CORRESPONDENCE

THE IMPORTANCE OF 3D PROCESSING*

We are all aware of the plethora of artists' reconstructions of Jesus' "true pre-passion appearance" based on "accurate calculations" derived from the photographic negative of the Shroud Face. In his article "Reflections on a Current Trend" (*Spectrum* 16), Don Luigi Fossati, Salesian, sounded a warning: Representations of the woundless face, whether two-dimensional or three-dimensional, obstruct our perception of the fourth dimension, which is spiritual. The wounds, the blood, the very weave of the cloth, are visible signs of man's Redemption.

Professor Giovanni Tamburelli, of Centro Studi e Laboratori Telecomunicazioni (CSELT), points out that the 3D images have revealed details of wounds and blood undetectable by the naked eye (see his article in *Spectrum* 2) and that in eliminating the wounds, the computer has unveiled Jesus' pre-passion appearance with rigorous scientific exactitude (see cover photo and article, *Spectrum* 15).

Two standpoints are thus defended: from each a different vector is launched, aimed toward the same single final goal, which is a more complete understanding of the message on the Shroud.

Never can this understanding be attained by studying or contemplating any portrait, in whatever medium, by the hand of an artist. But Prof. Tamburelli explains how the 3D elaborations, produced from data on the Shroud, can add to our knowledge of the Image.

The September 1985 issue of *Spectrum* contains a discussion of ideas that strike me as being far too general to constitute a valid approach to a question as complex and as important as that of three-dimensional processing of the Shroud image. I would therefore like to make several distinctions.

Existing three-dimensional treatments can be divided into two categories:

1) 3D of the original image
2) 3D of the woundless face.

Obviously, the images obtained in each category will differ because a face disfigured with wounds and blood does not have the same appearance as a natural, unwounded face.

The first category includes three major treatments, viz., that of Jumper and Jackson, that of Prof. Egidi of Turin's Politecnico, and that presented by us at CSELT and the University of Turin.

Careful examination of the mathematical procedures used to construct these three images shows that they differ only in the

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* Prof. Tamburelli submitted his article in English.

type of approximation employed. The computer, in fact, is only a tool, of which it is rightly said, "garbage in, garbage out". What goes in must come out, and so if the computer receives Shroud data, it can produce only Shroud data. These data can be more or less approximate with respect to the desired output data, but if they have been produced through reliable scientific calculations, they cannot fail to have a certain importance.

Three-dimensional imaging of the Shroud face has revealed new details. Some of these show new parallels with Scripture; others supply new information concerning the passion of the man of the Shroud. The previous presence of a man beneath the sheet has been confirmed.

In the second category mentioned above, there are two major 3D images. Both are from CSELT, and each represents a different approximation. The image dating from 1978 was the first attempt to reveal the real face of the man of the Shroud as it lies hidden beneath the blood and the wounds. The second, dating from 1984, is a more rigorously scientific treatment of the face.

Given the different degrees of approximation, the two images may seem at first sight to be different. Close examination, however, shows that the facial features of the first treatment are swollen and marked with the signs of martyrdom but otherwise correspond exactly to the image of the second treatment. In addition, it can be seen that the features beneath the wounds and blood remain unchanged in the purified treatment.

These results have been made possible by the high definition of our woundless 3D image, in which the facial features can be clearly distinguished from the wounds and blood. This explains why we have been able to purify a 3D image of the face while no one else has been able to do so.

The purified 2D images cannot be compared with our 3D image. Even those produced by superimposing two photographs show added details which are entirely arbitrary, such as open eyes or color. At this time, only one purified 3D image has been produced entirely by the computer: i.e., the 1984 image made by CSELT. Were someone to produce an even closer purified 3D image, it would necessarily be very similar to ours, given the high degree of approximation that we have reached.

The importance of our 3D image of the purified face is not merely esthetic: its similarity to the earliest images of Jesus produced by artists is further proof of the authenticity of the Shroud. Certain particular features of our image, such as the long, thin nose, are frequently found in early representations. Similarly, the harmony and serenity of our face, with its typically ascetic features, also confirm its correspondence with the face of Jesus Christ.

Artists who rely on the face of the Shroud in their representations of the face of Jesus remain under the influence of the torture, making the face look older because of the swollen features. Would it not be better to give artists the opportunity to use an image that is scientifically closer to the true face of Jesus?

Any doubts which may arise in this context will disappear upon consideration of the scientific rigor we have employed. Attempts to regard the three-dimensional images as being completely different from the original Shroud image are entirely out of place, inasmuch as processing provides nothing that is not already contained in the Shroud and reveals the splendid face hidden beneath the blood and the wounds.

Three-dimensional processing thus enhances the Shroud image. It must be remembered that the Shroud itself underlies all related studies and must be considered before any 3D treatment of the Shroud. We cannot expect to see, with the naked eye, the entire information content of the Shroud. That would require eyes as attentive and as sensitive as a laser and a mind with the calculating power of a computer. No unaided eye has ever been able to detect all the trickles and clots of blood that are, by contrast, so clearly visible through attentive observation of our three-dimensional image of the wounded face. Furthermore, 3D processing has shown itself to be indispensible in studying details of the Shroud image, for instance, in deciphering the letters on a coin and recognizing the mark made by the navel.

In conclusion, our purified Shroud face is unique because it is the same as our previous image, the 3D with a less close approximation. Our scientifically purified 3D face cannot be compared with 2D treatments incorporating arbitrary data that are devoid of scientific value.

Three-dimensional processing is an invaluable scientific tool which has highlighted the three-dimensionality of the body once beneath the Shroud and has revealed details and properties which the human eye cannot detect. It helps us to obtain much more information from the Shroud, our only real and irreplaceable source.

It is understandably disconcerting to watch the computer produce several different faces of Jesus, but careful examination shows that the faces based on truly scientific foundations are very few indeed and only those should be given credence.

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