

# MAHS NEWS



VOLUME 29, NO. 1

SPRING 2018

## MAHS Celebrates Its 30<sup>th</sup> Anniversary

By Steven Anthony and James Smailes

**M**AHS, the Maritime Archaeological and Historical Society, is celebrating its thirtieth anniversary in 2018. Throughout the past 30 years MAHS has been devoted to training recreational divers in the science and techniques of maritime archaeology, and sharing the fun and excitement of exploring historic shipwrecks and other submerged cultural resources with fellow divers throughout the world.

Back in 1986, a few wreck divers from a Washington DC area scuba club began studying the history of the sunken vessels they were exploring in the Chesapeake Bay. What ship was it? Where did it come from? How did it end up on the ocean floor?

These divers recognized the challenges presented by this type of shipwreck study and came up with a solution. They began to study underwater archaeology, talking to local historians and archaeologists, and inviting them to collaborate on local shipwreck projects.

The divers also saw the value of providing trained volunteers to assist the Maryland Maritime Archaeology Program operated under the direction of Dr. Susan Langley, Maryland State Underwater Archaeologist. Their goal was to provide the State with a cadre of recreational scuba divers with training in the science of maritime archaeology to document and preserve the state's historic shipwrecks. As the training programs developed, it became evident that a strong ethical



MAHS volunteer divers documenting the Pickles Reef Barrel Wreck in the Florida Keys National Marine Sanctuary. Photo by D. Knepper.

commitment to the protection and stewardship of historic shipwrecks should be a fundamental part of the training. The idea caught on, and in 1988 MAHS was created.

MAHS is a non-profit, 501(c)(3) tax-exempt educational organization committed to enhancing public awareness and appreciation of historic shipwrecks and the process of maritime archaeology. It is governed by a Board of Directors and guided by an Advisory Committee of professional historians and archaeologists.

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In time, as the organization gained international recognition, MAHS was invited to participate as an associate, institutional member of the Advisory Council for Underwater Archaeology of the Society for Historical Archaeology.

MAHS developed a series of education programs during this time as well. The *Introduction to Underwater Archaeology* course was created by our first president, Bill Eddy, in cooperation with noted historian and author Donald Shomette. Over the years, the course has been enhanced by inviting experts in Ship Architecture, Archival Research, Survey and Mapping, Conservation, the Law, and many other areas to design or expand existing course modules. Noted experts such as Larry Murphy of the National Park Service (NPS); Kevin Foster, NPS; Dr. John Seidel, Associate Professor of Anthropology and Environmental Studies at Washington College; and Susan Langley, of the State of Maryland, contributed significantly to the development of this course. Thomas Berkey has for many years directed the course for MAHS, and its popularity has grown over that time.

Graduates of the MAHS Introductory course have participated as volunteers in underwater archaeology projects throughout the United States, including those sponsored by the National Park Service, NOAA's National Marine Sanctuaries, and various state and local and governments. MAHS-trained divers have also participated in projects conducted in the United Kingdom, St. Maarten, Curaçao, Anguilla, Egypt, Bermuda, and other locations around the world.



*The junior author recording a cannon from L'Herminie, an early project in Bermuda. Photo by A. Elder.*

In the early days, MAHS projects were focused locally in the Maryland portion of the Chesapeake Bay, working with other archaeology professionals and the Archaeology Society of Maryland. In 1989 and 1990, MAHS volunteers branched out, traveling to Florida to work with the NPS in Key Biscayne on the Box Car and Schooner wrecks, and at Fort Jefferson in the Dry

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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



MAHS volunteers documenting the schooner Constellation, Bermuda. Photo by A. Elder.

Tortugas surveying the Nine Cannon Wreck. In Maryland, MAHS members worked in the West, Wye and Rhode rivers, and explored a Revolutionary War shipyard on the Chickahominy River in Virginia as part of the support team for East Carolina University graduate student Jeffrey Morris' masters thesis. MAHS also supported Donald Shomette's initial study of the "Ghost Fleet" of Mallows Bay on the Potomac River in Maryland.

From 1993 to 2001, MAHS volunteers worked in Bermuda surveying several historic wrecks including the British floating drydock, *Berumda*; the French frigate, *L'Herminie*; and the American schooner, *Constellation*. Other projects included surveys of HMS *Proselyte*, in St. Maarten, and two Spanish frigates in Anguilla. MAHS continues to work locally, on the Pamunkey River in Virginia, and in Florida, returning to Key Largo each year since 2008 to document shipwreck sites for the Florida Keys National Marine Sanctuary on Molasses Reef and Pickles Reef.



