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Research Article



# Spatio-Temporal Analysis of the Shroud of Turin

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## Abstract

The shroud of Turin is believed to have wraped the body of Jesus Christ [1]; although a series of temporal analyses date the fabric from the Middle Age. In addition, a spatial experiment shows that a coherent image such as the one presented is impossible. It's about explaining why.

**Keywords:** Inconsistent Image; Fake; Spatial Analyse

**Keygoal:** Prove that the shrould of Turin is a fake.

## Introduction

The concern is about expertising the origin of a canvas and analyse the image displayed. According to the temporal approach, six assessments of the age of the canvas by Carbon 14 analysis concluded that the frabric had been manufactured during the Middle Ages, instead of the beginning of our era. We are going to describe an unprecedented spatial experiment which shows that the image on the canvas cannot result from the wrapping of anybody.

## The Temporal Approach

The principle of a temporal approach is comparing the unknown states of various samples with the well-known state of a reference system. For this purpose, let's remind how the radioactive dating works [2]. Radioisotopes are characterized by their half-life called radioactive period, whose definition is:

« The radioactive period corresponds to the half reduction of the radioactivity rate »

The radioactivity rate is the number of disintegrations per second. he Carbon 14 (C14) is a specific dater of carbon compounds like wood, ashes, bones, organic remains, fabrics. Its radioactive period is 5,730 years, and that of C12 is stable. Given that the shroud was made of natural components like cotton or hemp, all containing carbon, the appropriate protocol consists in measuring the radioactivity rate based on the C14 protocol. The cosmic radiation flux which turns the Nitrogen 14 into Carbon 14 is constant; therefore, the quantity of C14 which is generated is the same as the quantity of C14 which is disintegrated; so that the proportion C14/C12 is constant, in the atmosphere and in living organisms; now a dead organism does not recharge carbon and its C14 continues to disintegrate; therefore, the proportion C14/C12 decreases gradually.

Two examples

- The radioactivity rate of a bone fragment of someone who died recently, will be half of what it is today in 5,730 years. And the rate will be the quarter in 11,460 years.

- A bone fragment, in which residual radioactivity postmortem is about 1/16th of a living bone, is dated about 23,000 years; an episode during which the fragment has interrupted carbon exchanges with the outside: in a way, this is its post mortem age.

Analyses of six fragments concluded that the fabric dated from the Middle Ages. Of course, these results are controversial by religious authorities [1] but science says what is, not what must be in order to satisfy desires or beliefs. This is why we have developed another protocol, much simpler, but effectively demonstrative thanks to a spatial approach.

## The Spatial Approach

The spatial approach does not allow us to assess how old the fabric is. But on the other hand, it is going to explain why the image of the shroud of Turin is coherent, while it should not be (Figure 1).

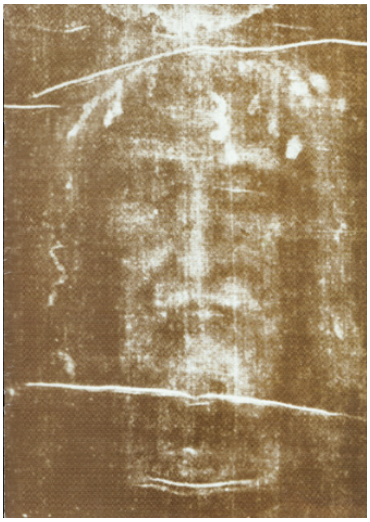

**Figure 1:** Photo of a part of the shroud [1].

This spatial experiment is carried out through four stages.

- First stage:

Use the sculpture of a head (Figure 2).

Note that the photo is a two-dimensional image of a three-dimensional object.

The word « two-dimensional » means « length » and « width ».

The word « three-dimensional » means « length », « width » and « height ».

- Second stage:

Wrap the head with a white fabric (Figure 3).

