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## 1. FROM THE COORDINATOR

### **WOAM 2016 conference**

It was wonderful to see so many of you in Florence last month. About 125 people registered for the conference and we had 72 fascinating oral presentations and a number of really great poster presentations.

I know that everyone who attended will join me in a huge round of thanks to Marco Fioravanti and the other members of the local arrangements committee. They did a wonderful job organizing the conference venue (in spite of dramatic structural issues that forced them to abandon their first selection) and all the social activities. In addition to a fascinating tour to Pisa to see the nine 2<sup>nd</sup> century BC wrecks found during the construction on the San Rossore train station there were also elegant receptions in the garden of the National Archaeological Museum and a gala banquet at the Palazzo Budini Gattai.

The next orders of business will be editing the papers and selecting the venue for the next meeting. Some wonderful potential venues were suggested. They include (in no particular order): Portsmouth, Grenoble, Oslo and Auckland. Over the next twelve months, the assistant coordinators and I will work with each of the venues to determine which one makes the most sense from a feasibility stand point. Please feel free to let us know if you have strong preferences for any of the places.

## WOAM Lifetime Achievement Awards

This year the members of WOAM bestowed three Lifetime Achievements awards. The award recognizes:

- 1) Distinguished service to the field of wet organic archaeological materials over the course of the nominee's professional career
- 2) Exceptional contributions with significant impact to the functioning or advancement of the study, treatment and preservation of wet organic materials
- 3) Dedicated and sustained service to wet organic archaeological materials. This may include: service as a coordinator, assistant coordinator or as chair of one of the local arrangements committees; sustained service as a peer-reviewer for the conference proceedings; service as an editor for one or more conference proceedings.

The recipients, Jim Spriggs, Per Hoffmann and Cliff Cook, have all contributed a terrific amount to the field and all embody the criteria for which the award was established. I have appended the comments made about each below.

### Jim Spriggs



Jim's service to the conservation of waterlogged organics has been profound. He headed the lab at the York Archaeological Trust for nearly 35 years, working on waterlogged organics from a wide variety of sites, including the Coppergate excavations and the Jorvik Viking Center, and laying the foundations for the York Archaeological Wood Center. Jim's early publications in the WOAM proceedings and in other periodicals, including the *Conservator* and the book *Retrieval of Objects from Archaeological sites*, helped to make the case for conserving and displaying large (non-ship) timber structures. While at YAT he organized the conference entitled a *Celebration of Wood* and edited the conference proceedings which dealt with a range of topics from novel approaches to the conservation of wet wood to managing a wetland site.

Although he is best known for his involvement with waterlogged wood, Jim has advanced the conservation of non-wood organics too, contributing a chapter to the *Conservation of Leather and Related Materials* on the conservation of archaeological leather. Since retiring from YAT, Jim has continued to be active in the conservation of waterlogged organics, aiding with the Newport ship and helping to establish European standards for the treatment of waterlogged wood.

Jim's contributions to WOAM have been equally profound. He organized the 1996 conference in York; served as an assistant coordinator for many years; he helped in the editing of the York (1996), Stockholm (2001), and Copenhagen (2004) post prints; and he has been a very willing and insightful peer-reviewer on many papers since those conferences. He has also contributed

to WOAM in many other ways, including providing the entertainment at the Greenville WOAM with his impromptu Jaw harp concert during the dinner in Beaufort!

Some of the comments that the sponsors made include:

“He is one of the old school conservation professionals who has dedicated his life to the field leaving an outstanding legacy of pioneering practice, publications, conservation organization and trained students in the sector. Although he was a senior staff member he always gave his time and knowledge freely to the students and interns in the lab...I continue to treat him as my conservation counsel... he has been a very influential figure over the course of my career for which I am immensely grateful and I know that many of his students, interns and colleagues also benefitted from his enthusiasm and modest guidance.”

“Jim’s practical approaches, collegiality and distinguished service to the field make him an ideal candidate.... He has served as WOAM’s unofficial greeter at many conferences, consistently being one of the first to greet first time delegates and to make them feel included in the conference and the assembly.”

