

RESEARCH ARTICLES (1)
THE SHROUD AND THE ACTION MAN
Hugh Duncan

I was introduced to the Turin Shroud in the mid-1990s through Ian Wilson's 1978 book. Being a physics teacher, I was fascinated with the science research performed on the Turin Shroud, in particular how the image had been formed on the cloth. One of the most promising theories is that it was formed by some form of radiation emanating from the body of the Man in the Shroud, which left a physical trace on the surface fibrils of the linen.

I wondered if it was possible to model this radiation image-forming process with a simple experiment at home and came up with the following idea: coating an Action Man doll [The US version is called G.I. Joe - editor] with luminous paint then sandwiching the 'exposed-to-light' model inside a photographic sheet in a dark room and see what sort of image forms!

Method

A naked Action Man doll was taken and positioned into the approximate pose of the Man in the Shroud.

A bottle of luminous paint purchased in an art shop was used with a small paint brush to apply the luminous paint evenly over both front and back surfaces of the Action Man.

It was then left to dry.

The darkroom was prepared with universal developer, stop and fixer in the usual trays with the red light on. (Note I have a mini-dark room at home left over from the pre-digital days).

Three sheets of 8 x 10inch (20 x 25cm) photographic paper were scotch-taped to make a rectangle 30 x 8 inches (75 x 20cm) - the approximate ratio of the Turin Shroud (4 to 1). N.B. the Action Man was 12 inches tall (30cm). (Note the paper used was very old Kodak paper, being

thinner and more sensitive than the more recent Ilford multigrade paper - this meant it was more flexible and needed less exposure time).

With the paper in a light tight box and the darkroom white light on, the luminous-painted Action Man was exposed to the light for a minute or two - enough time to reach saturation.

A normal photograph was taken of the glowing action man without using a flash. (Fig. 1)

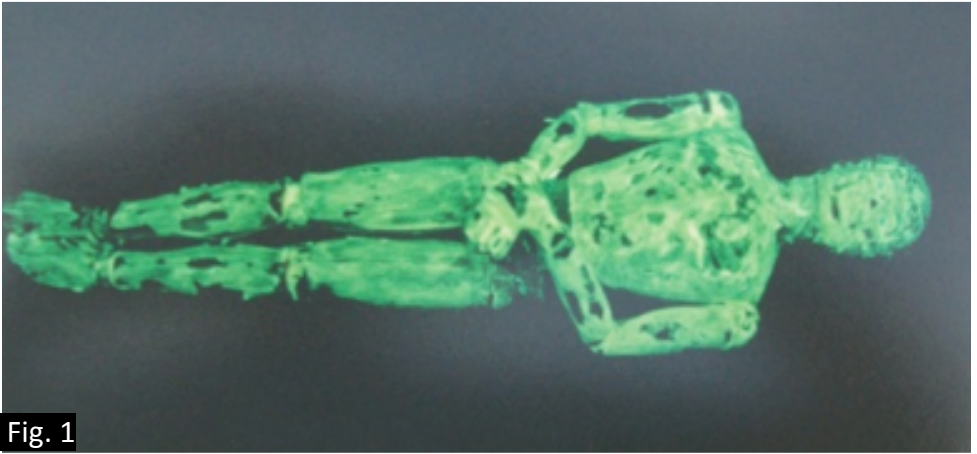


Fig. 1

Once the white light was off, the photographic paper shroud was taken out of its box and as rapidly as possible was laid sensitive side up on the work surface.

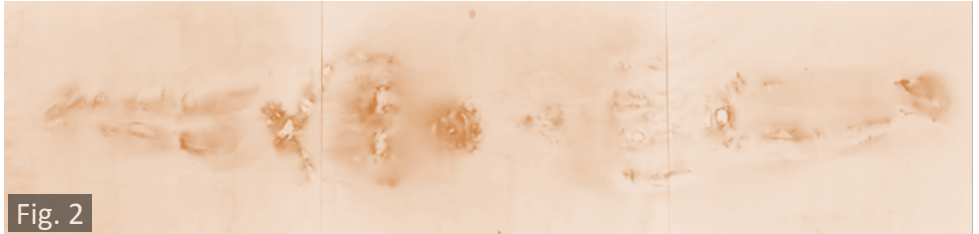
The Action Man was placed onto the photo-shroud, back first on one half of the sheet in the same way the real Man in the Shroud was placed.

