



Fig. 1: The frontal negative image of the Shroud. The left forearm looks shorter than the right forearm.

THE DIFFERENCE IN THE LENGTH OF THE ARMS
IS AN OPTICAL ILLUSION

GILBERT R. LAVOIE

On the frontal image of the Shroud the forearms of a man are clearly seen (Fig. 1). On visualization and by measurement from the tip of the elbow to the tip of the middle finger of each arm, the right forearm is three inches longer than the left. The purpose of this paper is to demonstrate that there is actually no difference in the lengths of the forearms, and what we see and measure as a difference is only an optical illusion.

Study

In the subject pictured in Figure 2, the lengths of the upper arms, from the tip of the shoulder to the tip of the elbow measured 14 inches each. The lengths of the forearms measured from the tip of the elbow to the tip of the middle finger are 18 inches each (Fig. 2). The same measurements are taken on the negative frontal image of the Shroud (Fig. 3), and the results of the right arm measurements are relatively close enough to those of Figure 2 for purposes of demonstration. (The differences in arm lengths naturally vary with the stature of the individual. For example, my own arm measurements are: upper arm 15 inches, forearm 20 inches. Those of the Shroud image fall easily into normal limits).

The right upper arm of the Shroud is 16 inches and the right forearm is 21 inches. The left upper arm is the same as the right, also measuring approximately 16 inches according to the best calculations, given that both upper arms and shoulders were burned away in the fire of 1532 (Fig. 3). However, the left forearm is obviously quite different in that it measures only 18 inches. Therefore, the major difference between the two arms is the observation that the right forearm is 3 inches longer than the left forearm.

Figure 4 is a closeup of the left hand placed over the right, but now a wound at the left wrist has been added. The distance between the center knuckle of the hand and the wound at the wrist is 3 inches and the length of the middle finger is 4 inches. Figure 5 also shows the left hand placed over the right, but this time the left wrist is bent forward (extended) and the fingers follow the contour of the right wrist, as if the left hand were grasping the right wrist. Measuring the distance between the center knuckle and the wound as a straight line, not following the contour of the hand, the distance between the knuckle and the wound is now 2 inches instead

of 3. Doing the same on the middle finger, the length of the middle finger is now seen to be only 3 inches instead of 4. Closing the hand at the knuckles and curling the fingers has a combined effect of shortening the overall measurement of the left forearm by 3 inches, giving a length of 15 inches instead of 18 inches.

Now look at the Shroud image in Figure 6 and observe how similar the measurements of the left hand (middle finger 3 inches, knuckle to wound 2 inches) and arm (overall length of left forearm 18 inches, overall length of right forearm 21 inches) are to those of Figure 5.

The three-inch difference between the right and left forearms of the Shroud image results therefore from the bending forward of the left wrist and the curling of the fingers.

This claim can be further confirmed by studying the subtleties of the anatomical position of the left hand and wrist. If you compare Figure 5 with Figure 6, you will see that the upper part (thumb side) and the lower portion (little finger side) of the hand bend upward. Figure 4 does not show this upward slant of the hand because the wrist is straight. It is the extension or upward bending of the hand at the wrist that causes this anatomical position to take place. Try it on your own hand.

Conclusion

The right forearm of the frontal negative image of the Shroud is three inches longer than the left forearm on direct, straight-line measurement. This study demonstrates that in reality the right and left forearms are the same length. The reasons that the left forearm appears shorter are because the wrist of the left arm is extended forward and the fingers are bent, following the contour of the right wrist. It is the bend of the wrist and the curling of the fingers of the left hand over the right wrist that accounts for the apparent difference in the lengths of the forearms. Thus, the visual perception of the difference in the lengths of the arms is simply an optical illusion.