“I cannot think of anyone for whom this award would be more appropriately deserved recognition of exceptional and sustained contributions to the field of wet organic archaeological materials. Jim is a conservator who passionately believes in and practices conservation as an integral part of the archaeological process-working as and with archaeologists, whilst also always aiming to raise the profile and standards of archaeological conservation as a profession in its own right and as practiced with archaeology”

Congratulations Jim and thank you for your wonderful service both to WOAM and the field!!

### **Cliff Cook**



Cliff has worked in the field of wet organics for over 30 years both at the Canadian Conservation Institute and at Parks Canada. He has written several papers, a CCI Note as well as taught courses to many students on this subject. Most recently he was asked to teach a course and produce a manual on operating a freeze-dryer for the Library of Congress. Cliff was invited to develop and deliver a course for a post degree diploma in Marine Archaeological Conservation in partnership with the EVTEK University in Vantaa Finland. He developed and taught “Archaeological Conservation: Specialized Techniques and Research for Wet Objects” a week-long professional development workshop offered at CCI three-times. He routinely gives workshops in Canada to archaeologists, conservators and first Nations groups on the treatment of wet archaeological artifacts including

basketry. He has surveyed and made recommendations for the display of several shipwrecks, written procedures for in-situ protection of shipwrecks in the Great Lakes and measured the deterioration rates of totem poles.

Cliff was involved with the WOAM group from its beginning, attending and presenting at the first conference held in Ottawa in 1981, and he has maintained a presence in the group since that time. Cliff was the Assistant Coordinator for WOAM for three terms. During this nine year period he supported the group as editor of the WOAM Newsletter and maintained the mailing list. Cliff helped edit the Stockholm 2001 proceeding and co-edited the Istanbul WOAM conference proceedings. Due to his wide knowledge of wet organics, Cliff has reviewed many papers for WOAM throughout his career. He has also presented and published many papers at the various triennial WOAM conferences as well as in other venues and publications.

The letters received on Cliff's behalf included the following comments:

““Practical” is the first word that comes to mind when I think of Cliff. His innate ability to see how things could be made to work and to make them do so has been truly remarkable. If you look through his many publications concerning the care and treatment of waterlogged wood one cannot fail to note how the thread of practicality that runs through them all.

I first met Cliff in 1980 when he was hired by CCI almost as soon as he had graduated from college, and he was given the task of seeing whether by use of two deep freezers connected in parallel we could create the conditions favorable to freeze drying without recourse to vacuum. This was a crazy idea dreamed up by McCawley and Grattan which shouldn't have had a chance of any kind of functionality, but Cliff made it work – amazingly. This was in the days when vacuum freeze-dryers were hugely expensive, generally unreliable and out of reach of most conservators. This was his first venture in a theme which characterized most of his work – that of making sophisticated treatment procedures economical and therefore accessible to most archaeological conservators. Perhaps Cliff's greatest contribution to the Treatment of Waterlogged wood has been the Pegcon application. While Grattan dreamed it up and worked it out on the back of used envelopes in undecipherable scrawl, Cliff turned it into an application which anyone with waterlogged wood to be treated can use. As a result it has been downloaded numerous times over the years. To make it even more useful, Cliff has added data on many different wood species, ancillary programs to make up the complex mixed solutions needed in as economical way as possible - in short he made it usable.

Cliff is particularly gifted when improvisation is needed as it often is when dealing with archaeological finds which fit no pattern, shape, size nor material content. Cliff's other great gift to the field has been his development and delivery of training workshops. This he has done in numerous locations around Canada and the World.

Cliff's three great contributions have been (1) making the fruits of research accessible through software and demonstration, (2) improvisational and imaginative constructional abilities and an infinite capacity to make things work and (3) the development and delivery of training in archaeological conservation for others to benefit from his creative approach. What it all adds up to is a working lifetime of solid achievement”

Cliff could not join us in Florence because he was preparing for his retirement this month but we are so indebted to his many achievements and his service to the field.

