Queen Anne's Revenge

Conservation Laboratory Report, January/February 2005

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Society for Historical Archaeology (SHA) Conference 2005

The New Year began for Project Conservator, Sarah Watkins-Kenney in York England where she attended the SHA 2005 Conference from January 5-9. On January 5, she gave a paper entitled, `*The Queen Anne's Revenge* Shipwreck Project: Recovery, Examination and Treatment of Wood' (co-authors Eric Nordgren and Wendy Welsh), as part of the conference session Conservation of Archaeological Materials - Current Challenges and Opportunities.

The annual SHA conference is a large, international conference and this year there were approximately 1,000 delegates. Many were from the USA, including several of our colleagues from ECU, as well as, *QAR* Project Director Mark Wilde-Ramsing and NCMM archaeologist David Moore, who also presented papers on the project. During the conference there were some 77 different sessions, as well as the conservation workshop on January 5th. Sarah attended sessions, which were conservation, artifact, or underwater archaeology oriented. She also visited, with other conservation colleagues, the Archaeological Conservation Laboratory for York Archaeological Trust, on January 5th after the workshop. The Director, Jim Spriggs, showed the visitors around and talked about some of the artifacts and projects that the Labs are involved with. Initially established in the 1970s, to treat artifacts recovered during excavations of Yorvik - the Viking town of York - the lab now also undertakes contract work from excavations all over the UK particularly of waterlogged archaeological materials as they have the largest capacity (including two large freeze-driers) in the UK for treating such artifacts.

Artifact Analysis and Study for Interim Report

Throughout January and February the QAR team has been entrenched in writing up the analyses of the artifacts and wreck assemblage for the Interim Report, due out this year, and for the Symposium in April . Scientists and archaeologists have visited the lab gathering information about the artifacts and some objects have traveled to researchers for further analysis. Graduate students have been working tenaciously to complete the recording of all the measurements and weights as well as assisting in sorting objects into various categories.

Dr. Runying Chen, Textile Specialist at East Carolina University (ECU), has already published some of her early findings about the cordage used as wads, which were removed from the

cannon (Chen & Lusardi 2001). In early January Dr. Chen came by the Lab to complete her examination of other organic fibrous materials, the rope, fabric and hair. Her analysis of the rope and fibers will be presented at the Symposium and detailed in the Interim Report. We truly thank Dr. Chen for her research especially during her pregnancy and congratulate her on the arrival of her new son.

QAR Geologist, Dr. James Craig and colleagues previously analyzed gold, copper alloy, lead, pewter and iron artifacts (Craig et al 2001, Dunkle et al 2004). In early February Dr. Craig came by the lab to pick up some more lead, pewter and copper alloy samples to be sent off for further analysis at the University of North Carolina at Asheville by Dr. Bill Miller. The two scientists will combine their efforts to produce a section in the report on analysis of metals recovered from the site.

Archaeologist and Curator, Dr. Linda Carnes-McNaughton, of the Fort Bragg Cultural Resources Program, also visited in February to examine the ceramics, pipe stems, and glass once again. Dr. Carnes-McNaughton has divided the ceramics into different fabric and glaze types and identified particular vessel types. Project Director, Mark Wilde-Ramsing has been working with graduate assistant Kristin Koshgarian who sorted, measured and assigned Munsel chart colors to hundreds of glass shards, which aided in deducing the different types and sizes. Wilde-Ramsing has also been working with Dr. Carnes-McNaughton, and NC OSA Archaeological Technician, Susan Myers to determine the identification of the glass beads found on site.

Conservators are preparing a conservation section about what has taken place with the facilities and artifacts thus far. This section will also describe the procedures that have been set up to deal with the artifacts from recovery to display. Along with the conservation section, Sarah has been working closely with graduate assistant Kim Smith in the analysis of the casks hoops. Many iron cask hoops are amongst the wreckage. Kim tackled the task of obtaining the different diameters of the fragments recovered. All the data generated has produced a range of possible cask sizes that were aboard the ship and will be fully detailed in the report.

Scientists, archaeologists, conservators and everyone involved have been hard at work writing about of the artifacts and assemblage. Many thanks to everyone for the hard work and rest assured the fruits of our labor will soon be available for everyone to evaluate!

References:

Chen, R., & Lusardi, L. 2001. Identification and Degradation Analysis of textiles recovered from the Queen Anne's Revenge Shipwreck. In Merritt, J.L. & Whelan, V.J. (eds). Postprints of the Textile Speciality Group, American Institute for Conservation, meeting in Dallas Texas 2001, Vol. 11:27-46. AIC

Craig, J.R., Callahan,J., Miller,W.,& Lusardi,W.,2001. Preliminary studies of some base and precious metals from the Queen Anne's Revenge. Southeastern Geology Vol 40. no.1:41-48.

