

MAHS NEWS



VOLUME 27, NO. 2

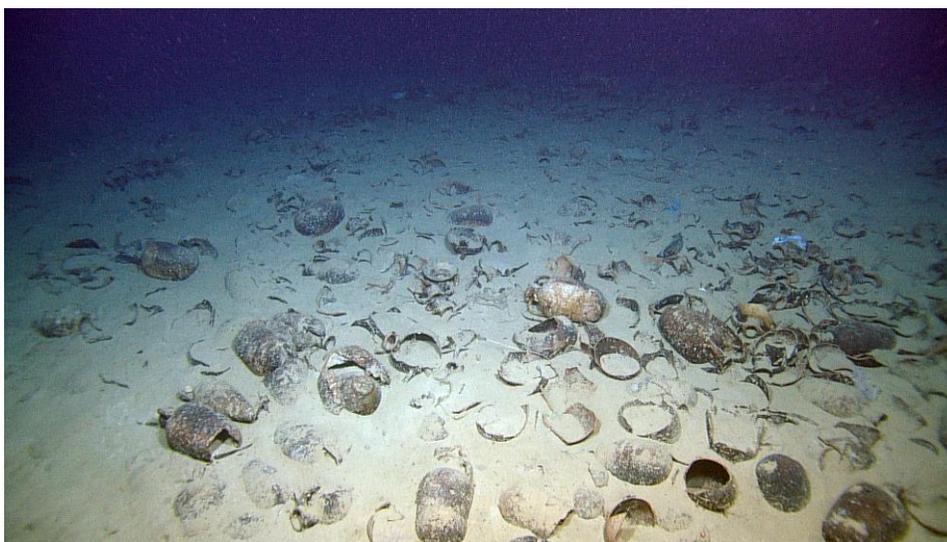
FALL 2016

The Unnoticed Destruction of History Underwater

By Michael L. Brennan

In 2008, my colleagues and I conducted side-scan sonar surveys off the Aegean coast of Turkey from a small dive boat. While towing the sonar in lines around the northwest of the Bodrum peninsula, we observed an area where the scars caused by trawl fishing were so dense that the sonar return of the seabed looked like a brushed metal surface, but which stopped abruptly at a point near the shore. We noticed this correlated with a line on the nautical chart denoting a trawl restriction that extended 2.5 km from the coast. Over the course of the survey, we found that six ancient shipwrecks lay within this restricted zone, while beyond it we found nothing but seabed scraped clean by intensive trawl activity. While there is no evidence to suggest there were shipwrecks in these heavily trawled areas, it drew my attention to the subject of trawl damage to shipwreck sites, and I realized that little research had been done on the subject.

Since that expedition, I have worked as Director of Marine Archaeology and Maritime History for OET, the Ocean Exploration Trust. Founded in 2008 by Dr. Robert Ballard, OET engages in scientific exploration of



Video capture of the Marmaris B shipwreck site off southern Turkey. This late Roman shipwreck is heavily damaged by trawls, with over 60% of the artifacts broken and scattered across the seabed. At one time this shipwreck would have consisted of a pile of amphoras in the shape of a ship from which the hull had disintegrated. It is now flattened and disarticulated. Image courtesy of Ocean Exploration Trust.

the seafloor, operating mainly from Exploration Vessel (E/V) *Nautilus*. My work with *Nautilus* continued in the southeastern Aegean Sea and the Black Sea, locating more than 50 shipwrecks between 2008-2013. This has allowed me to document the impacts of bottom trawl fishing to both the seabed and the majority of these wreck sites, which I published in a series of papers in *Continental Shelf Research* and *Marine Geology*.

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Notes from the Prez – Steven Anthony

In June, 2016 MAHS returned to the fabulous Florida Keys for another field season in the beautiful waters of Pickles Reef. One would think after all these years documenting the Barrel Wreck site that we would have finally identified the name of the wreck. Unfortunately, despite our efforts the wreck's identity continues to elude us. As we report in this issue of *MAHSNEWS*, however, Deborah Marx's research identified the story of the *Times*. This was a Norwegian steamer that ran aground on Pickles Reef in 1914 with a load of cement barrels. To free herself of the reef, the crew jettisoned the cement barrels into the sea where they settled on the bottom. Their location is adjacent to the remains of a ship that was not so fortunate and is the site of the wreck that we have been working on. So, at least we are now able to conclude that part of the story and report that the barrels, despite their proximity, are not cargo of this wreck. Our final effort on the site this season was to train our small but capable class in the skills and techniques of underwater site mapping and to finalize our study of the Barrel Wreck. We collected the remaining data needed to complete our project report, and if things go well we hope to be submitting that report to the Florida Keys National Marine Sanctuary early next year.

Brenda Altmeier, NOAA Maritime Heritage Program Coordinator and Matt Lawrence, NOAA Maritime Archaeologist, are the primary MAHS contacts for the Barrel Wreck project. During our discussions they advised that there are several other wrecks in and around the vicinity of the Barrel Wreck that also remain unexplored. In particular there is a site locally identified as the "Gear Wreck" sitting in an area of the reef northeast of the Barrel Wreck. Matt's thought is that this site may not actually be a shipwreck but may be the remains of the Barrel Wreck which floated away a long time ago. His suggestion was for MAHS to continue its work on Pickles Reef and expand our research efforts from the location of the Barrel Wreck running along the bottom to the location of the Gear Wreck. This will provide the Sanctuary with a clearer understanding of the relationship between these sites, if any, and document the remains of the "Gear Wreck" for the their ongoing cultural inventory. The MAHS Board agreed and plans are underway to revise our permit and establish a work plan for the Gear Wreck phase of the project in 2017.

We took a break from the Pickles Reef project this August and a small contingent of MAHS members attended our annual summer picnic at Seneca Creek State Park. There was plenty of food and drink and we

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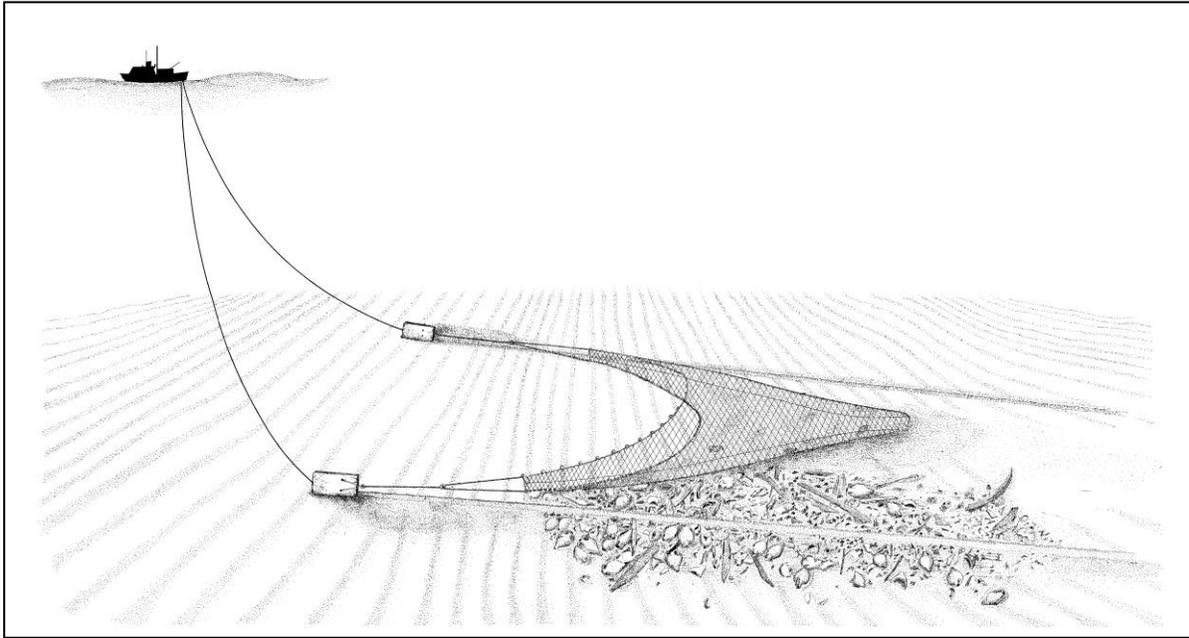
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MAHSNEWS is the official publication of the Maritime Archaeological and Historical Society (MAHS), a non-profit organization dedicated to preserving our global maritime heritage.

MAHSNEWS will consider articles and notices for publication which enhance public awareness and appreciation of maritime history, archaeology, and heritage preservation.



*Illustration of a trawling vessel towing trawl gear over an ancient shipwreck site.
Drawing by D. Davis.*

My approach was largely to work on quantifying the damage to ancient shipwreck sites through comparing amphoras broken by trawl to intact artifacts, and then by looking at differences in a site after repeat microbathymetric, or high resolution topographic mapping surveys, to determine how much material was displaced by trawling. My colleagues and I call for more deep water exploration, high resolution mapping efforts, and return visits to shipwrecks to both continue to quantify the rates of damage and also to draw public attention to the issue.

