



**ARCHAEOLOGICAL INSTITUTE OF AMERICA 114<sup>TH</sup> ANNUAL MEETING  
SEATTLE, WASHINGTON  
JANUARY 3-6, 2013**

**Integrating Conservation and Archaeology: Exploration of Best Practices**

**Workshop Summary**

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**The workshop was generously sponsored by the Archaeological Institute of America Conservation and Site Preservation Committee, the American Institute for Conservation of Historic and Artistic Works, and the Getty Conservation Institute**

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## Introduction

The field of archaeological conservation as a discipline has grown rapidly in recent years, particularly the conservation and management of archaeological sites. This growth has brought challenges for practitioners of each discipline who strive to reconcile the essentially destructive nature of excavation with the need to preserve excavated artifacts, structures and landscapes. Contemporary practice in both fields has grappled with the most suitable and sustainable ways to preserve the archaeological record within challenging and complex political, financial, cultural and philosophical environments.

Interdisciplinary collaboration arguably determines the success or failure of archaeological conservation. Developing good partnerships between conservation and archaeology in the field is essential to ensure that responsible preservation and stewardship of archaeological resources, both artifacts and sites, is achieved.

### **The Archaeological Institute of America's Site Preservation Program**

The Archaeological Institute of America (AIA) works to safeguard the world's archaeological heritage for future generations through direct preservation, raising awareness of threats to sites, education, and by facilitating the spread of best practices. As archaeological research has progressed, new methods have been developed to better understand deterioration mechanisms and create practicable solutions that protect and enhance the understanding and presentation of the archaeological record. One of the ways this is achieved is to ensure that excavated artifacts and sites are preserved for the future. The importance of considering conservation strategies prior to excavation and development have been emphasized, as well as the need to implement realistic and sustainable strategies on site.

The AIA annual meeting is an important forum to discuss themes related to conservation, site preservation and management, which is an integral component of archaeological research. The Conservation and Site Preservation Committee (CSP) of the AIA focuses on directives to facilitate collaboration between the archaeological and conservation fields. Members of the Committee include a diverse group of professionals involved in archaeological research, conservation of materials and site management. The Committee was officially formed in 2011 following the combining of the former Site Preservation Committee (formed in

2009) and the Conservation & Heritage Management Committee. The Committee manages a program that focuses on grant giving, recognition and dissemination of information, advocacy and public outreach, as well as the review and selection of recipients for the Best Practices in Site Preservation Award; the Site Preservation Grant (twice a year); and the Conservation and Heritage Management Award.

Sponsorship and organization of workshops at the AIA annual meeting also falls within the mission of the CSP. A previous workshop in 2012, entitled *Site Preservation: The Future of Saving the Past* brought together past recipients of the Site Preservation Grant to discuss preservation programs at their sites.

In 2013, committee members Claudia Chemello, Stephen Koob and Thomas Roby coordinated with the Committee to structure a conservation panel to explore the topic of *Integrating Conservation and Archaeology: Exploration of Best Practices*. Leah Long provided additional support for the workshop. The workshop was generously sponsored by the CSP, the American Institute for Conservation of Historic and Artistic Works and the Getty Conservation Institute.

## Structure and content of the workshop

### **Integrating Archaeology and Conservation: Exploration of Best Practices Sunday, January 6, 2013 9:00am – 12:00pm**

The purpose of the panel discussion was to bring together archaeologists and conservators with wide-ranging experience in the investigation and conservation of archaeological sites to share experiences and knowledge about the importance of collaboration between the two disciplines to ensure responsible preservation and stewardship of archaeological resources. A principle aim of the workshop was to help clarify what constitutes responsible conservation, preservation, and stewardship of archaeological resources. The workshop featured field projects with well-integrated conservation programs and successful long-term collaboration between archaeology and conservation.

Panelists shared their experiences on what constitutes responsible conservation, preservation, and stewardship of archaeological resources. The panel discussed moveable and immovable cultural heritage, including terrestrial as well as marine archaeological sites. Audience participation ensured pertinent contributions.

The objectives of the panel were to:

- Examine what constitutes responsible conservation, preservation and stewardship of archaeological resources
- Discuss the importance of collaboration between the disciplines of archaeology and conservation
- Discuss some of the lessons learned and success stories of the featured projects
- Consider specific issues such as limitations and conflicts of interest that may prohibit collaboration

Panelists presented short, focused, 8-minute presentations on a diverse range of international field projects:

- Matthew Adams from New York University spoke on a multiscale approach to archaeological conservation at Abydos, Egypt, where conservators and archaeologists' work is embedded in modern political, social and economic contexts.

- Giorgio Buccellati from UCLA spoke on the complexities of mudbrick conservation at the site of Tell Mozan in Syria, and the how conservation efforts have informed the architectural conservation program at the site.
- Paul, Mardikian from the Warren Lasch Conservation Center spoke about the essential and critical partnership between archaeology and conservation in the marine archaeological field through a discussion of the successful collaboration between both on the H.L. Hunley Project.
- Robert Neyland spoke about the essential integration of conservation with archaeological recovery projects undertaken by the Naval History and Heritage Command's Underwater Archaeology Branch.
- Alice Boccia Paterakis spoke about the collaboration between conservation and archaeology in Central Anatolia at the site of Kaman-Kalehöyük through education as well as direct conservation efforts.
- Brian Rose spoke about architectural conservation strategies at Troy and the challenges of integrating modern conservation methods into ancient monumental architecture.
- Tom Roby spoke about balancing the preservation and presentation of archaeological sites and the importance of adequate conservation planning and a preventive conservation approach emphasizing reburial as a key component of managing sites, and particularly for those sites with excavated mosaics.

A transcript of the presentations is included in Appendix A

Following the presentations, panelists shared their experiences of developing and sustaining partnerships between archaeological research and conservation through the exploration of several topics and associated questions including: the importance of outreach and communicating conservation to multiple audiences, education and cross-training for both disciplines, funding and the hiring of conservators for field projects. An additional discussion looked at reburial as a preservation strategy.

## Major points arising from the panel discussion

The second half of the workshop focused on a discussion between panelists, moderators and audience members related to the presented papers and issues arising from them.

In terms of communication and outreach, it was felt that archaeology and conservation work in complementary ways to preserve the physical record of excavation. For the general public, the difference between the two disciplines can be confusing as both are seen to interact closely with archaeological materials. Highlighting the successful collaboration between the two fields is seen as beneficial for many reasons not least of which is responsible preservation and stewardship of archaeological resources. Awareness raising and education for various audiences is an opportunity to share the challenges involved in excavation and conservation and highlight the benefit of multidisciplinary cooperation. These audiences include the museum community, funding agencies, the tourism sector, the general public and local in-country constituents and partners, including excavation workmen, local schools and the local population.

In terms of fieldwork, conservation activities on archaeological projects are viewed as an essential, continuous component of excavation, yet often, sufficient financial provision is lacking. Prolonged financial investments are often needed for archaeological projects, particularly for marine. This extends to the curation of the materials after excavation, which requires further resources and pose additional conservation challenges. Collaborative decision-making was considered key to integrated archaeological research and conservation practices.

Funding for conservation and curation of excavated finds should be included in the overall budget of the project and allocated prior to excavation. In practice, this continues to be an issue for field projects. Discussion considered the reality of running conservation programs with budgetary constraints and the need to effectively communicate the intangible value of conservation with the projected costs. The need for a realistic budget and long-term view for conservation programs, particularly marine projects that can extend for decades, was stressed.

The rise of nationalism and national identity has seen an increased emphasis on local indigenous cultures over external ones and a desire to reconstruct their monuments

as soon as they are excavated, bringing increased difficulty of working in some parts of the world.

The hiring of adequately trained conservators and the need for cross training of both conservators and archaeologists was highlighted. It was suggested that a second workshop at the 2014 AIA annual meeting explore educational issues related to the cross training of archaeologists and conservators, to help further address the educational needs of each discipline. Discussion raised the point that archaeological programs do not seem to stress the importance of conservation. Similarly, conservators are often not adequately trained in the objectives and methods of archaeological research. However, it was felt that cross training is needed and there was a strong consensus on the need for continuing to integrate the two fields through shared decision-making.

The speakers presented examples of successful collaborations between archaeological and conservation practice on projects in Egypt, Turkey, Syria and Tunisia. Projects in the United States led by the U.S. Navy's Naval History and Heritage Command Underwater Archaeology Branch highlighted the success of collaborative and interdisciplinary practices in the marine archaeological community. Discussion highlighted the common ground between the two fields despite the often-incongruent goals and limitations of each, and the common responsibilities shared by each discipline in regard to the preservation of archaeological heritage.

A transcript of the panel discussion is included in Appendix B.

### **Best Practices Summary**

- Shared decision-making
- The fundamental importance of collaboration
- Outreach and communication among all stakeholders
- Increased knowledge of each discipline by the other
- Adequate financial resource allocation and effective planning to deploy those resources
- Conservation extends beyond the artifact
- Reburial as a site management tool to preserve sites after excavation



## Panel schedule

Archaeological Institute of America 114<sup>th</sup> Annual Meeting, Seattle, Washington  
January 3-6, 2013

### Session 7A: Workshop

**Integrating Conservation and Archaeology: Exploration of Best Practices**  
**Sunday, January 6, 9:00am – 12:00pm**

9:00 – 9:05	Introduction and Opening Remarks <i>Claudia Chemello, Stephen Koob, Moderators</i>
9:05 – 9:10	Multiscale Archaeological Conservation at Abydos, Egypt <i>Matthew Adams, New York University Institute of Fine Arts</i>
9:10-9:20	Preserving the Document and Displaying the Architecture Mud brick conservation at Tell Mozan, ancient Urkesh, Syria <i>Giorgio Buccellati, Cotsen Institute of Archaeology, UCLA</i>
9:20-9:30	Marine Archaeology and Conservation: An Essential partnership <i>Paul Mardikian, H.L. Hunley Project Clemson University</i>
9:30-9:40	Navy Underwater Archaeology and Conservation: A Seamless Process <i>Robert S Neyland, Naval History &amp; Heritage Command, Washington D.C.</i>
9:40-9:50	Fostering Collaboration in Central Anatolia (Turkey) with the Japanese Institute of Anatolian Archaeology <i>Alice Boccia Paterakis, Kaman-Kalehöyük, Kırşehir, Turkey</i>
9:50-10:00	Architectural Conservation Strategies at Troy, 1988-2010 <i>C. Brian Rose, University of Pennsylvania Museum of Archaeology and Anthropology</i>
10:00-10:10	Balancing the Preservation and Presentation of Archaeological Sites <i>Thomas Roby, Getty Conservation Institute</i>
10:10-10:20	Break
10:20-12:00	Panel Discussion with speakers, audience and moderators
12:00	Concluding Remarks <i>Thomas Roby, Moderator and Panelist</i>

## Abstracts

### **Multiscale Archaeological Conservation at Abydos, Egypt**

*Matthew Adams, Institute of Fine Arts, New York University*

At the Institute of Fine Arts' (New York University) project at Abydos, Egypt, conservation is an essential aspect of archaeological fieldwork practice. Conservators work closely with archaeologists. Conservation assessment and response are integrated into the project's approach at multiple scales of space and time - artifact, feature, architecture, and the site as a whole makes reference to long histories of reuse and reinterpretation. In particular, large-scale and high profile initiatives require that archaeologists and conservators engage with modern political, social, and economic contexts. This effort can be as much a diplomatic effort as a scientific and scholarly one.

### **Preserving the Document and Displaying the Architecture: Mud brick Conservation at Tell Mozan, ancient Urkesh, Syria**

*Giorgio Buccellati, Cotsen Institute of Archaeology, UCLA*

The techniques for architectural conservation set in place at Mozan originated and developed as a basic common sense approach with help from professional conservators generous with their advice. An illustration of the system from a technical point of view will reveal not only the details that define the system best, but also its strengths and positive outcomes, as well as its weaknesses and problematic areas. The second area of the presentation will focus on the monitoring procedures in place, and the unique online publication of the data. I will conclude by summarizing the benefits that an awareness of conservation has for an excavating archaeologist.

### **Marine Archaeology and Conservation: An Essential Partnership**

*Paul Mardikian, H.L. Hunley Project, Clemson University*

This presentation will illustrate the critical collaboration needed between marine archaeologists and conservators of underwater material in order to meet the scientific objectives of excavation and the long-term preservation of excavated artifacts. A case study of the Hunley Project will be used to present an example of the successful integration of conservation into a complex archaeological project. The *H.L. Hunley* (1864) is a Civil War submarine raised from the Charleston Harbor in 2000

after 136 years of submersion. During this presentation the author will describe the pivotal role of conservators during all phases of the project from lab planning, recovery of the submarine, excavation of the submarine in the lab, conservation of artifacts and archaeological research.

***Navy Underwater Archaeology and Conservation: A Seamless Process***

*Robert S. Neyland, Naval History & Heritage Command, Washington D.C*

Naval History and Heritage Command's Underwater Archaeology Branch (NHHC-UAB) incorporates conservation into archaeological recovery projects that are undertaken directly by NHHC-UAB or indirectly through a Navy/NHHC issued archaeological research permit. The Navy manages approximately 3,000 shipwrecks and 14,000 sunken aircraft. These remain U.S. Government property and are protected under the Sunken Military Craft Act of 2004. Navy wrecks range in time from the birth of the Continental Navy in 1775 to the present, and are not only in the United States, but also in international and foreign waters. Many of these represent complex archaeological sites that, when excavated, require proactive conservation planning. Conservation of submerged artifacts is critical as they are generally very fragile and prone to rapid deterioration when exposed to the air. The complexity of composite and modern materials found on shipwrecks, in addition to other issues in regards to human remains, unexploded ordnance, and hazardous materials, adds to the importance of ensuring that conservation is well integrated into archaeological recovery of submerged artifacts. Examples of wrecks exemplifying such issues are discussed in this presentation. In addition, archaeological research in the laboratory is not limited to the field, but also continues in the conservation laboratory through artifact identification, materials analysis, final research, and publication.

***Fostering Collaboration in Central Anatolia (Turkey) with the Japanese Institute of Anatolian Archaeology***

*Alice Boccia Paterakis Kaman-Kalehöyük, Kırşehir, Turkey*

Kaman-Kalehöyük, located in the Kırşehir province of Central Anatolia, was a rural settlement on the ancient Silk Road trade route and dates from the Bronze Age (2300 BC) through the Ottoman Empire (17th century). Excavations have been conducted annually by the Japanese Institute of Anatolian Archaeology (JIAA) of the Middle East Culture Center in Japan (MECCJ) since 1986. Yearly archaeological surveys by the JIAA in Central Anatolia have resulted in the addition to their excavation roster of two new sites with extensive architectural remains: Yassıhöyük (Kırşehir) (2200 BC) and Büklükale (Kırıkkale) dating to the Hittite Empire (second half of the 2nd

millennium BC). Conservators form part of a collaborative team that includes archaeologists, zooarchaeologists, archaeometallurgists, osteoarchaeologists, geoarchaeologists, and archaeobotanists for the archaeological interpretation of the site. The conservation department at Kaman is dedicated to the education of conservators, archaeologists, and museum curators by participating in annual workshops held by the JIAA for the training of professionals of Turkish and other nationalities. Plans are underway to develop a conservation laboratory for Central Anatolia in the newly constructed Kaman-Kalehöyük Archaeological Museum. This ambitious program will involve the establishment of a year-round conservation facility to provide conservation treatments and training of archaeological conservators in Central Anatolia. The future growth of archaeological conservation in Turkey will be promoted by the JIAA with the establishment of this Central Anatolian conservation laboratory and the development of an in-house training program for Turkish archaeological conservators.

