Aspects of the Shroud in Botany and Related Art

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The botanical aspects of the Shroud have been discussed previously but remain controversial, and a number of those who recently have been interested and involved in studying the Shroud at more depth are not very familiar with the background and findings in this area. In addition, there are some recent findings, to be reported elsewhere at this Conference, which make it important that people better understand the nature of the floral images. We will not attempt to deal with the related issue of the Shroud pollen grain findings in this paper. Although we are not botanists, we are quite familiar with this subject and have been involved in this aspect of Shroud research for many years.

The floral images on the Shroud, like many of the other non-body images, are very subtle: faint, fragmented, partial, and embedded in a clutter of other images. Therefore, they are not readily apparent and require careful study using the best available materials and techniques.

We began our serious Shroud research in 1979 when challenged to determine whether the 6th Century Christ Pantocrator icon at St. Catherine's Monastery was painted based on the Shroud. In 1981, we developed our Polarized Image Overlay Technique which enables one to do exacting comparisons between two different images. In a number of cases, it has enabled us to do quantifiable studies by identifying and tabulating the points of congruence (PC), i.e., similar shapes or patterns in the same place on two superimposed images.

In 1982, we first contacted Fr. Francis Filas, who had second generation copies of the negatives made by Giuseppe Enrie in 1931. In our ongoing collaboration with Dr. Filas, he had made for us about 35 very high-grade photographic prints, many life size, of various parts of the Shroud image. Some of these photographs were further photographically enhanced to better bring out the non-body images. These provided the basis for much of our research; we have spent thousands of hours studying them in detail to see what can be discerned and demonstrated.

Also in 1982, we began collaborative research with Oswald Scheuermann, a German physics teacher who had been studying images made by corona or electrostatic discharge, beginning with the coin image over the right eye. That same year, on observing our polarized image overlay comparison of the image over the right eye with the Pontius Pilate prutah coin,

Dr. Alan Adler stated that the image has characteristics of what would be expected from corona or electrostatic discharge as the formative mechanism.

Oswald Scheuermann was the first to observe floral images on the Shroud. In 1983, he wrote us that he thought he could see flower-like patterns around the face of the Man of the Shroud. We looked at our photographs but could not clearly discern what he was writing about. As we were already busy dealing with some of the skeptics about the coin image over the right eye, Alan wrote back suggesting that we "back burner" this particular observation. But in 1985 while using a magnifying glass to closely examine a peculiar feature on the Shroud just above the head, Alan suddenly saw, out of the corner of his eye, what seemed to be a circle of little faces. On backing off a little distance, it was apparent that the "faces" were actually the petals of a flower, a large chrysanthemum-like flower on the anatomic left side about 15 centimeters lateral to and 6 centimeters above the midline top of the head. Mary agreed with the observation. Once we saw what a flower image on the Shroud looks like, we began to discern many others.

Alan wrote to Scheuermann about our findings, with apologies for our not have perceived them earlier, and requested that he make corona images of flowers. Over time, he made a large number of corona images off of a variety of flowers, bouquets, thorns and thistles. These, by showing us their characteristic appearance, helped us greatly in discerning the Shroud floral images.

Not being botanists ourselves, we requested Rex Morgan, who happened to be in Jerusalem at that time and was planning to come to see us in Durham on his way back to Australia, to bring us books on the botany of Israel. He brought six volumes of Flora Palaestina by Michael Zohary and Naomi Feinbrun-Dothan, the definitive botany books of Israel with life-size drawings of nearly 2,000 plants. That launched four years of research, carefully studying our excellent Shroud photographs for image patterns that could possibly be of flowers and then seeing if they match any of the flower drawings. Eventually, we tentatively identified 28 varieties of botanical images, most to the species level.

Actually, there are images of hundreds of flowers on the Shroud, especially in the frontal head region. We had previously thought that these were probably just faint smudgy markings on the Shroud, but it turned out that these are actually bunches of flowers, slightly wilted and crammed together so that most are no longer identifiable.

There are several factors that make it difficult for many people to perceive these floral images. They are faint and fragmented, and the human eye retina has the property of automatically suppressing faint and fuzzy images in the interest of sharpening our central vision.

Also, most people do not have detailed and enhanced photographs that are needed to better show these images. The off-body images in many photographs are so faint that they appear washed out and are therefore not discernible. In addition, most people do not have any idea what the corona images of Near Eastern plants look like, and the brain tends to suppress or ignore anything for which we do not have a stored memory or image, or which has no particular significance for the onlooker.

