line"the image-area fiber used by Rogers is not known to come from a blood stain area of the Shroud so the allusion to Hydroxiproline is unrelated to blood" (Ref. 10). In the same way Bella et al commented about this peak,"it should not be where no blood stains are present, so this 131-line cannot be associated to the amino acid"(Ref. 11). Latendrese also presented the argument that if Hydroxiproline were in the sample, its mass spectra should show major peaks at m/z 86 and 87 and we do not see any of these peaks in this mass spectrum.

Also Latendrese propose the possibility that this 131-line could be some other amino acids like Creatine or Leucine (Ref 12) both having a molecular weight of 131 amu, but according to Rogers "the pyrolysis–MS analysis did not detect any Nitrogen-containing contaminants. This seems to rule out glair (egg white) as well as any significant microbiological"(Ref. 13). The same conclusion emerged from the microchemical tests carried out to the Shroud´s fibrils; in particular the fluorescamine test and the protease test confirmed the absence of proteins (aminoacids) in areas different from blood zones (Ref. 14).

In the same way, the STURP team carried out several tests searching for specific organic structures and functional groups on the uncoated fibrils, body image, non-image areas and scorches fibrils. These tests did not detect the presence of any of the following species: phenols, riboflavin, steroids, indoles, lignin(allyls) porphyrins, pyrrols, creatin, uric acid, urea derivates, amines primary, nitro derivates, saponaria extract and sulphide pigments as well"(Ref. 15), and also Rogers commented"with the exception of positive aldehyde and cellulosic carboxyl tests, all other species tested for tested negatively, and also he said "the pyrolysis mass spectrometry did not detect any unexpected pyrolysis fragments that indicated any Shroud materials other than carbohydrates. That is exactly what would be expected from a piece of pure linen" (Ref,16).

So according to these results, the only thing we are absolutely sure is that in areas other than blood, there exist only chemical compounds bearing aldehydes and carboxylic acids groups presenting hydroxyl groups and carbon-carbon double bonds.The here proposed Shroud´s image´s chromophore yellow-brownish HMF presents an aldehyde group in its chemical structure and alternated single and doubles conjugated bonds as well. This compound is also present in the light scorches (zone 1). Whereas at the severe scorches (zone 2),the oxidation went further, producing even more oxidized compounds like carboxylic acids (formic acid or levulynic acid) At zone 3, the oxidation was completely, producing totally carbonization formingin the first instance CO2 and CO, and finally Carbon (charred material) plus free oxygen.

Returning to our discussion in trying to explain which this unknown 131 amu compound could be, Latendrese proposed that it could be a lipid coming from the contamination of the secretion of the sebaceous glands (sebum), from the many hands that have touched the Shroud along its history, in particular he suggested some triglycerides having a molecular weight of 131 amu (Ref. 17). But we can comment about these kinds of lipids, that they indeed bears a carboxylic acid group in its structure, but when looking a spectrum of this compound alone, there is no any signal at 131 m/z, so again this molecule can be ruled out. Bella et al proposed another possible explanation for this 131 amu unknown compound, they propose that it could be a contamination of an alkane (hydrocarbon) (Ref.18) that resulted from the many candles that have burned in front of the Shroud along its history, but again the spectrum of these compound alone does not present any signal at 131 amu, so it is also discarded.

So, after performing sensitive instrumental analysis, the conclusion was that "nothing other than dehydrated carbohydrates could be found in the image area" (Ref. 19), and there is no any 131 amu compound among them. Furthermore, Kato showed that a

normal pyrolysis of cellulose does not produce any 131 amu at all (Ref. 20).On the basis of what has been discussed so far, which this weird 131 amu compound could be?

4.- **STRANGE QUARK MATTER IN THE SHROUD**

We propose here that this 131 unknown chemical compound is the result of small Strange Quark Matter SQM particles created when Jesus resurrected from the death, which when collided with molecules of the Shroud or its degradation products were absorbed by them. We are proposing here that one of these molecules which could had captured one of these SQM particles about nuclei size having an atomic mass of 5 amu, is the image-chromophore HMF having a molecular weight of 126 amu. The HMF after being stroke by one of these SQM particle, captured it within its nuclei or into its furfural ring, enhancing its molecular weight from 126 to 131 amu accounting in this way for the 131 amu unknown compound. This hypothesis represents a possibility that worthwhile to consider, so let us see what physics know about Strange Quark Matter.

At the beginning of the Universe, according to physics, there existed 6 types of quarks or 6 “flavors”: up, down, strange, charm, top and beauty. The last three because of being so massive evaporated, whereas the first three ones being less massive remained. Quarks have fractional charges (“color”), which when got together created baryons (Ref. 21). These particles are composed by the union of three quarks. In this way, protons are baryons formed by the union of two quarks up and one quark down(2/3 +2/3) -1/3 = +1) , that is, protons are formed by three quarks but just two “flavors”: up and down; in the same way neutrons were formed by the union of one quark up and two quarks down (2/3 -1/3-1/3= 0) that is, neutrons are baryons made of three quarks but just two “flavors”: up and down.

One of the great successes of the quark theory was the prediction of particles formed by three quarks (baryons) having one type of quark, just one “flavor” that is,a baryon made of 3 strange quarks (strange,strange,strange). This particle was called Omega minus Ω^-, and was detected in the Brook Haven LAB. From this, we see that one “flavor” baryons really exists, in the same way, two “flavors” baryons exist as well. So, ¿it is not possible that there might be a baryon made of three quarks with three different “flavors”: up, down& strange? This is what physics call Strange Quark Matter SQM (Refs. 22, 23). Introducing a third “flavor” make it possible to reduce the energy relative to a two flavor system. When an extra different quark is added (an extra “flavor”), physics have predicted that one may gain of order of 100 Mev by introducing an extra flavor in going from two

"flavors" to three "flavors" (Ref. 24). Theoretical arguments indicate that the three flavor quark matter SQM energy may be E/A= 837 Mev even more stable than two "flavors" matter (ordinary matter) E/A =930 Mev (Figure 3).