### ***Architectural Conservation Strategies at Troy, 1988-2010***

*C. Brian Rose, University of Pennsylvania Museum of Archaeology and Anthropology*

The conservation of Troy's monuments was of paramount importance for the entire duration of the project, since the earlier excavators had devoted little if any attention to stabilizing the walls they had uncovered. We tried to develop a strategy that followed the guidelines laid out in the 1964 Charter of Venice, which specified that contemporary additions should be easily distinguishable from the ancient materials, yet that the new configuration should not detract from the aesthetic integrity of the building being conserved or restored. We were also placed in the unusual position of highlighting the Homeric heritage of the site through restoration and conservation, yet doing so in a way that did not appear as if we were tying the monuments to text-based reconstructions from the *Iliad*. All of these issues are explored in the workshop.

### ***Balancing the Preservation and Presentation of Archaeological Sites***

*Thomas Roby, Getty Conservation Institute*

Both preventive conservation measures and remedial interventions to stabilize sites during excavation, followed by monitoring and maintenance programs, are essential components of conservation and management planning for archaeological sites. While monitoring and maintenance of sites are generally the responsibility of national authorities, their lack of skilled conservation personnel and resources, particularly in developing countries, condemns many sites, post-excavation, to

gradual deterioration and eventual loss. While international conservation organizations have been addressing the lack of skilled conservation personnel permanently employed at sites at all levels in recent decades, research archaeology can help prevent that process of site deterioration by adopting a conservation planning and risk management approach, which complements and responds to the archaeologists' research goals. Analyzing the conservation risks to a site is the first step in carrying out preventive measures that will mitigate the negative effects of excavation and preserve as much as possible the physical integrity of a site. An effective and increasingly practiced preventive measure to conserve sites is reburial. Yet it remains an option that is often considered as a last resort rather than an essential tool to preserve our archaeological heritage.

## Speaker and moderator biographies

**Matthew Adams** holds a dual Ph.D. in Anthropology and Egyptology from the University of Pennsylvania. He is a Senior Research Scholar at the Institute of Fine Arts, New York University, where he also is Associate Director/Field Director of the Institute's archaeological field research program at Abydos, Egypt.

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**Giorgio Buccellati** is Professor Emeritus in the Department of Near Eastern Languages and Cultures and in the Department of History at The University of California, Los Angeles (UCLA). He founded the Institute of Archaeology at UCLA, serving as its first director from 1973 until 1983, and is now Director of the Mesopotamian Lab. He is currently Director of the International Institute for Mesopotamian Area Studies. His research interests include the ancient languages, literature, religion, archaeology and history of Mesopotamia, as well as the theory of archaeology. His publications include site reports, text editions, linguistic and literary studies, historical monographs and essays on philosophy and spirituality. As a Guggenheim Fellow, he travelled to Syria to study modern ethnography and geography for a better understanding of the history of the ancient Amorites. In his fieldwork, he has developed new approaches to the preservation and presentation of archaeological sites. He and his wife Marilyn Kelly-Buccellati are currently co-directors of the archaeological expedition to Tell Mozan/Urkish in North-Eastern Syria, and lead an international staff comprised of colleagues and students from the US, Europe, the Near East and Asia. They have collaborated on five volumes on the publication reports from their excavations, have given joint lectures on their excavations and methods at major archaeological centers around the world, and been visiting professors in various European universities.

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**Paul Mardikian** Paul Mardikian is co-founder and senior conservator of Terra Mare Conservation, LLC, a private conservation practice, and senior conservator for the H.L. Hunley Project for Clemson University. Paul has an undergraduate and graduate degree in art history and archaeology from the School of the Louvre and a graduate degree in conservation from the Sorbonne University, Paris. After graduation, he completed post-graduate studies and research in cultural heritage preservation and conservation for Parks Canada and for the Western Australian Maritime Museum where he was an honorary research fellow. Since 1988 he has led conservation efforts for artifacts from numerous shipwrecks including the RMS *Titanic* (1912), *Carpathia* (1902), *CSS Alabama* (1864), and *H.L. Hunley* (1863). He is a professional associate member of the American Institute for Conservation of Historic and Artistic Works and Assistant Coordinator of the International Council of Museums Committee for Conservation (ICOM-CC) Metals Working Group.

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**Robert S. Neyland** received his M.A. and Ph.D. degrees in Anthropology through Texas A&M University's Nautical Archaeology Program. During his archaeological career he has worked on a variety of shipwreck sites: a Bronze Age shipwreck in the Mediterranean, post-medieval wrecks in the Netherlands, search for Columbus's caravels, and shipwreck surveys in Caribbean and North America. Dr. Neyland has worked as Navy underwater archaeologist from 1994, and has been the Head of the Naval History and Heritage Command's Underwater Archaeology Branch (NHHC-UAB) since 1996. He was also Project Director for the raising and excavation of the Confederate submarine *H.L. Hunley*, which received the first award given by both the National Trust and the Advisory Council on Historic Preservation for partnership, and also received the Don Turner Award from USS *Constitution* Museum. Dr. Neyland has overseen the development of the NHHC-UAB, the creation of a ship and aircraft wreck databases, wreck specific management plans, and the drafting of the Sunken Military Craft Act, which was passed into law in 2004, and has served as scientific advisor of the CSS Alabama Franco-American Scientific Committee and USS Monitor National Marine Sanctuary Advisory Council. Outside the Navy, he chairs the Advisory Council for Underwater Archaeology, is Board Director for the Society of Historical Archaeology, State of Maryland Governor's Advisory Committee on Archaeology, and is a member of Virginia's burial task force to revise state

archaeological standards regarding burials and human remains. He has published widely on Navy underwater archaeology and underwater archaeology in general.

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**Alice Boccia Paterakis** has served as Director of Conservation for the Kaman-Kalehöyük, Yassihöyük, and Büklükale excavations in Central Anatolia, Turkey, for the Japanese Institute of Anatolian Archaeology since 2008. Prior to this, she served as Head of Conservation for the Ancient Agora Excavation and Museum in Athens, Greece, for the American School of Classical Studies from 1986 until 2004. She was awarded the Rome Prize, the National Endowment for the Arts Fellowship in Historic Preservation and Conservation, by the American Academy in Rome in 1999-2000. In 2004, she was awarded a Conservation Guest Scholar Fellowship by the Getty Conservation Institute and in 2005 a Fellowship in the History of Art from the Samuel H. Kress Foundation. She was granted a Samuel H. Kress Conservation Publication Fellowship for preparation of the book entitled *Volatile Organic Compounds and the Conservation of Inorganic Materials*. In 2007, she contributed to the University of Pennsylvania's Gordion Furniture Project in Ankara, Turkey. In 2013, Dr. Paterakis became a lecturer in the Art Conservation program at Scripps College, Claremont, CA, where she teaches Archaeological Conservation. She has served on the Directory Board of the International Council of Museums – Committee for Conservation (ICOM-CC) and on the AIA's Conservation & Heritage Management Committee. She holds a M.A.C. in Conservation from Queen's University, Kingston, Ontario, Canada, and a Ph.D. in Conservation from the Institute of Archaeology, University College London. She is a Fellow of the International Institute for Conservation (IIC) in London and the American Institute for Conservation (AIC) in Washington, D.C.

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**C. Brian Rose** is James B. Pritchard Professor of Mediterranean Archaeology in the Department of Classical Studies, and Curator-in-Charge of the Mediterranean Section of the Penn Museum. He received his B.A. from Haverford College in 1978, and his



M.A., M.Phil., and Ph.D. from Columbia University in 1987. Between 1988 and 2012 he was Head of Post-Bronze Age excavations at Troy, and English language editor of *Studia Troica*, the annual journal of the Troy excavations. He is co-director of the Gordion Excavation Project in central Turkey, where the University of Pennsylvania has been conducting fieldwork since the 1950s. Between 1994 and 2000 he was an Academic Trustee of the Archaeological Institute of America, then First Vice-President (2002-2006) and President (2007-2011). He was Deputy Director of the Penn Museum between 2008 and 2011. He has received grants from the National Endowment for the Humanities, the Rome Prize of the American Academy in Rome, the Berlin Prize of the American Academy in Berlin, the American Council of Learned Societies, the American Research Institute in Turkey, and the Samuel H. Kress Foundation. In 1994 he received the Max Planck Prize of the Alexander von Humboldt Foundation, awarded to him and his collaborator, Manfred Korfmann of the University of Tübingen. He has authored or edited four books on the archaeology of Troy and Gordion.

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**Thomas Roby** is an architectural conservator in the Field Projects Department of the Getty Conservation Institute (GCI) where he is manager and co-instructor since 2001 of the training project for in situ mosaic maintenance technicians in collaboration with the Institut National du Patrimoine of Tunisia. Under the MOSAIKON Initiative, he is manager of the Bulla Regia model field project, which provides sustainable examples of mosaic conservation implementation and of site-wide conservation planning. While at the GCI, he has also participated in archaeological site conservation projects at Copan in Honduras and in the Valley of the Queens in Egypt. Prior to joining the GCI, he worked in private practice, primarily on archaeological sites in the Mediterranean region.

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**Claudia Chemello** is co-founder and senior conservator of Terra Mare Conservation, LLC, a private conservation practice. Prior to working in private practice, she was

senior conservator at the Kelsey Museum of Archaeology at the University of Michigan from 2006 – 2013. She has also worked for the Agora Excavations, American School of Classical Studies at Athens and other international cultural institutions. She received her BA in Egyptology from Macquarie University, Sydney and her MA in Applied Science (Materials Conservation) from the University of Western Sydney. She has provided conservation for numerous archaeological excavations in the Middle East, Central America and the Mediterranean. She is a Professional Associate member of the American Institute for Conservation of Historic and Artistic Works and Coordinator for the International Council of Museums Committee for Conservation (ICOM-CC) Metals Working Group.

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**Stephen P. Koob** received an MA (1976) in Classical Archaeology from Indiana University, and a BSc (1980) in Archaeological Conservation and Materials Science from the Institute of Archaeology, University of London. He spent 5 and a half years as conservator of the Agora Excavations with the American School of Classical Studies in Athens, Greece. From 1986-1998 he worked as conservator, specializing in ceramics and glass, at the Freer Gallery of Art and Arthur M. Sackler Gallery, Smithsonian Institution, Washington, D.C. In 1998 he came to The Corning Museum of Glass, where he is now Chief Conservator. He also continues teaching archaeological conservation at the site of Samothrace, in northern Greece, and has numerous conservation interns at Corning. He has recently published a book, “Conservation and Care of Glass Objects”.

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## Appendices

**Appendix A:** Transcript of panel presentations

**Appendix B:** Transcript of the panel discussion

## Appendix A

### Transcript of panel presentations

#### ARCHAEOLOGICAL INSTITUTE OF AMERICA 2013

CLAUDIA CHEMELLO: So without further adieu, I would like to go straight into the speakers on our panel and starting off with the first speaker, Matthew Adams, from New York University.

MATTHEW ADAMS: The site of Abydos where I work on behalf of the Institute of Fine Arts at New York University was the primary cult place of the god Osiris who was the ruler of the Land of the Dead and in myth was a King of Egypt at its beginning. Abydos was also the burial place and likely ancestral home of Egypt's first kings. The site also saw the first expression of the monumental built form as part of the vocabulary of kingship in the form of ritual enclosures dedicated to the cult of each king buried there. The project area includes the ancient town with its remains of the Temple of Osiris, as well as the vast cemetery fields that developed later in the area originally sanctified by the early royal monuments.

On our project, conservators work closely with archaeologists on site, regularly evaluating the condition and possible conservation needs of material encountered in the excavations. Sometimes this involves stabilization in place for the purposes of documentation and reburial, such as was the case with this anthropoid coffin. In other instances, artifacts are to be removed for study in the field lab, and it is sometimes only the skills of conservators that make this possible, as was the case with this funerary stela found in-situ in a chapel next to the tomb of its owner. The stela was badly encrusted with salts and much of the surface was delaminating. Conservators consolidated the piece in place making possible its removal and undertook extensive further treatment in the lab. The results are visible here with the figure and the name of the owner now legible. He was the singer Nakht, born of Nemti. Through conservation, this individual and something of his place in local society, are now known to us.

In other instances, conservation efforts are necessary to preserve not a portable artifact but rather a unique aspect of some feature. Here is a burial in a wooden coffin which was highly unusual in that the original shroud covering the body survived not as cloth itself but as a sand cast of the cloth showing the folds, knots, and even slightly bent toes of the still-fleshed corpse. The conservation staff

developed a method for block lifting the burial whole, which made it possible to bring it back to the lab for further consolidation and detailed documentation. Once at the lab, artifacts become part of a research collection, and conservation is a fundamentally important aspect of maintaining that collection both in terms of basic preservation and access for documentation and analysis. Conservation and collections staff collaborate in the organization and housing of the collection.

Conservation is not confined to material encountered in our excavations solely. It's also part of our approach to monuments at the site. The only still standing example of the early royal enclosures, that of King Khasekhemwy, which is shown here, has been the focus of a large scale and systematic architectural conservation program for a number of years. The basic method is to address serious structural instabilities through the addition of new supporting masonry, using bricks of the same constituent materials and dimensions as the originals. To date, approximately 500,000 new bricks have been used in our conservation program. The goal is to solve the very serious structural problems threatening the survival of the monument while maintaining its existing character, which is the result of its nearly 5,000-year history.

Conservation is also a fundamental part of our approach to the site as a whole, which is under severe pressure from the reclamation of desert land for agriculture, as well as from the ever-accelerating expansion of local villages. Part of our response to these pressures has been the development of the first comprehensive map and GIS database of the site which allows us to have spatial control of both ancient and modern features and to monitor threats and permits us, in collaboration with our colleagues in the Ministry of Antiquities, to establish formal boundaries for the archaeological area to be protected.

During the Egyptian revolution of early 2011 when security forces stood down nationwide, looters attacked the site, causing significant damage, particularly to buried architecture. The looting has now been stopped, but more than 200 looters' pits have been identified. The winter 2013 season, about to begin in a week's time, is to focus on the systematic documentation of the features affected and the nature of the damage, with the intention of developing a conservation mitigation plan for a future season.