Another factor of importance to us was that Dr. Max Frei, who had a doctorate in botany, 25 years of experience identifying European pollen grains, and had taken seven trips to the Middle East gathering plants for pollen identification, had identified 58 different pollens that he had obtained from the Shroud during his 1973 sticky tape examination. (While he had taken 27 additional sticky tape samples from the Shroud in 1978, he died before he was able to study these tapes in any detail.) He was not aware of flower images on the Shroud.

To better identify and demonstrate the floral images, we did side-by- side comparisons of all of them, with the drawing of each from Flora Palaestina next to the Shroud image, and made posters of all of these. In addition, we did polarized overlay comparisons of several to show reasonable compatibility of the drawings of the plants with the images on the Shroud. Some of these can be seen on our website, www.shroudcouncil.org. In addition, we did studies using

timed photography as well as corona imaging on the appearance of the wilting of flowers after being picked. We compared the changes due to wilting in the picked flowers with the floral images on the Shroud, and determined that the images were formed between 30 and 36 hours after the flowers were picked.

These studies took a great step forward in 1995 when we were able to show some of our photographs to Dr. Avinoam Danin, Professor of Botany at The Hebrew University in Jerusalem, world authority on the flora of the Near East, and author of several botany text books.

Within seconds of looking at a life-size Enrie photograph of the head area (without any indication of our findings of floral images), he said, "Those are the flowers of Jerusalem", demonstrating his phenomenal perceptive ability and his prodigious knowledge of plants. He immediately recognized this as a unique finding, and he subsequently became one of our scientific advisors, coming to our home on seven occasions to study our photographs and review the Frei Collection materials.

Danin concurred with most of our 28 flower image identifications to the species level, and has identified several additional botanical images. Frei had identified pollens related to 25 of these: 21 correct to the species level, 3 to the genus level, and one to the family level. Danin was the primary author of our book Flora of the Shroud of Turin, and he has given many illustrated lectures to professional and other groups. In the year 2000, he participated in a closed meeting in Turin of 39 Shroud researchers, during which we had the rare privilege of a private showing of the Shroud. Danin quickly spotted an image of the Gundelia tournefortii thistle on the Shroud, which he pointed out to the Archbishop Cardinal and the other researchers. He also determined that 27 of the 28 flowers with identifiable images grow in the immediate environment of Jerusalem, and that finding them in a fresh state indicates that the only place in the world where the Shroud could have originated is Jerusalem. The common blooming time of all the flowers is March/April.

Even more striking, Professor Danin noted the partially opened flower of a Capparis aegyptia, which open progressively during the day. The degree of opening let him know that this flower was picked between 3 and 4 o'clock in the afternoon.

There are several bouquets on the Shroud. In addition, there are many small fruits of the Pistacia lentiscus, probably used as a burial spice.

The floral images on the Shroud are both detailed and accurate, as is illustrated by four images within a 15 centimeter radius over the right upper chest and shoulder. One is of the flowers and several leaves of Zygophylum dumosum, which grows only in the Dead Sea area. Another is the accurate image of Hyocyamus reticulatus, showing the fine network pattern of the leaves and also the 16 millimeter stylus of the flower which is 1 millimeter wide and ends in a 2 millimeter stigma (the part that receives the pollen). Another is the large image of the spiky flower head of the Gundelia tournefortii thistle, and a fourth is the image of the partially opened Capparis aegyptia, with 22 of the 24 anthers, which are 2 millimeters in diameter, visible and correctly arrayed.

A 3D enhancement of this area shows a large bonnet-like structure made of a number of the Gundelia thistles with their stems tied together to form a large Crown of Thorns. There are other unrelated thorns, such as a Rhamnus lycioides thorn, whose images are visible on the Shroud, indicating that there was a second Crowns of Thorns.

Both were removed from the head and placed above the right shoulder. Since there is no other mention of a crown of thorns in history, these clearly identify the Man of the Shroud as the crucified Jesus.

That floral images were visible on the Shroud in the early centuries is shown by our studies of a large number of the early artistic depictions of Jesus that are quite accurate to the Shroud. Two of these from the Roman catacombs, probably from the third century, show some distinct flower images around the head. There are even more in art works from the fourth and

fifth centuries. The Christ Pantocrator icon in St. Catherine's Monastery, the one that got us involved in serious Shroud research, is the most accurate artistic production based on the Shroud that we have examined, indicating that the artist was looking directly at the Shroud face for his model. There are subtle images of flowers in the halo around the face that are accurate to the appearance and location of flower images on the Shroud.