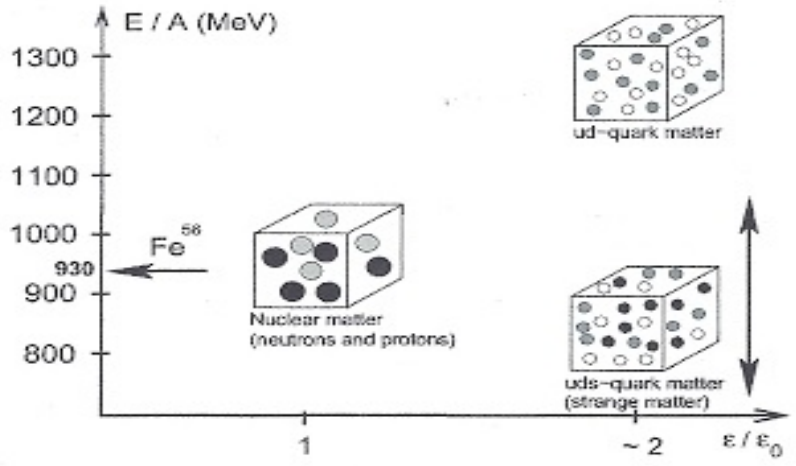


Fig 3. Three flavor system even more stable than two flavors

Strange Quark Matter being composed by three different "flavors" poses neutral charge (+2/3-1/3-1/3=0), when these particles forms small lumps of SQM, or "nuggets" they are called "Strangelets"(Ref. 25)(Figure 4)

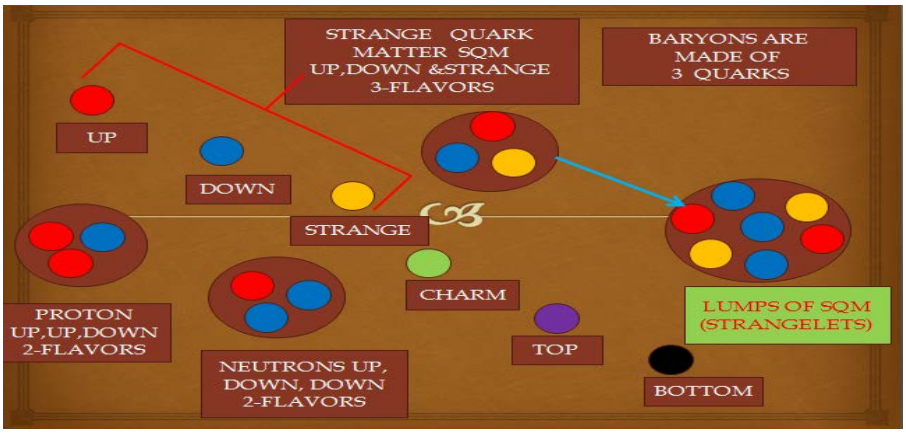


Fig 4. Protons Neutrons and SQM (baryons)

and a slight positive charge emerge, so it is possible in this way to construct a periodic table of Strangelets (Figure 5) (Ref. 26) similar to the periodic table of elements. We realize that in this periodic table that strangelets poses two values for their masses. The

upper value was calculated using the MIT Bag Model mass charge relation: $0.1\ A \leq Z < 8A^{1/3}$ and the lower value using $Z = 0.3\ A^{2/3}$, this last value is a more stable one because of the formation of quarks pairs, and this state is called Color Flavor Locked system CFL (Ref 27). SQM particles are leftovers from the Big Bang (Ref. 28) and are absolutely stable, physics are totally convinced of its existence, being even more stable than ordinary matter, and this is the reason why they are looking for small nuggets of strangelets in several environments. Most of these searches are sensitive to low A values ranging from nuclei size to radius of approximately 10^{-8}cm, they are being searched in mineral deposits on the Earth, at the sea level, in the lunar soil or in the cosmic rays with the aid of the Alpha Magnetic Spectrometer AMS. Jes Masden a SQM physics say: "one can walk with a bump of Strangelet in his pocket without being swallowed" (Ref. 29).

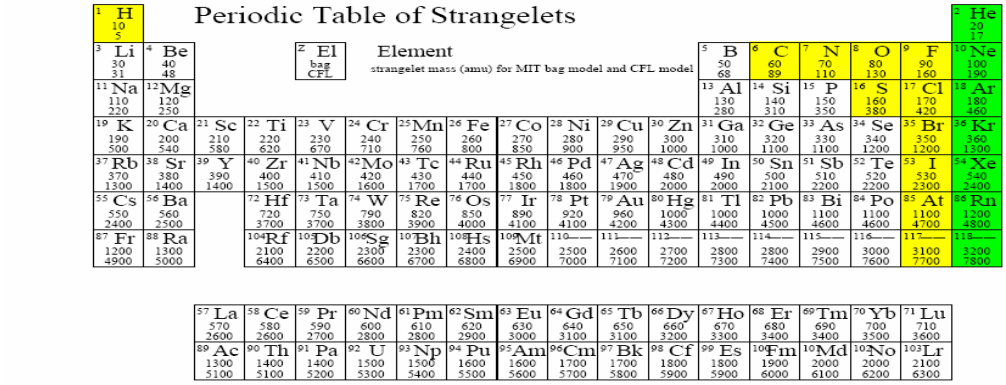


Fig 5.Strangelets Periodic table

Strange quarks (1Gev) are more massive than quarks (5 Mev) and down quarks (10 Mev), this is the reason why Hydrogen-strangelet SQM mass is 5 amu (Figure 6) calculated using the CFL value (see strangelet table), while normal Hydrogen weighs only 1 amu.