MAHS volunteers documenting the Slobodna wreck, Molasses Reef, Florida. Photo by D. Knepper.

## The MAHS Model: Partners in Preservation

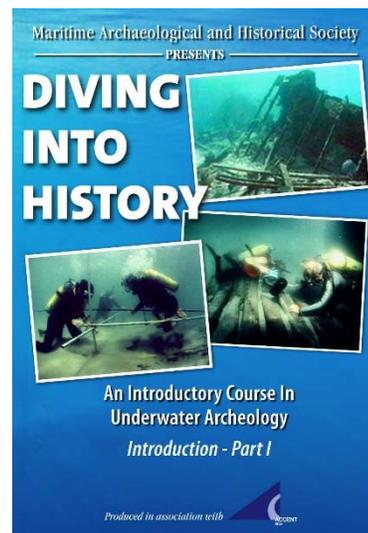
The MAHS 30<sup>th</sup> Anniversary milestone coincides with the thirtieth anniversary celebration of the Maryland Maritime Archaeology Program (MMAP), and highlights the long-standing history of support and collaboration between the programs. MAHS has provided a model of volunteer, recreational diver participation in underwater archaeology projects. Similarly minded groups throughout the country have embraced this model.

Acknowledging the success of this collaborative approach, the Maryland Historical Trust (MHT) awarded MAHS two Non-Capital Historic Preservation grants. MAHS was the first volunteer group of recreational scuba divers to be awarded these prestigious state grants.

The first MHT grant was awarded in 1998, recognizing the significance of the MAHS training programs and their impact on public education and outreach. The grant enabled MAHS to film the live *Introductory Course in Underwater Archaeology*. The goal was to provide this course in video format for distribution to a wider audience of scuba divers than those able to attend the local live class. The end result was the popular video course titled *Diving into History: An Introductory Course in Underwater Archaeology* and the companion course, *A Field School in Underwater Archaeology*.

The video course consists of ten 50-minute DVDs that cover the history of underwater archaeology, archival research, ship architecture, position fixing and search methods, surveying and mapping, photography and videography, conservation, law and ethics, and project planning and reports. The DVDs contain informative lecture material interspersed with field footage depicting submerged archaeological sites and actual underwater projects. An Instructor Guide with supplementary material and lesson plans accompanies the set of disks. The companion field school course was also created. The distribution of these courses has created a cadre of MAHS-trained divers who provide volunteer support to professional archaeologists across the nation and in various locations throughout the world.

The *Diving into History* video series serves as the key component of a core curriculum in under-



MAHS video course.

water archaeology targeted to the general public. This curriculum serves a dual purpose. First, it represents a training program for recreational divers and other members of the public interested in participating in shipwreck exploration projects. Second, the program provides public outreach for State Historic Preservation Officers seeking volunteers to assist with the implementation of the state's cultural resource management plan and the inventory of the state's submerged cultural resources. MAHS believes that citizen involvement of this kind minimizes reliance on costly law-enforcement programs to police fragile archaeological sites by fostering public stewardship, as well as providing new recreational activities for families and expanding water-related commercial opportunities for the business community.

In 2008, MHT awarded a second grant to MAHS to perform a comprehensive study integrating shoreline and maritime archaeological findings in and around the Bodkin Creek estuary, in Anne Arundel County, Maryland. The resulting report, titled "Bodkin Creek Area Maritime and Terrestrial Survey and Synthesis of Prehistoric and Historic Resources," created a notable example of the collaboration between the volunteer, government, and commercial sectors, combining in a single, coordinated effort the work of MAHS, MHT, and Geomar, LLC, the latter a prominent commercial cultural resource management firm.

MAHS volunteers working on this project conducted archival research in the United States, Canada, and England, and carried out terrestrial surveys and closely related oral history interviews. Geomar, LLC, assisted MAHS with a remote sensing survey that investigated more than 2,000 acres underwater at the entrance to Bodkin Creek and its surroundings. The findings of the investigation were incorporated into a comprehensive, 300-page report containing an extensive study of the array of watercraft traveling Maryland waters throughout its history and an overview of the maritime history of one of Maryland's historically significant estuaries.