Public awareness of the loss to our underwater cultural heritage through bottom trawl fishing is paramount to protecting it. Oftentimes things below the surface of the ocean are easily forgotten or ignored as they are out of public sight. But as our exploited fisheries expand into more areas and deeper regions, more shipwreck sites become threatened. Trawls operate by towing weighted nets behind fishing boats, kept open with heavy metal trawl “doors.” The weighted bottoms of the nets can smooth over features on the seabed, but it is the trawl doors that cause the most devastating damage to the benthic ecosystem and shipwrecks, particularly ancient amphora wrecks. The nets themselves commonly ensnare wooden and steel-hulled shipwrecks. But unless a shipwreck has been found, documented, and noted on charts or in Coast Guard or Sanctuary databases, damage by trawl operations can occur daily with no knowledge or recourse.

The UNESCO Convention Annex of 2001 includes specific stipulations to the protection of underwater

cultural heritage (UCH). Specifically, it states “The protection of underwater cultural heritage through in situ preservation shall be considered as the first option.”

Certainly, there are times when excavation is warranted, either due to impending destruction of a site or in a limited manner for diagnostic purposes, among other examples. However, ships have come into equilibrium with the marine environment since the time of their sinking—“as they lie” is in many cases the best place for their preservation, especially given the time and cost of excavation, conservation, and curation, all of which are compounded for sites in deep water

This stipulation has become contentious as the largely unquantified threat of trawling has grown in recent years. How can one argue for in situ preservation of shipwreck sites if trawl operations are dismantling sites at a rapid rate? To further complicate the matter, the threat of damage from trawling is now being used to justify the commercial salvage of shipwrecks by groups such as Odyssey Marine Exploration out of Tampa, Florida. These commercial salvors (i.e. treasure hunters who sell off artifacts recovered from shipwrecks for profit) have made the argument that if shipwrecks are going to be trawled anyway, those considered historically significant (i.e. valuable) should be excavated. Their mode of excavation has been largely to smash through parts of wrecks to get to gold or silver in the hold, causing damage to other areas of the site, with results not unlike those produced by trawling.

Those aligned with the interests of salvage companies think in situ preservation is not a viable, all encompassing policy. They suggest selective excavation

of historically important wrecks is the best path forward. But what determines the historical significance of a shipwreck? A vessel that carried valuable goods? Can shipwrecks that contain no interesting artifacts be destroyed in lieu of ones carrying gold bars or artifacts of interest to salvors?

The majority of the shipwrecks threatened by trawling and in contention here are in deeper waters below recreational diving depth. Many shipwrecks discovered in these waters have already been damaged by trawling. We cannot protect what we do not know about. I instead argue for more ocean exploration and mapping to identify what cultural resources we have underwater. Once we know the sites in a given area, management decisions can be made. A colleague and I published a paper in *Marine Policy* in 2015 showing how fish in greater numbers and species variety congregate around less-trawled wrecks compared to

more heavily trawled wrecks. Based on the *Nautilus* expeditions off the Turkish Aegean coast, we suggest that an area with a high density of shipwrecks, if set up as a protected area, can in fact enlarge the fisheries targeted by trawlers. Juvenile fish congregate at shipwreck sites for the protection the hard substrate offers. By allowing sites to remain safe from trawling, fish will be able to grow and procreate. The fish population will then “spillover” into trawlable waters, creating a win-win scenario for fishermen, ecologists, and archaeologists. Trawling cannot be stopped, and every shipwreck cannot be excavated or removed from the seabed. Further exploration and documentation of shipwreck sites and maritime cultural landscapes, however, can best inform our management and policy decisions.

In June 2016, *Nautilus* conducted an ROV dive on a suspected shipwreck target off Washington State just over the border in Canadian waters. *SS Coast Trader*



Video capture of the Knidos J shipwreck site off southwestern Turkey. This Roman shipwreck was discovered with the trawl scar having ripped through the center of the wreck, exposing wooden timbers that might be deck planking. Image courtesy of Ocean Exploration Trust.



Video capture of SS Coast Trader showing trawl net rollers wedged against the hull where the fishing gear entangled the shipwreck. Image courtesy of Ocean Exploration Trust and NOAA.

was one of the first ships lost to a Japanese U-Boat torpedo in 1942, and was on a NOAA list of potentially polluting wrecks due to the oil known to be aboard when it was sunk. Over the course of the ROV dive that identified the site as *Coast Trader*, we also observed over a dozen impacts by trawls, which included entangled nets and rollers wedged beneath the hull. While we suspect the remaining fuel in unbreached parts of the hull is not in danger of leaking soon, continued trawl impacts could change that picture. Excavation or limited artifact recovery from a site like *Coast Trader* will not change the potential spill impact of this wreck or many others like it. More is at stake with shipwreck sites than just the value of artifacts, historic or monetary. Now that we have identified *Coast Trader* and conducted an assessment of the site's stability, we can

better monitor the wreck and inform the Coast Guard and local fishermen of the snag and hazard. Continued exploration of deep waters offshore is needed to best understand, identify, and manage all of our underwater resources, historic ones included, and so that these shipwreck sites are no longer unknown and unseen.

For further reading the author suggests:

"Quantification of Bottom Trawl Fishing Damage to Ancient Shipwreck Sites." Michael L. Brennan et al., in Marine Geology, Volume 371:82-88, 2016.

Michael Brennan is a marine archaeologist and oceanographic consultant at Brennan Exploration LLC, and works as an expedition leader for E/V Nautilus with a research focus on environmental assessments of shipwreck sites. ⚓

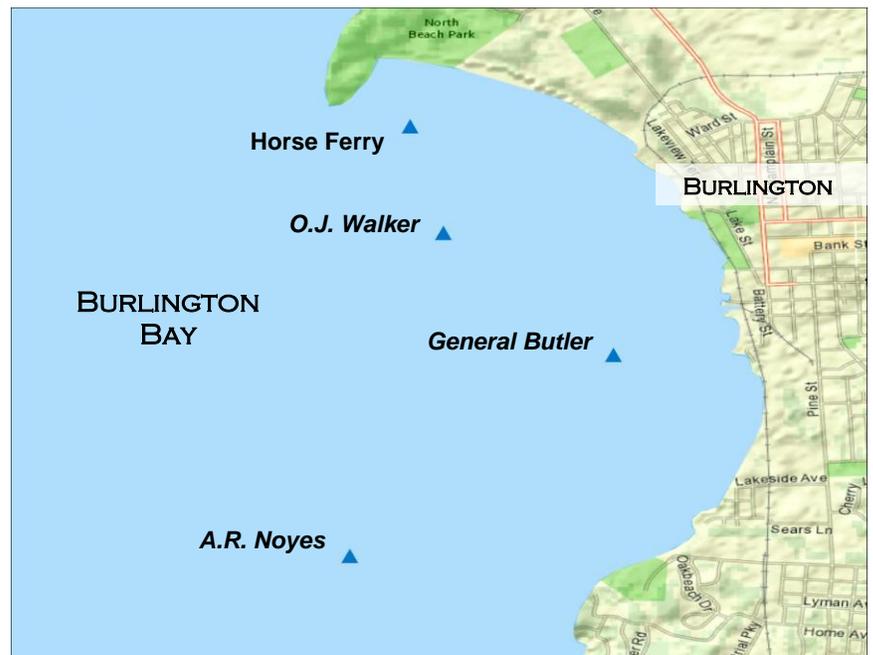
The Wrecks of Lake Champlain

by Gary C. Kessler

Most recreational SCUBA divers do not have Lake Champlain on their "must see" list of dive destinations, but those with an interest in U.S. history and maritime archaeology should. Located between New York and Vermont, Lake Champlain is the sixth largest fresh water lake in the U.S—and for three weeks in 1998 it was designated as a Great Lake.¹

Lake Champlain is 125 miles long and 12 miles wide at its widest point, near Burlington, Vermont. It is also home to a large number of well-preserved wrecks that are, in some cases, several hundred years old. Cold, fresh water preserves wooden wrecks and most in Lake Champlain remained undamaged until the influx of zebra mussels in the early-1990s.

Despite the dozens of historically significant wrecks in the lake, only nine are open for diving as part of the Lake Champlain Underwater Historic Preserve. For visitors to the area, five of the wrecks are easily accessible from Burlington, with four being in the immediate vicinity of Burlington Bay. This article will focus on these five wrecks.