Fig 6. Normal Hydrogen and strangelet Hydrogen

In this paper we are proposing that at the time of Jesus resurrection, one Hydrogen strangelet per molecule could have replaced a Hydrogen atom of the HMF molecule with molecular weight of 126 (Figure 6), remember that in order to form HMF a Hydrogen rich environment was required. It can also be proposed that a some slightly Hydrogen strangelet were stuck in the interior of the furfural negatively ring of the HMF molecule or as a third possibility is that small particles of SQM Q= 0 had been captured by one of the nuclei of the HMF molecule, enhancing its molecular weight from 126 to 131 amu accounting in this way for the 131 amu unknown compound. Of course not all of the HMF molecules captured SQM particles because it is also observed the 126 line at the mass spectrum which corresponds to the HMF without SQM particles.

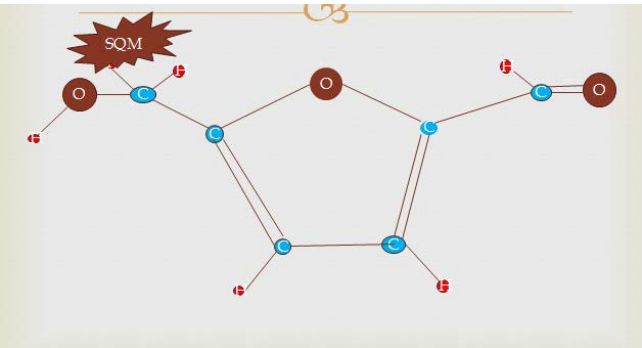


Fig 7.HMF molecule capturing a SQM particle (H-strangelet)

In support of this hypothesis, we can observe a 100 line at the mass spectrum which could be the molecule of Furfural (MW= 96) having captured a SQM particle Hydrogen strangelet (5 amu).There still remain to be explained the 69- line for future searching's.

5.-**RELEASE OF STRANGE QUARK MATTER**

It is well known among Shroud´s researches that C-14 tests carried out to the holy cloth, dated the Shroud back to the middle age. This result was questioned by many shroud´s researches which were very reluctant to accept them as valid. Several hypotheses were formulated in order to explain this anomalous result. One of these hypotheses was the one formulated by Bob Rucker who based on Dr. Thomas J. Philips´s who postulated that neutrons were released from within the body of Jesus (Ref. 30) when he resurrected. Rucker went further and realized that the discrepancy of the results given by the three labs which carried out the C-14 analysis, were not random but instead they followed a

pattern or a “systematic bias” as he called it (Ref. 31). In other words, he found that the tested sample, as moving apart from the bottom of the Shroud, e.g. approaching to the center of the body, the age of the sample increased systematically. He was able to determine that for every centimeter the sample move toward the center of the body, an increase of 37 years was observed (Ref. 32); he concluded that the age was a function of the distance from the center of the body and he could obtain an equation of this process.

$$y=35.8\ X \pm 1030.67$$

In order to explain these results, Rucker proposed that neutrons were released from within the whole body of Jesus which when captured by the nuclei of the molecules of the Shroud, new C-14 was formed and was added to the natural increasing its concentration.

Now, we can argue that SQM particles and neutrons could have the same origin; they were created within the body of Jesus. Rucker has proposed that neutrons were extracted from the body of Jesus. Bodies have naturally many neutrons, but there is not SQM present in any human body, so we can argue that these particles were created at the moment of his resurrection in some place of the body. In order to find where, we will base on Rucker´s findings.

He obtained that the intensity of this flux of neutrons had a maximum at the body center of mass, decreasing while moving far from this zone. Now, using his published results (Ref. 33) we see that the maximum age in the front side of the image is according to him: year 4048. Now, let us concentrate on the surrounding ages (Figure 8).

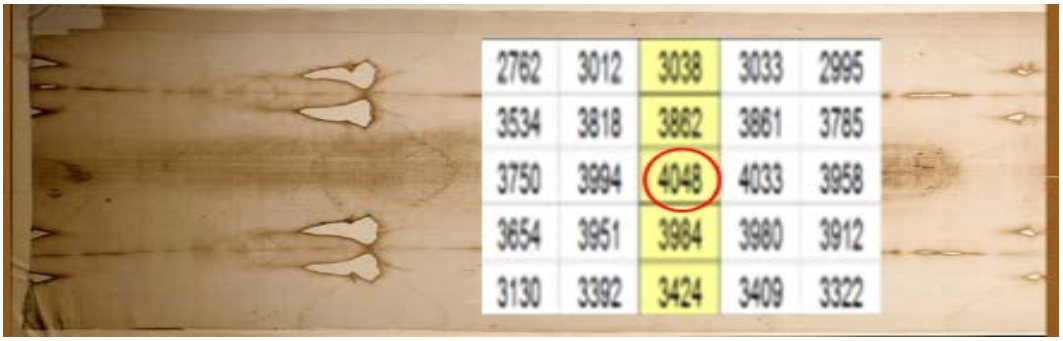


Fig. 8. Maximum neutron´s concentration at the body center of mass

We focus on the year 4048, then finding this same age proportionality in every direction (Figure 9) Once doing this, we draw an ellipse, finding its center (Figure 10). We realize that the new center moves a little to the upper part of the body and to the left, pointing this time to the Heart of Jesus (Figure 11). With this new result we can propose that SQM

particles were released from within the Sacred Heart of Jesus as an expanding sphere decreasing its concentration as moving apart from the Heart, in the same way as neutrons, as Rucker found.