### Per Hoffmann



Per Hoffmann was the first person to head the Department and Research laboratory for Wet Organic Archaeological Wood Conservation at the Deutsches Schiffhartsmuseum in Bremerhaven. During his career, he has been responsible for the conservation of a dozen ships and boats, including most famously the Bremen Cogge, and he has developed treatment schemes for several more. He has shared his vast knowledge of wood chemistry and conservation through over 120 publications and taught the wood anatomy section of ICCROM's International Course on Wood Conservation Technology for nearly a decade. In 2013 he published "*Conservation of Archaeological Ships and Boats-personal experiences*" an eminently readable and useful book. He was on the ICOM-CC directory board for twelve years and served for 17 years as coordinator and/or assistant coordinator of WOAM—which is I believe the longest tenure of anyone. He

edited 6 of the WOAM proceedings—a task alone for which he deserves a medal!

The letter's received in support of Per's nomination contained the following comments:  
"When I read the description of the lifetime achievement award in the WOAM newsletter it took less than a second for my thoughts to turn to Per Hoffmann

Per's influence in the field of wood conservation can be divided into three main areas: First and foremost, Per is an excellent **wood scientist**, with the knowledge and systematic approach to research which has produced results which are applicable to our understanding of wood conservation generally, and to the Bremen Cogge (and his other projects) specifically. Per's many publications are always clear and easy to follow, making them invaluable sources of data to others working in this field.

Secondly, Per is a **pragmatist** and the practical solutions he devises to suit the specific needs of the project at hand are always simple, elegant and cost-effective. His conservation design for the Cogge was innovative and masterful and successful.

"Thirdly, Per is a born **communicator** with the willingness to share his experience with all who ask for it. His 'can do' approach to practical problems has inspired many to persevere with their projects, often against the odds, Per often providing analytical back-up to assist with designing simple and appropriate treatment programs. WOAM flourished under his leadership, Per using his international contacts to bring many new members into the fold. The conferences he organized, and contributed to, during the 1990s and beyond, were most memorable as a result. He was not above being critical of certain techniques or approaches which he felt were poorly researched, inappropriate or just bad science. Although causing some occasional ruffled

feathers and attracting criticism himself, this nevertheless encouraged professional confidence within WOAM to debate new developments.”

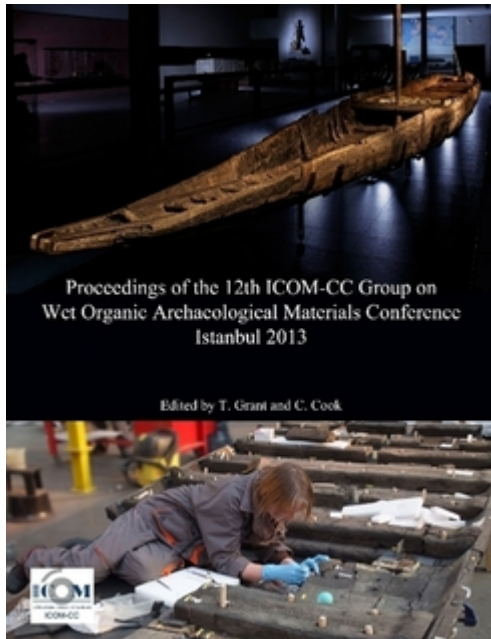
“Per is a natural teacher with a focus on understanding wood through hands-on experience. His deep knowledge of wood is accompanied by a generous, patient and encouraging nature which makes it easier to learn about this complex material.”

“Talking shop with him is a true pleasure”

“To make the comparison of a football fan—Per Hoffmann is on a level with Franz Beckenbauer or Pele!!!”

Per continued his contributions to WOAM this year by dropping in to contribute to a fascinating paper on the use of Lactitol to treat Bronze Age timbers in Syria and the effects of the civil war there on that treatment.

