

PAUL MARDIKIAN

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EDUCATION

1991 - University of Paris 1 Panthéon-Sorbonne, France, M.S. in Conservation Science and Techniques, (*Maîtrise de Sciences et Techniques en Conservation-Restauration du Patrimoine Culturel*), with a specialization in the conservation of terrestrial and marine archaeological objects and industrial cultural heritage.

1989 - School of the Louvre, Paris, France, M.A. in Conservation and Museology, (*Diplôme Etudes Supérieures de L'Ecole du Louvre*).

1987 - School of the Louvre, Paris, France, B.A. in Archaeology and Art History, (*Diplôme d'Ancien Elève*).

PROFESSIONAL EXPERIENCE

2007 – Current: Senior Conservator *H.L. Hunley* Project. Warren Lasch Conservation Center, Clemson University Restoration Institute, North Charleston, South Carolina, U.S.A.

- Responsible for the conservation and long-term preservation of the American Civil War submarine *H.L. Hunley* (1863-1864), and associated artifacts.
- Supervision of an international team of conservators and interns.
- Collaboration and joint research with scientific and archaeological colleagues worldwide, including major collaborations with U.S. and Canadian Parks Services and the U.S. Navy Historical Center in Washington D.C.

1999 – 2007: Senior Conservator for the *H.L. Hunley* Project. Warren Lasch Conservation Center, Friends of the Hunley Inc., North Charleston, South Carolina, USA.

- Responsible for assisting with the recovery of the *H.L. Hunley* submarine, designing and equipping the 4000 m² conservation laboratory for receiving the submarine immediately after recovery, and subsequent conservation leadership during excavation and treatment of the associated artifacts.
- Co-authored a peer-reviewed Conservation Plan for the *H.L. Hunley* and associated artifacts for the U.S. Navy. The Plan was approved by the Navy and implemented in 2006.

1992 – 1999: Head Conservator, Archéolyse International, Electricité de France, Underwater Archaeological Conservation Laboratory, France.

- Collaboration with U.S. Navy Historical Center in Washington D.C. for the conservation of artifacts recovered from the *CSS Alabama* (1864).
- Conservation included composite objects as well as the 7-inch Blakely rifle containing an explosive shell, and the gun's composite pivot carriage.

- Development and implementation of preventive conservation training for maritime archaeologists, and training and supervision of national and international interns.
- Collaboration with curators from French cultural institutions, including the Louvre, for the conservation of the Punic stones and marble sculptures from the *Magenta* (1872).
- Selected achievements include the reconstitution of stone-working tools recovered from the Roman shipwreck *Porto-Novo* (1st Century A.D), and the conservation of glass vessels from the *Ouest-Embiez 1* shipwreck (2nd Century A.D).

1988 – 1990: Associate Conservator and research assistant, Valectra Research Laboratory, Electricité de France, Direction des Etudes et Recherches, Saint-Denis, France.

- Selected achievements include RMS *Titanic* (1912) and CSS *Alabama* (1863) Projects. Development and implementation of stabilization techniques for the conservation of complex artifacts such as composite navigational equipment.

1984 (April – June): Assistant conservator, Louvre Pyramid on-site conservation laboratory, Paris, France.

INTERNSHIPS AND FELLOWSHIPS

1991 – 1992: Honorary Research Fellow, Western Australian Maritime Museum Conservation Laboratory, Fremantle, Australia.

- Research focused on observations on the extraction of iron and chloride ions from composite materials. Research sponsored by a grant from the Fondation Electricité de France.

1990 – 1991: Conservation Intern, Conservation Branch of the Canadian Park Service, Wet Organic Material Section, Ottawa, Canada.

- Research focused on the conservation of archaeological waterlogged composite artifacts. Research sponsored by a grant from the Fondation Marcel Bleustein-Blanchet Fondation pour la Vocation and the Fondation de France.

1984 –1986: Musée National de Céramique de Sèvres. Part time internship.

- Responsible for inventory and reorganization of Vivant Denon’s ceramic collection from the ancient Near East and Mediterranean.

PROFESSIONAL ACTIVITIES

Conference Development

Organizing Committee for Aluminum 2014: History, Technology and Conservation, to be held at the Smithsonian American Art Museum in Washington DC April 7–10, 2014.

Conference Program Chair, Organizing Committee and co-Editor of Metal 2010, the Interim Meeting of the International Council of Museums Committee for Conservation (ICOM-CC) Metal Working Group Charleston, South Carolina, USA, 1-15 October 2010. Secured two

private grants totaling \$15,000 to assist authors of accepted papers, students and underfunded conservators to attend the conference.