A contributing factor to the looting is local perceptions of the site and the nature of the work of our project and others active there. A commonly held view is that the ground is full of treasure and that foreign projects are in some way enriching themselves through working there. In response, we are beginning a collaborative effort with our Egyptian colleagues to design an outreach program, through which we hope to foster both greater awareness of the real significance of the site and the nature of its archaeology, as well as a greater sense of having a vested interest on the

part of the local population in its preservation and careful management. Young people, the future of Egyptian society and the future of our site, are to be a particular focus of the program, which is intended to contribute to the long-term security of Abydos.

For us, the practice of archaeology is not limited merely to data recovery. We have the privilege of working in a place like Abydos—where Egypt's first kings defined the nature of royal power and where later generations transformed this early history into a mythic significance that made the site one of Egypt's most sacred. That privilege comes with responsibility—to care for the material encountered in our excavations and to play a part in the care of the site itself, both in the present and in planning for the future. This moves archaeologists into complex and often challenging social, economic, and political contexts in Egypt, but in my view, we have no choice. Conservation in a very broad sense is for us not merely a component of our excavation work; it is a fundamentally integrated and guiding principle. In my view, it is simply doing the right thing. Thank you.

CC: Thank you Matt. I just want to mention again that we will take questions at the end so we'll hear from all the panelists and then we'll go into the questions. So I'd like to call on our second speaker for the session, Giorgio Buccellati, from UCLA.

GIORGIO BUCCELLATI: Thank you very much Claudia. I want to begin with a few comments on my personal motivation for being involved at all with conservation since I'm a historian and archaeologist by trade, not at all a conservator. And I developed in the process of the excavations an intuitive concern, I would say, for the integrity and the coherence of the items that I was finding. And so I started looking at ways to deal with this intuitive concern and turned to professionals, in particular I was helped by people of the Opificio delle Pietre Dure in Florence and of the Getty Conservation Institute. So through their help I came to view conservation as intrinsic to the discovery process, i.e., as intrinsically inscribed in the excavation moment and not as an extrinsic addition from the outside and after the fact. So I never developed technical skills of my own but upstream of these skills I felt that it was important and useful, in fact indispensable for me, to develop a sensitivity for conservation. In this perspective, I found that conservation was not just something from the outside but actually something that helped me be a better archaeologist. I guess that's kind of the nuts and bolts of what "collaboration" means for me. I found that my concern, the nature of the concern for this integrity and coherence of the item, was matched by the conservators concerned for wholeness. Again, to realize that the excavation process must pre-suppose the wholeness of the original data. But we get to this wholeness through the very fragile witness of the broken document, hence a double

task. We must safeguard at all costs the received document, so conservation is like philology. But at the same time we must reclaim the original perception and in this respect we might say that restoration is like semiotics. Further, such a double interaction between conservation and archaeology becomes a fundamental avenue of publication. The document/monument is handed over in its double integrity to the observer.

So this is kind of my creed, as it were, my conservation creed, and I'll just review it briefly. Conservation is constitutive of the discovery process and the archaeologist must nurture all the sensitivity that derives from it. The conservator's contribution is in helping the archaeologist focus on the original wholeness of the data, to which we get through a broken document, hence the double task of conservation as philology and restoration as semiotics. In addition this double interaction must be viewed as a fundamental type of publication, as an alternative in a way to paper or digital publication. The thing in itself.

I have been working in Syria with my wife, Marilyn, who is the director of our project, for some 40 years now, and Tell Mozan is the site that I will present to you, particularly the palace of the King Tupkish, that dates back to about 2,250 BC. So the first part is how to preserve the document. We have some 400 linear meters of mud brick walls which are standing quite high up to 3 meters with a substructure in stone. The weather is inclement, it's always above 40° in the summer, and in the winter it rains a lot and it snows. So I began in 1992 to just sort of, I would say almost out of desperation, try to keep these walls together by covering them with quilts made of burlap bags used for wheat, but then I moved to a series of trellises in metal that were then covered with tarps. This trellis system is very modular and it's not intrusive. It sits on the ground. It adheres without touching the walls and it was then covered with this tightly fitted tarp. Very soon I moved away from the tightly fitted tarps, which was very complicated to actually produce even though we were relying on the local tent makers' expertise. We moved to individual panels either used as curtains tied at the bottom of the vertical bars or also as individual panels tied to the upright posts on an individual basis as you see here. And this approach proved to be providential in light of the problems of the emergency that has developed, as you well know, in Syria in the last two years. We haven't been back to the site for excavation for two years now. But we have a maintenance crew that had been somewhat trained and is able to cope with the problem specifically because of the easier task of producing these panels. This picture, as you see, was taken this month, a little over a month ago in November and I get reports on a monthly basis with some 100-200 photographs via the Internet from these local maintenance crew of six people, two guardians and four other people. And so they are continuing, here you see the sewing machine, and the effect is quite good. They send us of course

photographs not only of the panels on the outside but also what is inside. This is a wall that was found badly eroded so you see the way it was found and so we preserve in this case also the moment of ancient erosion.

The dark cover was a problem. As you can see, originally we just had plain canvas which didn't really last, partially because the snow would sit in the little pockets and then the tarp would rot. So then I moved to metal with mud on top, which was both expensive and ugly. Now we have straw and mud, which essentially is like the roofs of the local mud brick houses, it doesn't cost anything basically except for the work and it's quite effective.

So this was to preserve the document. But at the same time the system with the trellis and the tarps helps to display the monument. You get a sense of the volumes and the spaces so in a sense it's like virtual reality, but I like to say it's *real* virtual reality because you don't just have a digital walk through but you actually walk through the walls as you can see here. These are different incarnations over the years. Remember the project has lasted now for 20 years. It started in '92. And the nice feature of it is that by opening these panels, either by drawing them as curtains or by unlatching the individual panels, you actually see the document below. So that in a way we have like two sites in one, the ruins and the architecture.

But just as important, I think, is the monitoring. Originally I had thought of this purely as a stop-gap measure until we could get funding for a more comprehensive approach. At that point we didn't even know there was a palace, of course, when we started digging. So it was a stop-gap measure, but as it turned out it was actually quite effective. And here you see pictures, the last one is from again November, this last November, a little over a month ago, now two months ago, and here is another wall. We started this monitoring system in 2001 at the suggestion of Neville Agnew and Martha Demas from the Getty and I wanted to show you how effective this is as a publication factor, as it were. We see the initial construction of the palace in red bricks and then a generation later the palace was rebuilt with gray bricks. And this shows, particularly when you are at the site, in ways that the printed or digital documentation really does not begin to show. The monitoring process is now well represented online, in a website that shows in full detail the individual walls, and has a description of the condition of the wall: in this case it is from 2010, and the full photographic documentation for the last ten, now almost 12 years. The website is at this point is in an alpha stage but it will open in a beta stage in the spring and the conservation part is one of the most and best developed. I hope this gives you an idea of how a non-conservator has been dabbling with conservation.... Thank you.

CC: Thank you so much Giorgio. I'd like to call now our next speaker. We're



about to delve into the marine world and it would be Paul Mardikian from  
Clemson

University.

PAUL MARDIKIAN: Thank you, Claudia. Good morning everyone. It's very exciting to be here. Together we are going to explore a different environment and show how conservation can assist the work of the archaeologist. I'm going to use an example, and this example, as you know, is a project that's been going on for a number of years, originally under the direction of Dr. Neyland. What was interesting on the Hunley project is that Bob said before we do anything, before we raise the Hunley, everything has to be ready, the lab has to be ready, any provision for human remains needs to be addressed and that made a big difference. Because in my career, I've seen a lot of projects starting in a different manner and being ready beforehand was a really critical step, I find, as a conservator.

Hunley became famous because it was the first submarine to sink any new ship and this is not going to happen before World War I. So you've got 50 years from the time the Hunley sinks the Housatonic and a German submarine sinks a British boat during World War I, so it shows how critical the submarine is. The idea was to use a former warehouse used by the Navy to host the Hunley project and when we started to work on this project with Bob I said well, what do you want to treat there, do you want to treat the Titanic, that is way too big, it was just a giant building. But at the end we found that having this large building was very useful and everything had to, of course, be thought out before the submarine would be raised. I remember having one dive on the Hunley before preparing, before starting to work on this project. So we had to be ready for what we were not completely prepared for. We had to put a plan together for something that we could not possibly completely comprehend.

You have a view here of the main building, of what we call the tank area, which is the heart of the Hunley project where the excavation has taken place. And as you know, marine projects are extremely sensitive in terms of conservation because you cannot expose any of the materials without the risk of losing them immediately. Sometimes it's a matter of hours. So it's very important that you apply preventive conservation approaches all the way from the site to the laboratory. One of them is to keep everything wet and here you've got the giant tanks outside the lab that were used to hold the water from the main tank when people worked on the submarine. So everything was ready before the recovery and the recovery occurred during the year 2000; you can see a view here of the submarine being recovered and the type of equipment needed for that task. Bob spearheaded this project and the submarine got raised after a relatively short period of preparation, I would say six

months between the preparation for the lab and the recovery plan, which of course involved a number of entities - archaeologists, conservators and engineers. I would say this approach was really a comprehensive approach and included everyone. And the plan was, of course, peer-reviewed. Immediately after recovery, the Hunley was placed in the Hunley conservation lab, the Warren Lasch Conservation Lab, named after the then chairman. You can see the submarine resting right here at an angle, which was the original position of the submarine when it was found on the seabed, and it is believed to be the last position of the submarine after sinking. The excavation of the submarine took place for a number of years in the lab. You can imagine how complex it is to excavate a submarine with eight human beings inside, locked inside sediment. It's extremely complex and the strategy for the excavation and the conservation had to be integrated. There was no way anyone could work without working as a team. Collaboration was key. You can see the head archaeologist, Maria Jacobson, working there with conservator Philippe de Viviès, on the remains of Dixon, the captain of the boat.

I don't have time to get into all of the details. I just want to give you a sampling of this project. The submarine was completely filled with sediment at the time of the opening and you can see archaeologist and conservators working inside the submarine on this slide. The human remains were completely removed and conservators and archaeologists removed artifacts from the submarine. Here is a 3-D rendition showing all the human remains, each individual having a different color, and the position of the bones. That gives you an idea of the complexity of the site and the difficulty of working as a conservator, especially when you are working on remains mixed with fabric and objects. It is extremely difficult and, I always say, if something were going to go wrong, I'd rather do it myself. If something's going to break, as a conservator I would like to take the responsibility of doing it because I'm going to try to do everything possible to preserve what we have. And this is how we've accomplished that project, conservators have been working closely with the archaeologists trying to define the best way to excavate the submarine and sometimes we had to remove large blocks of sediment containing human remains. This is one very famous x-ray here showing the remains of Dixon, George Dixon, the captain of the boat, showing artifacts and, of course, human remains. So those blocks had to be, of course, analyzed. We have Mary Ballard, here, from the Smithsonian, looking at some of the fabric at the beginning of the project. And one of the things that we recommended was excavation in the lab. Continuing the excavation in the lab was really key as the textile was so degraded that there was no way that you could really touch it without seeing it completely disintegrate. So what we did was to work under water and basically excavate those blocks of sediment with a little siphon and a syringe cleaning the sediment and very carefully reconstructing the

textile and the uniforms and whatever we found which, as you can imagine, is extremely time-consuming. But, again, the work between the archaeologist and the conservator is as always one single approach. Here is intern Ebba Samuelsson from Sweden, working with Maria Jacobson on the excavation of a shoe. Because a shoe on the Hunley is not just a shoe, it's a shoe with a foot and a sock, so it's complicated. I can show you here, for instance, an X-ray of an articulated foot in a shoe. So that gives you an idea of the magnitude, of the complexity of the project. And at the top right you've got the shoe conserved, the shoe before in-situ and the X-ray right here. So those things are, as you can imagine, extremely complex. And it is always exciting when conservators can bring a contribution. And you really feel that you're useful, you really feel that you're valued because you're offering something and sometimes there is no solution, I mean there is no textbook that tells you how to do it. You have to come at it with your own solution.

In the case of the human brains, we found brains in-situ. I'm not going to get into the details, we don't have the time, but we had very, very important remains of soft tissue and the idea was to preserve the brains as long as possible before the autopsies and the opening of the skulls would take place. It was really important for the conservators to find a way to keep the brains in good shape, and the skulls, for several years so they could be handled, photographed, moved upside down, scanned, so all of that required a lot of work. I came up with a system to stabilize the brain in situ through the foramen magnum without affecting the chemistry of the brain, which was really critical. Here you can see conservators molding the skulls and the facial reconstruction to the right.

The excavation itself was complex and the conservators helped with excavation even though this was a separate task. Very often excavation and conservation were meshed together in the interior of the submarine and one of the problems was that everything looked the same, the sediment was extremely dense and the stratigraphy was very difficult to discern. And so the conservators suggested that we could X-ray the core boxes of sediment taken during the excavation and possibly create an image of the minute changes in the stratigraphy inside the submarine, and this is what we did, and that's the position of the submarine right here with all the core boxes placed on the site plan. So it's quite amazing what an X-ray can show you in terms of stratigraphy. We were really excited about those results and it drastically helped the archaeologists, as the stratigraphy of the submarine has brought a lot to the understanding of the site.

The Hunley Conservation Plan was also a great contribution. And trying to understand how the sub was constructed, how the sub had been affected by years and years of corrosion. However, again, conservation is, I would say, the entry to understanding the object. Very often the object is encrypted and it is almost

impossible to get information that can be used by an archaeologist. An X-ray is one thing, but conserving the object itself always reveals things that are extremely important. Here is an example of an easy artifact as brass is extremely easy to conserve. Dickson's watch was interesting because the watch had stopped when water touched the watch and the hands of the watch were preserved in-situ. This is just an incredible project, a three-dimensional project. Here are more artifacts, an interesting composite artifact, I love composite objects, and the Hunley project gave me the opportunity to work on the largest composite object I have ever worked on so I was really excited.

My favorite object is a matchstick. Here is a match stick that Dixon probably struck just before the sinking; people don't believe that this is a real match stick, it has been cleaned and freeze-dried and I don't know how many hours of work I spent on that match stick, that's kind of silly, but at the same time, you should not put more emphasis on one object than another unless the archaeologists have a specific question. For me, those objects are all equal.

Here I am showing the painted binoculars. Here is a view of the submarine on its keel because we recently rotated the submarine. Thank you very much.

CC: Thank you so much, Paul, I think we all feel your enthusiasm for conservation. And I want to thank panelists again for sticking to their time and I know it's so difficult because we could have had each one of you for an hour. That would be fantastic as well, but I don't think they'd let us do that. So, our next speaker is going to be Robert Neyland from the Naval History and Heritage Command Underwater Archaeology Branch.