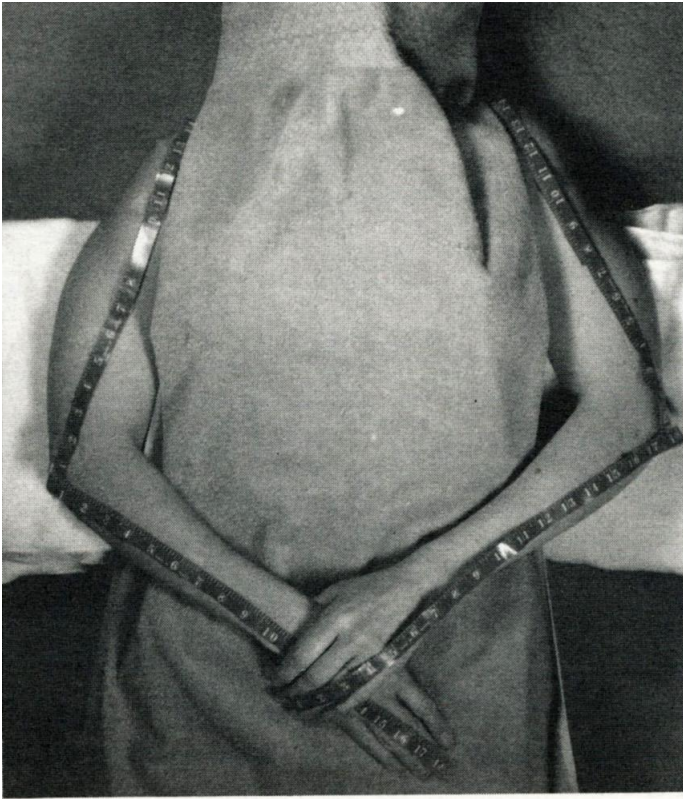


Fig. 2: On this subject, the upper arms are 14 inches each and the forearms are 18 inches each.

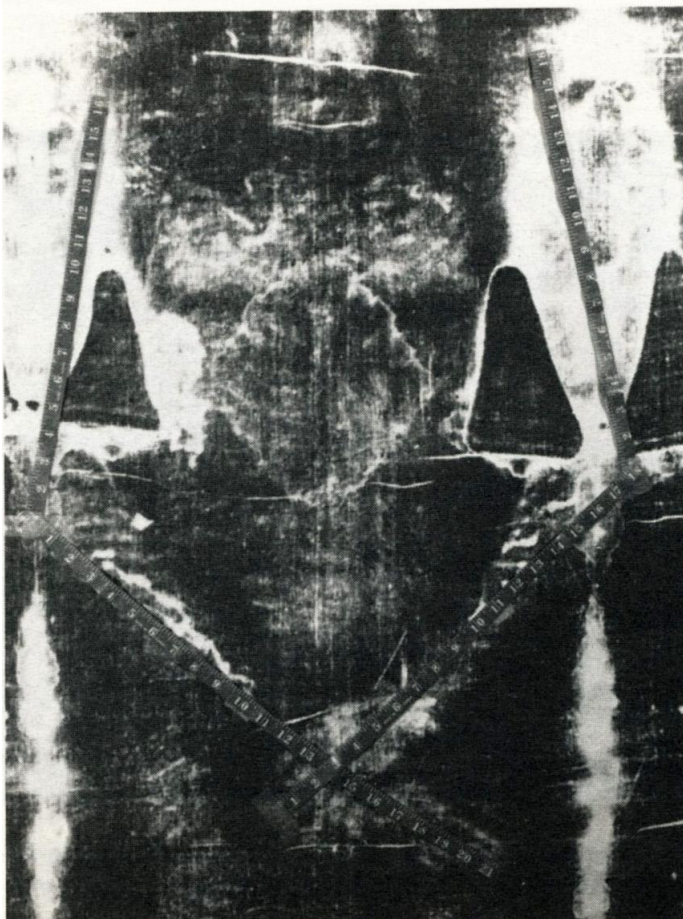


Fig. 3: The lengths of the upper arms of the Shroud are both approximately 16 inches. The right forearm is 21 inches long and the left forearm measures 18 inches.