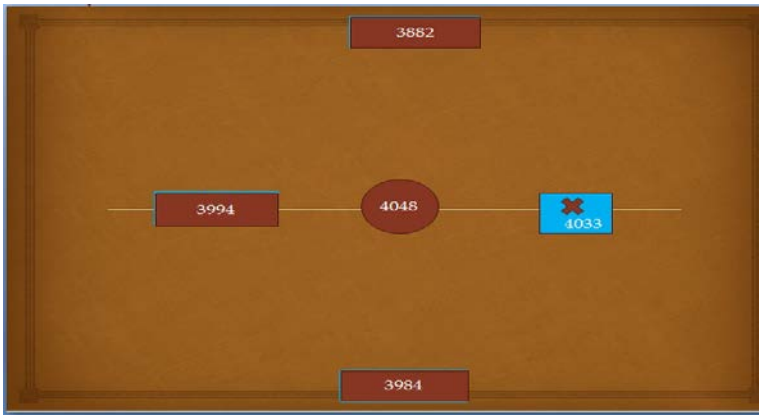


Fig 9. Surrounding years

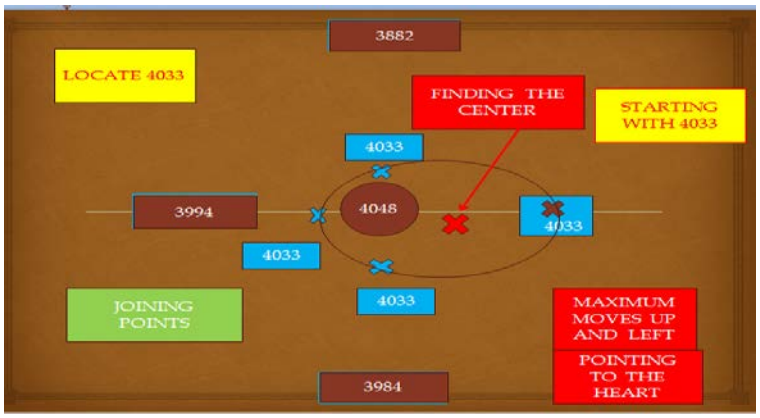


Fig 10. Finding the new center

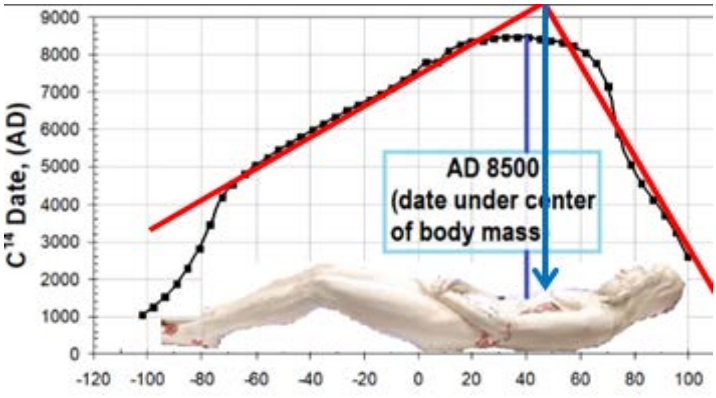


Fig 11.Center at the Heart (linear function)

In order to test that the emission of SQM particles were function of the distance from the Heart and occurred as an expanding sphere, we can use of a second mass spectrum recorded by the same team STURP in 1978 (Ref. 34). This new spectrum corresponds to the Raes area in which the 131 line is also observed, this zone is next to the C14 tested zone. This is a non-image area, ¿so how can we account for the presence of HMF here? Let us remember that the non-image is also oxidized because of the aging of the cloth, remember that the STURP team concluded that the image was more oxidized than the non-image area, but less oxidized than the scorched zone and according to Jackson the non image zone oxidized with time (Ref 35). We can argue that in this region SQM collided with the cellulose molecules of the Shroud and were captured by their nuclei, as time passed by, the formation of HMF having a SQM particle occurred.

Now, by comparing the 131 lines altitudes in both spectra (Back ankle and Raes zone) (Figure 12), which in turn represent the 131-HMF concentration and taking the back ankle zone (1EB zone) as 100% whereas the Raes sample is 23%. Then obtaining the ratio of these two values (100/23) , a ratio of 4.35 is obtained.

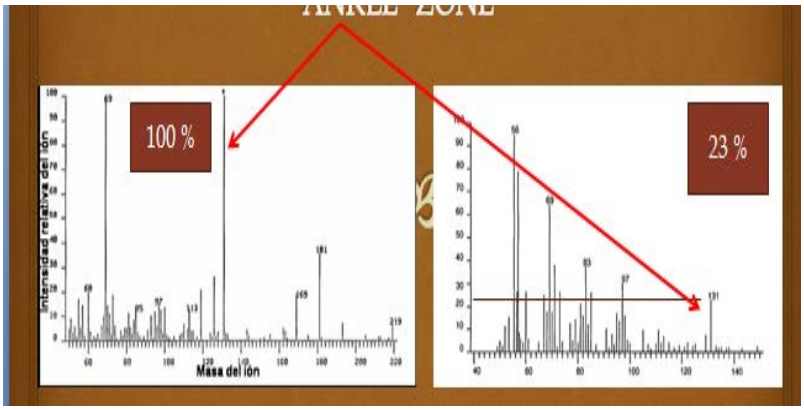


Fig 12. Comparing 131 lines altitudes

Now, we will try to see if the distance between the back ankle zone with respect to the Raes sample decreases by the same ratio, if so, we will be in the position to conclude that the HMF-131 concentration decreased as a function of the distance to the Heart and so SQM concentration decreased as a function from the distance to the Heart.

