



## *Queen Anne's Revenge*

Laboratory Excavation Report  
UAB Conservation Laboratory, Greenville  
Sarah Watkins-Kenney *QAR* Project Conservator  
Wendy Welsh, *QAR* Laboratory Manager  
Eric Nordgren, Project Assistant Conservator  
March/April 2005

March and April were particularly busy and eventful months for the *QAR* Conservation team. In March we were working on our input to the *QAR* Interim Report and preparing for the Symposium on April 8th at which research so far on the shipwreck, site and recovered artifacts were presented - including a talk presented by *QAR* Project Conservator, Sarah Watkins-Kenney on conservation of the artifacts. On the day before the Symposium there was an open house at the lab for conference delegates. Also in March, Eric Nordgren, Assistant Conservator gave a talk on conservation of metal objects at the Mid-Atlantic Archaeology Conference in Delaware, and Wendy Welsh, Laboratory Manager attended a course on x-radiography at the Maryland Archaeological Conservation Lab. Work has continued on excavating the concretion 509.000 ('Bertha') exposing a glimpse of a cannon (C22) within. Cannon C4 completed its desalination treatment in March and work continued to prepare Cannon C19 and C21 for their transfer to the North Carolina Maritime Museum in April. During April we were also preparing for the month long field season and further excavations at the site, which started May 2nd.

### **Cannon C4**



Having completed the desalination stage of its treatment, on March 17th Cannon 4 (QAR366.001) was removed from solution. The surface was rinsed with RO water (purified by reverse osmosis), allowed to become

touch dry and then coated twice with 10% tannic acid in water. C4 was then moved from our warehouse lab into the lab in the main building - where the humidity is low - to complete drying. Once Cannon 4 was dry conservators noticed a raised surface on the end of the right trunnion that appeared to be a mark. Archaeologists confirmed the mark to be "IF" which was the mark of John Fuller of Heathfield Furness in England. Over the next few months Cannon 4 will be monitored to make sure it is stable (not corroding) before applying the final layers of protective coating (tannic acid, acrylic lacquer and microcrystalline wax) before going to the museum.



## 'Bertha' Update



After a top layer of ballast and concrete were removed, the second layer of Bertha revealed a small portion of the breech of a cannon. The second layer was documented through photographs, tri-lateration and drawings of the east, west, and top views. Once the cannon

surface was uncovered the decision was made to leave the concrete on the surface as much as possible until most of the ballast stones were removed. This would prevent the cannon surface from being exposed directly to the air (and risk of corrosion) until absolutely necessary. Thirty-two ballast stones were removed during the months of March and April. Each stone was photographed before being removed from Bertha and once removed the concrete was photographed to show where the ballast once was and what was underneath. Work on Bertha will resume in June after the May field season.

## Cannon C19 and C21 - Did Hell Freeze Over?



No, and there are now QAR Cannon at the North Carolina Maritime Museum in Beaufort NC.

After six months monitoring their condition, Cannon 19 & 21 were judged to be stable as long as kept in an environment with low humidity (less than 50%, ideally less than 40%).

After multiple coats of 10% tannic acid the cannon were coated with 5% Paraloid B-72 and then finished with a coat of Renaissance wax. April 26th Cannon 19 & 21 were transported to the Museum. The displays for the cannon are not quite ready so they are in storage at the Repository at Gallant's Channel and will be on display for public viewing soon.



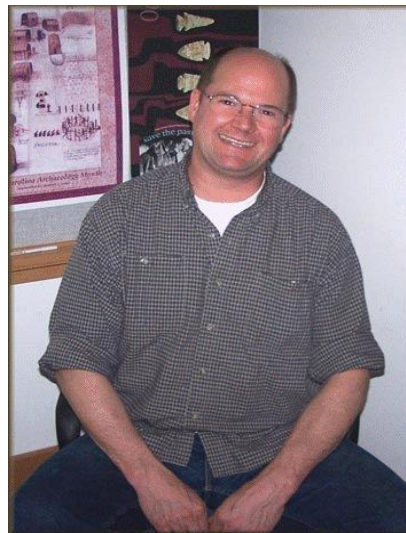
## AIC X-Radiography Course at MAC Lab



The American Institute of Conservation (AIC) held a course titled, Cultural Heritage X-Radiography: Image Quality, Enhancement and Interpretation at the Maryland Archaeology Conservation Laboratory in Jefferson Patterson Park March 22nd-24th. Sonia O'Connor, Department of Archaeological Sciences and Jason Maher, Edutech Ltd of the University of Bradford along with MAC Lab Conservator, Howard Wellman were the instructors of the course. Students traveled from New York, Pennsylvania, Delaware, and Virginia to learn the X-radiography techniques developed by O'Connor and how she has applied them to conservation. Laboratory Manager,

Wendy Welsh was fortunate to attend the course as well, and obtained X-rays of three concretions recovered in October 2004.

Two days of intense classroom instruction provided a wealth of information. Instructors explained the basic mechanism of x-radiography, types of x-ray sources that are available, health and safety regulations involved with having an X-ray unit, different uses of x-radiography and its applications in conservation, the pros and cons of film verses digital images, and the variables one can manipulate in the process to get a desired image. Sonia and Jason set up an exercise to view x-ray images that demonstrated the different topics discussed. Digital imagery was also a focus in this course, Jason explained the pros and cons of different storage media and also provided free software for digital imagery manipulation.



The last day was dedicated to taking actual X-radiographs. Both digital and film x-rays were taken which gave a good comparison and also illustrated a few keys points learned in the course. Howard operated the X-ray unit and developed the film x-rays while Thomas Dunn and Emilio Lucertini of Fuji Medical Systems demonstrated the Fuji digital processing unit. Digital x-rays were processed in a matter of minutes and film x-rays were scanned in the digital processor at the highest resolution possible, digitizing allows one to manipulate the image. By the end of the day all the images were available to take home on CD.

X-radiographs of the three concretions revealed what was inside:

**QAR 523.000** contains one double-headed barshot and two nails.

**QAR 524.000** contains one double half-headed barshot and a bent nail.

**QAR 525.000** contains one double half-headed barshot, a few scattered lead shot, Drift bolt, a ceramic sherd, one small cannon shot, and a possible folding ruler and square.

## ECU Industrial Technology



April 1st the ECU Industrial Technology Department completed the camera stand they were working on for the QAR Conservation Lab. The stand is made out of spare parts and re-cycled material. It will make photographing larger objects much easier as the stand enables the camera to be held directly over the object and can be moved vertically, horizontally and sideways without moving the object itself. The apparatus has already been used to photograph cannon including `Bertha` and to document C19 and C21 prior to going to the museum. Much

appreciation goes out to Dr. Craig Sanders, Mr. Thomas Rassau and Katie Griffin, for their construction of the stand. We hope they can help us again on the next challenge - constructing the definitive tool to clean out eight-foot cannon bores.