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Department of Conference Management and
Noncredit Programs
225 Mount Hall
1050 Carmack Road
Columbus, Ohio 43210-1002
(614) 292-8571
ced.osu.edu

News Release

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Contact: Latina A. D. Rockhold
(614) 688-3310
rockhold.14@osu.edu

New Paper Reopens Shroud of Turin Image Formation Mystery

COLUMBUS, Ohio, May 14 — A paper published in the most recent issue of *Chemistry Today* resurrects the topic of how the Shroud of Turin image was created. Believed by many the world over as the linen burial cloth that wrapped the body of Jesus of Nazareth, the way in which the yellow-brown body image got on the cloth has stymied both science and religious scholars for centuries. Two Ohioans believe they may have discovered an important clue as to how the image was formed. In their paper titled "Role of Calcium Carbonate in the Fiber Discoloration on the Shroud of Turin," M. Sue Benford (43016) and Joseph Marino (43016) present a compelling case showing how microscopic calcite crystals, which are known to stain cloth yellow, produce nearly identical discolorations as those found on the Shroud.

Although growing calcite crystals is certainly no miracle, Benford and Marino believe that having all the right ingredients and conditions present in a tomb capable of forming a recognizable image on linen is more than mere coincidence. "Growing crystals is both an art and a science requiring specific environmental conditions and the presence of the right substances in and on the cloth," Benford explained. In their experiment, Benford and Marino were able to demonstrate how extremely small calcite crystals precipitated out of the linen fibers and discolored the surface of their linen sample.

"Our sample was blindly sent to the late Shroud of Turin Research Project (STURP) chemist Ray Rogers who compared it with actual Shroud image fibers. It was nearly an identical match," said Benford.

According to archaeological chemist, Mary Virginia Orna, Ph.D., of the College of New Rochelle, who has been skeptical of the Shroud's authenticity and was not involved in this research, "... the role of calcium carbonate in fiber discoloration and especially its relationship to the possible means of formation of the image on the Shroud of Turin describes a fascinating hypothesis and experiment. ... [the] hypothesis may provide the 'chink in the armor' of the hitherto un-crackable problem."

Benford and Marino will present data from their paper, which is freely accessible for 30 days starting May 12 at chemistry-today.com, at the international conference "The Shroud of Turin: Perspectives on a Multifaceted Enigma," to be held Aug. 14–17, 2008, at The Blackwell Hotel, 2110 Tuttle Park Place, on the grounds of The Ohio State University in Columbus, Ohio. The conference is being organized by the Shroud Science Internet Group, composed of about 100 scientists, scholars, and researchers from around the world.

The conference, which commemorates the 30th anniversary of STURP's investigation and the 20th anniversary of the C-14 dating of the cloth, will highlight STURP members' research contributions,
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including a special presentation by documenting photographer Barrie Schwartz (80816). There will be five other presentations by STURP members, as well as a previously-unpublished paper by Rogers.

For five consecutive days in 1978, STURP studied the Shroud, which is the most intensely-studied artifact in human history. None of the data collected by the group suggested the Shroud could be a forgery. A 1988 carbon dating (C-14) test on the cloth produced a date of A.D. 1260–1390, which, if accurate, would eliminate it from being the actual burial cloth of Jesus.

However, in 2005, Rogers, who was given access to leftover samples from the 1988 testing, authored a paper in a peer-reviewed journal, in which he presented evidence that the sample used in the testing was not part of the original cloth, possibly due to a repair, thus invalidating the test. While some researchers have challenged Rogers' findings, there have no rebuttals in peer-reviewed scientific literature. Several new papers are being presented at the conference that will provide corroborating evidence for the repair theory, including two by Benford and Marino, whose paper at an international conference in Orvieto, Italy, in August 2000 prompted Rogers to undertake his research. In addition, speakers will present the findings of scientific analysis of dusts and particles collected during the 1988 C-14 testing.

For more information regarding the conference, which is open to the public, or to register, visit ohioshroudconference.com. Registration is also available by visiting ced.osu.edu/CED_conference.html or calling the Office of Continuing Education at (614) 292-8571.

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