In order to test this, we need to measure the distance from the back ankle zone to the Raes area. First we realize that the ankle zone is on the back, whereas Raes area is on the

front, so we locate the front ankle zone (Figure 13) which is assumed to have the same SQM concentration as the back ankle zone.

Fig 13. Locating front ankle zone

Then we draw a diagonal line from the Heart to the bottom of the Shroud

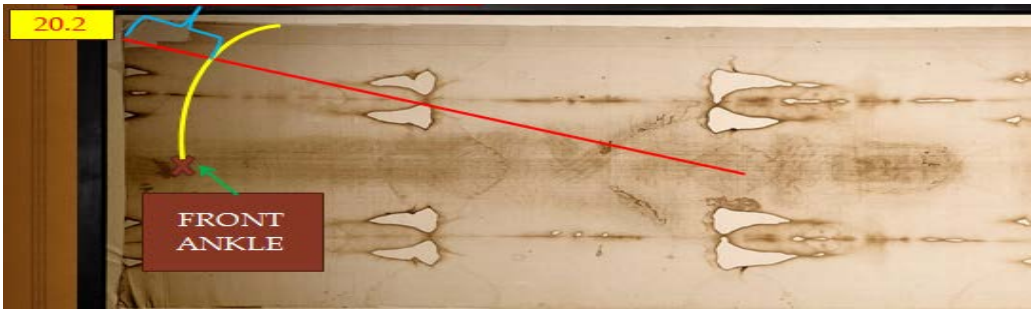


Fig 14. A diagonal line from the Heart to the bottom of the Shroud

We now move in circle until we meet the previous diagonal line, remember we are trying to proof that SQM release was as an expanding sphere, then measure the distance from this intersection point to the bottom of the Shroud just like Rucker did with neutrons, following the diagonal line (Figure 14), and a value of 20.2 cm is obtained.

Next we measure the distance from the Raes area to the bottom of the Shroud again diagonally which is 4.2 cm (Figure 15).

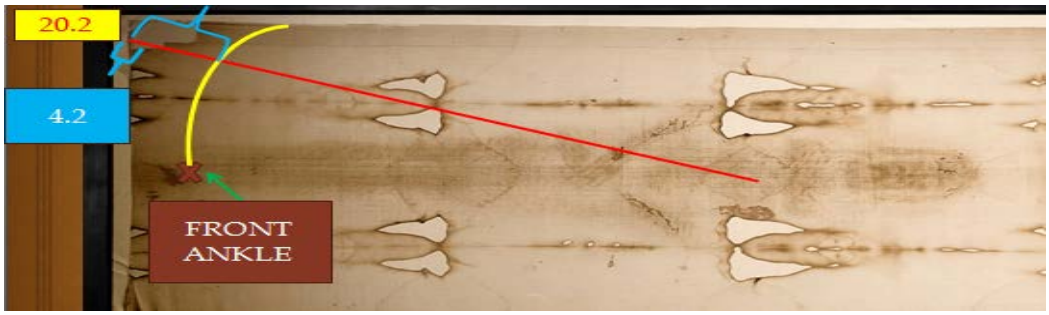


Fig 15. Distance from the Raes zone to the bottom

Finally, finding the ratio between these two values we obtaining: 20.2 cm/4.2 cm=4.8, which is very close enough to 4.35 the SQM concentration ratio, for us to say that SQM concentration decreased as a function of the distance, in other words, the density of SQM released from the sacred Heart of Jesus decreased not randomly but following a pattern as the distance from the Heart increases, the same as neutrons as Rucker showed.

Once we have found that the release of SQM was a function of the distance, we can take the ratio of decreasing of SQM as the slope and obtain an equation of the linear function, then plotting these results (Figure 16)