ROBERT S. NEYLAND: Thank you, Claudia, and thank you, Paul, too for the sound bytes there mentioned. Instead of talking about any one shipwreck, I'm going to talk about a programmatic approach to dealing with shipwrecks and combining underwater archaeology and marine conservation. Hunley was certainly one of those projects. I work for the US Navy, the Naval History and Heritage Command out of the Washington Navy Yard, Washington, DC, and we, the Navy, still owns, manages some 3,000 shipwrecks, some 14,000 aircraft principally from World War II. And these are scattered worldwide, they're in US waters, they're in international waters, they're in foreign waters, so obviously that management gets very complicated at times. This involves other nations, state governments as well.

This is an example of some of our shipwrecks. They are from the continental Navy period all the way really up to the present. But usually we try to use the National Historic Preservation Act, the cutoff of 50 years for the level of significance. But obviously as time passes, even Cold War materials become potentially eligible for the National Register.

This is an example of the state of preservation as Paul showed very aptly, very good preservation on shipwrecks. There's a War of 1812, a figurehead still on the ship. And also in storage one of the carronades on the deck, actually on the deck of the ship, the cutlasses are still stowed for action on the deck, you can see them. There is a problem developing in the lakes in Canada and the Great Lakes with zebra and quagga mussels covering the sides. You see a little bit of the mussels on the carronade there.

The Hunley was mentioned. Here is an investigation using a sonar technology. It looks very photographic but this is actually a Civil War shipwreck, the USS Cumberland, that's down in the harbor in Norfolk. Then, in World War II, the image to the lower right is a bit of a deck gun from a liberty ship from World War II, the Susan B. Anthony. Navy aircraft, as I mentioned, are also artifacts and you have to consider the issues of conservation, you can see divers exploring a Navy aircraft there, one in the Marshall Islands. Even though this is fairly recent history, this is a torpedo bomber devastator (TBD) aircraft and the Navy has none of these in its collection. There's no extant examples anywhere in the world that are in museums at all. So the two best-preserved examples are actually out in the Marshall Islands in a lagoon there where the pilots landed them and they were captured by the Japanese. You can see marine growth on them. But recent materials like this, composite materials, create a lot of problems for conservation. You've got obviously the aluminum which is a composite of various elements and not all the aluminum is the same in the aircraft. And you've also got the materials inside, the electrical wiring and things like that as well too.

The preservation can be quite remarkable from these sites as Paul showed. Here's an example from the War of 1812 shipwreck in the Patuxent River of Maryland that we've been looking at, you can see some of the cathead, [used for raising and lowering the anchor], I think it's a boomkin, which actually spread the square sails but this is actually from the deck level. The deck of the wooden ship is still intact, still in place. Here is a pair of surgical scissors from a surgeon's kit and this is the way they were recovered in the field. It's almost like you could use them today. Medicine vials, something mundane such as a corncob. Having also considered that preservation can be very, very good from underwater sites, that is not always the case. Some sites can be in very high energy environments with strong currents where the currents themselves can erode away all the wood that's left and can even erode away some of the metal as well. It's carrying away the artifacts.

Our crafts are also war-graves and since some of this is coming from recent history, there are still extended family members, descendants from World War II veterans, and from later periods. You can see here a wallet actually looted from a German submarine off of Rhode Island, UA 53. It was turned over to the Navy,

recovered by Naval Criminal Investigative Services and we are in the process of conserving it. The USS Arizona memorial, which is in Hawaii, you can see the Partridge memorial over it. The Navy still owns the hull, the wreck of the ship itself there. There are quite a number of men entombed inside, even some of the veterans who survived asked that their cremated ashes be taken back by divers and placed in the ship as well there. You see someone discovering a human skull on a World War II vessel, which is off of Normandy, France.

The wrecks that we deal with can also, besides being archaeological sites, can also represent hazards as well. You don't always think of this when dealing with archaeological materials but Civil War material, black powder material, has to be safely guarded. Sometimes besides just the process of dealing with removing the powders safely and not blowing someone up, you have to deal with all the state and federal regulations involving ordinance with this and sometimes with the entities that deal with ordinance explosion, demolition experts, EOD, trying to get them around the mindset of not just strapping a lot of plastic explosives to it and blowing it up that you're actually going to keep the object. You can see the level of preservation in the CSS Alabama on the upper right you can see the box that the ordinance was actually stored in as well, the fuses.

Also 20<sup>th</sup> Century shipwrecks, a lot of them have a great amount of oil fuel on board, bunkers of oil. Here again is an image of the Arizona. You can see what originally the ship looked like, but you can also see what remains in the bottom. There is also 500,000 gallons that still remain on the ship so it, like many others lost in World War I, World War II, are potential environmental hazards out there as well as being war-graves as well as having historic archaeological interest. In some cases with these shipwrecks, they become very involved recovery projects, engineering projects. Hunley was one such example. Hunley was recovered for research purposes but in the case of let's say this vessel, which is in Galveston, the Westfield, about a 200-foot long Civil War shipwreck. Another one that we're dealing with now, the CSS Georgia, which is an ironclad Confederate vessel. These were sunk right in ship channels that are now being deepened to bring in the larger container ships, so the Army Corps of Engineers wants to remove these. They also have to comply with federal laws as far as preserving historic materials as well, but you get into very, very complex engineering projects. And in the case of the Westfield here, this was the fourth busiest ship channel in the world. It was very difficult to send divers down because you had ships going by all the time, large ships, and currents were always very, very, very strong in the area as well too to allow a lot of material to be recovered through operations of a crane and a grapple.

One of the objects that came up was this Dahlgren cannon, which was recovered by the crane. We knew it was there. Again, the question of whether it was

loaded or not, probably had shots still in it, Navy demolition people said no problem, we'll just strap a lot of plastic explosive to it and eliminate the problem and so we had to say we don't want the cannon in pieces, we want the cannon whole and we want whatever ornaments in it to be safely removed and brought out. And unfortunately with some of the issues with the regulations, not just anybody can do this. You have to have an explosive safety zone, so you have to have a specific area. The Navy is not allowed, or the Army is not allowed anymore to actually drill out a shell, flush out the powder and save it as the artifact. They're only allowed to blow these things up. In their language, inert means to blow it up. The Marine Corps EOD is still allowed, they're the only service that can actually take the shells, take one of these shells out, put it in a large bucket of water with a drill press drilling down to the water using a remote camera and get behind the bunker, drill it out, flush out the black powder, and then it can be given to a conservation lab to then be conserved.

In this case, we had 40-50 pieces of ordinance, we actually had the conservator working with the Marine Corps in the unearthing process but safely, but also advising them how to handle the stuff and they would drill them out and turn them over to a conservator.

Just one of the big projects we talked about doing was again this War of 1812 vessel in the Patuxent River since it is a complete vessel. The water visibility is really low. It could be excavated under water but we had discussed building a coffer dam around it, pumping all the water out and then excavating it like a land excavation. However, once you pump the water out, there's a process of drying so you have to do what you can to also keep the site wet. You're almost in a rescue situation because things do begin to dry out and so there's a balancing act there, as Paul had mentioned, eluded to with marine artifacts, is to recover them in a timely manner and stabilize them.

We have our own archaeology conservation lab at the Washington Navy Yard. This is an example of an anchor that's there at the lab and we do conservation there and of course archaeological research continues as well as in the field and a lot of the things we learn about the artifacts actually occurs in the lab.

A large object from the CSS Alabama, again, another shipwreck just off the coast of France, and buttons from other sites. Just an example of some of the artifacts we have and had to deal with, again from the Alabama there is a deadeye with a wire rope around it that obviously had to be conserved somewhat separately. Another carronade from a Revolution war vessel that still had the shot in it, luckily it was a solid shot, that had to be extracted, parts of the powder bag were still preserved as well in the case.

In our conservation archaeology lab, we provide some training opportunities. We have interns from undergraduate and graduate level. We also have a STEM

(Science Technology, Engineering and Mathematics) program where we go out to some of the high schools in DC metroplex and talk to them about archaeology. We always talk about archaeology and conservation together and give some examples of where, if people are interested, they can go on to train in conservation.

One of the things we also do where we're a manager so we actually have our own legislation, the Sunken Military Craft Act, that was signed into law in 2004 which is applied to any American citizen working on a Navy shipwreck or aircraft wreck worldwide in that. And we've had companies in Australia, in the case of a Japanese company doing a pipeline, they had to actually remove World War II Navy aircraft out of Darwin harbor and move it out of the way of the pipeline, take out a permit for that process. And so again working with them on how they're going to do this process in order to preserve the aircraft. When we issue a permit, conservation always has to be thought of and considered, and has to be adequately prepared for in that permit.

An artifact that has a story to tell - a coin from the Hunley that George Dickson carried in his pocket, his good luck coin that saved his life at the Battle of Shiloh. There is from the War of 1812 site, lower right, there is a grog cup with the initials CW on it as well as some design stars that were handcrafted in it. We found this is one of the few African- American sailors that was actually on that ship was a Cesar Wentworth, the only one with the initials CW.

From a Revolutionary war site, we have the remains of a double sheave block, we knew this fleet was scuttled but they actually burned the ships to keep them out of British hands and we have this block and the bottom of it is perfectly preserved and unburned, the upper half though is completely burned away.

So that's kind of the story of what we do with Navy underwater archaeology. So I'll wait for questions.

CC: Thank you, Bob, some incredible conservation challenges you just showed us there. Back to land for our next speaker Alice Paterakis and Alice will be talking about Kaman-Kalehöyük in Turkey.

ALICE BOCCIA PATERAKIS: Hello everyone. [Kaman-Kalehöyük](#) was a rural settlement on the ancient Silk Road and dates from the Bronze Age through the Ottoman Empire. Cultural levels include the Assyrian colony period, the old Hittite Kingdom and the Hittite Empire period. Today it is located in the Kirsehir province of central Anatolia in Turkey. Since 1986, excavations have been conducted annually by the Japanese Institute of Anatolian Archaeology, which I will refer to as JIAA from now on. Yearly, archaeological surveys by the JIAA in central Anatolia have resulted in the addition to their excavation roster two new sites with extensive architectural



remains, you see here, Yassihöyük and Büklükale. Yassihöyük is a mound site in Kırşehir province dating to 2200 BC. It is located approximately 170 kilometers from Ankara and about 30 kilometers east from Kaman. A magnetic survey indicated a very large structure that may prove to be a palace or a temple. Büklükale is a mound site located about 100 kilometers from Ankara in Karakeçili province approximately 40 kilometers west of Kaman. The site dates to the Hittite Empire period, or the second half of the second millennium BC.

The need for trained conservation professionals is becoming recognized in Turkey. This recognition has been a slow process since the establishment of the first architectural conservation program at the Middle East Technical University in Ankara in 1972. Not until 1989 was conservation training for the moveable heritage instituted in Turkey. Since then, other university programs have been established for the training of conservation technicians and professional conservators. The growing number of professionally training conservators is striving to meet the conservation demands of the numerous excavations and museums around the country.

By Turkish law, all excavations must include a conservator to care for the immovable and moveable remains. In the case of architectural preservation and reconstruction, an architect is required to be part of the team. While this legislation is certainly a step in the right direction, preservation of the site and remains is still the responsibility of the excavation director who is, of course, the archaeologist. The supervising conservator reports all treatments to the excavation director and to the Turkish representative from the Ministry of Culture who then reports to the museum director. Moveable finds are transported to the site depot on the day of excavation or to the local museum depending on the importance of the object. The JIAA is one of several foreign archaeological expeditions in Turkey that has served as a positive example promoting conservation by the inclusion of a conservation team and onsite conversation lab. These expeditions have demonstrated the value of partnership between archaeologists and conservators and have influenced the Turkish archaeological expeditions.

The majority of museums in Turkey do not support a conservation staff and, as a result, house large collections of artifacts in poor condition. Inadequate legislation is to blame for the absence of professional conservation staff in the museums. In many cases, museum directors and curators are not aware of the professional status that conservation is acquiring in Turkey. This is due in part to Turkish legislation that falls short in the definition and role of conservation professionals in the realm of cultural heritage. Until these shortcomings can be overcome, there is a need in Turkey to train museum curators, who are usually archaeologists by the way, in preventive conservation techniques. The JIAA is doing its part to increase awareness among Turkish excavations and museums of the need

for professional conservation and to fulfill this need by training archaeologists, archaeology students, and museum curators in the care of the cultural heritage.

Here you see the old and the new JIAA complex. On the far right, is the original headquarters and residence hall. That's the building with the gray roof. On the left, just to the left of that, the two long thin buildings in front, those are the new residence halls. You also see the two new octagonal buildings that house the conservation lab, zoo archaeology lab, archaeobotany lab, photography lab, registrar's office, library, and auditorium. And then the two horseshoe-shaped buildings with the red roofs, those are the new storage areas. On the far left, you see the new museum which looks like a mound which I will talk about later. Here again, you see one of the octagonal buildings that houses a conservation lab and below is the new archaeological museum.

The conservation team at the JIAA consists of five staff members and two conservation students each year. Conservators at the JIAA form part of a collaborative team that includes archaeologists, zooarchaeologists, archaeometallurgists, osteoarchaeologists, geoarchaeologists, and archaeobotanists for the archaeological interpretation of the site.

The conservation department at Kaman is dedicated to the conservation education of conservators, conservation students, archaeologists, and museum curators. Kaman has offered an annual conservation internship program for university students since 1991 initiated under the direction of Glenn Wharton. Since its initiation, students from undergraduate and graduate conservation programs around the world, including Turkey, have been trained at Kaman.

One of the goals of the conservation department is to reveal information that contributes to the interpretation of the site. A bronze arrow case was assigned to a conservation student. This object was found in a heavily mineralized condition from [Kaman-Kalehöyük](#). With careful cleaning and consolidation, the original relief decoration was revealed and found to resemble an Arachian plaque in the Metropolitan Museum of Art. The treatment of this object made a significant contribution to the conservation intern's portfolio in 2012.

The JIAA runs an archaeology field school every summer for Japanese students. Recently, Turkish archaeology students have participated in this field school. Starting in 2011, the JIAA began offering museology and conservation workshops for museum curators, archaeologists and archaeology students of Turkish and Japanese nationalities in conjunction with the Ministry of Culture. The conservation team contributes to these workshops by demonstrating lifting techniques in the field, handling of objects, packing of objects for transport and storage, and preventive conservation techniques. The Turkish and Japanese archaeology students are given the opportunity to practice consolidation and lifting

techniques in the field under the supervision of the conservation team.