PROFESSIONAL SERVICE

2008-Current: Assistant Coordinator, ICOM-CC Metal Working Group.

2006-2012: U.S. contact for the ICOM-CC Metal Working Group.

2002-2007: U.S. correspondent for the Bulletin of the Research On Metal Conservation (BROMECC) of the ICOM-CC Metal Working Group.

Ad hoc reviewer and referee for the Journal of the American Institute for Conservation, Studies in Conservation and Corrosion Engineering Science and Technology.

Grant Reviewer

2007: field reviewer for the Institute of Museum and Library Services (IMLS) Conservation Project Support Grants.

2007: field reviewer for Save America's Treasures Grants on behalf of the National Park Service and the National Trust for Historic Preservation.

Committees

2002-current: Underwater Archaeology Advisory Committee for the Ironclad USS Monitor (Mariners' Museum, Newport News, Virginia, USA).

2010-current: Advisory Board of the Halsey Institute of Contemporary Art (College of Charleston, School of the Arts, Charleston SC).

Teaching Experience

2007-current: Guest Lecturer for the Clemson University/College of Charleston undergraduate and graduate programs in Historic Preservation.

2007-current: Guest lecturer for the University of Delaware/Winterthur Museum Program in Art Conservation.

2007-current: Guest lecturer for the Art Conservation Program at Buffalo State College, Buffalo, NY.

FUNDRAISING AND DEVELOPMENT

Broad experience with media and public relations relating to the field of cultural heritage.

Managed fund raising efforts for the *H.L. Hunley* Project relevant to the conservation program, including through written fund-raising proposals. Obtained in excess of one million dollars' worth of extra budgetary resources for the Hunley Project including equipment and in-kind donations.

Sponsored Research (Awarded grants)

Cannon Stabilization and Architectural Coatings Treatment at Fort Moultrie, sponsored by USDI (U.S. Department of the Interior). 9/1/2008 to 12/31/2010. Co-Investigator. Amount awarded to Clemson University: \$269,500.00.

Improved Storage: The Drayton Hall Archaeological collection, sponsored by the National Trust for Historic Preservation (5/1/2009 to 4/30/2010). Co-investigator. Amount awarded to Clemson University: \$11,453.00.

CONSULTING EXPERIENCE (Selected)

2009: Conservation assessment report of the Colorado River Survey Boats *Marble* and *Boulder*. Santa Cruz County, California. Paul Mardikian and Joseph Sembrat, Conservation Solutions Inc.

2007-2008: RMS *Titanic*/RMS *Carpathia* conservation Projects, Conservation Solutions Inc.

2003-2012: USS *Monitor* Conservation Project (Mariner's Museum), Newport News V.A.

2006: Conservation analysis for the recovery and research of the remains of the *Ferry Ellis Island* and submarine *Explorer* for the National Parks Service. United States Department of the Interior, National Park Service, Submerged Resources Center.

1988-2012: Provided expertise and/or treatment of artifacts belonging to the U.S. Navy, including large composite artifacts from the CSS *Alabama* (1863) for the Underwater Archaeology Branch, Naval History and Heritage Command, Washington D.C.

2005: Conservation strategy for a wrought iron anchor from a 16th century shipwreck site in Red Bay, Labrador. Canadian Parks Service, Ottawa.

2004: Provided corrosion expertise for cast iron guns and carriages. Examination and sampling of active corrosion areas and preliminary recommendations for the maintenance and resource management personnel. National Park Service, Fort Sumter National Monument, Charleston.

1991-1999: Provided expertise for numerous shipwrecks and artifacts in the territorial waters of France including French Polynesia and French West Indies for the French Ministry of Culture.

1991-1992: Provided expertise for various shipwrecks in Australian waters including in situ corrosion surveys and materials analysis for the Western Australian Maritime Museum.

PUBLICATIONS Refereed (selected)

Mardikian, P., (2004) "Conservation and Management Strategies Applied to Post-Recovery Analysis of the American Civil War Submarine *H.L. Hunley* (1864)" *The International Journal of Nautical Archaeology* (2004) 33 (1) pp. 137-148.

González, N., de Viviés, P., Drews, M. J., and Mardikian, P., (2004) "Hunting Free and Bound Chloride in the Wrought Iron Rivets from the American Civil War Submarine *H. L. Hunley*" *Journal of the American Institute for Conservation* (43) pp. 161-174.

