

# ARTIFACT PRESERVATION

How to clean  
what you keep

TEXT AND ILLUSTRATIONS  
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It could be the German *U-853*, off the coast of Newport, Rhode Island, or the *Andrea Doria* or maybe some unknown lump of coral in the treasure rich Florida Keys. Wherever your diving takes you, artifacts can usually be found.

Common artifacts include brass port-holes, torpedo bottles, wooden deadeyes, china, silverware and Spanish coins, just to name a few. But whether you are searching for artifacts or just stumble across one, the thrill divers experience remains unlike anything else. It's a small piece of history emerging from the grave. Maybe the only thing to surpass it is finding an entire, uncharted wreck!

We must not ignore that past and present debates on shipwreck and artifact preservation have produced nothing less than severe controversy. Some believe the removal of artifacts could prevent a complete archeological study. And that the location or the position of an artifact on a

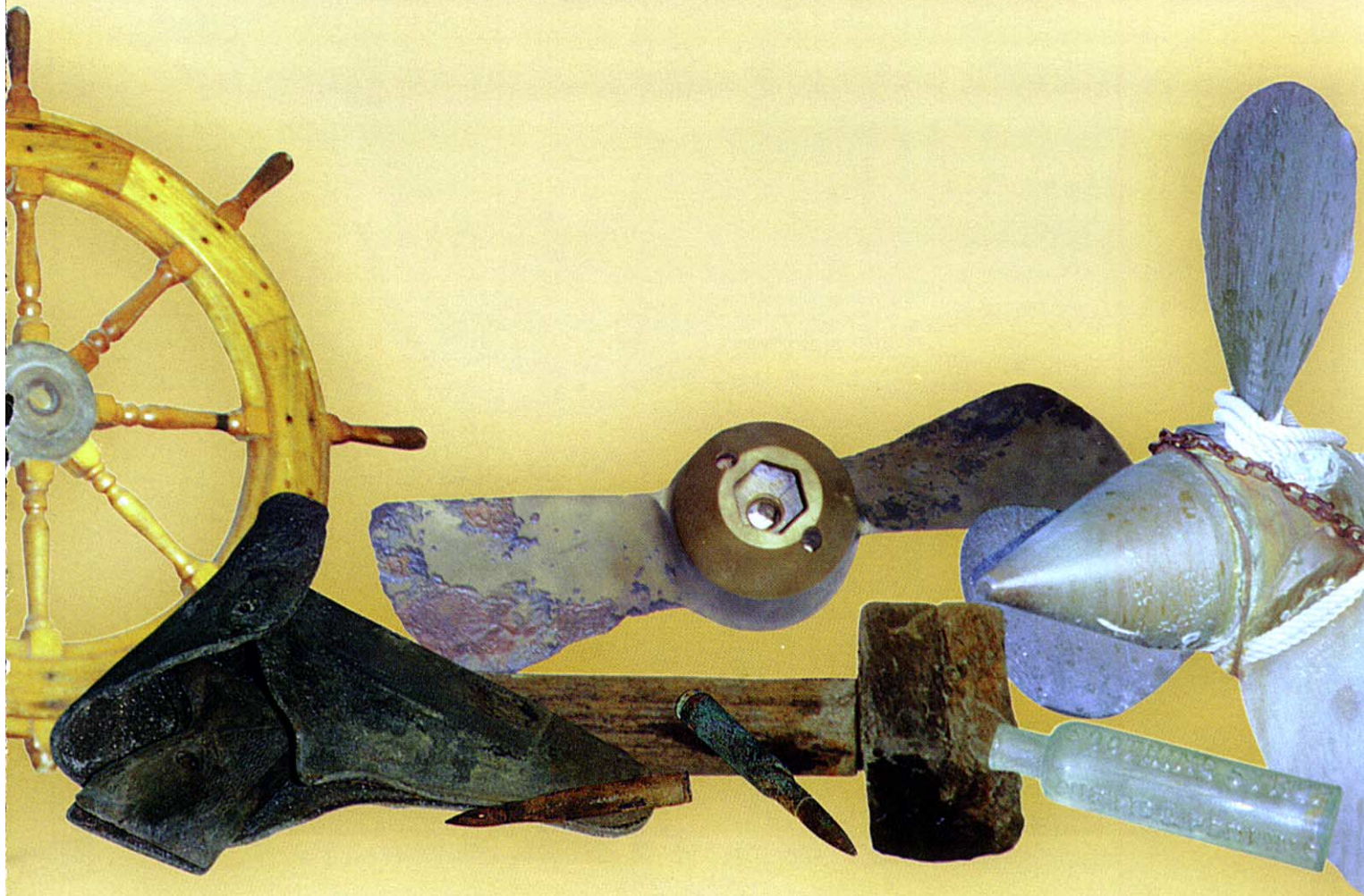
wreck could yield significant historical information. Some divers feel that removal of artifacts from a wreck in which fatalities occurred is like desecrating a burial site. And, when artifacts are taken, there is that much less for the next diver to see and enjoy.

On the other side of the debate are the salvage divers and treasure hunters. They are quick to point out the example of the *Atocha* and other 17th and 18th century wrecks, where years of work and millions of private dollars have been spent on successful salvage ventures. These projects produce not only artifacts but a tremendous amount of historically significant information. And, argue the treasure hunters, the harsh salt-water environment can cause a complete loss of any artifacts due to corrosion. It is better to preserve than to let perish, they say.

But while the debate continues, we offer this how-to perspective on artifact



**BEFORE...**



preservation. The premise is that if you're going to take it, you ought to take care of it, too. Because to recover artifacts only to let them corrode and rust away in your garage is a crime everybody's book.