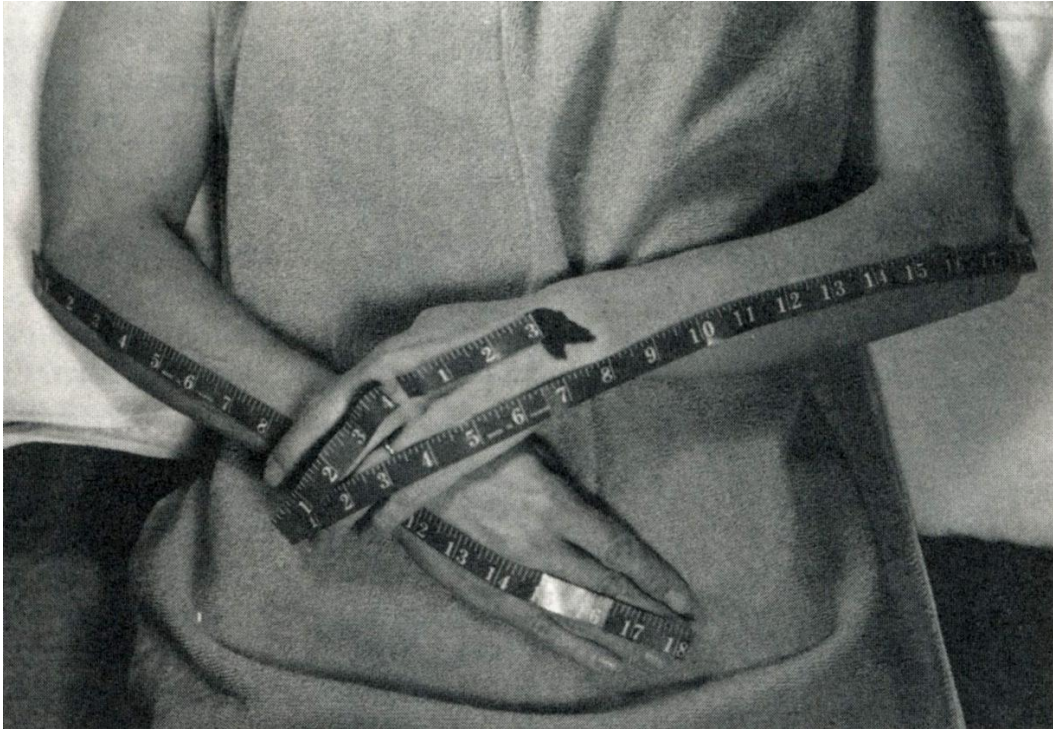


Fig. 4: The distance between the center knuckle and the wrist wound is 3 inches. The length of the middle finger is 4 inches. The overall length of the left forearm is 18 inches.