*Location of four of the wrecks in Burlington Bay mentioned in the text.
Map by the author.*

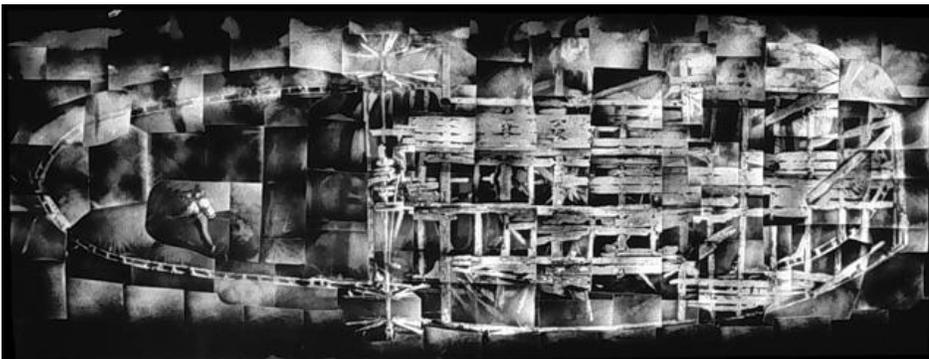
Horse Ferry

Perhaps the best known—or at least best documented—wreck in the lake is the Horse Ferry. Animal-powered boats were used in North America in the first half of the 19th century, and this wreck, discovered in 1983, dates back to 1830-1840. As the name implies, the Horse Ferry was a horse-powered vessel used to transport people and cargo on the lake; it is reportedly the only known wreck of such a vessel in North America. Zebra mussels have caused significant damage to the wreck, but the hull, side paddles, turnstile, and gearing

¹ The designation was a matter of politics. The National Sea Grant (NSG) program funds zebra mussel research in the Great Lakes, but not in Lake Champlain where they have been a problem since the early 1990s. Vermont Senator Patrick Leahy thus sponsored a bill in March 1998 designating the lake as a Great Lake. A political compromise "undesigned" the lake, and NSG research monies were made available.



A horse ferry across Lake Winnisquam, New Hampshire.
 Image from <http://www.paddleducks.co.uk/smf/index.php?topic=6544.0>.



Photomosaic of the Horse Ferry wreck. Image by Hill, Shares, and Floss for the Vermont Division for Historic Preservation, Courtesy of Lake Champlain Maritime Museum.



Port side of the Horse Ferry. Photo by the author.

are still largely intact. The wreck is 63 feet (19 m) long and lies in about 50 feet (15 m) of water.

O.J. Walker

Two other wrecks are close to the Horse Ferry in the bay. The *O.J. Walker*, a schooner-rigged canal boat, was built in Burlington in 1862. The *Walker* went down in a severe windstorm in May 1895. The crew abandoned the ship as it took on water, after which the boat tipped, dumped its cargo of brick and tile, righted itself and, finally, sank. The 86-foot (26-m) boat landed on its keel in about 65 feet (20 m) of water. Its hull, mast, and boom are mostly intact, with brick debris and a handcart lying near the vessel; an intact anchor is visible at the bow and the helm is still visible at the stern.

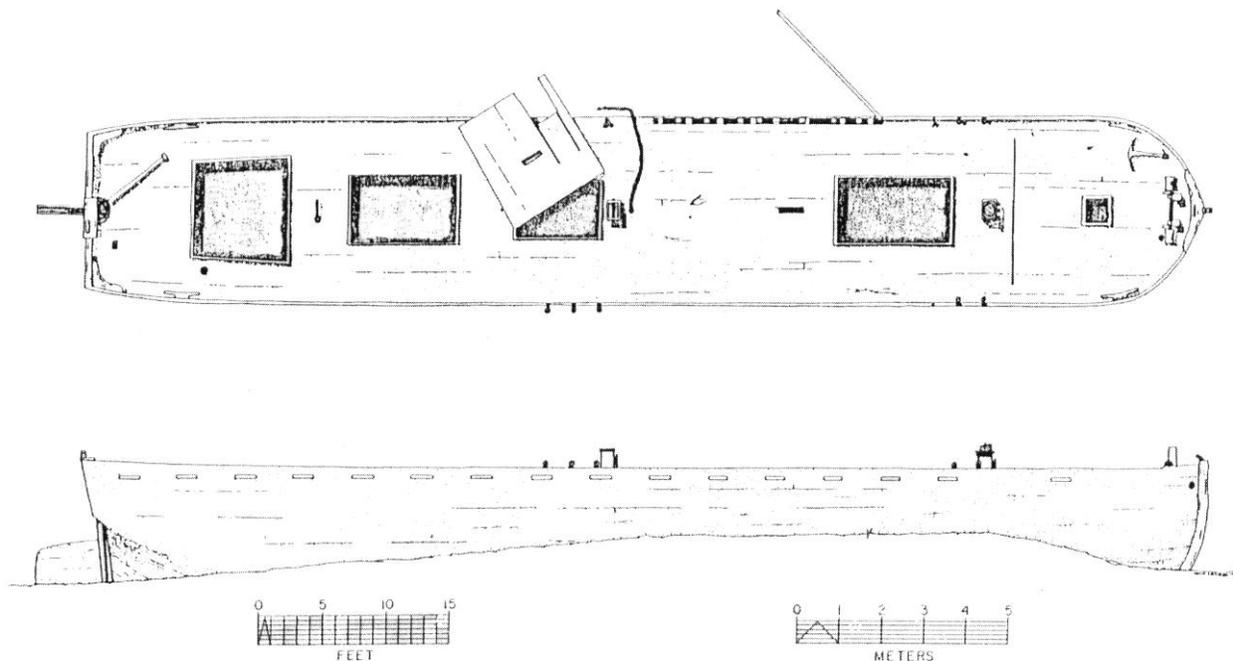
General Butler

Another wreck in Burlington Bay is the *General Butler*, also a sailing canal boat. Built in 1862 across the lake from Burlington in Essex, New York, the *Butler* sank in a winter gale in December 1876. As the boat approached Burlington, the ship's steering mechanism broke. Unable to maneuver, the ship struck the south end of the breakwater. One by one the five crew members were able to jump onto the breakwater as the waves lifted the boat over the rocks. Once on the jetty, however, the crew was still

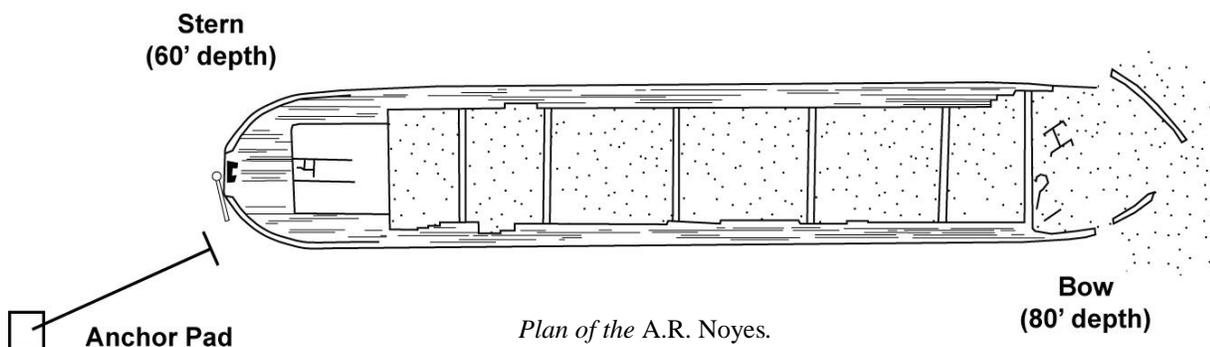
exposed to harsh weather conditions and freezing water; they were saved by a father and son who rowed a 14-foot (4-m) lighthouse boat to the breakwater to bring the crew back to the harbor. The hull is mostly intact and an anchor is still visible on the wreck, as is debris from its cargo of marble. The wreck is 88 feet (26 m) long and sits in about 40 feet (12 m) of water.

A.R. Noyes

At the south end of Burlington Bay is the standard canal boat *A.R. Noyes*, also known locally as the Coal Barge. Canal boats were the most common type of commercial vessel on the lake in the 1800s, first appearing in about 1823 and used until the early 1900s. Standard canal boats have no form of propulsion, and thus need to be towed. These boats were also sometimes the home to families of so-called *canalers*. The *Noyes* was one of a series of canal boats being towed to



Plan (above) and elevation (below) of the General Butler.
 Courtesy of Lake Champlain Maritime Museum.



Plan of the A.R. Noyes.
 Courtesy of Lake Champlain Maritime Museum.

Burlington by the tug *Tisdale* when several broke loose; the *Noyes* was the only one to have sunk. The stern of the 90-foot (27-m) wreck lies in about 60 feet (18 m) of water, while the bow lies in 80 feet (24 m) of water. This is a very fragile wreck, and while the stern end is relatively well defined, the bow end rapidly disintegrates into a debris field.

Phoenix

North of Burlington Bay, near the base of the former Colchester Reef Lighthouse, is the wreck of the steamboat *Phoenix*. Built in 1815 by the Lake Champlain Steamboat Company, the *Phoenix* was the second commercial steamboat on Lake Champlain.