With the same rapidity the other half of the photo-shroud was folded over and pressed onto the Action Man by using hands to push it down for a good close tight contact.

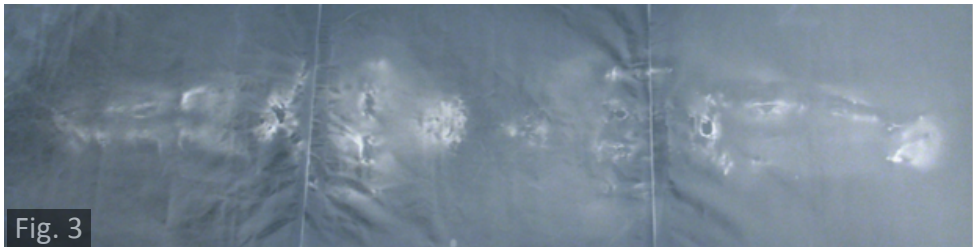
This position was maintained with as little movement as possible for several minutes - until the luminous paint had released the bulk of its stored light.

The doll was removed and the photo-shroud was developed in the usual manner (developer, stop, fixer - remember those days?), creating a

negative image - the paper going black where most light arrived from the luminous doll and the paper remaining white where there had been no light. (Fig. 2)



A digital photograph was taken of the photo-shroud and it was then turned into a negative using Photoshop (thanks Dominique!). (Fig 3)

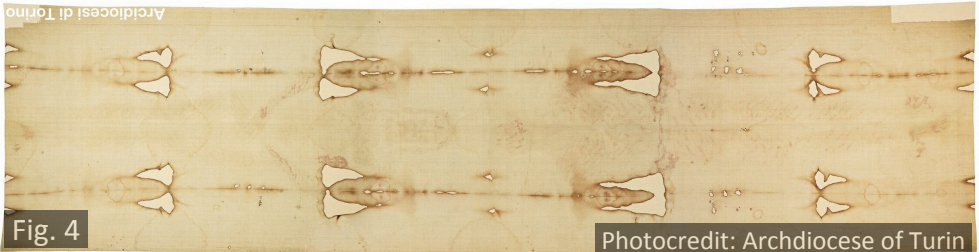


Results

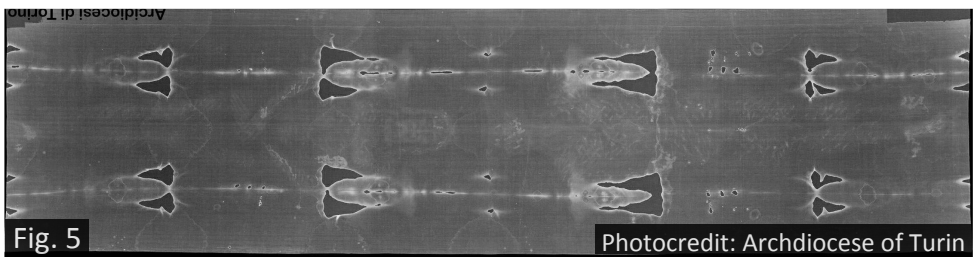
The real photograph of the Action Man is shown in Fig 1. Note the doll is glowing with the recognizable green light of the luminous paint. It is also very clear that the paint, though applied with a fine brush, seems to be very unevenly distributed, with some parts glowing very bright while others seem devoid of the paint. This was very apparent when looking at the Action Man in normal light. The luminous paint formed a sort of rubbery skin which was a little sticky and sadly peeled off the doll and wanted to stick more strongly to other surfaces such as the photo paper itself. To be honest the paint was a little clumpy and bare patches formed due to peeling even in the short time before the photo-shroud was made.