### **Istanbul Proceedings**



The Istanbul proceedings are complete! Tara Grant and Cliff Cook have done a fabulous job editing and formatting the 69 papers in the volume. Those of you who attended the Istanbul conference should have received a copy of the proceedings by now. Anyone else wishing to purchase a copy can do so directly through Lulu. The price is \$35 Canadian. The address for ordering is:

<http://www.lulu.com/shop/tara-grant/proceedings-of-the-12th-icom-cc-group-on-wet-organic-archaeological-materials-conference-istanbul-2013/paperback/product-22688116.html>

### **WOAM Newsletter dates and deadlines**

The WOAM newsletter is produced twice a year. Please send any announcements and/ or submissions to [ewilliams@cwf.org](mailto:ewilliams@cwf.org) by June 1<sup>st</sup> and Dec 1<sup>st</sup> for inclusion in the newsletter. Short articles about projects are particularly welcome.

### **ICOM-CC History Project**

Just a quick reminder that both ICOM-CC and WOAM will mark their fiftieth anniversaries at the 18th Triennial Conference in 2017. Under the guidance of ICOM-CC Secretary, Joan M. Reifsnnyder, and Preprints Managing Editor, Janet Bridgland, the project to record ICOM-CC’s

history has already begun with a systematic review of ICOM-CC's archives and compilation of basic historical information on Directory Board members, Working Group Coordinators, Preprints, and ICOM-CC Medal recipients, etc. which are posted on the website. Your help is vital to bring the project to completion. Please contribute images or ephemera from Triennial Conferences, Working Group interim meetings, Directory Board meetings, and/or other ICOM-CC activities or compose a special memory or two of meaningful experiences as an ICOM-CC member. Contact us by e-mail ([historyproject@icom-cc.org](mailto:historyproject@icom-cc.org)) for further information and guidelines.

## 2. COLLEAGUE'S CORNER

### Reshaping an 18<sup>th</sup> century horn comb

Irene Garcia Alonso, conservator-restorer in internship at ARC-Nucléart.

Henri Bernard-Maugiron, conservator-restorer at ARC-Nucléart. Supervisor.

In January 2016 we were dealing with a waterlogged horn comb coming from the 18th century shipwreck *Jeanne-Elisabeth*, located at Palavas-les-Flots (Hérault, France). We encountered some unexpected problems that lead us to ask for advice from some of you, specialists and investigators on organic materials, and wanted to take the opportunity to thank all of you for your advice and to update you on the results of the project.

The comb was in a medium state of preservation. It had some cracks and light flaking but the needle test indicated that we had a very hard and impenetrable material. After impregnation in Polyethylene Glycol 400 (20% v/v) we performed a slow air drying. Three weeks later while the object was at 85%RH we observed deformation and exfoliation beginning. The material had also lost its flexibility, so it was not possible to regain its original shape by applying pressure without breaking it. We thought about using thermoplastic proprieties of keratinaceous materials to reshape the comb, but we didn't manage to identify the exact temperature at which it should be performed with such archaeologically damaged material.

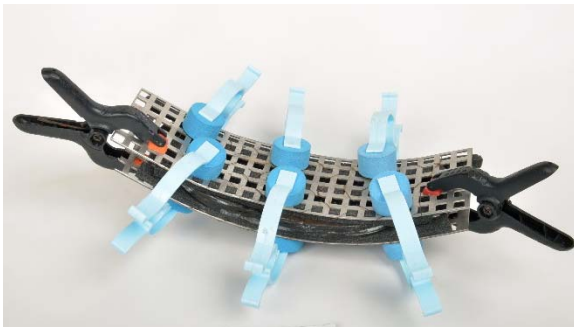


**Fig. 1** Horn comb appearance at 85% HR during the slow drying process.

As a first measure, we increased the relative humidity to 100%. The deformation stopped and the horn seemed a little more malleable after ten days in such environment. After recovering flexibility we reshaped the delaminated comb by placing it on a sandwiched metallic frame with Plastazote<sup>®</sup> foam as an interface between the stainless steel and the comb and applying pressure (figure 2)

Before attempting to dry it again and after listening to several points of view, we decided to add an adhesive to avoid any new delamination. After a series of comparative tests between acrylic and vinylic aqueous solutions we selected Mowilith<sup>®</sup> DCM (20%) applied by immersion.