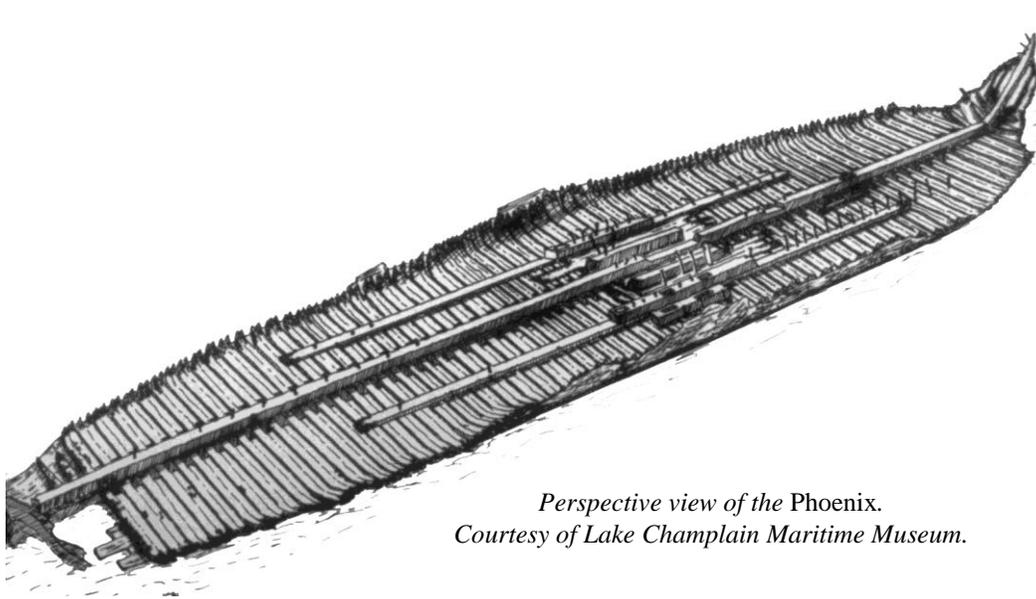
On September 14, 1819, the *Phoenix* left Burlington for Plattsburgh, New York—a run of approximately 20 miles (32 km)—at 11 p.m., with 46 passengers and crew, when fire broke out. All but 12 people on board

(including the captain) were able to get to lifeboats. They were rescued in the morning, but six people died in the frigid waters. The boat itself burned to the waterline and sank. It is unclear whether the fire was an accident or sabotage by a competitor. All that remains of the wreck are the very bottom of the hull, some planking, and some of the charred frames. The bow of the 146-foot (44-m) boat lies in 60 feet (18 m) of water and the stern in 110 feet (33 m).

Other Wrecks

There are four other marked wrecks in Lake Champlain:

- Sloop Island canal boat (Wreck Z): Built in 1873, probably sank in 1915; evidence that a family of three lived on board.



*Perspective view of the Phoenix.
Courtesy of Lake Champlain Maritime Museum.*



Iron bar recovered by archaeologists from Texas A&M University in Shelburne Bay. Photo by A. Apple, WCAX.

- Diamond Island canal boat (Stone Boat): Very little known about this wreck; ran aground carrying a load of quarried stone, either after accidentally separating from her tow or purposely run aground to save the cargo after taking on water.
- Lake schooner *Water Witch*: Built as a steamboat in 1832, converted to schooner in 1835, foundered in gale in 1866 while carrying a load of iron ore; the captain, wife, and two children survived the sinking, but the youngest child died.
- Steamboat *Champlain II*: Built in Burlington as *Oakes Ames* in 1868 to ferry railroad cars; renamed *Champlain II* in 1874 and converted to a passenger vessel; ran aground in 1875 near Westport, New York; the only one of the nine wrecks in the Preserve that is actually in New York waters.

Although these are the only marked wrecks in the lake, history continues to be found. In June 2016, evidence of four steamboats that were scuttled as long as 180 years ago was found by a team of archaeologists from Texas A&M University in the Shelburne shipyard. One never knows what secrets the lake continues to hold.

* * * *

Lake Champlain diving, even in the summer, has its challenges. The water is cold, with a several degree thermocline as shallow as 15-20 feet (4.5-6 m). Visibility is low, often being less than 15 feet (4.5 m). And there are zebra mussels to contend with on several of the wrecks. That said, the historical significance of the wrecks and the interesting dives make them noteworthy and worth the effort. It is always a good idea to get local information, and there are several dive shops in Burlington that can assist you.

For additional reading the author suggests:

Shipwrecks of Lake Champlain. Lake Champlain Maritime Museum (LCMM) http://www.lcmm.org/shipwrecks_history/shipwrecks/shipwrecks.htm

When Horses Walked on Water: Horse-Powered Ferries in Nineteenth-Century America by K.J. Crisman and A.B. Cohn. Smithsonian Institution Press, Washington, D.C. (1998).

“Heyday of the Horse Ferry” by D.G. Shomette. *National Geographic*, 176(4): 548-556 (1989).

Gary C. Kessler, Ph.D., is a professor and department chair of the Security Studies & International Affairs Department at Embry-Riddle Aeronautical University in Daytona Beach, Florida. He is the author of the PADI Wrecks of Lake Champlain Distinctive Specialty course. More information at <http://www.garykessler.net/scuba/wolc.html> ⚓

Trends in Rigging: A Comparative Database of Rigging Components

by Grace Tsai

Picture a ship's sail filling with wind, the canvas billowing out with a loud snap as a mighty gale quickens the pace of the vessel, the bow slicing through the ocean amidst rising and falling waves. For a ship to function, its rigging—the deadeyes, shrouds and stays, chainplates, sails, and blocks—must be in their correct locations and in good shape. If incorrectly rigged or in substandard condition, the entire system could give way, possibly resulting in a failed voyage that could spell disaster for the crew. Rigging was not an arbitrary addition on sailing ships, but rather a crucial component that dictated the shape of the hull and consequently the function of the ship. Rigging was what pushed the vessel forward, allowing the ship to bring people and cargo to their destination.

Yet as vital as rigging was on ships, it is often ignored archaeologically and holds a negligible place in maritime investigations. If not salvaged soon after sinking, the canvas, rope, and wood that make up a significant portion of the rig often disintegrate in most ocean conditions. Rigging remains are almost never found within their original context, having become detached from the ship, masts, or lines, making them difficult, if not impossible, to analyze. As such, little chunks of wood, rope, and canvas that may survive from rigging are often left unstudied and excluded from reports. Thus there is a near absence of comparative archaeological sources to go to for information.

Since 2014, as an Institute of Nautical Archaeology research associate from Texas A&M University, I have worked to compile a comparative database of rigging components. These artifacts date from ships that sank between AD 1545 and 1700, a period of rapid technological change in hull form and rigging. This catalogue includes blocks, deadeyes, chainplates and links, parrels and trucks, cordage, canvas, and miscellaneous parts—many of which are housed in the National Museum of Bermuda.

Although not yet complete, preliminary analysis has already indicated several temporal trends in rigging—especially in deadeyes. Deadeyes are small circular bits of wood that are used to adjust tension on a line. Deadeyes typically have three holes cut in them, organized in a roughly triangular formation. With some imagination, the three-holed deadeyes resemble a skull with a gaping mouth, hence their unique name. Deadeyes work in pairs, connected vertically by a thin rope laced between the holes. This two-deadeye arrangement provides flexible support by acting as shock absorbers, reducing force that would otherwise be exerted on the hull or masts.

Although deadeye function and arrangement stayed constant from the mid 16th century to late 19th century, several trends were observed within the database that now has over 110 deadeye entries. For example, deadeyes morphed from a pear-shaped form in the early-to-mid 16th century, to a pear-shaped with flattened base



Pear-shaped deadeye.
Warwick
93: 30-13-2



Pear-shaped deadeye with flattened base.
Western Ledge Reef Wreck



Rounded deadeye with tapered base.
Warwick
02: 155.254557-764-u



Round deadeye.
Warwick
79:155-34

Development of deadeye shape during the 18th century.
Photos by Karen Martindale and Piotr Bojakowski.

form around 1592, to a rounded form with a tapered base in 1666, to finally a fully round form that appeared in 1670. This shape remained popular until the early 1900s.

Not only did their shape change, but so did the wood grain on deadeyes. Early, pear-shaped deadeyes tended to have vertical wood grain whereas later, rounded deadeyes had horizontal or radial grain. These changes in shape and wood grain presumably reduced the chances of deadeyes splitting under pressure. Future experimental archaeology studies are planned to test this hypothesis.

The completion of the rigging database will allow researchers to put rigging artifacts into context, use them as dating tools, and track changes in technology such as standardization in production. As new deadeyes and rigging components come to light, the dates within the database continue to shift and provide a tighter and hopefully more accurate chronology. This research will be the first to produce a comprehensive database of rigging artifacts for future use in archaeological studies.