Even more remarkable are the images of Jesus that suddenly appeared on Byzantine gold coins first in A.D. 692. The large numbers of points of congruence would indicate that these coins were actually made as religious icons and that the die cutter was looking directly at the Shroud face for his model. On magnification, it can be seen that tiny flower-like images are engraved around the head. The height of the face on the coin is only 9 millimeters, and these flower images are less than a millimeter. They are located accurately according to the flower images on the Shroud. These remarkably accurate images are found on gold solidus coins struck in 692 until 695, at which time the Byzantines lost access to the Shroud which had fallen into Muslim control in Edessa. The floral images and the accurate facial images did not reappear on the coins until 945 during the reign of Constantine VII, at which time the Shroud (as the Mandylion) was brought from Edessa to Constantinople and hence was again available to the Byzantine artists and die cutters.

Detailed depictions of the crucifixion and descent from the cross rather suddenly appeared in European art beginning about 1360, soon after the Shroud went on public display in Lirey, France in 1357. An artistic depiction in 1360 shows a fairly accurate portrayal of many of the Arma Christi, the various implements of the Crucifixion, the images of which are actually visible on the Shroud. There is a large flower in the painting, and there are large numbers of very faint flower images in the background. Many of these medieval depictions show a general floral background to the scene of the Crucifixion of Jesus. These scenes are much less common after the 16th century, suggesting that the floral images were much clearer in the early centuries. It is possible that the heat from the fire of 1532 may have caused some increased yellowing of the entire Shroud, making these already faint images even less apparent.

In summary, the botanical findings on the Shroud, as represented by the large number of floral images, the supportive pollen grains and some floral debris, are extremely important in Shroud research, as they provide positive evidence of the place of origin of the Shroud (Jerusalem), of the time of the year (March or April), of the time of day that some of the flowers were picked (between 3 and 4 p.m.), of the time that the images were formed (30 to 36 hours after the flowers were picked), of the nature of the image formation mechanism (the images resemble those produced by corona or electrostatic discharge radiation), and of the identity of the Man of the Shroud (the Crowns of Thorns are unique in history to Jesus).

The botanical findings are controversial for several reasons. There are perceptual difficulties in that the images are faint, fragmentary, and embedded, which makes it difficult for many to pick them out, especially if they do not have high-quality photographs to look at. Most people do not know what the corona images of Near Eastern plants look like, making it difficult or impossible to make positive identifications or associations. The problems for some are ideological, in that the botanical images provide such strong evidence for the identification of the Man of the Shroud, and they indicate that the image is formed by still unknown processes (including radiation from the body) at a particular point in time. Some have suggested that those perceiving the floral images are "seeing faces in the clouds" or are part of "a lunatic fringe group". While detailed analyses of the botanical findings require well-trained researchers spending much time working with high-quality materials, the floral depictions in early art works indicate that these images were much clearer in the earlier centuries.

Our informal research with hundreds of individuals in public presentations indicates that many are able to perceive at least one floral image very quickly. Alan simply walks slowly along the front row carrying the Enrie photograph on which he first saw the Chrysanthemum image

and ask people what they see. About 70% see a flower image and about 30% identify it as a daisy or chrysanthemum (it is called a Crown Daisy). Those who generally see the floral images most quickly and clearly are artists, physicians, and botanists. We think that these groups are more likely to have native artistic perception, or to have considerable experience looking at faint images, or to be generally familiar with the subject.

We hope that many will be able to examine for themselves the botanical issues and images more clearly in order to help themselves and us better understand and appreciate the complex nature and implications of the Shroud of Turin.

References

1. Mary & Alan Whanger, The Shroud of Turin An Adventure of Discovery, Providence House Publishers, Franklin, TN, 1998.
2. Francis L. Filas, The Dating of the Shroud of Turin from Coins of Pontius Pilate, 2d ed., Youngtown, AZ, Cogan Productions, 1982.
3. Robert M. Haralick, Analysis of Digital Images of the Shroud of Turin, Blacksburg, VA, privately printed at Virginia Polytechnic Institute and State University, 1983.
4. Alan D. Whanger and Mary Whanger, Polarized image overlay technique: a new image comparison method and its applications, in Applied Optics, Vol. 24 No. 6, 15 March 1985.
5. Oswald Scheuermann, Turiner Tuchvild aufgestrahlt?, VDM Verlag Dr. Müller, Saarbrucken, Germany, 2008.
6. www.shroudcouncil.org, where the coin images can be examined in detail using the overlay technique.
7. Look online for "Flora of the Shroud of Turin". This will tap into several of Professor Danin's websites.
8. Max Frei, Nine years of palynological studies on the Shroud, in Shrou Spectrum International 1(3): 2-7, 1982.
9. Arthur O. Tucker, Robert F. C. Naczi, Susan E. Yost, Alan D. Whanger, Mary Whanger, The Botany of the Shroud of Turin: A Crime Scene Investigation, Claude E. Phillips Herbarium, Delaware State University, Dover, DE, 2004.
10. Michael Zohary, Flora Palaestina Part I, Israel Academy of Science and Humanities, Jerusalem, 1966.