Dunkle, S.E., Craig, J.R., Lusardi, W. 2004. Romarchite and Associated Phases as Common Corrosion Products on Pewter Artifacts from Marine Archaeological Sites. Geoarchaeology Vol.19, no. 6:531-552.

Cast Iron Conservation Continues

Thirty-eight cast iron cannon shot, ranging in size from six-pounders to half-pounders, have been recovered from the site, some from the bores of cannon and others from concretion. A few are on display at the North Carolina Maritime Museum and some are still under observation at the lab before being transferred for display. Cast iron shot undergo the same conservation treatment as cannon and other iron artifacts, desalinization by electrolysis. In February, twenty-one shot began electrolysis. Digital photographs were taken to record the objects' state prior to treatment. The cannon shot were then divided between two tanks with mild steel anodes, put into a 2.5% sodium carbonate electrolyte and hooked up to a current of 0.5 amps. The process of electrolysis will take some time to desalinate the cast iron but the progress will be monitored through the presence of chlorides in the treatment solutions.

Cannon C4 (QAR366.001) has reached the end of the desalination/electrolytic process after almost four years and has been immersed into purified (by Reverse Osmosis (RO)) water to begin rinsing out the alkaline sodium carbonate. The process described with C19 and C21 in October is the same process C4 will undergo, though as it is a much larger cannon it will take a little longer. After the initial change to RO water the solution was changed twice by the end of February and the pH of the solution was still about 9.0. The solution will continue to be changed until the pH is neutral to be sure the alkaline is thoroughly rinsed away. As progress continues through March we will keep you posted on C4 events.

Feature Concretion QAR509.000 a.k.a. Bertha

With the idea in mind that the Bertha concretion could be recreated on a computer program to show the layers of artifacts and their relationships to one another without the concretion was the motivation behind constructing a planning frame. Archaeologist's record

sites and features in the ground with a planning grid, obtaining XYZ coordinates of an object's location. This data along with drawings and photographs are used to recreate site and feature relationships. These same concepts are being applied to the excavation of the Bertha concretion. A planning frame was built in January to record where each object is in relation to the other by obtaining XYZ coordinates on every object removed. The frame is also used as a means of drawing and photographing the concretion. Once one layer is removed the next layer is documented and removed and so on.

Bertha usually sits on a portable cart for easy movement. When working with an 800lb concretion the less one has to move the concretion the better. The planning frame was built free standing so the cart could be rolled beneath it. Every time Bertha is placed under the planning frame it is lined up with two reference points, one on the north end and the other on the south end. Once the concretion is in the exact same place in relationship to the planning frame, XYZ coordinates are obtained on every artifact before they are removed. Line drawings (based on illustrations by Project Illustrator Robbie Girard) have been used to record the points at which the XYZ coordinates were taken as well as the *QAR* number/artifact relationship on the concretion.

By the end of February forty-nine coordinates of ballast stones had been obtained and four stones removed from the first layer of Bertha. The stones were outlined in the concretion with an air scribe and once their shape was evident or totally obvious they were removed with a hammer and a chisel. Stay tuned next month to learn about what was revealed in layer two of the feature concretion.

ECU Thanks

Dr. Charlie Ewen of ECU's Anthropology Department has moved his Archaeology Lab into a new facility on campus and donated shelving, tables, cabinets, lights, chairs, a refrigerator and various other objects from his old lab to the *QAR* lab. The shelving is eight foot long, three foot wide and about ten feet high which is brilliant for the warehouse lab because most of our floor space is taken up with tanks. Four units have been put up in the warehouse and have made organizing everything so much easier. We'd like to thank Dr. Ewen and ECU for the use of all the items.

Lecturer Mr. Thomas Rassau, Assistant Professor Dr. Craig Sanders, and Graduate Teaching Assistant Katie Griffin of ECU's Department of Industrial Technology were invited to have a look around the lab February 16th. They arrived bearing gifts, a portable cart they fabricated to move around cannon and a trough tank for storing artifacts. The three were also invited to discuss the idea of an apparatus that would make photography of larger objects, i.e. Bertha, easier. The engineers are working to design a photo stand to make the task of getting directly over a large object effortless. Their donations and time are greatly appreciated and we will have more on the photo stand as things progress.