Grace Tsai is a research associate with the Institute of Nautical Archaeology at Texas A&M University. †

Repairs and Restoration of Bermuda's Maritime Museum Following Hurricane Damage

by Elena Strong and James Smailes

Three hurricanes struck the island of Bermuda over a twelve-month period, between October 2014 and October 2015—two within a single week. Hurricane Fay swept across the island in early October 2014 and within five days, while cleanup was still underway, Hurricane Gonzalo arrived to add to the destruction. Less than a year later, Hurricane Joaquin passed by the exposed western end of the island, causing yet more damage. Several buildings that make up the National Museum of Bermuda, including Commissioner's House—a 19th-century, cast iron-framed structure designed by the chief Royal Naval architect Edward Holl in 1822—along with the museum's curatorial department, and parts of the volunteer hostel and apartments, were among those seriously affected by the storms.

The museum lies within the grounds of the fortress keep of the former Royal Naval Dockyard. Situated on the high point of the citadel, Commissioner's House contains administrative offices and museum displays. Construction crews were one week from completing roof repairs to Commissioner's House when Hurricane Joaquin struck.

After 18 months of repairs and major restoration work, however, Commissioner's House recently reopened. The House sustained extensive roof and interior damage and the museum has spent the past year rebuilding and fortifying the structure against future storms.

The repairs represent extensive effort by staff, volunteers, and contractors to deal with the immediate aftermath of the hurricanes (implementing the museum's disaster management plan), and then to rebuild and prepare for the reopening of the House. The entire roof of Commissioner's House has been restored and



Roof damage to Commissioner's House and the volunteer hostel (foreground) at the National Museum of Bermuda, formerly the Bermuda Maritime Museum. All photos courtesy of the National Museum of Bermuda.



Exposed wooden roof cladding.



Stripping wooden roof planking.



Museum intern Chloe Baron cleaning artifacts in the immediate aftermath of Hurricane Fay.

replaced with steel cladding and a new waterproof membrane has been installed. The interior truss framework of 19th-century cast iron has been restored and reinforced. More than 300 linear feet of cast iron fascia was sandblasted and painted, and all wrought iron work, such as roof purlins and stairway hand rails, was conserved. Water damage required most of the second-floor ceilings and many interior walls to be replaced. Electrical wiring and light fixtures were replaced or reconditioned, and air conditioners were cleaned and serviced. To carry out the work and protect collections, Commissioner's House was emptied of all artwork, historic objects, exhibit panels, and furniture. A network of scaffolding was erected, non-moveable objects and carpets were covered, and areas were cordoned off with dust sheets against construction debris.

The closure of Commissioner's House has had a significant impact on museum operations, preventing

schools and visitor access to one of Bermuda's major cultural tourism assets and the island's largest single artifact.

After many months of work, however, staff and volunteers reinstalled exhibits, artwork, and artifacts in preparation for the reopening. Commissioner's House reopened on May 9, 2016, with a celebratory and fundraising party and a ceremonial roof wetting—with rum of course.

The Curatorial Department remains in a temporary office and their operations are restricted. Despite this, the work of the museum continues, as highlighted in the following article.

Elena Strong is Deputy Director and Curator at the National Museum of Bermuda and editor of MARITIMES, the museum magazine. ⚓

Deep Freeze Documents Brought Back to Life

by Michelle Frumkin

When two hurricanes hammered Bermuda five days apart in October 2014, quick action saved an extraordinary amount of institutional records that had been soaked by water. Staff and volunteers of the National Museum of Bermuda moved quickly to store the waterlogged materials from the Curatorial Office temporarily in a deep freezer.

But the rescue work had only just begun. Over the past year the labor intensive and time-consuming job of defrosting, drying and sorting through the waterlogged materials has been carried out by staff members, interns, and volunteers. Thousands of documents in the 20-foot freezer container have now completed the defrosting process, and have been sorted, treated, and saved.

Freezing buys time when the number of wet items makes it impossible to air dry them within the 48 hours when mold can bloom; it allows materials to be dealt with in manageable batches

Trained museum conservator Zoe Brady is helping to restore the waterlogged documents, photographs, and other items. The task has required many judgment calls regarding the value, the extent of the damage, and the nature of particular items. “You need to keep the long-term preservation of the objects in mind, so you’re not doing too much or doing too little,” she said.

Most of the damaged papers concerned the day-to-day business of the Curatorial Office rather than rare historic documents. An example file, still with a Post-It note on top, contains an archaeological report about Chubb Head (an area of the Bermuda reef) and had been waiting to be scanned. For such an item, the key is preserving the data rather than saving the integrity of the paper itself.

“The most important thing to avoid is bleeding of ink and the running of the colors and things like that,” said Brady. Indicating a fold in a document, she added, “I could have sorted that out, but I didn’t deem it necessary. It wasn’t worth the time and the attention to do that, because ultimately it’s a container for information.”

Brady monitors the defrosting of documents closely for pooling or uneven drying, and for condensation, which can happen in Bermuda’s humid climate. She uses blotting paper to soak up excess water while being careful not to disturb the object itself. Brady uses a similar approach to old photo prints. “The problem with photographs,” she said, “is once they get wet they stick together, something anyone with old snaps at home can appreciate. If you wait too long to separate them, they can solidify into one big block.”

Compare this approach to the care given a water-damaged map found in a folder: an early-19th century print is a historic item. In this case, an old adhesive became sticky again having been wet. There was also a crease involved, but this time the object’s value deemed it worthy of additional care and attention. “With this, it was worth ensuring it was flattened properly, the adhesive removed so it wouldn’t stick to other documents— and all of this done with more care than defrosting an office record which can be reprinted,” she said.



*Conservator Zoe Brady with documents rescued following water-damage.
Photo courtesy of the National Museum of Bermuda.*

This and the preceding article originally appeared in slightly different format in MARITIMES 2016, Vol 29, No 1. MARITIMES is the magazine of the National Museum of Bermuda.

Michelle Frumkin is a volunteer with the National Museum of Bermuda. ⚓

Be sure to keep your MAHS Membership current. Renew now. If you are not a member, become one and join us in supporting maritime historic preservation.



Pickles Reef Update

by James Smailes

For the past several years MAHS volunteers have been working on behalf of the Florida Keys National Marine Sanctuary at a shipwreck site located on Pickles Reef, off Key Largo. We returned for our annual visit in June of 2016, working again under a permit that authorized our field research within the Sanctuary.

As in past seasons at the site, the project combined survey work by volunteers with the MAHS Field School in Underwater Archaeology. The field school is held at least once a year for graduates of MAHS' live underwater archaeology course or the MAHS video course, *Diving into History*. Diving services for the project were contracted through Rainbow Reef Dive Center in Key Largo.

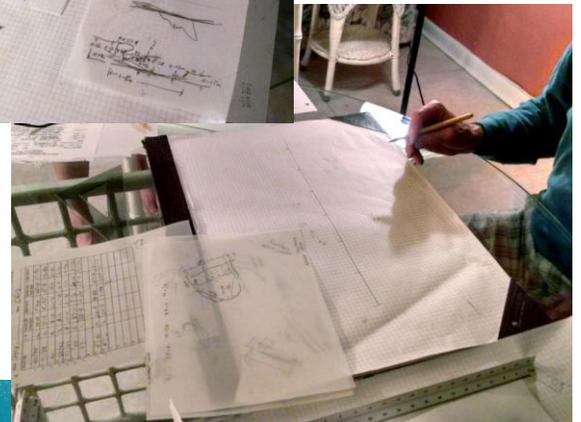
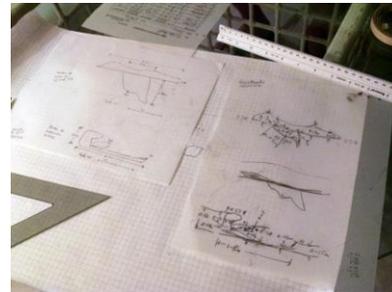
The wreck site consists of the remains of a metal-hulled sailing vessel and a concentration of cement barrels that lies next to the metal wreckage.

The field school concentrated on mapping details of what we believe to be the bow end of the metal wreck.

The students also made drawings of disarticulated features that may help determine what kind of vessel this was and just what happened to it. There is widely scattered debris to the north and west of the metal wreck and barrels. We spent some time collecting additional data on what may be a bulkhead and several large pieces of hull plating nearby.

Adjacent to the metal wreck is a distribution of cement barrels that we now think were thrown from another ship that grounded on the reef in a separate incident. We have continued to do archival research and, thanks to Deborah Marx, at the Office of National Marine Sanctuaries, now have historical newspaper accounts that reported the Norwegian steamer *Times* having run aground on Pickles Reef on May 15, 1914, and jettisoning part of its cargo of cement to lighten its load and move off the reef.