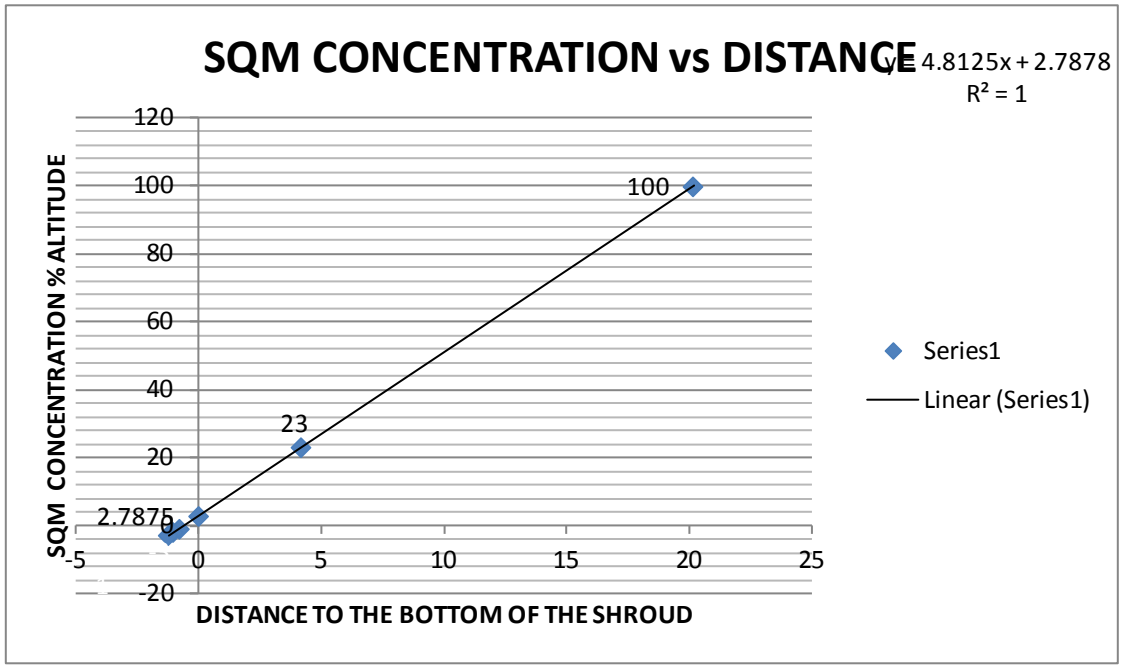


Fig 16. SQM concentration vs distance

SQM equation : y=4.8125 X + 2.7878

just like Rucker did with neutrons. Now, we can introduce in this equation, the distance x=167.6 cm which is the distance from the Heart to the bottom of the Shroud

y= 4.8125 (167.6 cm) + 2.7878

obtaining: y=809.36 %, which is a hypothetical value, but represents an increase of roughly 8 times. If we do the same with Rucker´s equation for neutrons, introducing the distance to the Heart, it is obtained:

y= 35.87 (167.6) + 1030.67;

y=7042

Which represents an increase of 7 times and this is telling us that both process SQM release and neutrons release are related to one another.

By extrapolating the graph for y=0 in the SQM equation it is obtained y= -0.7149 cm

Then adding this value to the distance to the Heart: 167.6 + 0.7149= 168.31 cm, which is the radius of the sphere.

6.-**HYPOTHESIS**;

At this point, we are in the position to formulate an hypothesis, when Jesus resurrected from the death, ultraviolet photons were released from the whole body which triggered a series of photo chemical reactions that in turn degraded the linen cellulose imprinting the image we observe in the Shroud, at the same time, and this the hypothesis: “a Quark-Gluon-Plasma QGP was created into the Sacred Heart of Jesus, made of three different quarks: up, down and strange, (Figure 17)

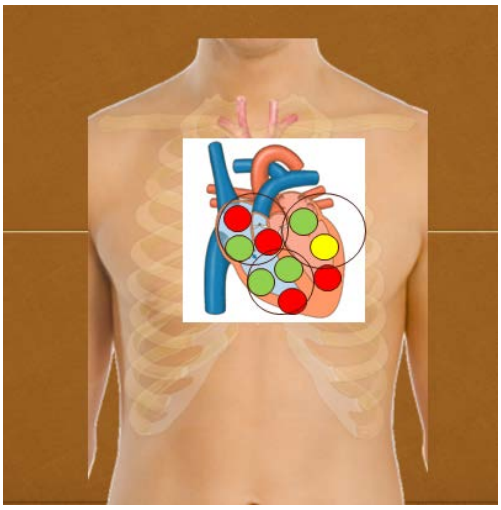


Fig 17.A Quark Gluon Plasma in the Heart

that in turn after being released they got together creating protons (one up and two down quarks) which according to Lind (Ref 36) and Rinaudo (Ref 37) were part of the released radiation. Neutrons were also created (two up and one down quark) and SQM as well (one up, one down and one strange quark) (Figure 18) and electrons as well, which according to Scheuermann (Ref 38) were also released during the resurrection of Jesus.

These particles stroke the Shroud and got stuck on it. SQM particles must had been small ones, because more massive Strangelets would had too much momentum and they could not have been stopped by the Shroud, passing through the holy cloth..

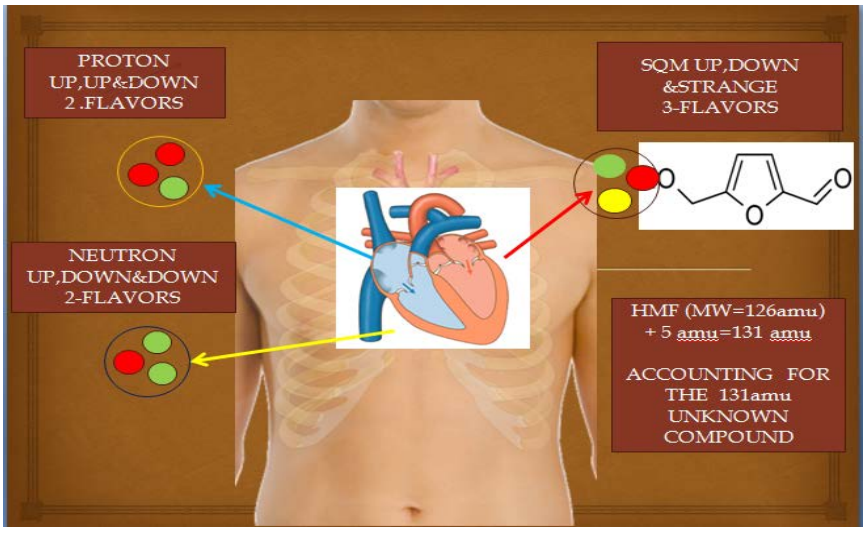


Fig 18. Creation of protons, neutrons and SQM

7. **CONLUSIONS**

The presence of Strange Quark Matter in the Turin Shroud is a real possibility which was here proposed after studying the pyrolysis mass spectra of some areas in which a 131 amu unknown compound is observed. It was proposed here that because there is no exist any other compound besides those that resulted from the degradation of the linen cellulose of the cloth,(oxidation and dehydration) this unknown compound could be Hydroxi- methyl furfural, which was here proposed as the image-chromophore with a molecular weight of 126 amu which during the resurrection of Jesus captured small particles about nuclei size of SQM (Hydrogen-strangelets) with an atomic mass of 5 amu thus forming the 131 amu Hydroxy methyl furfural.