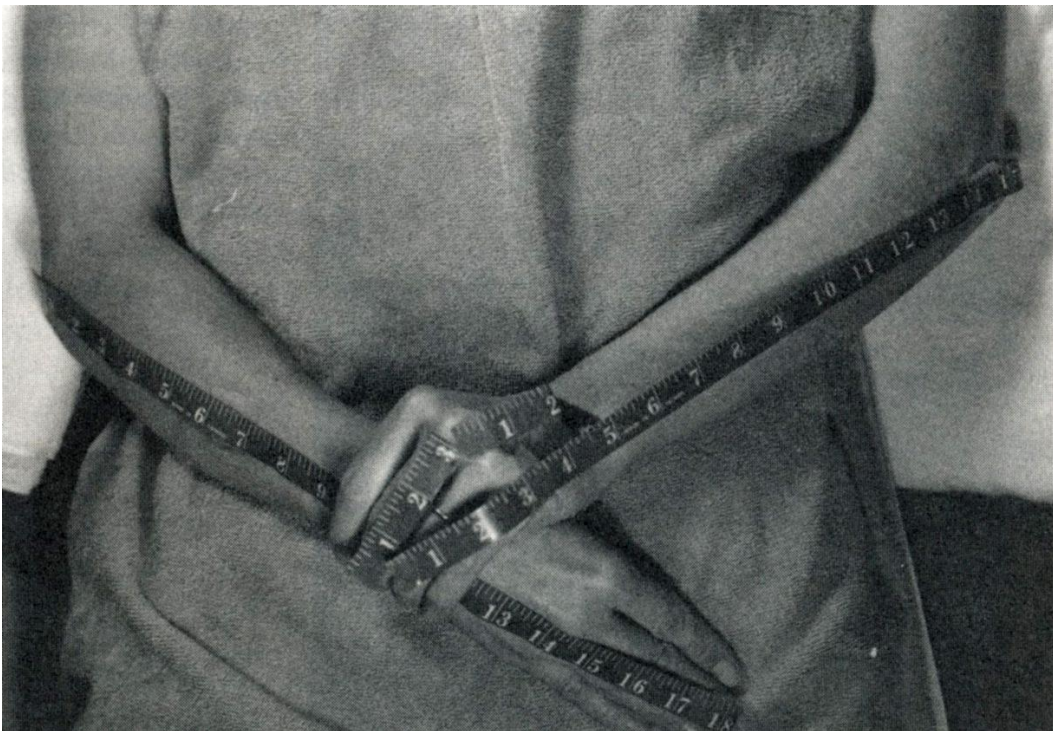


Fig. 5: The left wrist is extended and the fingers are bent; knuckle-to-wound distance is 2 inches and middle finger length is 3 inches. The overall forearm length is 15 inches.

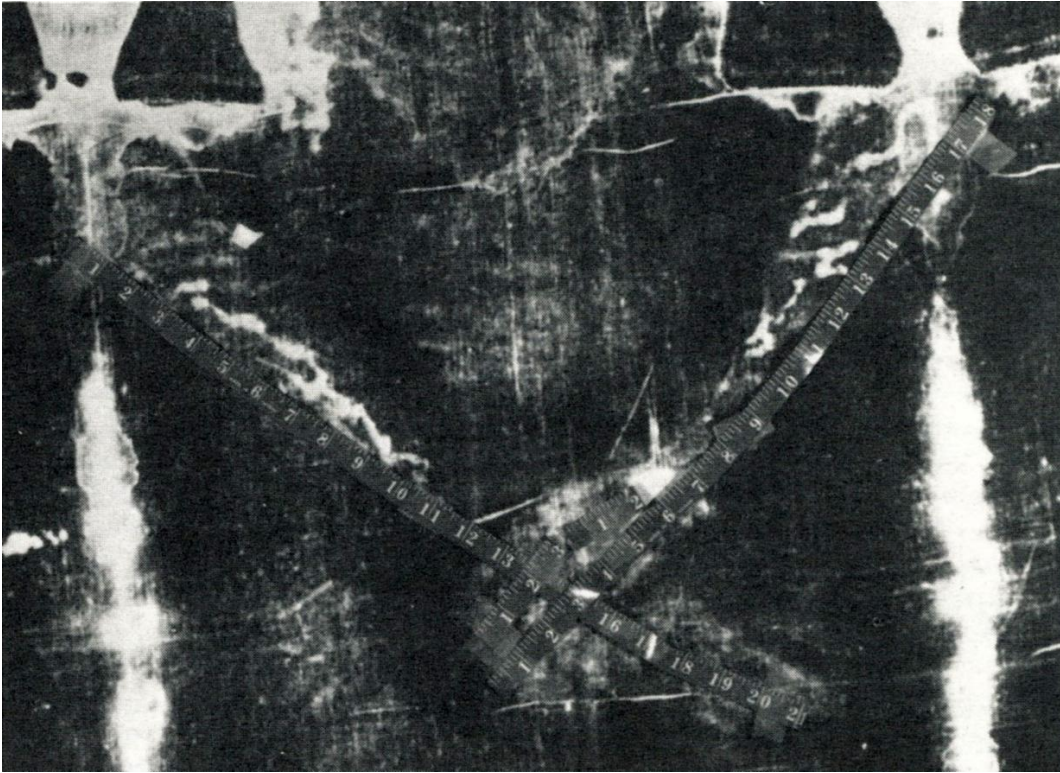


Fig. 6: On the Shroud, the left hand knuckle-to-wound distance is 2 inches and the finger length is 3 inches. The overall forearm length is 18 inches.