We are in the process of completing a final site report that will be submitted to NOAA this spring. ⚓



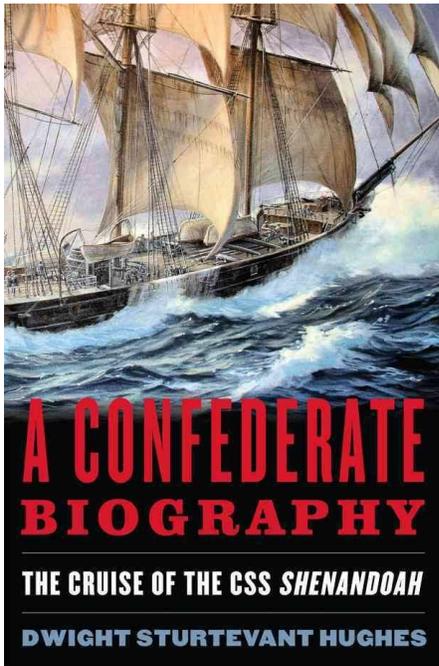
Clockwise from above: MAHS instructor J. Smailes (center) and field school students C. McClary and G. Kessler examine bow area in preparation for mapping; plotting field drawings; Kessler, Smailes, and McClary map bulkhead feature separated from the main part of the metal wreck.
Photos by D. Knepper.



A Confederate Biography: The Cruise of the CSS Shenandoah by Dwight S. Hughes (Naval Institute Press, 2015)

reviewed by Dennis Knepper

By the start of the American Civil War, privateering was no longer a factor in most naval conflicts. Privateers were privately owned ships sanctioned as raiders by letters of marque from their government. They conducted most of the attacks on merchant shipping in wars through the mid-19th century. The Treaty of Paris of 1856, drawn up at the end of the Crimean War, included as a final provision the so-called Declaration Respecting Maritime Law, which effectively abolished these nautical mercenaries. The signatory nations agreed to stop commissioning private vessels, and thereafter, attacks on enemy shipping were conducted by state-owned naval vessels operating as officially recognized commerce raiders.



The United States withheld formal adherence to the Paris Declaration, and at the start of the Civil War the Confederate states offered letters of marque to vessels of any country willing to aid their cause. The U.S. Federal Congress followed suit authorizing the President to grant similar commissions. None were issued by either side, and in the end naval vessels did most of the damage to merchant shipping during the war. The most famous raiders of the war were the Confederate ships *Sumter*, *Florida*, *Alabama*, and *Shenandoah*. The last of these, *CSS Shenandoah*, is the subject of a new book by Dwight S. Hughes: *A Confederate Biography: The Cruise of the CSS Shenandoah*.

The book's title, and the metaphor it represents, refers to the story as an account of the life of the ship. The idea is taken from a quote by Raphael Semmes, captain of the notorious *Alabama*, who referred to a ship's cruise as a biography, the ship itself being the subject or central character.

Unlike *Florida* or *Alabama*, both of which were purpose-built in British yards for Confederate agents, *Shenandoah* was a clipper ship, beginning life as a civilian merchant vessel and later purchased and converted to a raider. Originally built as *Sea King* in the Kelvinaugh yard of Alexander Stephens and Sons, Glasgow, the ship was a screw steamer. It displaced 1,018 tons and measured just under 230 feet in length, 32 feet 8 inches in the beam, and had a draft of 20 feet 6 inches.

As a clipper, the vessel was ship rigged, but also carried auxiliary power in the form of a 200 horsepower, vertical reciprocating steam engine, built by A. & J. Inglis, and connected to a 12-foot-diameter brass propeller that could be retracted to reduce drag while under sail. *Sea King* was designed to make 9 knots under steam, 14 knots under sail. Certified Class A1 by Lloyd's of London, Hughes notes that the vessel was the first clipper ship of composite construction, with iron frames and wooden planking, and the first clipper specially constructed for the China trade.

S*ea King* made several voyages to the Far East in 1863, carrying cargo and in one instance troops for the Maori War in New Zealand. Agents from the Confederacy in Liverpool, James Bulloch and Stephen Mallory (Navy Secretary), were on the lookout for sleek, fast ships to be used as raiders. They purchased *Sea King* in September 1864 from then owners Wallace and Brothers of Liverpool. To avoid seizure by the British under the Foreign Enlistment Act, transfer and renaming occurred in Madeira in October 1864.

Shenandoah made a single, but highly successful cruise. Captained by James Waddell, the ship left Madeira, rounded the Cape of Good Hope, crossed the Indian Ocean to Australia, and continued north through the Pacific to the Bering Sea. Waddell and *Shenandoah* took several vessels in the Atlantic and Indian Oceans, four American whalers at Pohnpei, in the Caroline Islands, and 24 more whalers in the Bering Sea. On heading south again into the Pacific, *Shenandoah* heard news of the Lee's surrender at Appomattox, after which the ship continued around Cape Horn and back to

Liverpool, ending a 13-month cruise that included 38 captures. In the Bering Sea *Shenandoah* effectively fired the last shot of the Civil War, then lowered the Confederate flag in Liverpool for the last time, undefeated and without surrender. This was the cruise that comprised the biography of *Shenandoah* skillfully detailed in Hughes' book.

The career of CSS *Shenandoah* may be overshadowed somewhat by the more notorious CSS *Alabama*, in part because *Alabama's* career was slightly longer, with more enemy ships taken or destroyed, and in part because of the famous battle with USS *Kearsarge*, outside the port of Cherbourg, France, in June of 1864, which ended her career. While prize taking was not as central a factor for commerce raiders as for privateers, *Alabama* did very well, taking 65 prizes over 2 years (1862-1864) valued at nearly \$6,000,000—approximately \$91,000,000 in today's dollars. *Shenandoah* took 38 prizes in a single 12-month cruise (1864-1865) valued at nearly \$1,400,000—\$21.6 million today.

As is sometimes the case with ships that outlive their immediate purpose, *Shenandoah* ended life less gloriously as a private yacht, sold to the Sultan of Zanzibar in 1866. Renamed *El Majidi*, the ship was damaged in a hurricane there in 1872 and sank.

A *Confederate Biography* represents an extensive amount of archival research, the text being distilled from a very large quantity of documents, or as Hughes notes in his Preface, an “embarrassment of riches in primary sources.” The material included four personal journals and two memoirs, kept by individuals ranging from the captain to the surgeon to a mid-shipman, along with many official documents. The many quotes that illustrate the book were taken mainly from the journals and an annotated captain's log.

This trove of data represents detail that Hughes has expertly organized and woven into a well-crafted and engrossing narrative. The text is interesting and readable, even page-turning in places, with few dry sections. It is an engaging narrative that is packed with historical information; it is well-paced and a good read from cover to cover.

The author is a naval professional who displays a keen understanding of the close connection between a ship and its crew. The accounts of shipboard life, the feel of sailing before a gale in the roaring forties between Africa and Australia, the varied experiences ashore in Australia and the Carolines, all give depth and breadth to the narrative. Much of the decision-making process aboard ship is seen through the journal entries. Particularly significant was the choice of where to go following news of the surrender—where the ship and crew might expect the best treatment, given their status

as former belligerents. As Lieutenant Francis Chew noted, “We are *Exiles*... Our situation is very peculiar and very dangerous.” They were obliged to surrender the vessel, which was public property, but not necessarily themselves. In the end they chose to return to their starting point—Liverpool.

A *Confederate Biography* is published by the Naval Institute Press, “a private, nonprofit membership association for sea service professional and others with an interest in naval and maritime affairs.” The main text consists of 213 pages, followed by endnotes, a bibliography and an index. The text is divided into 19 chapters of balanced length, generally telling the story chronologically. The book is also available in an ePress edition.

The book has the requisite number of illustrations, placed together in the center of the volume. The subject being the Civil War-era, when photography was becoming commonplace, the images include portraits of many of the individuals mentioned in the text, along with lithographs of the ship in several locations, and a few images of the island of Pohnpei from a travelogue published at the turn of the 20th century.

* * * *

In the larger context of the war, Hughes notes, commerce raiding, or *guerre de course*, represented “incremental transfers of wealth and material and could affect home-front morale, but [did] not produce victory or defeat in battle.” The raiders did, however, “far more damage [relative to their cost]... than any other class of military investment made by the Confederacy.” They distracted numerous ships from blockade duty and damaged Northern merchants. The raiders sank thousands of tons of shipping (prize taking and profits were often not as much of a factor as in earlier privateering), and they caused insurance rates to soar, an effect similar to that seen in earlier conflicts. However, their direct effect on the Union war effort was limited largely by the fact that there were rarely more than a handful of raiders at sea at any given time.

Hughes notes in his Preface that the objective of the volume “is to provide an entertaining and educational story not only for naval and maritime history enthusiasts but also for anyone who would enjoy a fresh perspective on the Civil War.” His work achieves this goal admirably. *A Confederate Biography: The Cruise of the CSS Shenandoah* is at once a pleasurable and enlightening reading experience.