Preventive conservation is given full mandate at Kaman and by its very nature necessitates complete familiarization with the environmental conditions in which the objects were buried and the climatic conditions in which the objects are stored and displayed. Fluctuations in humidity and temperature in the JIAA storage areas have necessitated the establishment of controlled microclimates for metals as you see here on the bottom. The number of microclimates has increased over the years with the growth of the collection necessitating an ever increasing time commitment on the part of the conservation staff for the annual regeneration of the silica gel. In 2009, the conservation department began replacing the silica gel desiccated storage with the RP system, anoxic storage system for iron and copper alloy artifacts. The RP system is a Japanese produced product, which you see the bags on the bottom. It's actually produced by Mitsubishi Company, which you've probably all heard of. The anoxic properties of these microclimates are maintained for several years greatly reducing the number of man hours required by the conservation department for the preventive conservation maintenance of the metals collection. So instead of having to change the silica gel once a year, the anoxic packets don't have to be changed for it looks like for eight years, so that's a great savings in time.

Plans are underway to develop a regional conservation laboratory for central Anatolia in the new [Kalehöyük](#) Archaeological Museum. This ambitious program involves the establishment of a year-round conservation facility to provide conservation treatments and training of archaeological conservators in central Anatolia. The future growth of archaeological conservation in Turkey will be promoted by the JIAA with the establishment of this regional conservation lab and the development of an in-house training program for Turkish archaeological conservators. The awareness among archaeologists of the need for professional conservation is certainly increasing in Turkey. Much progress has been made since the '70's and it has been aided by the influence of foreign archaeological expeditions and strengthened by the establishment of university conservation programs. The day is coming when legislation will be revised with a proper definition of the professional conservator and the assignment of responsibility for conservation to the conservator. In the meantime, we must strive to promote a working collaboration between archaeology, museums, and conservation. Thank you.

CC: Thank you so much, Alice. This is an amazing site. I did work there and the facilities are just incredible. Our next speaker is going to be Brian Rose from the University of Pennsylvania.

BRIAN ROSE: Thank you, Claudia. I have had for the last 25 years the honor

of working at two large and rather legendary sites Troy and Gordion. Troy is located in northwestern Turkey and Gordion, of course, in central Turkey. In the course of this time, we faced a whole network of conservation problems, some of which have been spoken about today and some of which are a little idiosyncratic and relate to politics and finance. I want to start with Troy where I've been working for most of that time in tandem with Manfred Korfmann of the University of Tübingen since 1988. Troy has the singular distinction of being located at one of the easiest crossing points between continental Europe and Asia and also at the mouth of the Dardanelles at Helisport, which is one of the major links between the Aegean and Black Seas. It also has the distinction of being the site of nine cities, one built on top of the other, spanning a period of about 4,500 years. So from the very beginning of the Bronze Age, circa 3,000 BC until the end of the Byzantine period in the 15<sup>th</sup>-Century AD. It also has the distinction of being associated with the Homeric heritage and this brings us to issues in conservation that have continually plagued the site and us since we began excavations again in 1988. Everybody on some level wants to be Achilles. And so when they come to the site, it seems like a natural impulse for them to climb the fortification walls that surround the citadel. Those would be these walls that you see on the lower left which date to the 15<sup>th</sup>-Century BC, the Troy 6 period and completely surround the citadel. You see what we think they look like on the right in a rather new reconstruction and, of course, you see Brad Pitt in the upper left. And so the visitors who come to the site like to climb them and in the course of climbing them they will pull some of the stones out of the walls because these walls weren't built for 3500 years of Achilles-like climbs. And so one of the first things we had to face was in-fill. How to conserve the walls and how to do it in a way that would be attractive to the visitor to the site but, of course, faithful to conservation principles. And what we, of course, wanted to do was to follow the principles of the Charter of Venice in 1964 wherein one attempts to make modern intervention always distinguishable for the visitor yet one does it in such a way that one doesn't detract from the aesthetic integrity of the structure being conserved. And, of course, this was very important for these walls which are the signature element of the site of Troy. The solution to the conservation, of this particular issue, was worked on by Friedemann Weber of the Ephesus excavations in tandem with Elizabeth Riorden from the University of Cincinnati. What we did was to use small stones for modern intervention here and also here smaller than the original stones that were used in antiquity but we put them together in conglomerate forms that echoed the shape of the original stones. So from a distance the wall looks like a singular type of construction but as one gets closer to the wall and to the in-fill areas, one can immediately see what is modern in-fill and what is the original stone. So this is 15<sup>th</sup>-Century BC, we've done the same sort of thing for the walls, the terrace walls that support the Sanctuary of Athena. So

here are the original stones, these are the soft stone foundations for the wall. You can see that we've put them together with smaller squares but again mimicking the form of the original stones so that one can always see what we have done and what was done by the ancient architects and where possible we have left windows in the reconstruction so that one can see the original stone, the deteriorated nature of the original stone as a justification for our modern intervention.

This, of course, is a set of principles that we follow for everything that we do and this is true for most excavations now, at least in Turkey, where one doesn't want to deny the history of the object. If the object is broken, if the building has fallen, you don't try to disguise that. That's true for the restoration of an incense burner just as much as it is for the restoration of a painted wall and you see on the right Building Z in Pergamon. So, again, modern intervention made clear, not detracting from the aesthetic integrity of the original and not denying the history of the object its destruction at a later point in time.

Troy was an expensive site and there were times when we weren't finding enough to encourage donors to provide us with the kind of funding that we hoped would be arriving. And so at one point in the mid late 1990's my colleague, Manfred Korfmann, said we need to excavate one of the early Bronze Age mud brick megarons because if we do that, and there were a few that had been left untouched by the early archaeologists, we stand a good chance of finding something analogous to the treasure of Priam that Heinrich Schliemann had found on the southwestern side of the mound in 1873, this treasure dating to about 2500, 2400 BC and, of course, it made Schliemann famous overnight, money came down the shoot, and Manfred Korfmann was hoping that the same thing would happen to us. Now, excavating a monumental mud brick building, of course, from the conservation point of view carries with it enormous problems, especially what do you do when it's finished. We did excavate this giant mud brick structure, which you see here in reconstruction and it would be here on the colored phase plan of the site of Troy and once we finished, having not found the treasure of Priam once again we had to figure out how we were going to conserve it. The solution that was adopted is perhaps not ideal but it has preserved the walls of the mud brick structure. So, we surrounded the ancient mud brick with modern mud brick really not unlike what was done with the Ziggurat of Ur in the early 1960's and then since we're right on the Dardanelles with strong winds, remember Homer's statements about windy Troy, strong winds and rain that come toward the mud brick structures, especially in the winter seasons, we needed to put something over the mud brick. And what we came up with was a canopy that is of the same height and shape as the original mound at the time when Schliemann came to excavate here in 1870 and it has resulted in the preservation of the mud brick structure that it protects. Some have said that it looks as if a hang glider had landed

by mistake on the mound and that, of course, is something that you will already have been thinking to yourselves. In retrospect, we should not have excavated this mud brick structure; we should have simply left it buried. But it's an example of the kind of project that can happen in modern day archaeology when the bills are getting so high that new sources of funding are deemed necessary.

Another political element of the site of Troy, which impacts strongly on conservation, is a little unusual. As you all know, Turkey applied for membership in the European Union. One could argue that was a controversial move that remains controversial. One of the arguments that was made by many is that Troy is located in Turkey, this is a whole series, it's a mathematical proof, Troy is located in Turkey, Troy is the centerpiece of Homer's Iliad, the Iliad lies at the foundation of the European cultural tradition, therefore Troy and the Iliad are integral components of the European cultural tradition and therefore Troy should be a member of the European Union. What this meant was that there was new pressure put on Troy to augment the Homeric heritage of the site and this is not an example of that. This is just illustrating the Homeric heritage, this is the horse that was used in the Warner Brother's film, "Troy", in 2004, the one out of where Brad Pitt climbed, you've got a 19-year long-term lease to the site of Çanakkale, the city of Çanakkale, just down the road from Troy so that everyone can be reminded of the Trojan heritage. But the impact this had on our conservation of the site, you can see here in the so-called West Sanctuary located on the southwest side of the mound, even though the primary importance of this area was Greco-Roman 7<sup>th</sup>-Century BC through 3<sup>rd</sup>-Century AD, there were late Bronze Age houses underlying the later Greek and Roman structures and there was a concerted attempt, certain pronounced discussions took place and there was an interest in augmenting the late Bronze Age ruins of this area which is a very visible area for the tourists so that everyone would be reminded of the Homeric heritage of the site. What that meant is that the Greco-Roman ruins were de-emphasized in favor of the late Bronze Age ruins and that affected obviously how the visitor understood the site.

A whole different series of problems have been faced by us at Gordion where I've been fortunate in being co-director since 2007, it's been a project of the University of Pennsylvania since 1950, and there are two main elements to the site, the so-called Citadel mound which you see an aerial view here, and tumulus MM, the Midas Mound, which towers over the village of Yassihöyük, the flat mound. When Rodney Young of the University of Pennsylvania excavated this site in the '50's and '60's, he wanted to uncover as many magnificent remains of the early Phrygian, that would be the 9<sup>th</sup>-Century BC city that he could and that involved this enormous gateway leading into the early Phrygian citadel, this is a 9<sup>th</sup>-Century BC date and you see a reconstruction here of what we think it looked like in antiquity. At the

conclusion of the excavation, he put a concrete cap on the tops of the walls and, of course, that had a very negative effect on the preservation of the walls. We have an

enormous bulge that developed in the side of one of the walls because the rain obviously has been seeping through the concrete capping which has cracked over time and there was a danger that the entire wall would come down. The solution that we came up with, which is the brainchild of Frank Matero, the head of historic preservation at Penn, involved a system of soft capping where we would take away the concrete capping on top of the walls, line it with mud brick and earth in which we plant a shallow rooted plant called poa so the shallow roots do not disturb the masonry underneath but they absorb the excess water that comes during the winter season. In other words, it enables the wall to breathe and we've done that for the majority of the Phrygian walls of the site and I think 7<sup>th</sup>-Century BC and that's been very successful for us.

We also have faced the issue of having handled the tumuli, the monumental burial mounds that surround the citadel of Gordion of which there are over a hundred and I'm showing you here again tumulus MM. These mounds have been also a serious conservation problem. Initially we didn't have them fenced, and I'm going to be directing my comments to tumulus MM which is our most famous burial mound, 740 BC, probably containing the body of the father of King Midas, not King Midas himself. So it wasn't fenced and sheep would graze on the Tumulus in the course of September, October, November and also in the spring, and the result was that there was no vegetation left on the mound and that brought in strong erosion channels which threatened to disturb the structure of the mound, alter it in a major way and so we then fenced it in so that vegetation would grow because the sheep wouldn't be able to access it, but then too much vegetation grew and when a visitor to the site threw down his cigarette at one point, there was an enormous fire that was detrimental to the mound because so much vegetation had developed because no sheep could get there to eat it. So what we do now is to open the mound for grazing by the sheep for one week at the end of September which means by that point the plants that have been flowering in spring and summer have had time to spread their seeds, the hooves of the sheep will push the seeds into the ground and the dung will fertilize it and if we only give them access to the mound for a short period of time, then we have a nice balance of vegetation, not too much, not too little. So that's worked well for us but, of course, we have tumuli surrounding the entire landscape over a hundred in number and this has been a problem in terms of conservation because of the increase in farming throughout the area. And as you see, and many of you know this from your own sights, that the tractors are getting closer and closer to the burial mounds and, in some cases, they go right over the burial

mounds. So that's resulted in an increased effort in our part in lobbying the local authorities, which has been only partially successful. The biggest problem that we face is one faced by all of you, that being looting. This monumental burial mounds, of

course, are believed to have contained treasures, they did contain treasures in many cases and in many cases those treasures still lie buried within the burial mounds. We're seeing an increase in looting throughout the country. Part of that is the energetic economy of Turkey driving it because with so much money, more money in Turkey than almost anywhere else in the Middle East, there's construction throughout the area. With that construction come bulldozers and front-end loaders which can be bought for the night by looters to go at these burial mounds. And so that, in fact, is what happened last summer, this is just one of many burial mounds that was looted by a bulldozer exposing the top of a corbelled roof, a Hellenistic tomb chamber probably for a Galatian chief. This has stretched our conservation staff thin because we're called in by the local authorities to do the emergency conservation work on these burial mounds where the new looting has occurred

So what we're finding is with the increase in looting, which again is coupled with the increase in the Turkish economy, we're facing conservation problems in the landscape even more serious than those that we see on the Citadel mound. Thank you.

CC: Thank you, Brian. Thanks for touching so many areas that conservators have to comment on, be involved in, archaeologists as well, especially things like farming practices, things you may never have thought you would bump into. I'd like to call our last speaker to give his presentation and that's going to be Tom Roby from the Getty Conservation Institute.

THOMAS ROBY: Good morning everyone. Thank you, Claudia. The focus of my remarks this morning is going to be on the conservation of archaeological sites which is a cause that I've devoted myself to since realizing during my undergraduate days in studies of classical archaeology that I was really more interested in and concerned by the deterioration and loss of site remains post excavation and then it continuing with an archaeology career. As an undergraduate, I had the daunting task of following Brian Rose and again today the same. After completing my conservation training at ICCROM, the International Conservation Center in Rome, I began working in private practice as an architectural conservator, often for archaeological excavation projects in the Mediterranean until I joined the Getty Conservation Institute.

Site conservation has been a primary concern of the GCI since its inception in



the 1980's and the focus of many of its field activities and publications which include a brand new publication which I would like to draw your attention to which gathers and publishes texts on the conservation management of archaeological sites. There's a volume available here and also order forms. It's a volume which contains over 70 articles, including one by panelist Giorgio Buccellati as well as a number of other important articles including one by the former AIA Conservation Committee member, Frank Matero, who Brian mentioned earlier. A number of other articles which are included in their recommended readings list which you all have in front of you. So I do recommend having a look.

For decades, the GCI has sought to address the need to better integrate conservation within archaeological activities and to build capacity of government institutions responsible for preserving their nation's archaeological heritage through training of government personnel in countries around the world. And these capacity building activities stem from a recognition that those national institutions legally responsible for the preservation of sites are normally lacking in sufficiently skilled personnel to carry out their mandate and we've seen a number of examples in Turkey of where foreign teams are helping with those training needs. In particular regarding sites rather than museums, there is also a problem of really an insufficient number of staff of any kind. So the result of lack of government resources to protect and preserve archaeological sites is, of course, the material loss of elements of sites, especially those that have been excavated in the past.

This example of a mosaic at a site in Tunisia is not particularly unusual but you can see that it has been completely lost over time. This is a photograph from the excavation. During the excavation, that was in the 1970's, and then recently there's now nothing left but loose tesserae sitting on the bedding layer. So what are the possible responses to the ongoing deterioration and loss of archaeological material on sites, whether it happens slowly due to the natural processes of environmental exposure such as with this mosaic, or much more quickly and dramatically by human action, either through armed conflict, looting, or modern construction projects as well as through exposure to uncontrolled tourist visitation. So one response obviously is documentation, to inventory and record sites before they are damaged or lost. In this case, in this mosaic, due to the photographic documentation at the time of excavation by the archaeologists, we have that initial record and then subsequently there is an official national inventory of mosaics within Tunisia and so we have images which preserve the mosaic at least on paper. I would like to add that the corpus of mosaics for Tunisia was led by a US archaeologist, Margaret Alexander. So we are fortunate in this case to have some record of this mosaic but in many cases we don't even have the documentation and the mosaics have gone.