Mardikian, P., (1997) "The Conservation of Two Composite Objects from the Confederate Raider *Alabama* (1864)" *Proceedings of the Conference on Historical and Underwater Archaeology. Corpus Christi. Texas, USA, 8-12 January* (1997), pp. 128-134.

Mardikian, P., and David, R., (1996) "Conservation of a French Pistol from the Wreck of *Le Cygne* (1808)" *Studies in Conservation* (41) pp. 161-169.

Mardikian, P., and Lacoudre, N., (1990) "Le *Titanic* une histoire de corrosion" *Neptunia* (178) pp. 2-7.

Conference Proceedings Reviewed (Selected)

Blouin, V.Y., P. Mardikian, C. Watters, "Finite Element Analysis of the *H.L. Hunley* Submarine: A Turning Point in the Project's History" *Metal 2010, Proceedings of the Interim Meeting of the ICOM-CC Metal Working Group, Charleston, South Carolina, USA, 11-15 October 2010*. Ed. P. Mardikian, C. Chemello, C. Watters, P. Hull, Clemson University (2011), pp. 393-399.

Mardikian, P., Girard, P., "18 Tons of Roman Glass under the Sea: A Complex Conservation Puzzle" *Proceedings of the Interim Meeting of the ICOM-CC Glass & Ceramics Working Group, Corning New York, USA 3-6 October 2010*. Ed. H. Roemich (2010), pp. 110-118.

Cretté, S., González, N.G., Rennison, B., Scafuri, M., Mardikian, P., Drews, M.J., Carrier, M., "Conserving Waterlogged Archaeological Corks Using Supercritical CO₂ and Monitoring Their Shrinkage Using Structured-Light 3D Scanning" *Proceedings of the Interim Meeting of the ICOM-CC Wet Organic Archaeological Materials Working Group, Greenville, North Carolina, USA, 24-28 May 2010*. Ed. K. Straetkvern and E. Williams (2012), pp. 257 to 275.

de Viviés, P., Cook, D., Drews, M.J., Gonzalez, N., Mardikian, P., Memet, J.B., (2007) "Transformation of Akaganeite in Archaeological Iron Artifacts using Subcritical Treatment" *Metal 2007, Proceedings of the Interim Meeting of the ICOM-CC Metal Working Group, Amsterdam, 17-21 September 2007*. Ed. C. Degriigny, R. van Langh, I, Joosten, B, Ankersmit (2007) Vol 5, pp. 26 -30.

Mardikian, P., Drews, M. J., González, N., de Viviés, P., Hunter J.W., (2006) "Searching for a Diamond in the Rust: A Review of Large-Scale Archaeological Iron Conservation Projects, 1980-2006" In: *Iron, Steel & Steam, Fremantle, Australia, June 26-27 2006*. Special publication, Australian National Centre of Excellence for Maritime Archaeology No. 13. Ed M. McCarthy (2009) pp. 82-88.

Mardikian, P., González, N., Drews, M. J., de Viviés, P., "New Perspectives Regarding the Stabilization of Terrestrial and Marine Archaeological Iron" In: *Iron, Steel & Steam, Fremantle, Australia, June 26-27 2006*. Special publication, Australian National Centre of Excellence for Maritime Archaeology No. 13. Ed M. McCarthy (2009) pp. 113-118.

Mardikian, P., Baatz, P.E., de Viviés, P., Drews, M.J., Grieve, S., Nicot, F., An Initial Investigation into the Effects of Ammonium Citrate on Waterlogged Leather from the H.L. Hunley Submarine (1864)". *Proceedings of the Interim Meeting of the ICOM-CC Wet Organic Archaeological Materials Working Group, Copenhagen 6-11 June 2004* (2005) pp. 513-529.

Meier, C.K., and Mardikian, P., "When Corrosion Science Meets an Icon of Maritime History" *National Association of Corrosion Engineers 2004 Conference, March 28- April 1, New Orleans* (2004) Paper 04317.

MacLeod, I.D., Mardikian, P., & Richards, V.L., "Observations of the extraction of iron and chloride ions from composite materials" *Proceedings of the Interim Meeting of the ICOM-CC Wet Organic Archaeological Materials Working Group, Portland, Maine 16-20 1993* (1993) pp. 199-211.

Presentations and lectures (Selected)

"Integrating Conservation and Archaeology: Exploration of Best Practices" Workshop and Panel Discussion, Archaeological Institute of America Annual Meeting, Seattle, WA, January 3-6, 2013 (panelist).

