From Gunboat to Garbage Can: The Conservation of a Cannonball *Part 1*

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Thom-Thar-Rivers (continued from page 7)

slow and built experience as we went. You will not score big the first time or the second time out. You will climb back in the boat at the end of the day tired, a better diver, with the desire to do it all again. Once you find your first Megalodon tooth, rare spear point, or Early American pottery, you'll see what I mean. And, if you should find the remains of a plantation vessel, a prehistoric canoe, or even a Revolutionary War gunboat...

YOU'LL BE HOOKED. Of course, as with any activity in life it comes with an admission. The state of South Carolina is about the only state in the union that allows Hobby Divers to find and keep artifacts. The only catch is the state wants to know what you have found and where you have found it. The process of reporting your finds is done through a Hobby Divers License obtained from the South Carolina Institute of Archaeology and Anthropology's Sport Diver Archaeology Management Program (SDAMP). For more information, contact SDAMP at sdamp@sc.edu or 843-762-6105.

Hope to see you in the river.

From Gunboat to Garbage Can: The Conservation of a Cannonball Part 1

By Ashley Deming, Maritime Archaeologist, SDAMP Manager

In November of 2010, hobby diver Jason Thompson contacted us wanting help identifying and information on how to conserve what he thought was a cannonball he had recovered from SC waters. Knowing what we know about how waterlogged metal deteriorates quickly, we told Jason to keep the object in water at all times so it didn't dry out. We also requested photos of the object so we could better identify it. Once we had the photos, we were positive it was a cannonball. What we didn't know was how old it was. Some of the images showed "nodules" which could have been fuses (see Figure 2). Civil War shot (referred to as 'shells') generally was hollow and filled with explosive material. To create an explosion the shells had fuses that varied with different shells. If this was the case, Jason had a potentially very unstable artifact in his house. Carl and I decided to visit Jason and get a closer look. We carefully measured and weighed it (5.5" in diameter and ~12 lbs) and took quite a few more pictures. Since this was the first cannonball that SDAMP has dealt with, we decided to get some advice about it from some trusted colleagues and friends. We sent the photos and information out to quite a few people who all agreed that it looked like a Civil War fused shell, not uncommon for this area. To really be sure, it would have to be x-rayed. All also agreed that this artifact should be treated with caution and handled carefully. We of course passed this information on to Jason with the suggestion that he keep the ball in freshwater out of the way until we could figure out how to get it x-rayed. Our number one priority has and always will be the safety of our hobby divers. We err on the side of caution with objects like this. No artifact is worth serious injury or death.

The problem arose in trying to find somewhere to x-ray the... (Continued on page 9)
Conservation Corner


By Johanna Rivera, Conservator, HL Hunley Project, Warren Lasch Conservator Center, Clemson University

Iron objects recovered from marine sites are some of the most critical artifacts in need of conservation treatment. Underwater, iron artifacts are found encrusted with thick layers of calcium carbonate, metal corrosion products, sand, and marine life. At the same time, depending of their burial environment, metals can be found saturated with salts. These salts, or chlorides, will react with the oxygen, producing a series of electrochemical reactions which will result in corrosion. In other words, corrosion is the reaction of iron and oxygen in the presence of water or air moisture. If salt is present, as in the sea or brackish water, it tends to rust more quickly.

When iron artifacts are removed from their burial environment and exposed to air the corrosion products that initially formed during the oxidation process underwater will transform resulting in layers of scales on the metal surface. These scales tend to expand and as they crack and flake off from the surface fresh iron is exposed, and the corrosion process continues until all of the iron is either consumed or all of the oxygen and moisture in the system are removed or consumed.

The conservation of artifacts found underwater is time consuming and expensive, however without conservation most of these artifacts would eventually be a total loss, taking with them important archaeological information. Prior to any treatment a critical evaluation must be made of the metal and type of corrosion products. When artifacts are heavily encrusted with concretion the most useful examination technique is x-rays which will help us to identify the artifact and assess its condition. The use of pneumatic and dental tools, as well as air scribes and chisels, are the most effective tools to remove concretions. In terms of salts removal, a variety of techniques have been used in an attempt to mitigate the negative effects of corrosion:

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