But should we be satisfied with simply recording our archaeological heritage

before it is lost? Does this meet our professional code of ethics and standards of practice either as archaeologists or conservators? Can we and should we do more? The answer is clearly yes and the AIA's own excellent code of professional standards includes being responsible for the physical remains of the archaeological record as well as for the associated information about those remains.

So many national authorities recognizing their insufficient resources to conserve sites after excavation have in recent decades required foreign archaeologists to contribute to the conservation of the site in order to receive a permit to excavate and Brian was saying these requirements are becoming more and more onerous and difficult to satisfy. The AIA's site preservation grant program is assisting archaeologists with site conservation activities that they are increasingly having to take on as part of their research excavation plans. And these grants support efforts to make sure you'll preserve the site as well as funding, outreach, and education of local residents and stake holders which can provide opportunities to benefit financially from the site's preservation and thereby generating self interest in protecting the site. But this model presumes that a site is open to the public and visitation is encouraged. But tourist visitation requires resources to create an infrastructure and personnel to accommodate visitors and to control their access and increase maintenance costs to prevent damage and deterioration.

Not all sites are appropriate for visitation, of course, given either their remoteness or their fragility and not all parts of a site need to be visited. Even in developed countries such as Italy and large tourism sites such as Pompeii and Ostia, only small parts of the excavated sites are accessible to the public and this is a result largely of a lack of money for maintenance to ensure both the safety of visitors and the conservation of the remains and a lack of money to employ sufficient guards to control visitor access and interactions.

So we've seen examples this morning of archaeologists and conservators and other specialists working together in planning excavation and conservation activities and coordination in order to prevent deterioration and future loss of excavated remains of the site before, during, and after the excavation. And these examples are something worthy of emulation as examples of integrating archaeology and conservation. But conserving a site for future generations is about long-term management and only in rare cases are foreign archaeologists present for more than a few seasons on a site and therefore are not in a position normally to take on a managing role and those responsibilities. So as foreign archaeologists and conservation professionals, how can we contribute to the effective management of a site we are not, legally, responsible for? I think the key is to reduce the cost and the need for skilled personnel to maintain the site in order to better enable the national authorities or conservation authorities to perform their legal and ethical mandate.

So in the case of this mosaic in Tunisia, re-burial after excavation and documentation would have materially preserved the mosaic and made its study by future archaeologists possible as well as its appreciation by future generations of tourists.

At this same site in Tunisia, here you see an image of it, there are dozens of other mosaics at the site, many situated in more significant rooms and buildings on the site. So there's no lack of alternative mosaics for visitors to see. So in fact there's an opportunity still to save mosaics at the site through re-burial while maintaining and presenting to the public a select few, which the limited budget and personnel of the site can sustain.

Through the GCI's training courses in Tunisia involving mosaic conservation technicians and those involving young site directors, re-burial has been advocated as an important site management and conservation tool to save the country's excavated archaeological heritage. Yet only a minority of site directors in Tunisia have been willing so far to put their training into practice and re-bury parts of excavated sites. And these sites have usually been ones which are not currently open to visitors. In an effort to provide a needed positive model of site management and conservation planning for sites open to visitors, the GCI in collaboration with the World Monuments Fund, the Institut National du Patrimoine, and under the umbrella of the MOSAIKON Initiative is undertaking a project to preserve and protect through reburial most of the 300 excavated mosaics on the site of Bulla Regia while stabilizing and maintaining selected mosaics in selected buildings for presentation to the public.

Many national authorities responsible for archaeological sites are reluctant to follow the strategy of selective reburial based on an assessment of site values, significance, condition, and risk despite its obvious management advantages. And their reluctance is connected to a variety of factors, mainly tourism related, but also due to skepticism about the long-term efficacy of reburial. And foreign archaeologists can provide a significant impact on site preservation and on changing attitudes towards reburial among some national authorities by practicing post excavation reburial as much as possible and demonstrating that documentation can be used to present to the public what has been removed from view in the current visitor experience yet save for future generations. Thank you.

CC: Thank you very much Tom.

## Appendix B

### Transcript of panel discussion

Chemello introduces herself and describes her training and experience in archaeological conservation. Followed by an introduction by Koob and information about his background, training and experience in the conservation field.

**Question:** My name is Katie Petroli and I work at the Children’s Museum in Indianapolis. We have an archaeology exhibit and we also have an archaeology lab. My question is maybe directed towards Richard and the Naval Lab I guess (Robert says ‘yes, Robert Neyland’). One of the things that we do is talk about conservation in an archaeology setting by using an artifact, so this is maybe also a broader comment for many of the panelists. This audience is all conservators and archaeologists but you are talking to the public, especially maybe younger future archaeologists, future conservators, or even grown-ups...I wrote it down, how do you discuss the mutually beneficial relationship to a more general spectator or general audience, or maybe what do you highlight as the importance of the relationship?

**Neyland:** From my perspective we also just say that conservation is an integral part of the archaeology, from a couple of different areas. One, you have to preserve the material, ah, it can be in great shape when it comes up from an underwater site but it deteriorates very, very rapidly from that. But also that the research continues in the lab, and it has been said here several times, RESEARCH happens not only in the field, but a lot of it happens in the laboratory especially with marine artifacts when you see an encrusted object you don’t always know what it is until you X-ray it or you start to remove the object from it [the encrustation]. We have dabbled somewhat in STEM [STEM is an acronym for the fields of study in the categories of science, technology, engineering, and mathematics], which is the catchword for science education that’s out there and the Navy does have a fairly extensive STEM program through its research labs and such. I work with historians a lot and archivists and curators and relate that archaeology is really a combination interface between history and science and technology. In conservation especially when talking to kids or bringing people into the lab you really start to talk about science and hard sciences, chemistry, physics and those processes as well. I have seen some neat things done with those handheld elemental analyzers by Nikon, those handheld guns where you can take a quick reading and get the elements out of an object and then show the kids on the periodic table what is in that.

**Mardikian:** I have one comment to make. Generally when you approach the public you need to use a very simple way to talk to them and this is really a critical thing. I remember one saying from Leroi Gourhan who was a French pre-historian who said that the process of excavating is destructive, it's like turning the pages of a book and every time you turn the page you destroy the page so you really have to record what you have. And I like to say that the archaeologists are preserving the interaction between the artifact and the positioning of the artifact. The conservators are, how can I put it in better words, the conservators are preserving the integrity of the object and the archaeologists are putting all those objects into their relationship, so they are creating that. The interaction between the object is what the archaeologists are really preserving and to make them speak and reveal the site and the conservators are trying to preserve the evidence, the material evidence. It is a very simplistic way to put it, but for the public I think it's really important to give them some broad ideas like that.

**Chemello:** Does that answer your question? Did you have further points to make? I think that because I work in a museum as well, it is always interesting how you present those things to the public. At the Kelsey Museum right now we have an exhibit about conservation and we went through a lengthy process as to what we would present. What aspects of our work would we present? And we decided to make it very simple, not only the material aspects but the research aspects, looking behind the scenes kind of thing, that's what conservator's do, that's how their trained, they're trained very well to look at and understand materials, and together with the archaeologists from the site to bring that information together. We talked [in the exhibit] about being in the field as well as being in the museum because these are two different aspects of our work. The work that I do in the field is often first aid kind of conservation work because of time, money, and other constraints like that. So I think there are some ways to present that. We did want to present too that the collaboration is important, just like we are hearing in this session, we can't work without archaeologists, they can't work without us in many ways, in many different ways and not just on objects but on the site as Tom was talking about, and Giorgio was showing this massive site with different problems. It is not necessarily about the small artifacts, although sometimes it is.

**Buccellati:** Could I expand and go from the museum to the site? I guess in a way perhaps I disagree with what Paul Mardikian was saying. It's true that we have to present things in a simple way but we don't have to be simplistic, we must not be simplistic. I have found that if we rise to the challenge of explaining difficult things

rather than eschewing them, people answer. And one of my pet projects is to explain stratigraphy to the visitor so that they don't just see the monument but they see the process of archaeology and they come away understanding what archaeology is and what stratigraphy is. But if you say 'stratigraphy', people walk away like Stephen [Koob], you know, with just holes and what's the point of just making holes? But that is you explain it properly, and it is a difficult concept, which can be explained, which must be explained however because ultimately this tells the people that even holes are important and even monuments which are not Palmyra - Palmyra in Syria is a great site that everyone understands because you immediately relate to those kinds of monuments. You don't relate as well to our kind of monuments and yet we make a big deal that they are important, so we have to explain to them [the visitors] why they are important. One little addition to that is, relating to what Matthew was saying before about the new project that you are undertaking to explain to the local people and you mentioned the children. I think that's a good starting point, we found to be very important to us as a starting point were the workmen. We give lectures every week to the workmen; we have between 100 and 200 workmen. About 10% of them are handicapped and several of them are autistic and it's amazing the kind of questions that we get from them and the interest that develops. They come back with their families on Friday, which is the day off. So, the education of the local people is really fundamental and is the starting point from which it spreads and is the best guarantee that we have for the protection of the site eventually, and we see this in the case of emergency as it is now in Syria. I think that our site would be the last to be looted frankly because the local people have developed a sense of proprietorship in the right sense of the term.

If I may steal one more minute, in line with what Brian was saying about politics. We have the problem that the local population, which is primarily a Kurdish population, identifies with the site as an ancient Kurdish site, which it is not. So we have to disabuse them of the idea that it is a Kurdish site, but encourage them though, more than encourage them, motivate them, to protect the site. And so we say you are the guardians of the territory, you're the ones who have to protect the territory, and it is working, they really respond to this more and more, so the education, even at a difficult level, is very important. A site is ideal because it shows things more in their original light and context than a museum does.

**Rose:** And I would agree 100% with that, every archaeologist has to do exactly what Giorgio was saying. You have to educate the workmen on a regular basis, and you have to work with the elementary school teachers on programs, on units that focus on cultural heritage protection, because eventually they are going to grow up to be

the looters. And they need to understand; they need to get a sense of pride in the richness, the texture of cultures that have lived there and to understand their importance. So we do that also now in Afghanistan, that's to say AIA working with local primary school teachers on respect for the material culture of all of the civilizations that have lived there because there has been of course a problem with communities that want to preserve the Islamic monuments but not the Buddhist monuments that preceded them.

**Chemello:** I think that is an interesting point Brian because as a conservator we are involved in those educational efforts often on site doing workshops for local conservators. I know that Tom does a lot of this and so those outreach efforts are very important as well. We are talking about the whole site not just the archaeological point of view, but from the point of view of conservation and why that's important. Large sites like your site Giorgio that has very obvious and visual intervention with those [architectural] covers and things like that, is a great advertisement for the conservation field as well, to be able to talk about the importance of working together with many different people on the site, it is never just us and you [conservators and archaeologists], it is hundreds and hundreds of people.

Is there another question?

**Paterakis:** I would like to say a couple of things to follow up on what Giorgio said. Were following along very similar lines in Kaman in Turkey. The local people are very involved in our excavations. The children are the pottery washers in many cases, they are trained in how to wash pottery, and to lay it out and dry it and even sort it. So they've been trained in that. Our very skilled ceramic conservator is a local village man, he does fabulous work, he trained on site over many years. We've started recently including local university archaeology students and training them, this is a new thing now on the site. And of course all of the workmen on the site are also from the local village, so the villagers have a big, big role in our excavation and not only that, they are also very keen to bring their family members on the weekends to stroll through the Japanese memorial garden and to watch the waterfall that's turned on just for their benefit on the weekend. I just wanted to throw that in. I wanted to say a few words about in our museum we are trying to create some interactive displays to help people get people more involved with the artifacts on display. We have an enormous stratigraphy. We have a very interesting model that's set up to help people understand the stratigraphy of the site because at our site at Kaman-Kalehöyük there are very few architectural remains, so it is really much

harder to visualize what it would have looked like. So they have created virtual reconstructions that people can navigate to on computer screens in the museum. And we also have a stratigraphic model, which by pushing certain buttons you can tell which level you are looking at and the dates of that level. So these sorts of interactive components are really also very important.

**Adams:** If I could follow up as well. Giorgio I agree completely with your assessment of the importance of conveying the idea of stratigraphy and the real nature of an archaeological site. I remember some years ago having a discussion with a local resident who wanted to expand his house onto an important area of the site and he said to me ‘why do you care about preserving this particular area, there’s nothing but sand and bricks here, it’s not a monument.’ And this idea of the monument is what people in the Egyptian context at the moment mostly understand. They understand a pyramid and a big stone temple and a large decorated elite tomb. But the idea of a settlement or a cemetery site with many, many, different chronological components, layers built into and over each other – the understanding of that is just not there and this is one of the things that we would really like to try to get across, is the real nature of the place. One of the ways that we hope to do that is to reach out to schools and not only in presentations in the schools, but bring the kids onto the site during the active excavation, let them see what we are doing, demystify the process of the foreign archaeologists out there digging up treasure which is what a lot of the people in the villages think, and talk to them about the evidence that they’re presented with in the excavation.

Another area where we hope to be able to get this message across is a visitor’s center, which is under development right now. Originally this was designed primarily for the foreign tourist visitor to the site, but we would like to push very strongly for the information that is presented there to be also targeted toward the local community audience, and that for both the foreign visitor and the local visitor, this visitor’s center is the access point, the entry point for both of these audiences to the site. And I agree completely that education and involvement of the local community will do more to ensure the long-term security of the site than any amount of police patrols, and site protection walls and so on if the local community feel that they have vested interest in this place that is the key to securing the site in the long term.

**Mardikian:** I am going back to what I think as the original idea, which is to explain the collaboration between the archaeologist and the conservator? Because I think that what we are discussing is the outreach of the archaeological profession including conservation. So all I want to say is that the best way to test your concepts



is to talk to children. If you start talking to children and if you can capture their attention for more than one minute then you know that you have the right concept. If you're not able to do that, don't go further. And from there, when you've got that structure, that idea that they are going to follow like a star, then you can start getting deeper and deeper, But the images that you are going to produce in their mind have to be very simple. You know if your going to talk about X-ray, your going to take a flashlight and explain what X-rays are. If you're talking about stratigraphy you can take a book and show all of those pages. We don't want to minimize the work that we are doing but we really need I think to go very gradually and build those layers of knowledge one by one and ensure that people understand and follow, because what's important is to convey what you have in your head and pass that on to someone who does not have all your knowledge. So this is all about communication and outreach. And I think that we can be very creative in capturing those concepts, and putting a piece of pottery here, looking at the way it was made – interaction is key, and I think that is where we need to be creative in everything we do. The most complex things can be reduced to that nucleus and then from there you can expand and ensure that the people can gather those concepts at their level. So everyone has something.