The most challenging problem with recovering an artifact is getting it home in the first place. Time welds bolts closed, corals camouflage artifacts and collapsed wreckage prevents access. A well-prepared artifact hunter carries some, if not all the following tools: hack saw, hammer, chisel, wire cutters, a long narrow punch, goodie bags, rope and large lift bags. And if you're lucky enough to discover a choice artifact, get it out of the wreckage, not lose it on the decompression line and keep your butter-finger dive buddies from dropping it off the dive platform, here's a primer on preservation.

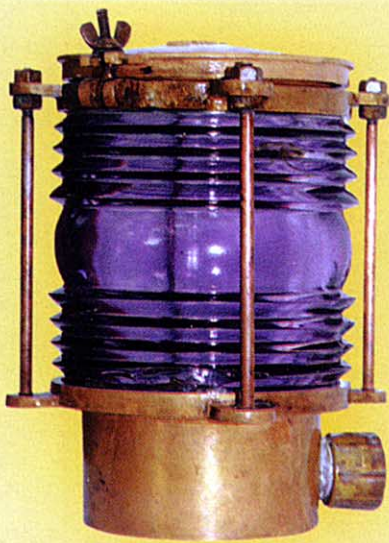
Rule number one is **KEEP IT WET AND OUT OF THE SUNLIGHT**. All this means is that when you remove the artifact

from the water, simply place it in a bucket or a cooler of seawater and cover it until you are ready to begin the preservation process. Your artifact may have been submerged for years, and deterioration can occur rapidly when exposed to air or direct sunlight. Artifacts that may be too large to be submerged can be wrapped in a soaked towel or blanket.

### Glass and China







Glass and china are among the most prized artifacts when properly restored. Ceramics should be divided into two groups, low-fired (terra cotta and earthenware) and high-fired (china and porcelain). Low-fired ceramics are easily permeated by seawater and highly susceptible to metallic salts and sulfide stains.

Glass that is composed mostly of silica withstands the corrosive effects of the sea better than ceramics. Initial deterioration of glass is signaled by multicolored



**...AND AFTER**

## Ceramic & Glass Preparation (Pre-soak)

<b>DAY 1 - 7</b>	<b>DAY 8-14</b>	<b>DAY 15-21</b>
 <p>Immediately after surfacing, submerge artifact fully in: 50% Sea Water 50% Fresh Water</p> <p>Soak for seven days</p>	 <p>Drain container to 1/2 and refill with fresh water</p> <p>Soak for another seven days</p>	 <p>Drain container fully and refill with fresh water</p> <p>Soak for another seven days</p>
<b>DAY 22-28</b>		
<b>Low-Fired Ceramic Coral Removal</b>	<b>High-Fired Ceramic and Glass Coral Removal</b>	
Soak in Calgon	Soak in a solution of 20% muratic acid and 80% water – watch carefully	
<b>Stubborn Coral and Stain Removal</b>		
<b>Corals and Encrustations</b>	<b>Rust and Copper Stains</b>	<b>Black Organic Stains</b>
 <p>Acid Paste 10% Citric Acid 90% Talcum Powder</p> <p>Place directly on encrustations and chip away with dental tools.</p>	 <p>Soak in 10% Citric Acid 90% Water</p> <p>Watch carefully</p>	 <p>Soak in: 35% Hydrogen Peroxide 65% Water</p> <p>Watch carefully</p>
<b>Desalination Rinse</b> <b>DAY 29 - 60</b>		
Place artifacts in distilled water for 30+ days – replace water often		
<b>Dehydration (drying)</b>		
Allow artifacts to air dry in low humidity (air-conditioned room)		

## Brass and Copper (Pre-soak)

<b>Follow same 21-day pre-soak as Ceramics and Glass</b>		
<b>Coral and Stain Removal</b>		
Remove heavy marine growth using a brush and dental tools	Stains can be removed by using the same process as ceramics and glass	 <p>Soak in a solution of 20%-30% muratic acid and 70%-80% water – monitor every couple of hours <b>Note:</b> always mix the acid into the water, not vice versa</p>
<b>Desalination Rinse</b>		
Place artifacts in distilled water for 30 to 60 days – replace water often		
<b>Finishing for Display</b>		
Allow artifacts to air dry in a low humidity atmosphere Polish, buff and brush or spray on a clear lacquer		

iridescence to a severe breakdown of the glass into flaking layers, described as “onion skin.” You should take special care while handling, not to damage any decoration such as gold leaf or other identifying marks.


The chart above describes the basic process for working with glass and porcelain. For the first three weeks, the artifacts are soaked in a combination of fresh and salt water. Then to remove coral, Calgon or a muratic acid solution is used depending on the type of glass. Citric acid, hydrogen peroxide and talcum powder can all be used to remove various types of stains. The final step is a long desalination rinse lasting about 30 days.

### Brass and Copper

Portholes, gauges, running lamps, bells, compass and telegraphs, are all highly desired artifacts and are all made of brass. Brass is used because it's highly resistant to the corrosive powers of saltwater. And this means that these artifacts can often be restored to near-perfection.

The restoration process is much like that of porcelain and glass with some minor changes. The main one is that some hard scrubbing, scraping and picking may be required to remove stubborn coral growth and corrosion. One trick to the final rinsing process is to place small artifacts in the tank of your commode. This

means that with every flush, your artifact gets a fresh rinse.

Just remember that your main tool for this whole process is patience. Of course, once you have completed the restoration and preservation work, your long awaited prize can be displayed. To make your treasure more interesting, an identification card can be attached to the artifact telling the ship's name, location, date sunk and can include a brief history. 

*Look for Artifact Restoration Part 2 (iron, wood and bone) in the next issue.*