For the drying step, we considered different possibilities such as freeze-drying the object, slow air drying, and a lightly accelerated air drying using a hairdryer. Because keratinaceous materials, like hair, are more fragile when humid and can withstand accelerated drying well, we decided to test an accelerated drying using a hairdryer at low temperature. The results were very positive. The comb kept its shape, no delamination was noticed and the surface aspect was pleasant (figure 3).



**Fig. 2** Regaining the original shape by pressure.



**Fig. 3** Horn comb after treatment.



## **The condition of a Key Marco Artifact 43 Years after PEG Preservation**

Kathryn Rohlwing, University of Florida

The long-term stability of polyethylene glycol (PEG) as a conservation treatment for waterlogged artifacts has been debated by conservators and has been compared against other methods of conservation such as sucrose, potassium aluminium sulphate (alum), and dicarboxylic acids. In this article, I explore the effectiveness of PEG by examining a waterlogged wooden artifact from the Key Marco site in Florida that was treated with PEG 1000 in 1972.

The Key Marco archaeological site (8CR48), located on Marco Island in Southwestern Florida, was a waterlogged shell works site attributed to the Calusa Indians. The site is renowned for the quantity and quality of rare organic artifacts found during excavations in the late 1800s. The findings from this site are considered invaluable because they show the complexity of early Floridian cultures and because such sites in Florida and across the United States are extremely rare. In fact, no other site with Key Marco's level of preservation has been found in the Southeastern United States.

American anthropologist Frank Hamilton Cushing excavated Key Marco between 1895 and 1896. Cushing was most famous at the time for his work with the Zuni Pueblo. In the 1890s, he was working for the Bureau of American Ethnology when he heard about the Key Marco site, which had been discovered by the property's owner. Cushing applied for a leave of absence from his position to pursue an excavation because he felt, from seeing the artifacts preliminarily found at the site, that a larger scale excavation would "lead to the most important archaeological discovery yet made on any of our coasts."<sup>1</sup>

Cushing's excavation revealed shell tools, pottery sherds, and dozens of rare objects composed of organic materials like cordage, netting, and a variety of worked wood objects including animal figurine heads, masks, ladles, amulets, and tablets. No indications of European contact were found, indicating the relatively early age of the site. The Key Marco site remains as significant today as it was in the late 1800s. Another pre-Columbian site with such quantity of well-preserved organic artifacts has yet to be found in the Southeastern United States. The Key Marco assemblage gives insight into the technology employed by the site's inhabitants, as well as their religion, symbology, daily life, and relative prosperity. Cushing's findings now represent the vast majority of what can be discovered from the site because Key Marco has been developed and no longer exists. Today, the Key Marco artifacts found by Cushing are divided between the Smithsonian, the University of Pennsylvania Museum, and the Florida Museum of Natural History.

In the 1970s, Dr. Barbara Purdy was serving jointly as a Professor of Anthropology at the University of Florida and as the Curator of Archaeology at the Florida Museum of Natural History. She found that artifacts in the Key Marco collection were deteriorating and she became concerned with the long-term preservation of these valuable objects. Archaeologists excavating a similarly famous site in Washington State, Ozette Village, were using PEG to preserve artifacts

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<sup>1</sup> Frank Hamilton Cushing, "Exploration of Ancient Key Dwellers' Remains on the Gulf Coast of Florida," *Antiquities of the New World: Early Explorations in Archaeology* 13 (1973): 330.

as they came out of the excavation units. Purdy consulted with these archaeologists, as well as conservators, about the Key Marco artifacts in the FLMNH collection.

