

## A Review: Current Methods of Conservation of Rome's Subterranean Archaeological Sites and How the Public Can Act as Contributing Partners

Subterranean archaeological sites offer a unique challenge for conservators: It is a race against the clock to combat damage while preserving the site for indefinite amounts of time. In particular, Roman subterranean sites are so numerous and variable that sustainable, cost efficient methods must be available for sites that involve any combination of structures, artistry, and commodities. While at Samford University, I have studied chemistry alongside classics and in particular have spent a considerable amount of time conducting analytical chemistry research and performing biochemistry labs. Therefore, I am in a unique position to present solutions for classical and archaeological problems with research from the natural sciences.

Current conservation and preservation methods range in extremes from applying chemicals to combat biological growth to restoring bleached paints using ancient techniques. Many of these methods treat the symptoms and not the problem, however, and this results in the sites being closed for weeks at a time for extensive restoration that would have a more lasting effect if done in small increments every day. Moreover, symptomatic remedies typically consist of variable and multistage methods that effectively cover small regions or details of an entire site, making these methods costly and forcing site managers to pick and choose which techniques to employ. It is therefore necessary for the most recent research to be implemented in the conservation of these historic sites. New research within the last ten years has produced cost efficient and sustainable methods to address the root of the problem, and these new methods fall into two general categories: biological or chemical. An example of recent literature that falls under the "chemistry" category by Paul Hsieh focuses on the effect of monochromatic light on

bacteria's photosensitizing properties. Bright white lighting (which is by definition polychromatic) used in subterranean sites for patrons' safety stimulates harmful biological growth and certain monochromatic light has been shown to counteract this direct consequence of tourism (2013, 264). The most successful methods also utilize public involvement. Banning foods, flash photography, and restricting foot traffic has already been implemented at many sites, but new public policies are being explored to ensure the success of conservation initiatives. This paper will explore a few selected, promising techniques, evaluate how they compare to older methods, and offer ways the public can be directly involved as conservators during their visit.

#### Works Cited

Hsieh, Paul, Jens Z. Pedersen, and Patrizia Albertano. 2013. "Generation of reactive oxygen species upon red light exposure of cyanobacteria from Roman hypogea." *International Biodeterioration & Biodegradation* 84: 258-264.  
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