"Connecting Archaeological Conservation and Historic Preservation: My Amphibious Journey" Conservation Conversations 3.01, Graduate Program in Historic Preservation/School of Design, University of Pennsylvania. November 30, 2012 (invited speaker).

"Principles of corrosion mitigation" Association for Preservation Technology International (APT), workshop organized at the Warren Lasch Conservation Center, North Charleston USA. October 2, 2012 (lecturer).

"The challenges of conserving archaeological and historic cast iron from marine and coastal sites" Galveston Historical Foundation Cast Iron Symposium. April 12-13, 2012 (invited speaker).

"The use of subcritical alkaline solutions for the stabilization of archaeological iron artifacts" Archaeological Iron Conservation Colloquium. State Academy of Art & Design Stuttgart, Germany, 24-26 June 2010. Abstract book p.59-62 (ed) Gerhard Eggert and Britta Schmutzler (invited speaker).

"Resurrecting a Set of Composite Tools from the 1st Century A.D. Roman Wreck of Porto-Novo, Corsica, France" American Institute for Conservation, 38th Annual Meeting. "Examining the past & envisioning the future", Milwaukee, WI, May 2010. Abstract book p. 28.

"Impact of soluble salts on historical artifacts" NACE-Sponsored Educational Forums and Tutorials: Making Sure the Paint Sticks - How Much Soluble Salt Forum. National Association of Corrosion Engineers, Atlanta, Georgia, March 2009.

"Logistics and lab preparation prior to the recovery of the *H.L. Hunley* submarine." This lecture was delivered to a panel of international archaeological and conservation specialists that convened to discuss strategies and the possibility of recovering the wreck of the *Vrouw*

Maria, an 18th century merchant vessel. Finnish National Board of Antiquities, Helsinki, November 2009 (invited speaker).

“Le dernier voyage du sous-marin *H.L. Hunley* (1864)” Colloque: Archéologie sous-marine & patrimoine. Des pratiques aux enjeux de médiation. Lorient, France, 3-6 juin 2009 (invited speaker).

“Connecting Materials Science and Engineering with Archaeological Conservation” American Institute for Conservation 37th Annual Meeting, “Conservation 2.0 New Directions” Denver, CO, May 19-22, 2009.

“The Use of Computed Radiography on the Hunley Project: A versatile Technology for Complex Applications” Plenary address at the American Society for Non-destructive Testing Conference. Charleston, SC, USA 10-14 November 2008 (invited speaker).

“The *Titanic* Then and Now: a Legendary Collection Revisited” Third Symposium on Corrosion & Preservation of Historic Artifacts, Friday, October 17, 2008. Smithsonian Institution, Washington DC. In collaboration with Conservation Solutions, Inc.

“The Civil War Submarine *H.L. Hunley*: A Quick Submersion into Materials Issues – Past, Present, and Future” Invited speaker at the ASM Award Ceremony and ASM Fellows Breakfast in Detroit, Sept 19, 2007 (invited speaker).

"A Comparison of Subcritical Fluid Extraction to Electrochemical Methods for the Stabilization of Archaeological Iron," Eastern Analytical Symposium, New York Conservation Foundation, November 13, 2006 (invited speaker).

“The Challenges of Excavating and Conserving the Organic Materials recovered from the *H.L. Hunley* Submarine (1864)” Proceedings of the Interim Meeting of the ICOM-CC Wet Organic Archaeological Materials Working Group, Copenhagen. June 6-11 2004. Copenhagen, Denmark.

“The Principles of Marine Archaeological Conservation” The Convention on the Protection of the Underwater Cultural Heritage in the Caribbean, Latin and North American Regions, UNESCO Kingston, Jamaica 17-20 June 2002 (invited speaker).

Mardikian, P., “*Hunley* Conservation Challenges” Smithsonian Institution, March 2002, Washington DC. (Invited speaker).

Mardikian, P., “Large Marine Iron Stabilization Issues” Mariners' Museum, Newport News, February 2002 (invited speaker).

PROFESSIONAL MEMBERSHIPS

The American Institute for Conservation of Historic & Artistic works (AIC) (Professional Associate).

International Council of Museums Committee for Conservation (ICOM-CC) Metal Working Group (MWG). Wet Organic and Archaeological Materials Working Group (WOAM).

OTHER PROFESSIONAL TRAINING

Professional scuba divers license, Marseille, France 1994

Surface supplied Diving Certificate, Charleston, SC, 2000

Radiation Safety training by Newco. Radiation Safety Officer for the Warren Lasch Conservation Center 1999 to current.