In 1972, Purdy decided to use PEG 1000 for an experimental conservation on a wooden stool (or possibly headrest) from the Key Marco Collection that was warped, cracked, and disintegrating. Purdy chose the Key Marco wooden stool (FLMNH catalog number A5646.140538) for this experiment because the object was in poor condition. Purdy (1974) states, “The stool had become so fragile that it was nearly impossible to handle it without pieces splintering off.”<sup>2</sup> She also selected this particular object because Cushing’s original report included a drawing of the stool, its measurements, and a detailed description. Purdy’s results, which compared Cushing’s original measurements with her pre- and post- treatment measurements, were published in *American Antiquity* in 1974.



The Key Marco wooden stool/headrest in the 1970s. *Photograph by Dr. Barbara Purdy.*

When Cushing excavated Key Marco, very little was known about preserving waterlogged artifacts. Cushing allowed the artifacts to dry out without further treatment, so when curator Dr. Barbara Purdy examined the Florida Museum of Natural History’s collection in the 1970s, the artifacts had shrunk from the waterlogged size that Cushing recorded during the excavation. They were warped and disintegrating. Concerned that the objects may soon become unrecognizable from deterioration, Purdy performed an experimental treatment that she believed might not only prevent further deterioration but might also return the stool to the original dimensions recorded by Cushing.

Purdy hoped to regain some of the stool’s original size by re-hydrating the artifact prior to introducing PEG. Purdy first soaked the stool in simmering water. The stool did not expand to its original size, but it did gain a few centimeters. Purdy then replaced the stool in water and slowly introduced PEG 1000, increasing the concentration until it reached 50%. The stool was then removed from the bath and allowed to dry. Post-treatment measurements showed the stool had retained its modest size increase.

Purdy re-measured the stool in the 1980s, conservator Katherine Singley re-measured it in 1995, and I re-measured it in October 2015. In many respects, the PEG 1000 treatment was successful. The stool has not shrunk to its pretreatment size, which indicates that the PEG did permeate to the core of the object and that the museum’s climate controls have prevented elution, which has occurred in objects treated with PEG when their environment became too humid. The stool showed no indications of further warping, cracking, or other major degradation.

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<sup>2</sup> Barbara A. Purdy, “The Key Marco, Florida Collection: Experiment and Reflection,” *American Antiquity* 39, no. 1 (1974): 108.

Despite overall success, however, the PEG treatment was not able to solve all of the stool's problems. The treatment was not able to restore the stool to its previous dimensions so it could not undo the warping and cracking that had already occurred. A 1995 condition report by conservator Katherine Singley notes a few additional concerns. Some fibers were still loose, especially in the stool's legs. Singley recommended that the legs be painted with B72, a non-yellowing and durable acrylic resin, to protect the loose fibers. The PEG treatment, as you can see in this photograph, distorted the color of the stool to a dark, almost black, brown, a common occurrence for objects treated with PEG. Singley's report additionally noted that excess PEG had formed a waxy layer over the surface of the stool, but she recommended against trying to remove the excess because the stool likely needed it. Overall, Singley states that the object is "OK physically otherwise."<sup>3</sup>

My observations in 2015 confirmed those of Singley. The stool still has some conservation issues, but while this treatment was not perfect, I found that I felt secure in handling the stool, a contrast to Purdy's pre-treatment description of the stool in which she said that she could not handle it without pieces splintering off of it. If PEG had not permeated the object during treatment, an issue often due to using too high a molecular weight or too low a concentration, the object would have shrunk and cracked over time. When PEG does not permeate to the core of an object, the object can disintegrate on the inside while the outer layers remain preserved. The stool does not show indications of this. It has remained in good condition.



The Key Marco stool in 2015. Photographs by Kathryn Rohlwing.

While the treatment of the stool was successful, it is important to note that this object would likely have been conserved differently today. There have been a few advances in PEG preservation since Purdy conserved the stool in the 1970s. The first is that there have been changes in the molecular weight used. PEG comes in a variety of molecular weights. PEG 1000, which is what Purdy used, has an average molecular weight of 1000. As mentioned earlier, studies have shown that if PEG with too high a molecular weight is used, it does not fully penetrate the object and the object may later deteriorate, crumbling at the core. Compounding this problem is the fact that different types of woods are denser than others. Therefore, many PEG treatments either include the use of low molecular weight PEG such as PEG 400 or use PEG 2000 alone.