**Woman:** I am a graduate of the Fleming College [conservation] program in Canada, and my question is about cost. We all know that conservation can be a bit of a costly enterprise. I was wondering if anyone has any success stories or bad experience in relating intangible value of conservation to what the expected costs are going to be, either in the private field of archaeology or funded research programs?

**Chemello:** Who would like to take that question? A complex question but one about how much conservation costs, it is not cheap. I think everyone here would agree with that.

**Paterakis:** Could I start? You may all have the impression from my slides that we're rolling in money, but in spite of the fact that we seem to be rolling in money, we have severe budgetary constraints in the conservation department. Now I can't explain the how's or why's of that, I have no control over the budget. I only know it is a fact and it is very disturbing to me and the fact that excavation season now 6 months long per year, and trying to keep a conservation staff running for 6 months is a big challenge when there is not enough money. So our solution to that has been to hire a couple of Turkish conservators who are paid much less than the non-Turkish conservators. It's a terrible solution but that's what we are facing right now.

**Rose:** And I would echo what Alice said, but to that I would add, and I would stay

with Turkey obviously, with the rise of nationalism that we are seeing everywhere there's a greater emphasis on the conservation and preservation of monuments than I've seen in the last few decades. There's much more of a focus on the preservation of ancient monument as a component of this increased nationalism and developing identity that we see moving forward in every country including our own – look after 9/11 our flags became 100 times the size that they had been before, people couldn't carry them anymore. And you see the same sort of thing in other countries where they really tell you now, conserve the monuments that are part of our cultural heritage that also ties into increased attempts at repatriation of stolen antiquities. So, our conservation budgets have to increase dramatically as part of that change in outlook that is involving nationalism and identity. And fortunately we have groups like the Kaplan Foundation that are stepping in and are saying you can have the money for conservation but only for conservation, but if more such organization don't develop, and if nationalism increases along the lines that it has been moving then we are going to be in trouble.

**Neyland:** Just a couple of quick points, a couple of the problems I see with funding and conservation is that, one, it always comes after the excavation is over, the recovery is over, it's kind of the last thing, so if your costs overrun in other parts of the operation it is expected that conservation pays or absorbs. And the other thing is that even when you try to get a budget approved in advance, you can't always be sure what your conservation costs are because there can also be overruns because there are so many unknowns – some of the big ones are that you don't even know how much you are going to recover and what kind of material it is going to be. Obviously if you've got supporting legislation and laws, for example, 36CFR Part 79 [federal legislation dealing with curation of archaeological materials] for what it is, you can try to force that it is a federal agency or entity and you can try to hold their feet to the fire, but it's not always easy, even with working with other federal agencies, along those lines. But we try to put it in the agreement up front is that you've got to do the conservation and I can give you an example right now. The Army Corps of Engineers - I showed you an image of the Westfield, a multi-million dollar project because they had a deadline for dredging, a very difficult situation, so, a multi-million dollar project, they ran over several million dollars, well, they were only allotting a certain amount of money for conservation and then they considered, we haven't solved the curation issues, we can't find anyone to curate all this material so we're going to need to take money from conservation for curation. And so what we've had to do is, it's not resolved yet, is say woah, wait a minute, we the Navy agreed to do this only if you paid for the conservation. Not our problem if you don't have the money, you know, you solve it. But the other thing that no one has mentioned yet is that we talk about

archaeology and conserving excavated artifacts, is the curation issue and the continual need to monitor, maintain and perhaps re-serve elements of that collection. So, I will just throw that out.

**Chemello:** That's a really important point Bob, I mean once you sink a shovel in the ground you have a conservation problem, it's not just the artifacts that are going to come out, it's the site, but it's also the long-term issues. And that is something that conservator's are often worried about on site frankly, not only the storage and other issues like that, but the long-term commitment, and that can be thousands and thousands and millions of dollars with maritime materials as well. Did you have a comment Tom?

**Roby:** It goes back a little bit to the issue we were talking about - public education. I think we all agree that this is key to long-term preservation of the site. At the GCI I have been personally involved with training for government employees, the official authorities there [Tunisia]. I was wondering particularly with regards to Giorgio and Alice's training they have done with local people, I was wondering how are the local authorities involved with that training, if at all? What is their view about your public education activities regarding the site?

**Buccellati:** There are sort of different levels of training. I sort of feel like the panel went from the sublime to the ridiculous, me being the ridiculous, in terms of actual skills and the costs. Our costs, I figured when we did the covers of the walls [at Tel Mozan, Syria] it costs us about \$10 a linear meter, so very little. Now at that point, iron was very inexpensive, not it would be perhaps three times as much, but everything else is extremely cheap. One advantage though of this poor man's approach is that maintenance, the curation of the - in this case I am just talking about the architecture - is much simpler. And that is what is happening now the, few pictures I showed you of the local people actually caring for these panels goes on because there is no great skill involved. So, to come back to your question, the training was done in terms of very specific things that each individual would do. We have one person for instance who keeps track of temperature and humidity on a daily basis and those records I still get now on a monthly basis from them. And then there are the panels the signs that we have up for the explanation. So all of this is done on a sector basis as it were, there is each individual that does certain things and it works. So the local authority really doesn't have much to say about it. The only legal problem or consideration is that we have two guards and they always have to be present, in fact they themselves work on the maintenance and the protection of the site. But they have to be present; nobody else can do anything without them. So, essentially it is a very low-key type of

operation that does not require any great expertise. The curation of the objects is another matter though, certainly professional, no-one else could do that, and I haven't talked about that at all, so we do have a much smaller lab than the ones you were describing [Paterakis] but we have one. And that we think is safe now and we don't have any particularly important objects in the house, they're all sent to the Museum. So, I don't know if this answers your question Tom, but that's about as much as I can say.

**Roby:** Right, but the authorities are in some ways aware of, obviously, and involved in, your training?

**Buccellati:** Yes, they are involved to the extent that they simply know what's happening and it's so simple that they don't have to have particular supervision.

**Paterakis:** At Kaman, I've not been involved in the organization of these workshops, so the Director is taking charge of that. I really don't know how much involvement there is with the local authorities, but I do know that we are in complete cooperation with the Ministry of Culture and that plays a big role in these workshops, because we bring people from all over Turkey, curators from all different museums around the country come to Kaman for training, it's a national program and the Ministry is involved in that. But regarding local I really can't say too much other than, well, I guess I will just leave it at that.

**Adams:** If I could follow up, In Egypt, one of the ways that we also have begun to meet the spiraling costs of conservation needs is through collaborating with Egyptian conservator and trainee conservators and there is a great deal of enthusiasm in the Ministry of Antiquities for these collaborative efforts. The trainees feel that in some respects the foreign missions operate at a different standard, a higher standard than within the Ministry, are better equipped, have greater resources and so on and they feel that this is a really important opportunity for them. With respect to the kind of broader programs, again, a couple of years ago when I first broached the idea of this broad approach to trying to secure the site, the person in the Ministry of Antiquities to whom I first mentioned it said 'I have been waiting to hear something like this from you for years'. And they are ready at any opportunity to increase collaboration and to jointly fulfill our mission'.

**Ben Thomas:** I just wanted to make a plug really, and just to remind everybody and Tom pointed this out in his presentation, that the AIA does have a site preservation program. The big emphasis of the grants that we give out in that the proposals have

to contain a fairly significant outreach component and public education component. So to remind people anyone can apply, we have two deadlines one in the Spring and one in the Fall. But it is specifically geared towards community outreach community engagement, alongside the conservation. All the details are on the website [archaeological.org/site/preservation](http://archaeological.org/site/preservation), so please take advantage of that opportunity.

**Paterakis**: Would a non-American excavation be eligible for that?

**Ben Thomas**: We have not said they are ineligible, so yes.

**Meredith Langlitz**: And we have funded them in the past.

**Paterakis**: That's good to know.

**Rose**: I mean ASSOS was our first project that we funded and that was a Turkish excavation.

**Koob**: One thing I would like to say is that I am probably in a unique position in that I work at Samothrace for about 3 weeks every summer and Samothrace doesn't pay me. Now the cost as you say, I mean getting a conservator can be extremely expensive should you be looking for a mid-career conservator who needs to live and survive and pay the rent or pay the house, raise the children, get them through school, anyway...But the Corning Museum of Glass allows me to go on full salary, and the reason they allow that is several reasons. There is a great glass collection on Samothrace, which I get to work with, and it is also as Giorgio says, it's the outreach, its international outreach and its international education because we take students, one two or three students every summer from NYU, and so we're training conservators. They may not be archaeological conservators but they have an experience that will contribute to their career no matter what. So, it is just a kind of interesting and different way of approaching it. And if we had more of that we would have a lot more and better conservation at a lot of sites.

**Brian Kramer**: Hi my name is Brian Kramer, I am a graduate student at the University of Chicago, and I was very interested in the question about reburial of architecture or even of artifacts. Thomas talked about that a bit in his talk but I would like to hear from the rest of the panel if they found that reburial was a strategy that was settled on for conservation and if they could tell us if that was successful or unsuccessful.

**Chemello:** Who would like that question? Who has done reburial?

**Rose:** We have done reburial at Troy, less so at Gordion. When you excavate monumental mud brick structures or mosaics too, it's one of the best things to do and it's not a bad idea to rebury them. But, in order to rebury them you have to get permission from the Antiquities Authority, from the Ministry, and often they're not inclined to grant you the permission to rebury it because it can be used as an attraction at the site for the public. So, it's been very difficult for us to get permission for reburial, particularly in the case of mud brick I think that's the desideratum because otherwise it's just a nightmare conserving monumental mud brick structures, that's an issue on which all of us have touched. So there is a political dimension to it too, the reburial of things, at least in Turkey, which is where my primary experience has been.

**Adams:** At Abydos we routinely rebury, refill all of our excavations, mostly medium or small sized mud brick structures. But our particular part of the site is not open to visitors at the moment. So there's no pressure from the Ministry of Antiquities to leave these things out as a public attraction and they recognize the risks of leaving mud brick architecture exposed. On the other hand, when we're confronted with walls that are 35 feet high and have already been standing above ground for 5000 years, we're not looking to rebury that. One of the things that we've considered for the future in terms of trying to convey a sense of what the site is, or what was there for the public, is selective reconstruction, where the original, fragile, mud brick remains are buried but small-scale or limited reconstructions of certain types or remains are done above the originals. I know Mark Lehner has done this at Giza to a limited extent. But it would be a way of conveying something of 'this is what is here, there are tomb entrances, there are funerary chapels, which is very difficult to understand to a non-archaeologist at the site presently. But the original mud brick structures really cannot survive long-term exposure.

**Chemello:** I wanted to say as a conservator I like the idea of reburial and I think this is something that has to be discussed more, even of materials and artifacts that we are not able to deal with because the storage on site is totally full to capacity. On the couple of sites where I work, one of them is in Israel, it's another situation like Brian said, it's a political issue, they don't like to do reburial at the end of the season. What they like is to use sandbags [for site protection] and we don't like that so much because it's very difficult to put them in, it's very difficult to take them out, and it just doesn't give the same level of protection to a wall as you could get from reburial. But that's an ongoing discussion with the Israel Antiquities Authority, but right now at

that site in Northern Israel they don't want it. It's not really a site that tourists visit to be honest, so it could be reburied in the meantime, but it's not always a question just for the archaeologists or the conservators on the team. But I think in terms of objects too that might be a conversation that's coming. How many things can you conserve and how much money do you have for that and could you temporarily rebury things? It's a really good question.

**Neyland:** I would just like to address that a little bit because I find that an intriguing question. On a shipwreck if someone does an excavation and removes sediment, we require them to rebury it to where it was before. And we have discussed with so many projects where there is a lot of iron, so you have a Civil War shipwreck that maybe had a protective casemate of thousands of tons of iron, basically made out of railroad iron rails all bolted together, is allowing them to rebury that. One of the things though is that there needs to be some sort of guidance pertaining to reburial, how you rebury, what kind of fill you put back in, do you cover certain things, if you are going to rebury artifacts, then how do you record them before their reburied, what kind of tags do you put out in and how those will last, 100 years or 200 years or longer. And we are dealing with this now because we have agreed to allow the Army Corps [of Engineers] for one of the shipwrecks I mentioned to rebury some of the iron and there's big twisted pieces of boilerplate and stuff in there, and do we have them strap it to a pallet? And we are requiring them to rebury it at a select site where it will be below the water table. But there are questions about how you prepare it, wrap it, how you tag it as well, too in doing that reburial.

**Doug Toland:** I am Doug Toland a trustee of the AIA and amateur archaeologist. Just to throw a different perspective on it since there is no new world representation on the panel, we're working on a Mayan site and we're actually under pressure from the Ministry of Tourism to rebury what we are excavating. We have two ball courts on this site and it's a great tourist attraction. Underneath the ball courts we have two levels of foundational material from earlier iterations of the same civilization and the Ministry of Tourism is after us to finish up our work quickly and get them reburied so that they can restore the ball court for tourism.

**Mardikian:** I want to go back to what Bob has started to talk about which is really important for us in maritime archaeology. Reburial varies, if you are dealing with wood shipwreck for instance, I would take the example of the Red Bay, Labrador excavation of the *San Juan*, excavated by Parks Canada. When Parks Canada excavated that boat the idea was that the conservation of the entire boat would be way too expensive. At the same time this Basque whaler, this boat was so rare that

they wanted to document all of it. And then because the waters in Labrador are cold, and the conditions were acceptable, they decided to completely record the hull and make a beautiful model and then rebury everything. And that was a pilot project in terms of reburial. If you do the same thing in the Mediterranean, you might find yourself in trouble if you don't follow specific rules and we don't know what those rules are all the time, it varies from one site to the other. But if you are starting to expose the remains of a hull and you don't bury your hull correctly, the woodborers are going to eat the boat in two or three months. So, what you have been able to reserve for 2000 years can just disappear in two months. So the rules of reburial like Bob was saying are very important. If you're working on an iron object this iron object is not visible as this bottle, it is concreted, its covered with an accretion and if you really want to analyze it before reburial you need to remove that concretion and X-ray it. But the situation of that object without its concretion underwater is going to increase its corrosion rate drastically. So you have to take all of those things into consideration. So what I am saying is that reburial should not be an excuse for not conserving objects or trying to save money, it has to be done very carefully, and the same rules that apply to conservation should be applied to reburial. Conservators are working with archaeologists to define the rules that could be applied, the type of fabric that could be applied to a shipwreck or to a site that will be resistant [to decay]– you have the same problem with mosaics. So, those things are intertwined, so it is a very important point.

**Chemello:** I think the point Paul is the integration between the two fields; it is important to have a conservator involved in those decisions.