Figures 2 and 3 show the positive and negative images derived from the luminous Action Man. For comparison the respective images of

the Turin Shroud are shown in Figs 4 and 5 below. Whilst there is clearly the double image, front and back of the doll, it is by no means uniform in the density of the darkness. Some parts are clearly very dark and others



devoid of darkness, which was due to the peeling off. The bare plastic surface of the doll being not only non-luminous but also in places so close



to the photo-shroud that light from the luminous parts could not even reach. The face of the Action Man is a little more sharply in focus, but unlike the real Shroud the face looks wider than the real face as the photo-paper did fold round the sides of the face, giving the more typical, 'moon face' of the contact theory images. The image does share a slight resemblance to the real Shroud image, fading towards the edges or fading from more distant points, but appearing much less focussed. The dorsal side looks fainter than the frontal side. This is probably due to the Action Man doll being made of rigid plastic and being placed on the photo-shroud dorsal side down most on the paper, which in turn was on the rigid work surface. The frontal side of the doll had the advantage of the paper being pressed down and moulded to the doll's body with my hands, making a better and closer contact. The overall image reminds me of what might be seen of a document that has been placed inside one of

those A4 translucent plastic sleeves and where the document is not pressed against the sleeve, but a few millimetres away, the image becomes a little blurred. The general shape can be seen, but sharp details are only seen on those parts of the document that actually touch the plastic sleeve. One final observation was that due to pressing down with hands to make a good contact, this caused the doll's legs to twist to one side. This can be seen on the image that the legs are no longer forward facing.

There were problems with using the photo-shroud as the medium to receive the light. Being made of paper (albeit thin), the paper had more rigidity than if it had been a thin sheet of linen. It had to be pressed down against the doll, thus being artificially shaped like the linen cloth draped over the subject. The forced pressing did cause the photo-paper to crumple and crease, adding distortion to the effect. The Action Man was in full glow when it was placed on the photo-shroud, so light was already falling on the photosensitive surfaces as the doll approached and this and any relative movement of the doll with the sheet would have blurred and smeared out the details.

Improvements

If this experiment was to be repeated, some of the following modifications might help:

If photo-paper was still to be used, then perhaps a device similar to a 'waffle-maker' might help. With a sponge inside the base half and a photo sheet on top, (and a similar spongy set up inside the 'lid') then once the doll was placed back down on the base the lid could then be closed over and held tight inside the pressing machine. A more ideal solution would be to put a photo sensitive layer of chemicals onto a cloth. It would be more supple and naturally take up the contours of the doll. Another improvement would be to have a more uniform application of the paint. This could be achieved by diluting the paint two parts water one part paint as advised on the bottle.

Better still, would be to replace the luminous paint as the source of light coming from the doll with a built in light source for a hollow or

transparent doll which has a translucent surface in such a way that the light could be switched on once the doll is sandwiched inside its photo-shroud, then switching it off, hence avoiding relative movement during the exposure period.

I think it would be worth repeating the experiment with a number of these suggestions put in place. Perhaps even a life-sized version of a translucent model in the pose of the Man in the Shroud inside and photosensitive linen cloth such that the light inside the model could be switched on and off without moving the model. The fact that the preliminary attempt did not show the vertically up/down form of the Turin Shroud image, but instead leaned towards the moon-faced version of the contact theories already suggests that there is a serious flaw in the theory.



Editor's Note: Whenever a new version of the Shroud is produced, it is usual to try it out on a version of the famous VP-8 Image Analyser, which converts darkness to elevation to create a simulated three-dimensional image. I used ImageJ, and as we can see, Hugh Duncan's image stands up to this treatment rather well.



One of the difficulties with the radiation theory is in deciding the direction in which the radiation is supposed to travel. The image on the Shroud would best be described as the product of vertical transmission, but, as Hugh describes here with his "moon-face" radiation normally emerges from its source in all directions.