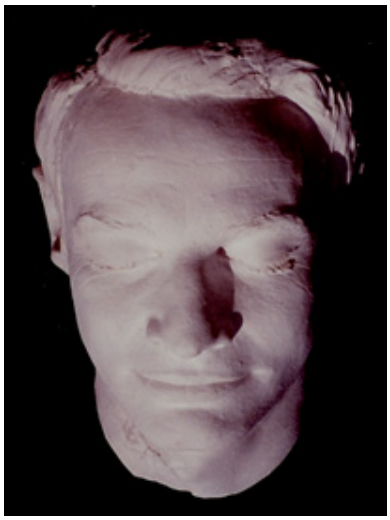

**Figure 2:** Plaster moulding of a head.

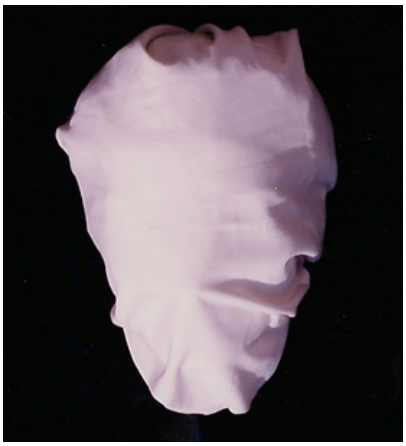

**Figure 3:** The head is wrapped with a fabric.

- Third stage:

Apply pastel powder with the hands on the whole, in order to capture the main reliefs of the face, such as the nose, the ears, the back of the head, etc. We obtain a rough imprint of the head (Figure 4).

It must be emphasized that as long as the fabric is wraping the head, it is a three-dimensional imprint.

- Fourth stage:

Remove the fabric and get it flat (Figure 5). We have a two-dimensional image.

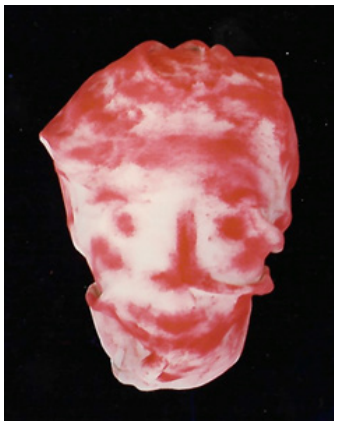

**Figure 4:** Imprint of the reliefs of the head.

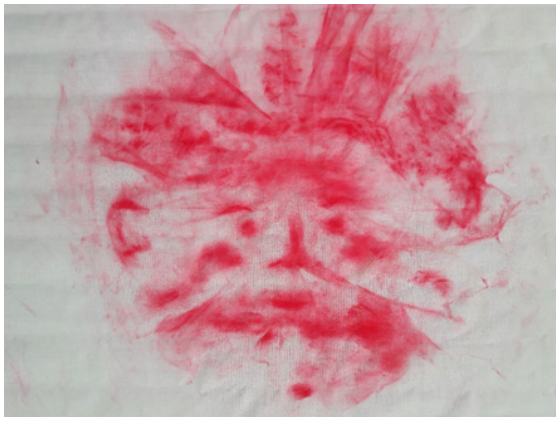

**Figure 5:** The fabric laid flat.

It emerges that the image of the head (Figure 2) returned by the fabric (Figure 5) is inconsistent:

- Nose, eyes, cheekbones and eyebrow arches are placed consistently; but side and back hair, ears, neck, are rejected away, so that the image given back is incoherent.
- If the shroud of Turin had wrapped a body, the image should show the same incoherent morphology, instead of that of a drawing or a photograph as displayed on figure 1.
- Cartographers know perfectly that there are no satisfying solutions; draw a flat map (2-dimensional) from a spherical earth (3-dimensional) is necessarily a compromise.
- The counterfeiters of the Middle Ages did not think of it.

## Conclusion

The spatial approach is interesting because it's easy to do and because it can be repeated as many times as you want with any object. The result is not debatable and on top of the temporal approach, the spatial approach puts in light that the alleged shrould has never been used to wrap anybody. Unlike accurate information, false information requires no evidence.

The temporal analysis of the fabric as well as the spatial vetting process of the image, prove that, despite the virtuosity of its handmade achievement, we are led to consider that the so-called shroud of Turin is a fake. An impressive fake, but a fake.

## Acknowledgement

None.

## Conflicts of Interest

No conflicts of interest.

## References

1. Emmanuel Community, (1999) He is Alive - The Essentials of Life.

2. Dassonville P (2017) The Invention of Time & Space. Springer.