Dwight S. Hughes is a graduate of the U.S. Naval Academy. He served with river forces in Vietnam and for 20 years as a surface warfare officer on ships ranging from destroyers to aircraft carriers. ⚓

Privateers of the Revolution: War on the New Jersey Coast, 1775-1783

by Donald G. Shomette (Schiffer Publishing, 2016)

reviewed by Dennis Knepper

Over the last few years *MAHSNEWS* has reviewed several books published in observance of the bicentennial of the War of 1812, and in particular works on privateering during that conflict. While we appear to have passed beyond the period commemorating the war, privateering remains a subject in the current focus of historical researchers, as witnessed by the recent book by Donald Shomette, *Privateers of the Revolution: War on the New Jersey Coast, 1775-1783*. In it, Shomette reviews the history of privateering and its impact on the American Revolutionary War, concentrating on the more than 500 privateer vessels that sailed from harbors and landings Pennsylvania and New Jersey.

Privateers were the wolf packs of their day, writes Shomette, operating in small squadrons that, from the start of the conflict, harried British merchant trade and the transport of troops and matériel. British troops and the Hessian mercenaries supporting them were initially carried across the Atlantic in single chartered vessels. By the fall of 1775, however, the menace of American privateers had raised insurance rates for British shipping to very high levels and required ships to sail in convoys escorted by men-of-war, a measure that was expensive and that kept naval ships from offensive operations and from blockading rebel ports.

During the course of the war more than 1,700 private vessels sailed with commissions—or letters of marque—from the Continental Congress. They carried nearly 16,000 guns and well over 60,000 seamen. Added to the total number of vessels were approximately 1,000 more sailing under individual state commissions in New England. In comparison, the Continental Navy fielded 64 ships over the same period, 17 of those in a flotilla confined to Lake Champlain.

The lopsided numbers are not surprising. At the beginning of the rebellion the American navies, whether Continental or state, had to be assembled essentially from scratch. Privateers were a quick way to raise an effective if somewhat unruly maritime force to counter

the British Royal Navy, the preeminent naval force at the time. The privateers ranged from fully complemented schooners and brigantines to whaling boats manned by just a few men and known colloquially as whaleboat raiders.

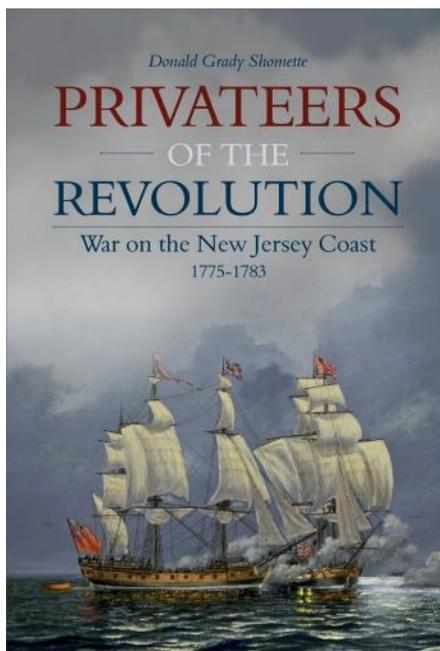
Patriotism aside, the economic lure of privateering was great, not only for the owners of ships, but for sailors alike. Volunteers in the Continental Army were likely to die from disease or in battle, while a cruise on a privateer offered seemingly less risk and, potentially, the very real reward of prize money. Shomette acknowledges that the practice siphoned men from regular naval service at a time when there was already competition for recruits between the Continental Navy and the several state navies. However, faced with the overwhelming might of the Royal Navy, the odds were against the rebels at sea—any means of countering that threat was readily accepted.

In a form of retaliation, the British began issuing commissions of their own. By late 1778, loyalists were preying on American shipping, and a war-within-a-war soon developed, with partisans—often non-commissioned—actively defending the coastline.

This aspect of the rebellion erupted into a brutal, “near-civil-war stasis...on the New Jersey coast, serving little strategic purpose for either side, but deepening the hatred between royalists and rebels that would never mend.”

As noted in the introduction, the book is not a complete history of privateering in the American Revolutionary War, but rather of the story of the war as conducted along the barren coast of New Jersey. That coastline is fronted by barrier islands and shallow sounds that provided ideal hiding places for marauding vessels escaping from deep-drafted British naval ships. It was a barren area with little population other than fishermen and iron-mongers, as well as smugglers and others living outside the law.

Chestnut Neck, up the Mullica River from Little Egg Harbor, was a small hamlet surrounded by marshes, with a dozen or so houses and a few warehouses for



prize cargos. Before the war it was a smuggler's haven, and during the war most of its residents were involved in privateering in some way, transporting prize goods and occasionally prisoners of war the 40-odd miles overland to the Delaware River. A deep channel that was passable by large ships ran near the town site, but shifting shoals made close knowledge of the underwater terrain essential to safe navigation. The river soon became notorious as a hub of privateering activity and eventually drew the attention of the British. The town was razed, but not before it was evacuated, along with the ships and most of the prize cargo there at the time.

The author's erudition is plainly on display—the work is authoritative and, to borrow a naval term, commanding. Noted in the cover fold, the book was 40 years in the making, and the amount of research behind it is obvious. Shomette is known for his scholarship, and this volume is a fine example of his approach. The work is rich in detail while maintaining a wide historical perspective. He provides numerous examples to illustrate the narrative, including specific incidents and stories of the people involved, from ship captains to ordinary citizen patriots. This is an exceptionally well-documented history that reads like the adventure story that it oftentimes was.

Shomette is a writer, historian, marine archaeologist and cultural resource manager living in Dunkirk, Maryland. He is the author of 16 previous books, including *Maritime Alexandria: The Rise and Fall of an American Entrepôt*; *Lost Towns of Tidewater Maryland*; *Ghost Fleet of Mallows Bay and Other Tales of the Lost Chesapeake*; *Shipwrecks, Sea Raiders, and Maritime Disasters Along the Delmarva Coast, 1632–2004*; and *Flotilla: The Patuxent Naval Campaign in the War of 1812*. Shomette has received numerous honors including the Calvert Prize, Maryland's most prestigious award for historic preservation, and was twice the winner of the John Lyman Book Award for Best American Maritime History. Long a supporter of MAHS, he was instrumental in the development of the MAHS Introduction to Underwater Archaeology class.

The book presents its subject in three parts, in a generally chronological order. The first section provides background, considering the role of privateering, termed “a justifiable piracy,” as a facet of the American rebellion and its development along the Jersey coast. The middle section deals with the results of the practice, including both the financial effects and retaliation by the British. The final section describes the end met by many captured privateers, a slow death in a prison hulk.

The work is amply illustrated with contemporary maps, paintings and etchings, that are integrated into the

text rather than placed together in a central mass. The text itself runs to 323 pages, followed by three appendixes, including an annotated list of the 538 privateers with Continental commissions issued by the State of Pennsylvania. Another 58 pages contain endnotes that occasionally consist of more than just source information.

Bibliographic references follow, along with an index which, while serviceable, is confined to names of people, ships and a few geographic locations—tighter editing would have caught a group of entries that are out of alphabetical order.

Shomette uses the story of the prison hulk *Jersey* as a type of framing device. His Introduction begins in the early 19th century with an old man collecting the bones of prisoners eroding from the shore of Wallabout Bay on the East River in New York. The book ends with the sordid history of the vessel in which an estimated 11,000 men died, a large proportion of them privateers. Bones continued to surface throughout the 19th century, as efforts to create a lasting memorial to those who died there continued fitfully. The waterlogged remains of the prison hulk were rediscovered in 1902 during construction of USS *Connecticut*, and the current Prison Ship Monument was erected in Fort Greene Park, in Brooklyn, soon afterward. Dedicated in 1908, the monument fell into neglect and deteriorated significantly. Like the history of New Jersey's privateers that is now told in Shomette's book, it was not until the beginning of the 21st century that a new effort was mounted for restoration of the memorial.

In the preface to his classic work, *A History of American Privateers*, written in 1899, Edgar Stanton Maclay observed that “Our privateers were a most important if not predominating feature of our early sea power... The history of the United States navy is so intimately connected with that of our privateers that the story of one would be incomplete without a full record of the other.”

Since Maclay made this observation there have been a number of studies of privateering published. Studies of the practice in the American Revolution have often focused on the role of New England ships and the mercantile enterprises behind them. The part played by the Middle Atlantic states in privateering during the rebellion has typically been glossed over if not virtually ignored. With its primary eye on New Jersey's vital contribution to the maritime conflict, *Privateers of the Revolution* is a welcome complement to the existing literature and will become a necessary part of any library collection concerned with privateering or with the American Revolution in general. †

Tobacco, Pipes and Race in Colonial Virginia: Little Tubes of Mighty Power

by Anna Agbe-Davies (Left Coast Press, Walnut Creek, Calif., 2015)

reviewed by Dennis Knepper

Among the books we have received recently for review is *Tobacco, Pipes and Race in Colonial Virginia: Little Tubes of Mighty Power*, by Anna Agbe-Davies. This study explores the relationship between a common artifact found on historical archaeological sites and examines such notions as ethnicity and social status.