It was shown that these SQM particles had its origin in the Sacred Heart of Jesus and were radiated in all directions as an expanding sphere (Figure 19, 20, 21, 22, 23. 24, 25). It was shown using a second mass spectrum in which the 131 line also appeared that SQM concentration decreased as a function of the distance from the Heart. Finally it was formulated the hypothesis that during the resurrection of Jesus besides de uv photons released from the whole body, at the same time it was created into his Sacred Heart a Quark–Gluon Plasma of up, down and strange quarks, like the one formed at the beginnings of times, that in turn created the protons, neutrons and Strange Quark Matter as well, together with electrons which also that impinged the Shroud. The possibility exists and is real, which waits to be confirmed. If so, it would have enormous consequences for us to say that there in the Shroud there exists evidence that Jesus created the whole Universe.

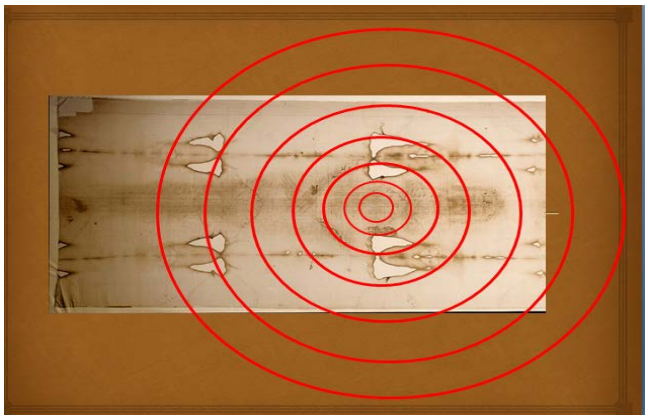


Fig 19.Release of SQM as an expanding sphere

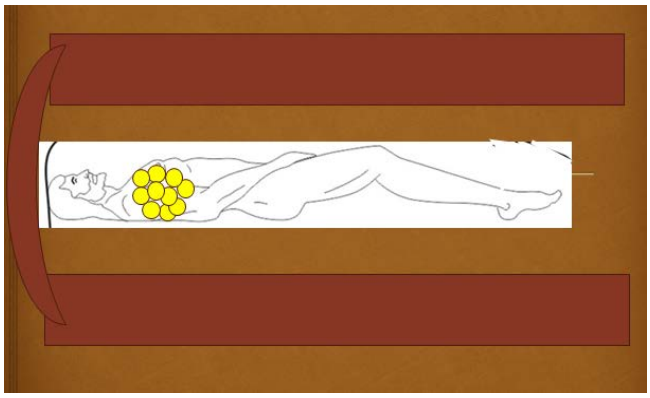


Fig 20. Release from the Heart of Jesus

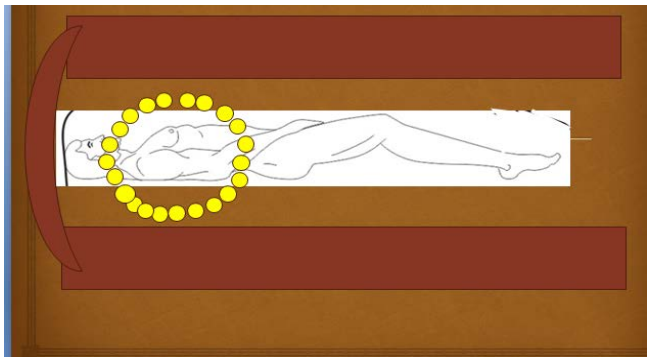


Fig 21. Expanding sphere

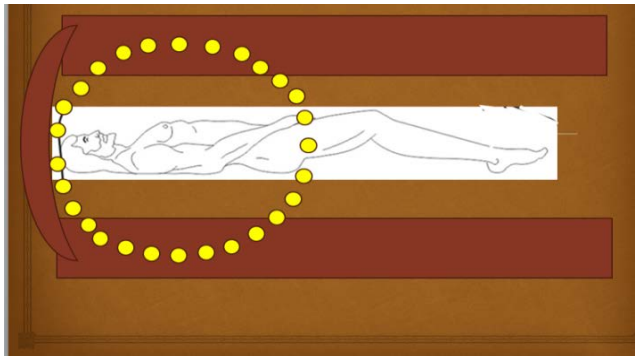


Fig 22. Growing sphere

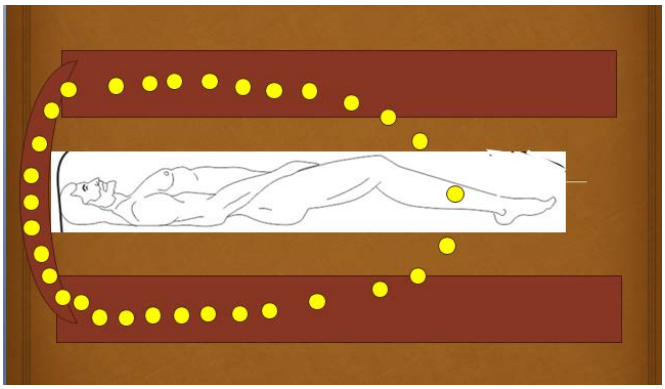


Fig 23. SQM absorbed by the Shroud´s molecules

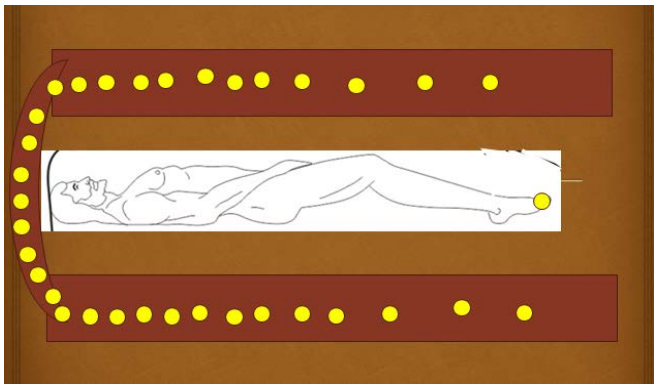


Fig 24. The concentration decreases as a function of the distance, notice that SQM concentration decreases as moving apart from the Heart

