

CURRENT RESEARCH:  
THE ENVIRONMENTAL STUDY OF THE SHROUD IN JERUSALEM

An unusual and important new Shroud research project has been set up under the title The Environmental Study of the Shroud in Jerusalem (ESSJ). Initiated in 1984 the project is being undertaken by a joint team of scientists, archaeologists and supporting specialists, with Joseph Kohlbeck, resident scientist at Hercules (Bachus, Utah, U.S.A.) supervising the scientific aspects, and Biblical archaeologist Dr. Eugenia Nitowski (now Sister Damian, O.C.D. - see this *Newsletter*, p.18), supervising the archaeological aspects.

The objective of the project is to study the Turin Shroud in the context of the Shroud's earliest environment, that of an ancient tomb, with emphasis on image formation. According to a summary of the project's objectives as published in *SHROUD SPECTRUM* no. 17:

"For this study, a tomb complex on the property of the Ecole Biblique et Archeologique Française has been chosen. This site has several advantages: it is within the same rock shelf as both the Holy Sepulchre and the Garden Tomb, thereby including the two most probable choices for the tomb of Christ; it provides ample area for experiments; provides a typical sealed environment, and is not easily accessible to tourists, thereby insuring non-interference from outside sources.

In order to simulate as closely as possible all conditions present during the time of the crucifixion and interment of Christ, the date of on-site, testing-was chosen to approximate the Passover/Easter season, at which time the climatic conditions of moisture and temperature can be expected to be the same as in AD. 33. Therefore the date of April 1986 has been set and has been approved by the Department of Antiquities of Israel.

Preliminary experiments by ESSJ tend to show that image formation appears to be a natural process related to the environment of the tomb, which involves temperature, humidity and the alkaline limestone of the tomb. The proposed experiment will attempt to reproduce an image, using a mannikin on which the surface chemistry of a traumatized dead person will be replicated. The prepared manikin will then be filled with water heated to a temperature of 115° to simulate body heat produced by trauma and postmortem fever. The body will then be placed in a linen cloth and left in the closed tomb for approximately 12 hours. Twelve hours has been chosen because this is the length of time a dead body retains heat in the cold environment of the tomb. Previous testing indicates that body heat is a factor in image production but this has been neglected in experimentation by other researchers.

Various cloth strips will be used for further analysis: strips stained with human blood, placed directly on the surface of freshly scraped limestone; strips placed on a limestone bench at timed intervals to determine moisture saturation; strips suspended in the air to determine air moisture saturation at timed intervals; and general temperature and humidity would also be monitored.

Limestone from selected sites in Jerusalem would be compared, by ion microprobe, to samples vacuumed from the Shroud during the 1978 examinations. Other tests on these samples would include mass spectrometry and x-ray fluorescence.

Because of the discovery of myrrh and aloes permeating the walls of a chamber in a first century Jewish catacomb in Rome [Umberto Fasola: "Scoperte e Studi Archeologici dal 1939", Acts of the 1978 Congress in Turin], limestone sampling for contaminants in tombs in and near Jerusalem could determine the extent and frequency of this practice. All samples taken will be sealed on the site where they are taken to avoid contaminants from outside sources.

Questions, comments and suggestions are invited. The full proposal may be obtained from:

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