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<sup>3</sup> Katherine Singley, "Conservation Assessment – 'The Domain of the Calusa'" (unpublished report prepared for the Florida Museum of Natural History, 1995).

The second change in the field of conservation is how objects that have already dried out are treated. When the stool failed to expand to its original size, Purdy realized that the cellular structures had collapsed and so could not reabsorb the water. This is the case for most wooden objects that have dried out. Soaking them in water will not restore them to their original dimensions. It is now considered too invasive to rehydrate objects and soak them in a PEG solution. Instead, dried out objects are kept stable through surface treatments. In 2014, a Miccosukee dugout canoe was conserved by Potomac Preservation Services. Conservators painted PVB 98 thermoplastic resin on the surface and used fish glue to secure loose fibers.

Conservators have new methods of mitigating the stool's issue of excess PEG. The dark staining of wooden objects by PEG can be lessened by rubbing the surfaces with warm alcohol after treatment, which removes any extra PEG and brightens the darkened surfaces. The seepage of excess PEG can also be prevented by freeze-drying objects, which allows any remaining water in the artifact to sublimate.

Purdy expressed concerns about the possibility of conserving objects in a better way in the future. In her 1974 *American Antiquity* article, Purdy states:

There are limits to what can be done even with twentieth century technology. A student of the future may lament the fact the stool was treated... It is difficult to predict the proper course of action. It is predictable, however, that if this collection is not preserved, there will be no Key Marco collection to study in the future.<sup>4</sup>

In some ways, Purdy's concerns were founded. Conservators have refined the treatment of waterlogged wooden artifacts, particularly for those artifacts that have long since dried out. Purdy's treatment, however, did stabilize the stool, preventing deterioration.

From the 1970s through the 1990s, Purdy tracked the condition of the stool and also the condition of a wooden mask that she was unable to conserve with PEG because the mask was painted. While the stool has remained in relatively good condition, the mask has deteriorated to the point of almost being unrecognizable.



1895

1970

1990

Untreated wooden mask from the Key Marco Collection. Photographs by Dr. Barbara Purdy.

Overall, Purdy's treatment did not cause "lamentable" harm to the stool. As the photographs of the mask demonstrate, Purdy's conservation of the stool prevented the degradation shown in untreated artifacts. The rehydration did not damage the stool and the PEG seems to have permeated to the inner layers because there has been no further shrinking, warping or other disintegration. Conservators have argued about the long term stability of PEG and this article shows that PEG can be a viable way to preserve waterlogged wooden artifacts for a long period of time. Forty-three years later, the stool is still in fairly stable condition.

<sup>4</sup> Barbara A. Purdy, "The Key Marco, Florida Collection: Experiment and Reflection," *American Antiquity* 39, no. 1 (1974): 108.

In conclusion, advances have been made in PEG preservation and this object would have been preserved differently today, but Purdy's experimental conservation using PEG 1000 has shown long-term stability and she succeeded in preserving this artifact for future generations.



The underside of the Key Marco stool in 2015 and the 1970s. Photographs by Kathryn Rohlwing and Dr. Barbara Purdy, respectively.

### **Acknowledgements**

I would like to thank Dr. Barbara Purdy for her mentorship and for introducing me to this project. I am particularly grateful to Dr. Karen Walker and Stacey Huber who provided me with access to the wooden stool and with digital scans of accession files and photographs. I also thank Elise LeCompte who shared her knowledge of modern conservation practice with me.

### **Author Biography**

Kathryn Rohlwing is a Master's student in Museum Studies at the University of Florida. Her concentration is in archaeology and her primary research interests lie in Florida archaeology. She received her Bachelor of Arts degree in Anthropology from Wake Forest University in 2013.