Fig 25. Release of energy from the Sacred Heart

References:

1.-Heller, J.H.Adler A.D.A chemical investigation of the Shroud of Turin.Canadian Society of Forensic.

Science 14.N° 3 (1981).

2.- R. Gilbert Jr. and M. Gilbert "Ultraviolet-visible reflectance and fluorescence spectra of the Shroud of Turin" Applied Optics. 19 (1980) pp. 1913-1920.

3.-HeimburgeThibaul. The scorch hypothesis/www.shroud.com/

4.-D´lazaro, P. et al, "sub micrometer coloration depth of linen by vacuum ultraviolet radiation" International Workshop on the Scientific approach to the acheiropoietos images. Proceedings.Organized by ENEA Research Center of Franscati 4-6 May 2010.

5.- Jackson, J. P. Is the image on the Shroud due to a process heretofore unknown to modern science ? copyright Turin Center of Colorado 2014.

6.- Mei T.Y,.Dalyon D.R. OrganicChemistry in theLaboratory, D.VanNostrand Company, New York,1979

7.- William Mejia, José Serrano."Obtención del 5-hidroximetilfurfural a partir de fructuosa". Univerisidad de Cuenca. Facultad de Ciencias Químicas. 2011.

8.-R.N. Rogers, www.shroud.com/"Pyrolysis /Mass spectrometry applied to the Shroud of Turin.2004. Thermochim.Acta (425).

9.-Rogers R. , Arnold A. "Scientific Method Applied to the Shroud of Turin". A review. 2002.

10.-M. Latendresse."Comments on the mass spectrometry analysis of a sample of the Shroud of Turin", Thermochim.Acta 624 (2016) 55-58.

11.-M. Bella, L. Garlaschelli, R. Samperi."There is no mass spectrometry evidence that the C14 sample from the Shroud of Turin comes from a medieval invisible mending". Thermochim.Acta (2015).

12.- In ref. 10.

13.-In ref 8.

14.- In ref 1.

15.- In ref 1

16.- In ref 8.

17- In ref 10.

18.- In ref 11.

19.- In ref 8.

20.-Kunio Kato, Pyrolysis of Cellulose, Comparative studies of the volatile Compounds from pyrolysates of Cellulose and its related compounds.Agr. Biol. Chem..vol 31, n° 6, PP. 637-663, 1967.

21.-J.F. Trefil.Fom atoms to quarks.An introduction to the Strange World of Particle Physics.Charles Scribner´s sons.New York.1980.

22.-arXiv:astro-ph/0407155 v2, F. Webner, "Strange Quark Matter and Compact Stars" Department of Physics San Diego State University 5500 Campanile Drive, San Diego California 92182, USA, 2004.

23.-JesMdsen, "Physics and Astrophysics of Strange Quark Matter" . Institute of Physcs and Astronomy, University of Aarhus DK-8000 Aarhus C. Denmark, July 2004.

24.-In ref 23.

25.-arXiv:astro-ph/06 12784. Jes Madsen "Strangelets in cosmic rays", Department of Physics and Astronomy WSPC-Proceedings. University of Aarhus DK-8000, 29 dec-2006.

26.-From Monreal(arXiv:0904.2860 (nucl-ex). 25.- In ref 24.

27.-Jes Madsen, "Cosmic rays strangelets". Department of Physics and Asttronomy of Aarhus DK-8000 Aarhus Denmark. J. Phys. G. Nucl. Part. Phys. 31 (2005) 5833-5839.

28.- In ref 23.

29.- In ref 23.

30.-Thomas J. Philips, "Shroud Irradated with Neutrons?"Nature.Vol. 337. N° 6208: PAGES 594, February 16, 1989.

31.www.shroudresearch.net/research.html. Robert.A. Rucker The Carbon Dating problem.Part 2 Statistical Analysis. 2018.

32.-www.shroudresearch.net/research.html.Robert. A. Rucker The Carbon Dating problem. Part 1: Background.

33.- www.shroudresearch.net/research.html.Rucker, Robert. A. The Carbon Dating problem:The Neutron Absorption Hypothesis.

34.- In ref 8.

35.-in ref 5

36.-Artur C Lind, “image Formation by Protons”presented at the International Conference on the Turin Shroud of Turin ICST-2017 in Pasco W.A July 22, 2017.

37.- Jean Baptiste Rinaudo “Modelloprotonico di formazione della imagine sulla Sindone di Torino “(Protonic Model of Image formation on the Shroud of Turin) presented June 6, 1998 in Torino, Italy, at the III CongressoInternazionale Di Studi Sulla Sindone (3rdIinternationalCongress of Studies on the Shroud).

38.-R. Scheuermann O. Hypothesis.Electron emission or absorption as the mechanism that created the image on the Shroud of Turin. Proof by experiment, Fondazione 3M, Segregate Milan, Italy, (2003).