Biopsy of Christ: brightness profiles of front and back compared

by Craig Paardekooper

I obtained a high resolution dorsal image of Christ from https://www.shroudphotos.com, and used the **Threshold tool** at https://www.photopea.com to slowly increase the threshold from zero. This revealed the areas with the least brightness and provided the brightness in units.

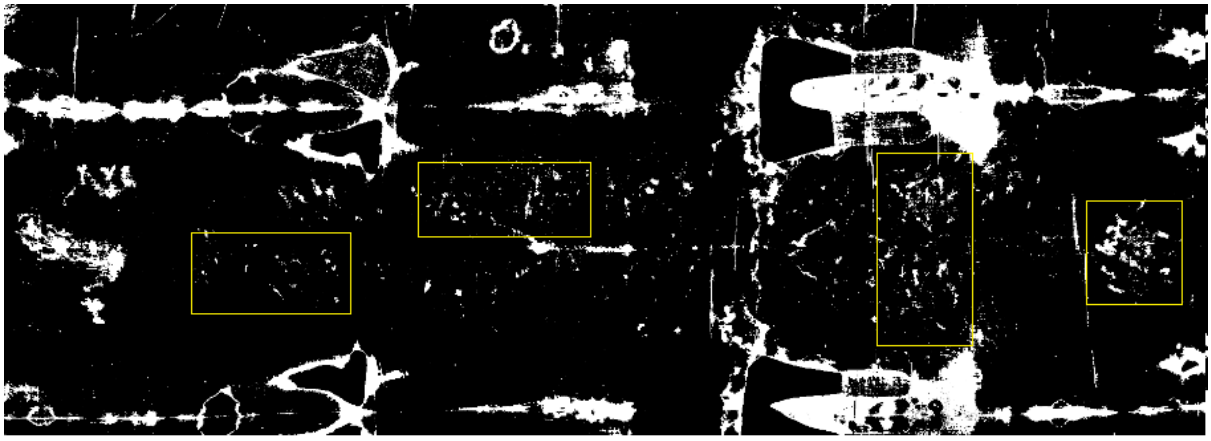
The first areas to appear (the most distant from the Shroud) were the underside of the knees and the arch of the back. These are close in brightness to the general linen background. They first appeared at 43 brightness units. The general background has a brightness of 41 brightness units, which means that these features have general background darkness. In other words, they represent areas of the body where radiation emitted barely made any impression on the shroud because they were too distant from the Shroud.

Considering that the Shroud lay directly under Jesus, then we can conclude from this that the distance from the Shroud to the underside of the knees (or to the arch of the back) is the maximum effective range of the radiation emitted.

We can now look at what are the brightest areas on the dorsal image.

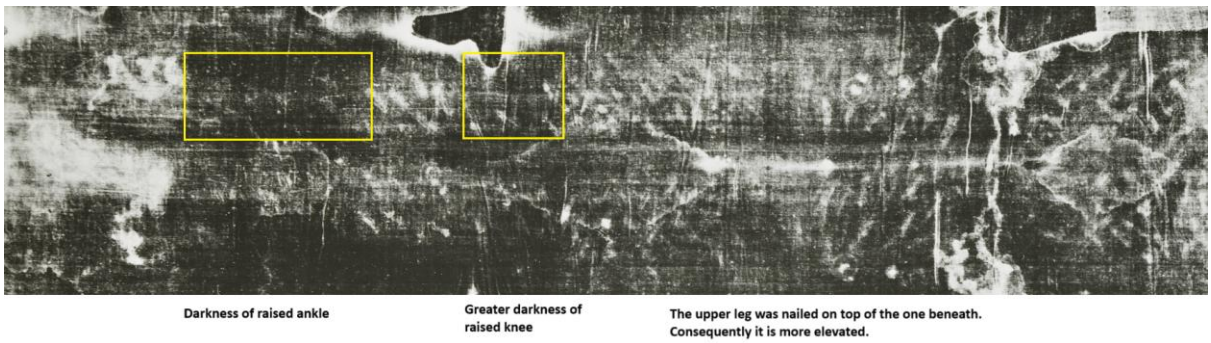
We can detect the brightest areas by setting the threshold tool to 255, which is the maximum brightness, then slowly decreasing the threshold. Those areas that appear first are the brightest.

The areas to appear first are the head, shoulders, buttocks, feet and calf of the lower leg– which have a brightness of about 220 brightness units.



The top ridge of the lower ankle appears first at a brightness of 200, whilst that of the upper ankle appears at a brightness of 175. The upper ankle is further away because the foot of this leg was nailed on top of the other foot, so it is dimmer.

The higher elevation of the upper leg is indicated also by the more extensive darkness of its of its calf and ankles, and the greater width of darkness at its knee, indicating a greater elevation – because it was further away from the shroud.