### **New Resources**

André Bergeron, Centre de conservation du Québec

Réseau-Archéo-Québec, a site dedicated to the promotion of archaeology for the greater public, has recently published a web-resource on archaeological conservation. Even though it does not focus per se on waterlogged materials, it does refer to the general problems of archaeology and conservation, and thus, could be useful when comes the time to explain what we are doing and why.

Here are the links:

<http://www.archeoquebec.com/fr/larcheologie-au-quebec/dossier/la-conservation-archeologique-0>

<http://www.archeoquebec.com/en/archaeological-conservation-0>

Additionally, Pointe-à-Callière, the Musée d'archéologie et d'histoire de Montréal, is currently presenting a major exhibit on 50 years of archaeological research in Québec; one of the focus pieces is a dugout André Bergeron treated in 1988.

<http://www.pacmusee.qc.ca/fr/expositions/120-siecles-sous-terre-decouvertes-archeologiques-au-quebec>

Here is a link for a document André produced on the treatment of this dugout some time ago (second from the top) : <http://www.ccg.gouv.qc.ca/index.php?id=155>

An English version is available from the Pointe-du-Bussin web site:

<http://www.pointedubuisson.com/wp-content/uploads/La-pirogue-du-Lac-Gour-anglais-2014.pdf>

### 3. JOB ANNOUNCEMENTS

#### SAVING OSEBERG PROJECT

Three positions have recently been announced for the Saving Oseberg project. Deadline for application for all is August 15, 2016.

Please check out the following links:

And please spread to other networks as well!

Project manager:

<http://uio.easycruit.com/vacancy/1654375/71569?iso=no>

Conservator (substitute position until May 31st 2018) in the research project Saving Oseberg:

<http://uio.easycruit.com/vacancy/1654771/71569?iso=no>

Postdoctoral fellow in chemistry, in polymer synthesis and functionalization of bio-inspired polymers for the preservation of archaeological wood:

<http://uio.easycruit.com/vacancy/1654283/71569?iso=no>

#### PhD Position in Analytical Chemistry / Conservation Science

We are looking for a highly motivated PhD candidate to participate to a research project on the conservation of waterlogged wood at the interface of analytical chemistry, microbiology and art conservation.

This project focuses on innovative biological methods of extraction for the preservation of waterlogged wood. The research team will exploit the unique properties of some bacteria for anticipating the extraction of iron and sulfur compounds when wood is still wet. This would be the first time biotechnology is addressing the issue of salt precipitation and acidification on waterlogged wood. To this purpose, two different strategies will be adopted: 1) oxidation of sulfur species and 2) complexation of iron species.

The successful candidate will hold a University Master's degree in materials sciences, conservation science or chemistry. Experience in dealing with cultural heritage and/or microorganisms would be an advantage. The ideal applicant will have strong analytical abilities (including FTIR/Raman microscopy, XRD, SEM-EDS, XRF and Synchrotron XAS) focused on solving technical/organizational issues and be able to manage short-term deadlines as well as to develop a long term development strategy.

In addition, he/she will be able to communicate results in a multidisciplinary and multicultural environment. In particular, the candidate will assist in teaching Bachelor students, in particular for the preparation and supervision of laboratory courses in chemistry. A good knowledge of English is required and French language proficiency would be an asset.

Funding is assured by the Swiss National Science Foundation for a maximum of four years. The PhD candidate will be based at the University of Neuchâtel, under the supervision of Edith Joseph. The PhD candidate will be registered at a doctoral programme from CUSO "Conférence universitaire de Suisse occidentale" of which the University of Neuchâtel is member.

The University of Neuchâtel is an equal opportunity employer. Please send your complete application including a letter of interest, curriculum vitae with a list of publications, copies of diplomas and work certificates, and the names and contact information of two references to Edith Joseph (edithjoseph@unine.ch).

Application deadline: July 31, 2016

Short-list selection: August 1-7, 2016

Phone interview: August 8, 2016

Final decision and communication of approval: August 9-10, 2016

PhD start: September 1, 2016.

**Contact Details:**

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