

# Turin Shroud confirmed as a fake

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by Richard Ingham

PARIS, June 21 (AFP) - A French magazine said on Tuesday it had carried out experiments that proved the Shroud of Turin, believed by some Christians to be their religion's holiest relic, was a fake.

"A mediaeval technique helped us to make a Shroud," Science & Vie (Science and Life) said in its July issue. The Shroud is claimed by its defenders to be the cloth in which the body of Jesus Christ was wrapped after his crucifixion.

It bears the faint image of a blood-covered man with holes in his hand and wounds in his body and head, the apparent result of being crucified, stabbed by a Roman spear and forced to wear a crown of thorns.

In 1988, scientists carried out carbon-14 dating of the delicate linen cloth and concluded that the material was made some time between 1260 and 1390. Their study prompted the then archbishop of Turin, where the Shroud is stored, to admit that the garment was a hoax. But the debate sharply revived in January this year.

Drawing on a method previously used by skeptics to attack authenticity claims about the Shroud, Science & Vie got an artist to do a bas-relief -- a sculpture that stands out from the surrounding background -- of a Christ-like face.

A scientist then laid out a damp linen sheet over the bas-relief and let it

dry, so that the thin cloth was moulded onto the face. Using cotton wool, he then carefully dabbed ferric oxide, mixed with gelatine, onto the cloth to make blood-like marks. When the cloth was turned inside-out, the reversed marks resulted in the famous image of the crucified Christ.

Gelatine, an animal by-product rich in collagen, was frequently used by Middle Age painters as a fixative to bind pigments to canvas or wood.

The imprinted image turned out to be wash-resistant, impervious to temperatures of 250 C (482 F) and was undamaged by exposure to a range of harsh chemicals, including bisulphite which, without the help of the gelatine, would normally have degraded ferric oxide to the compound ferrous oxide.

The experiments, said *Science & Vie*, answer several claims made by the pro-Shroud camp, which says the marks could not have been painted onto the cloth.

For one thing, the Shroud's defenders argue, photographic negatives and scanners show that the image could only have derived from a three-dimensional object, given the width of the face, the prominent cheekbones and nose.

In addition, they say, there are no signs of any brushmarks. And, they argue, no pigments could have endured centuries of exposure to heat, light and smoke.

For Jacques di Costanzo, of Marseille University Hospital, southern France, who carried out the experiments, the mediaeval forger must have also used a bas-relief, a sculpture or cadaver to get the 3-D imprint.

The faker used a cloth rather than a brush to make the marks, and used gelatine to keep the rusty blood-like images permanently fixed and

bright for selling in the booming market for religious relics.

To test his hypothesis, di Costanzo used ferric oxide, but no gelatine, to make other imprints, but the marks all disappeared when the cloth was washed or exposed to the test chemicals.

He also daubed the bas-relief with an ammoniac compound designed to represent human sweat and also with cream of aloe, a plant that was used as an embalming aid by Jews at the time of Christ.

He then placed the cloth over it for 36 hours -- the approximate time that Christ was buried before rising again -- but this time, there was not a single mark on it.

"It's obviously easier to make a fake shroud than a real one," Science & Vie report drily.

The first documented evidence of the Shroud dates back to 1357, when it surfaced at a church at Lirey, near the eastern French town of Troyes. In 1390, Pope Clement VII declared that it was not the true shroud but could be used as a representation of it, provided the faithful be told that it was not genuine.

In January this year, a US chemist, Raymond Rogers, said the radiocarbon samples for the 1988 study were taken from a piece that had been sewn into the fabric by nuns who repaired the Shroud after it was damaged in a church blaze in 1532.

Rogers said that his analysis of other samples, based on levels of a chemical called vanillin that results from the decomposition of flax and other plants, showed the Shroud could be "between 1,300 and 3,000 years old."

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