**Mardikian:** Exactly. Saving the information and saving also the material evidence of the objects.

**Roby:** Just to follow up and I agree totally, reburial is also a conservation intervention, therefore the parameters for it need to be studied, it needs to be planned, it's different from backfilling which would just be simply be putting back the excavated soil from the site. But given that though, I think the primary task I think in front of us is, as Brian was saying, there is opposition, particularly in official circles to reburial. So, if you are not being given the option to rebury, then you can't even plan to program it out properly and make sure the right materials and stratigraphy is being used for the particular objects being reburied. We have been talking about education and the public, and I think we need to also be thinking about working at higher levels decision of makers who determine policies and whether the site needs to be reburied or not.



**Neyland:** One last comment and thought – the concept of monitoring if there is a reburial, or perhaps even if there is not a reburial, if the conservator or scientists monitor the site for various chemical or physical parameters, whether it is a shipwreck, you could put a PVC tube down, cap it, and periodically sample the oxygen content or the pH of the water, and perhaps the same thing on land as well, being able to somehow monitor the acidification of the soil, and moisture and so on, just a thought.

**Mardikian:** A shipwreck and a land site are very different. So I think the key strategy is to analyze the situation of the site and the factors of degradation. But reburial is not the opposite of...the excavation is the first step, reburial is not the reverse of the excavation. It's a completely different approach, so I think it is really important for us to understand what we are trying to achieve here and obviously a mosaic is very different from a wall in Troy, or a shipwreck.

**Rainier:** I am Leslie Rainer and I work for the Getty Conservation Institute. As a conservator who likes to visit sites I do see the absolute need for reburial of many things, but I also have that visitors sensation of wanting to see, so that's why I think that the whole idea of the documentation that we do anyway becomes really vital if you have parts of sites that are reburied, and to use that documentation for the visitor experience in some way to make them understand why they can't see something and to be able to see it digitally or virtually or however it may be, it may be different for different kinds of materials. But I just think that there are those pros and cons to reburial and if you've gone a long way to visit a site and something is reburied I would think that if we can show visitors some trace of it and some documentation of it, that we do anyway, it is a great way for us to be able to use that documentation.

**Chemello:** I'm on the Site Preservation Committee [of the AIA] as well and some of the applications that we get have incredible digital components which can reconstruct entire section of sites that are either gone or in the process of being destroyed or reburied and things like that, so it is actually happening. A lot of them [the project] are doing websites and social media stuff and really interesting things like that.

**Marilyn Kelly Buccellati:** We have a kind of interesting reburial problem at this point because we are of course excavating in Syria where there are all of these troubles and one of our structures is an underground structure for calling up the spirits of the netherworld, it's a stone structure, underground. At this point, since

we're not there monitoring it on a continuous basis, we're monitoring it by photographs but we're not there monitoring it on a continuous basis, we're thinking very seriously of reburial. Now it is a structure that is 8 meters deep and 5 meters in diameter so it's a kind of big problem, a challenge to actually rebury it but the temporary reburial solution in time of war as we have that we have in our site may be something that we actually have to organize. It wouldn't be easy to organize now that I am actually thinking about it.

**Vicki Karras:** I am a conservator in private practice, and archaeological conservator, my question is not about reburial. We've talked a lot about educating locals in the places that we work and about site preservation and what's going on about conservation and I wonder – in my experience this doesn't happen - but I wonder what's being taught at the undergraduate and graduate level for archaeologists in North American or Europe about conservation and local community involvement. And if those things are being taught hand in hand with the hard science and archaeology when students enter archaeological programs, it seems that that would make a big difference. I know I struggle a lot with archaeologists who don't get conservation, who don't see the relevance or don't want to spend the money, they want it for free, it's a big problem. I've also worked on a lot of projects where there is no community involvement, where we're not supposed to get excited about an object that's uncovered because the workmen might come back and, you know, its really disappointing. I don't know if anyone knows what's going on with archaeological programs.

**Paterakis:** I am glad you brought that up because that's something that I think is really important as well. It's really important that archaeologists have some training in conservation, and I cannot answer the second part of your question, I don't know either what they're learning, does anybody know?

**Leah Long:** I can speak to that as I have just finished my PhD at the University of Michigan. There isn't a conservation component part of it, were very lucky at the Kelsey where the graduate students are all housed and practically live in the Kelsey, to have the conservators there to be able to talk to. But there is no kind of integration, you have to kind of do it on your own, so I think that is something that could be developed. Second point I want to make is about local involvement, is that I see local involvement as so integral to the field, to the future of the field, especially with the issues of nationalism right now that are going on in Turkey and elsewhere, it is becoming increasingly difficult for people to get permits there. But I see this as kind of an institutional problem, when your going up for tenure, the fact that you've

trained locals, and are educating them, is not necessarily counted, and I don't know, I think that's something that should be recognized by academic departments as very valuable.

**Chemello:** I can speak quickly on that point too because at the Kelsey Museum, as Leah was talking about, I am one of the conservators there. I want to present this from the other side as well saying that conservators need to be trained in archaeology [Paterakis: Amen!] and that's really, really important. My colleague at the Kelsey Museum Suzanne Davis and I conducted a big survey which some of you heard about through the AIC. We surveyed conservators in the first survey, and in the second survey, we surveyed archaeological project directors. And we asked them about their engagement with conservators and a lot of them came back to us and said that they had conservators working on their site that did not understand the archaeological research goals, and they came to the site, they were well trained in general, but they were very art historically trained and they wanted to deliver a perfect conservation job which we know is not possible on site, so I think it goes both ways and I think we need to address it in the conservation profession in particular as well as in the archaeological one. The things that we can do is to give lectures for our archaeological colleagues and do little short courses and stuff like that, but it is not really at the level that I think we want Vicki.

**Mardikian:** I think that in maritime archaeology and conservation it's much more common to have a dual training because you cannot survive you cannot even read your object unless you have some degree of understanding of the corrosion processes and all of that, and that is something that Bob can comment about. But this is very typical in maritime archaeological training to have a portion of your training given to conservation, not to have training as a conservator per se, but at least give you enough knowledge to work in good intelligence with conservators. So that's something that should be probably....

**Lee Ann Gordon:** Hi I am Lee Ann Gordon, I am also an objects conservator at the Museum of Fine Arts [Boston] and also in Cyprus at an archaeological site and I just wanted to...with what you were saying Vicki about the level of conservation training in archaeological training. As part of a survey, I looked at a selection of archaeology textbooks on method and theory, and I found that there is almost no reference to conservation whatsoever, so that's one issue at the institutional level whether it is or is not included. One thing that Leah was mentioning and some other people here is that archaeologists first encounter conservators on site if they're lucky, and that's the real point of contact and point of teaching, and I also think that it's up to us as well to

do these short courses, little training workshops like we did at the Agora, or whatever site you work at and be more vocal with the Directors of those projects. I make sure that I give at least one lecture with the students on site to talk about what is conservation, and I have to negotiate that with the Director they don't come to me asking for it.

**Chemello:** That's great LeeAnn, that's really proactive. I think most of us probably do that on a lot of sites because we feel strongly that they [the archaeologists] are probably not exposed to anything unless we're talking to them on site.

**Buccellati:** One aspect of this question was in effect the outreach, that is, are students trained to deal with the interest of local people, right that was part of your question [to Vicki Karras]. I don't think that exists at all, there is a special program for conservation [at UCLA] but I am not aware of anything that has to do with the public posture of the archaeologist and that is important. When I do it in the field, because I insist that all the students that come along share in this concern for preservation. Their first reaction is that it's a waste of time, and instead it's very important both in terms of motivating the people but in the end also to understand better the archaeology, because when one is forced to explain things, one learns. Also, an anecdote, similar to the one of your landlord, when you said the house, a very gratifying one that I had. I had a person in Syria, a local Syrian, who had a company that serviced something for oil companies, and he came to visit the site and I took him around, and he didn't have the slightest interest really in the archaeology, but he developed a considerable interest during the visit, which was in itself gratifying. But even more gratifying was a question that he asked me. He asked a normal question that everybody asks which is 'how long will it take you to dig the whole site'? And my standard answer is 'about 200 years'. So, they laugh and that's the end of it. Instead he said 'what would it take to reduce that amount of time for digging the site'? And nobody had ever asked that question, so I thought about it quickly and said 'two things, I need trained people and we have that, but then we need money to actually pay them' So he said 'you worry about the first and I will help you worry about the second' which was remarkable, because it really meant that there was a real response, where he was able to actually commit himself, which he did in fact, he immediately gave us some funding. So, I think it is also important in terms of fund raising, ultimately, being trained to present the site properly.

**Chemello:** I think conservators need to do that as well, because we are used to being behind the scenes a lot and not necessarily people who might place themselves out in the public eye and speak to the public, but I think that's increasingly important for us

as well, to share exactly what we do and why it is important, why is it important on an archaeological site or in a museum or gallery of wherever you happen to work. So I try and do those things as much as I can and I am sure you do too Vicki, but it's just a gradual process I think of getting information out there.

**Vicki:** And also you need the support of your director or the archaeologist.

**Chemello:** Exactly, right, I think that was one of the points we wanted to discuss was where the conservator fits into the hierarchy. The projects we have heard from are incredible projects that have great collaboration [between conservators and archaeologists] but we know that this does not happen all the time. My question for the panel is where you found the conservators that you work with and are they equal to you on the site? And this is quite important for conservators who may feel that the decisions are given to them rather than them being involved from the very beginning of the process of excavation and before. So where do you find your trained conservators?

**Adams:** Well, at Abydos, our senior supervising conservator Hiroko Kariya is a product of the conservation program at the Institute of Fine Arts [NYU] where I'm based, but she's involved in quite a number of projects out of Egypt, really Egypt is her main focus, and she provides continuity from year to year. But we also involve experienced practicing conservators who work under her as well as conservation students and local conservation trainees. In terms of the standing of conservation staff in the project I think decisions...ultimately as field director I'm responsible for the final decision however those decisions are made collaboratively. I talk to the conservators about, ok, this is our research goal for some particular object or situation, here are the problems, and they talk to me about the problems they are confronted with, talk about options, and then jointly develop a plan of action. So I would say that the archaeologists and the conservators have equal standing on the team.

**Paterakis:** At Kaman, every year as director of conservation I'm sort of obliged to look for a field conservator who will spend the whole season there, or I should say, half of the season there, and I look for this person on the conservation distribution list [Cons DistList] which most conservators around the world are subscribe to, it's a great place for looking for jobs in conservation, and so far since 2008, I've been successful in finding a field conservator through that distribution list online. Unfortunately, we haven't been able to have anyone return a second year, simply because conservators schedules and lives are so chaotic and broken, and no-one can

really commit to a second season. I have to admit I have been searching for people from the western world, who I can be fairly certain they've been trained the way I've been trained so I feel comfortable hiring them. Now regarding Turkish conservators, that's a big problem because number one, there's a language barrier. Most Turkish university students do not speak English, so there's a big limitation right there. I would love to hire Turkish field conservators, but so far one hasn't come along with adequate English, as they will be training our two conservation interns who come from, usually, English speaking countries and they need to do this process in English, so it's a very kind of difficult situation trying to balance these various factors.

**Chemello**: Giorgio, where do your conservators come from?

**Buccellati**: My situation is very much similar to Matthew. We have a person from the Opificio [Florence] who is in charge of the objects conservation. I follow the architectural conservation, and then we have students from either the Florence or UCLA who come, generally one or two each year. And by the way, I insist on them excavating, so half of their time is actually taken up by the excavation so that they become really familiar with the problems.

**Chemello**: Paul, can you comment on your workplace?

**Mardikian**: Well, when I started my career, there was basically no training in maritime conservation and I was a sort of odd person, roaming from Australia to Canada to try to get the knowledge that I needed. And I was not interested in one material. I was interested in wood, in metals, glass, ceramic, I wanted to be trained in all those materials, but there was no place. So after my formal training I went to Canada and I worked with the Parks Service, and then I went to Australia and then everywhere, but it was really great. And at this time Colin Pearson published his book *Conservation of Marine Archaeological Objects* and that was really great because at this point the information was altogether in one book and people started to think 'oh, that's a specialty, marine archaeological conservation exists' and it was the birth of marine conservation, really in a modern sense of the term. We have been trying to conserve shipwrecks for hundreds of years, so that was great. You can have people that are trained, have experience, people that don't have possibly the right credentials, you know, but they are highly trained in what they do and they've done that for many years and they can be very good. Sometimes you have people that have great training and are completely useless. No, this is the truth. So, at the end, what makes a good marine conservator is somebody that I think has knowledge in conservation and archaeology, that has quite a bit of experience and we know a

number of these people. There is not a place where you can find them for sure and it's a pretty rare species I would say. And we want to work with people we trust so usually it is not the case that you need to be lucky to find the right person, but then there is a relationship of trust that develops over the years.

**Chemello:** I think we are almost at the end of our time. Are there any other questions that people would like to fire off before we wrap up? I will now hand over to Tom to do the wrap up but thank you to the audience and thank you so much to the panel.

**Roby:** Thank you. Before thanking our panelists who I think have really done an excellent job of sharing their conservation experiences and insights, and it has been fabulous to have a panel of both archaeologists and conservators, talking about their mutual concerns and I think we've seen a lot of comments about how really the two fields are indebted to each other, they absolutely need each other. We have also talked a lot about outreach at various levels, both of the local population and then also to decision-makers as well as practitioners. Obviously one of the main objectives of organizing this session as conservators, this was also meant to be an outreach activity to the archaeological community, to engage them in this debate, and I think we are thinking about, and the committee [Conservation and Site Preservation Committee of the AIA] are thinking about doing similar activities in future meetings. A last minute question, but I am wondering if anybody on the panel or in the audience has any ideas of suggestions about particular topics which could be addressed at future meetings.

**Paterakis:** I think the most important topic is to come up with ways to introduce conservation into archaeology programs and archaeology into conservation programs at the university level. We need to come up with concrete steps on how to go about that because I have been sitting through conferences year after year, conservation conferences, and we are always complaining about the archaeologists and why don't they know anything about conservation, well, how can we go about introducing conservation into the program. That's what we need to figure out, and vice-versa.

**Roby:** So, next time we should have a panel of educators both in conservation program and archaeology programs. That's a great idea. Well we've discussed a number of important issues, some of which are more debatable than others from reburial as a necessary conservation intervention or to save archaeological heritage. We have also looked at how the collaboration between the two fields works, you can say that the two fields are in conflict with each other, one is trying to get information

out of a site or an object and the other is trying to preserve that materially. But I think we have emphasized the common grounds between these two fields, and I think we need to look forward to addressing outreach and educational challenges as well. So I just want to thank again the panelists, and are there any other comments remarks you want to add? On behalf of the moderators and organizers I would like to again thank our panelists for their contribution here today and thank the participants here for stimulating questions. We look forward to another session in the future where we can again further discuss the shared objectives that we have in conserving archaeological site and archaeological heritage.