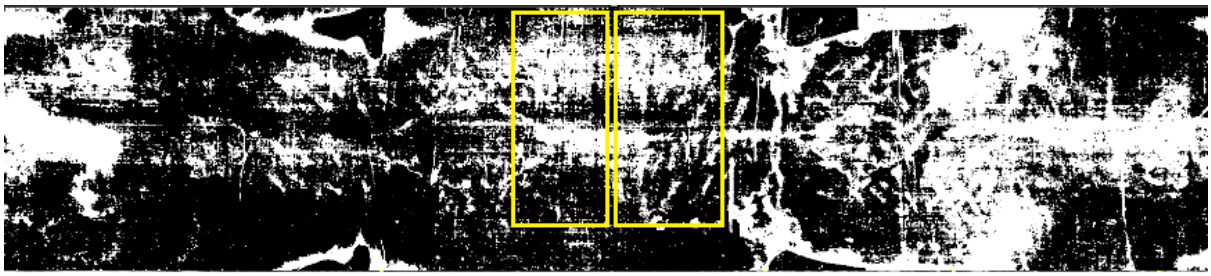
The picture below was taken at a brightness of 62 units and shows how the lower calf and knee are nearer the shroud compared to the upper calf and knee.

Calves : the lower calf is nearer and hence more extended.

The lower knee is closer, hence has a larger region of bright pixels.

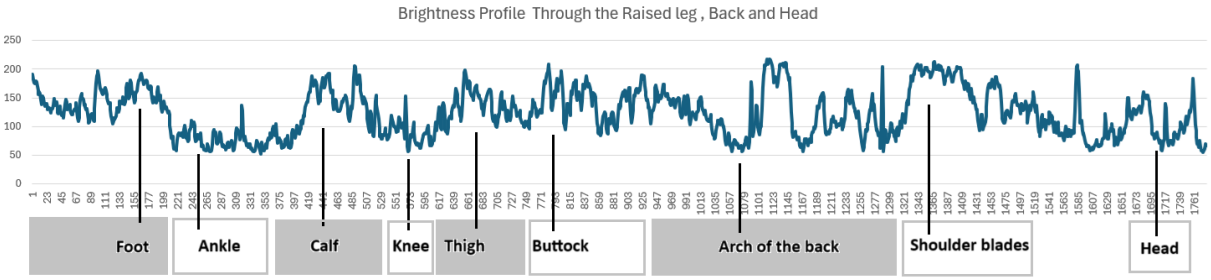
There is an asymmetry to the elevation of muscles in the back. The side where the foot was nailed on top, has an extended region of muscle that is nearer to the shroud - this is absent on the other side. The effort to push upwards on the cross, in-order to breathe, may have required an asymmetrical effort. The same applies to the buttocks – the muscle tension is asymmetrical.

Raising one leg has the effect of lowering the back on that side, which might also explain this effect.



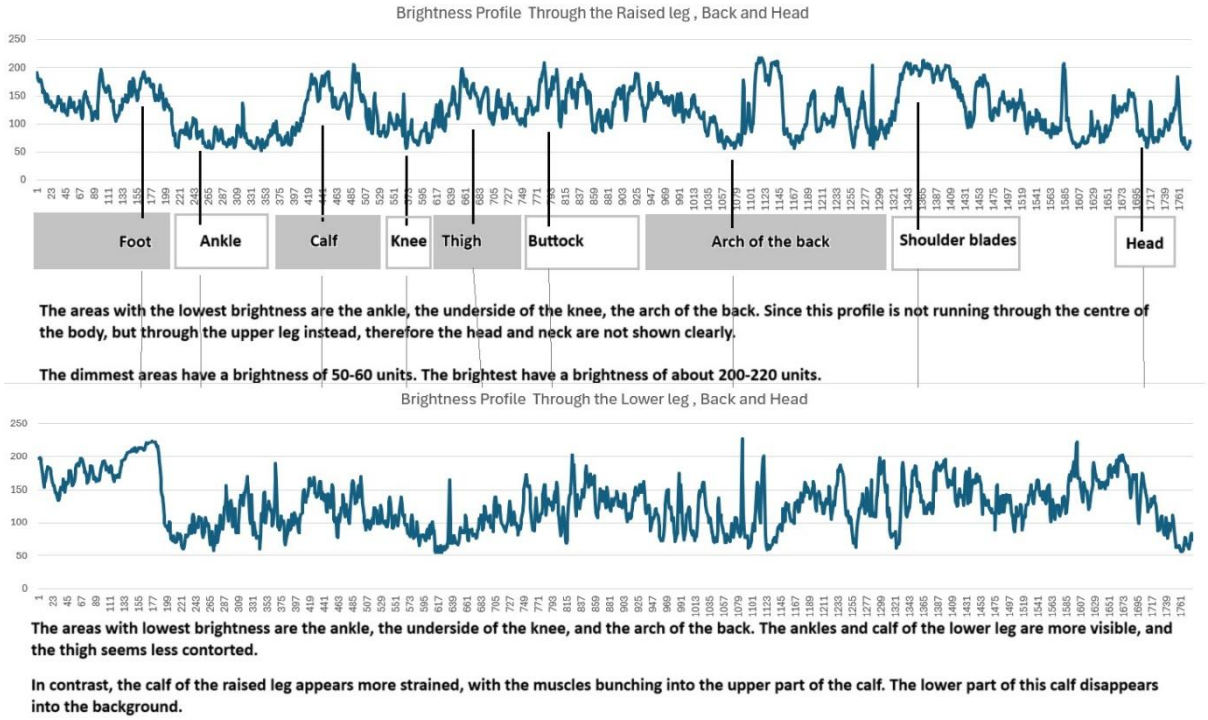
Buttocks Lower back

The head has a raised area down its center that reaches down until the shoulder blades. This is probably because his hair was tied back into a braid.