The artifact in question is the 17th-century tobacco pipe, an artifact type imported from Europe but also produced locally in the Chesapeake Bay region. The collections examined in this study were from a series of Virginia plantation sites and from the urban Jamestown settlement.

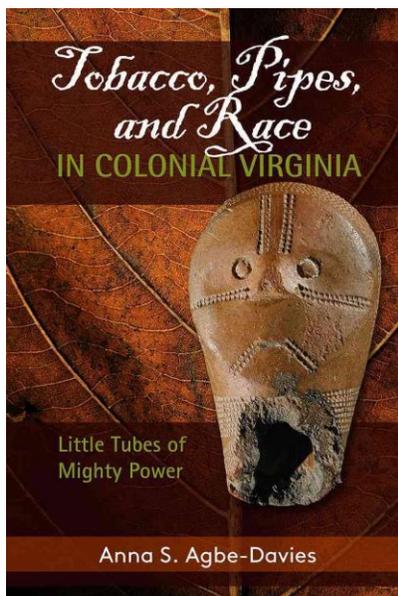
Looking beyond traditional perspectives on artifact typology to some extent, the author argues that drawing easy one-to-one relationships between artifact types and race or social class—that is, correlating objects with cultural identities—is often meaningless or even misleading. Rather than attempting to directly identify ethnic precedents for individual artifacts (in this case European, African, or Native American), she approaches artifact analysis indirectly by examining a range of aspects seeking modal or common characteristics in such

things as materials, manufacturing techniques, shape, decoration, social aspects of use and distribution.

The author describes her approach as critical systematics, which focuses on the analytical process itself and the selection of an analysis that suits the problem at hand rather than a predetermined classification scheme. Her study points out that the choices that archaeologists make about how they classify artifacts can have effects on the analyses they undertake. And so, she argues, by looking at what artifact categories mean and how they are used, we may reach broader insights into social questions rather than answering simple questions such as who made what.

While the issues considered in the book are not the type that are often asked of data from underwater archaeological sites, the approach is of interest in that it encourages an examination of the analytical techniques that we may select, be it in the analysis of colonial tobacco pipes or naval cannon. The processes can

have an effect on the questions we ask as well as on the conclusions we arrive at—how we classify things can have a distinct bearing on the interpretations we reach, and we should be aware of the influences. ⚓



continued from page 2

lucked out with a beautiful summer day to enjoy the shady peaceful environs of the park. If you missed the picnic this year you missed a quiet, relaxing time in the company of old friends who enjoy sharing their love of underwater archaeology. So be sure to mark your calendar early and plan to join us next summer.

We were pleased to have Matt Lawrence as the guest speaker for our October General Membership Meeting. Matt addressed the members about the plans for the new Gear Wreck project and responded to questions. We also discussed our ongoing effort to use new 3-D and photogrammetric site survey techniques to generate more accurate and efficient site mapping capabilities. Matt recommended several software

programs that are easy to use and affordable enough for us to deploy on MAHS projects.

The development of the new site mapping technology and commencement of our new Gear Wreck project on Pickles Reef will be keeping us busy over the winter months. So, please come out and join us in the fun and learn more about the fascinating world of underwater archaeology.

See you on the water,

Steven Anthony
President



MARITIME ARCHAEOLOGICAL AND HISTORICAL SOCIETY

Statement of Ethics

The Maritime Archaeological and Historical Society is organized for the purpose of enhancing public awareness and appreciation of the significance of submerged cultural resources and the science of maritime archaeology. In pursuit of this mandate, members may come into contact with unique information and cultural material associated with terrestrial and underwater sites containing evidence of the history of humankind. To protect these sites from destruction by commercial salvors and amateur souvenir hunters, the Society seeks to encourage its members to abide by the highest ethical standards. Therefore, as a condition of membership and pursuant to Article 2, Section 1 (A) of the bylaws, the undersigned executes this statement of ethics acknowledging adherence to the standards and policies of the Society, and further agrees as follows:

- 1. To regard all archaeological sites, artifacts and related information as potentially significant resources in accordance with federal, state, and international law and the principles and standards of contemporary archaeological science.
- 2. To maintain the confidentiality of the location of archaeological sites.
To excavate or otherwise disturb an archaeological site solely for the purpose of scientific research conducted under the supervision of a qualified archaeologist operating in accordance with the rules and regulations of federal or foreign governments. Artifacts shall not be removed until their context and provenience have been recorded and only when the artifact and related data have been designated for research, public display or otherwise for the common good.
- 4. To conduct oneself in a manner that protects the ethical integrity of the member, the archaeological site and the Society and prevents involvement in criminal violations of applicable vandalism statutes.
- 5. To observe these standards and aid in securing observance of these standards by fellow members and non-members.
- 6. To recognize that any member who violates the standards and policies of the Society shall be subject to sanctions and possible expulsion in accordance with Article 2, Section 4 of the bylaws.

Signature _____ Date _____

**MARITIME ARCHAEOLOGICAL AND HISTORICAL SOCIETY
PO Box 44382, L'Enfant Plaza, Washington, D.C. 20026
Application for Membership**

Membership in the Maritime Archaeological and Historical Society is open to all persons interested in maritime history or archaeology whether or not they are divers. Members of MAHS have first preference for enrollment in all courses and other activities and projects of the Society. To join MAHS, please sign the Standards of Ethics above and send it to MAHS along with your check and this application form.

Name (print) _____

Address _____

City _____ State _____ Zip _____

Phone (H) _____ (O) _____ (FAX) _____

E-mail _____

DUES ENCLOSED	
___ \$30	Individual
___ \$35	Family
___ \$50	Sponsor
___ \$100	Patron

Skills (circle): research / dive / video / communications / writing / first aid / other:

Please mail this form along with your check to: MAHS at PO Box 44382, L'Enfant Plaza, Washington, D.C., 20026

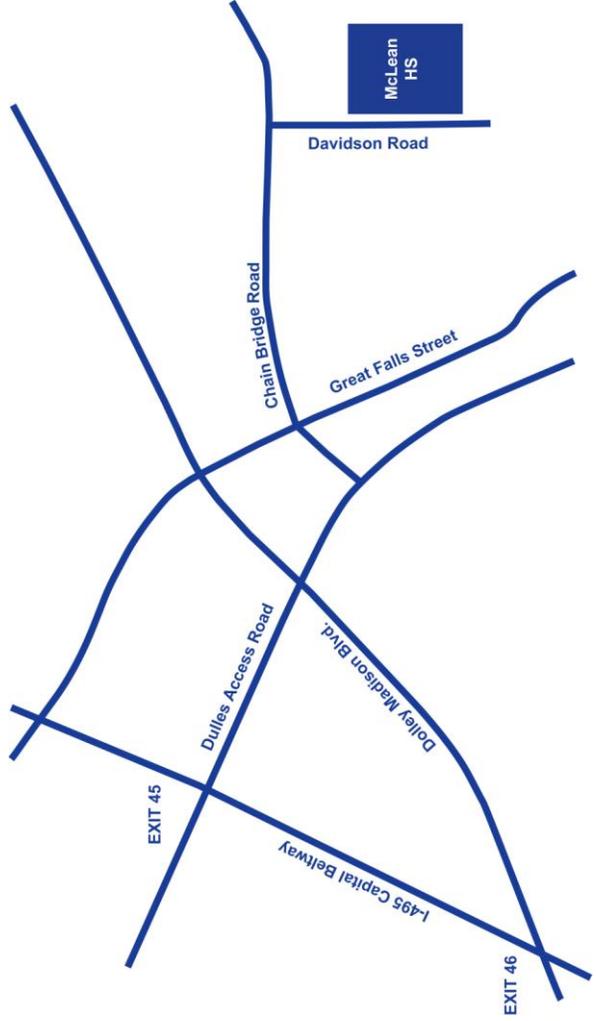
General membership meetings of the Maritime Archaeological and Historical Society are held on a bi-monthly basis, the second Tuesday of each month. Meetings are held at 7:30 p.m. at McLean High School, in McLean, Virginia, except in August and December. Meetings in August and December are held at other locations for special events and holiday parties

Please join us and bring a friend. The school is located on Davidson Road, just inside the Capital Beltway (I-495) - use Exit 45, coming from Maryland, or Exit 46, coming from Virginia.

Check the website www.MAHSNet.org for e-mail advisories about any schedule changes.

Renew Now!

It's time to renew your membership in MAHS. It's easy. Just complete the application form on the inside back cover and sign the Ethics Statement, enclose a check for your dues, and mail! Thank you!



**MARITIME ARCHAEOLOGICAL AND
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