The areas with the lowest brightness are the ankle, the underside of the knee, the arch of the back. Since this profile is not running through the centre of the body, but through the upper leg instead, therefore the head and neck are not shown clearly.

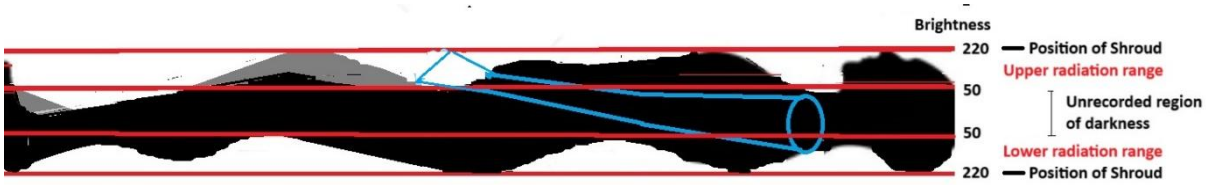
The dimmest areas have a brightness of 50-60 units. The brightest have a brightness of about 200-220 units.



We can also see how the brightness profile matches the natural elevation contours of the body, demonstrating that brightness varies with distance.

We have found that radiation diminished in intensity, corresponding to a reduction in image brightness from 50 to 220 units over the distance from the Shroud to the underside of the raised knee.

Previously, when I looked at the frontal image, I found that brightness decreased from 220 at the pectorals down to 50 at the hips. In the diagram below I depict the two radiation ranges –



In the bottom range the back arches until it touches the brightness minimum, and the knee of the near leg is bent so its underside is at the minimum also. The bottom range includes the shoulders, but these are missing from the top range.

In the top range, the nose and pectorals touch the brightness maximum, and the knee of the far leg touches the brightness maximum also.

In the top range, the brightness minimum runs through the hips, the knee of the near leg, and the upper thigh of the far leg, and through the temples of the head.

The unrecorded dark region includes a region bordering the face on both sides, the neck, the shoulders and upper arms, the hips, the low area bordering the stomach, the thigh of the near leg, and both legs below the knee.

The forearms encircle the stomach and are above the minimum of the top range, so they are visible. The hands both cover the groin, and stack on top of each other, so the knuckles of the highest hand touch the maximum brightness of the top range.

So, what have we found?

The same pattern of reduction of radiation intensity occurs for both the frontal and dorsal images and explains why the various parts of the frontal and dorsal images fall into darkness.

1. Brightness decreases systematically with distance. This is evidenced consistently in all parts of the Shroud, not just in the items described in this monograph.

2. Brightness decreases with distance in a regular manner, rather than in a random manner, in accordance with the laws of physics regarding attenuation of radiation.

3. It is therefore logical that at some fixed distance, the brightness will always fall below that of the linen background rendering those areas of the image invisible. For those areas of the body that are further away from the Shroud than the brightness minimum, the radiation emitted will be too attenuated, and not able to impress the cloth with a greater brightness than the background brightness of the linen.

4. The range of brightness is from 50 to 220 for both front and dorsal images

5. The distance of this range is the same for both front and dorsal images, and is equivalent to –
    a. The distance from the Shroud to the underside of the near knee
    b. The distance from the Shroud to the arch of the back
    c. The distance from the pectorals to the hip
    d. The distance from the nose tip to a line running horizontally just above the neck, through the clavicle.

6. The Shroud is positioned in a horizontal plane beneath Jesus, where it is in contact with the body. It loops over his head then adopts a horizontal plane above his body that coincides with the top of his nose, pectorals, folded hands and raised knee.

7. The Shroud is horizontal in the width direction, since it records the curvature of the face and skull, the contours of the chin, and records the cross-section curvature of the knees, thighs and calves (I will demonstrate this in the next installment), and there is none of the expected distortion if it was wrapped around the body (such as Mercator projection of the head).

8. The Shroud is horizontal in the length direction, as shown in this monograph, since it records the sloping of the legs from knee to ankle, and the sloping from knee to thigh.

9. The Shroud is horizontal since the regions of darkness begin at the same elevation across all parts of the body. Previously, I have referred to this boundary as the “invisibility line”.

References

These are my previous notes and discoveries regarding the Shroud image

1. Transfiguration Resurrection
2. By His Stripes
3. Brightness
4. The Invisibility Line
5. Brows of Christ
6. Eyes of Christ
7. Crown of Christ
8. Forehead of Christ
9. Radiation Burst
10. Resurrection
11. Images of Christ
12. Photopea

If you wish to carry out your own investigations, I have created a desktop application that can measure brightness levels along profiles, both vertically and horizontally. It can also measure brightnesses along any path followed by a mouse and record single pixel brightnesses. Please contact me for further details at craig@howbad.info