### **Advocacy**

In addition to research and education, MAHS has been an active advocate for the protection of submerged cultural resources at risk of salvage by treasure hunters. In 1999, MAHS opposed the disturbance by salvors of two Spanish shipwrecks discovered along the shorelines of Maryland and Virginia. Ultimately this opposition led to the awakening of the Kingdom of Spain to its obligation to take an active role in the protection of their submerged cultural resources. The resulting litigation ended in a watershed decision that established the rule that nation states around the globe have the right and obligation to protect their sovereign title to government



*MAHS volunteers documenting a mast step on the Pickles Reef Barrel Wreck, Florida. Photo by D. Knepper.*

shipwrecks regardless of the location in which they occur.

In February 2012, MAHS rang the alarm about the HMS *Victory*, an English shipwreck destined to be salvaged by Odyssey Marine Exploration as part of their first experiment in "commercial archaeology." The British preservation community took up the charge and the HMS *Victory* to this day remains protected from salvage.

Throughout these thirty years, MAHS has been devoted to the exploration of historic shipwrecks and the documentation of these sites in support of federal and state shipwreck inventories. However, the greatest impact of MAHS has been its education programs which introduce recreational scuba divers to the science and techniques of maritime archaeology and prepare them to participate as effective members of an underwater archaeology team. The value in these programs is evident in the increasing community respect for historic shipwrecks. The ethical standards that MAHS brings to all of its projects and programs has made a substantial contribution to the preservation of fragile submerged cultural resources, both of our nation and others, so that they remain protected for generations to enjoy and explore in the years to come.

*The MAHS live Introductory Course in Underwater Archaeology is taught annually starting in January each year. The video series Diving Into History is available for purchase throughout the year. MAHS Field Schools are usually conducted in June and September of each year. For more information about the MAHS education programs or membership, please visit the MAHS website at [www.mahsnet.org](http://www.mahsnet.org). Pages detailing past projects, along with links to downloadable reports (including the Bodkin Creek survey mentioned above), and past issues of MAHSNEWS can also be found on the website. 📍*

## Recent Maritime Archaeology on the Alexandria Waterfront

by Benjamin A. Skolnik

Archaeologists working in the City of Alexandria, Virginia, reported in April 2017 that they had found three 18<sup>th</sup> or early-19<sup>th</sup>-century wooden ships at the future development site of Robinson Landing. This was in addition to the ship found in late 2015 at the development site of Hotel Indigo, at 220 S. Union Street, for which the City was recently awarded a National Maritime Heritage Grant from the National Park Service for conservation. Referred to as the 220 S. Union Street Ship, the remains are currently undergoing conservation at Texas A&M University.

The project is overseen by Alexandria Archaeology, a division within the Office of Historic Alexandria, whose mission is to preserve and study Alexandria's rich archaeological heritage, foster a connection between the past and present, and inspire a sense of stewardship and adventure.

Archaeologists have been conducting formal excavations in Alexandria since the 1960s. In 1961, archaeologists examined the Northwest Bastion of Fort Ward, one of the largest Civil War forts built as a part of the defenses of Washington, D.C. Their findings were used to inform the reconstruction of that part of the fort in conjunction with the commemoration of the centennial of the American Civil War. In 1968, urban renewal threatened to demolish large portions of the City's historic Old Town district. Public outcry against these plans led to salvage excavations led by archaeologists from the Smithsonian and a significant reduction in the footprint of urban renewal development. In 1975, Alexandria was the first city in the nation to establish an Archaeological Commission and hired its first full-time archaeologist in 1977. Since these earliest days, archaeology has become integral to the character of modern Alexandria. The goals of these early days—to commemorate the city's rich past and to manage the impacts of modern development on the archaeological record—continue to drive the archaeological program in Alexandria.

In 1989, the Alexandria City Council adopted an Archaeological Protection Code, which was one of the first local ordinances in the country specifically designed to protect archaeological resources, and it continues to serve as a model for other cities looking for ways to protect and manage buried cultural resources. Alexandria's Code requires archaeological review for all projects in the city that require permits for ground

disturbance. Using a wide array of historical resources including historic maps, tax lists, censuses, city directories, deeds, fire insurance policies, newspapers, photographs, and historic aerial photography, City archaeology staff determine the potential for encountering significant archaeological resources on these ground-disturbing projects and weigh the proposed impacts to these resources. If it appears likely that significant archaeological resources are going to be negatively impacted by the proposed activities, the permit applicant is required to hire an archaeological consultant to mitigate the impacts.



220 S. Union Street Ship excavation overview with ship frames labeled in preparation for disassembly and removal.

*Image courtesy of Alexandria Archaeology.*

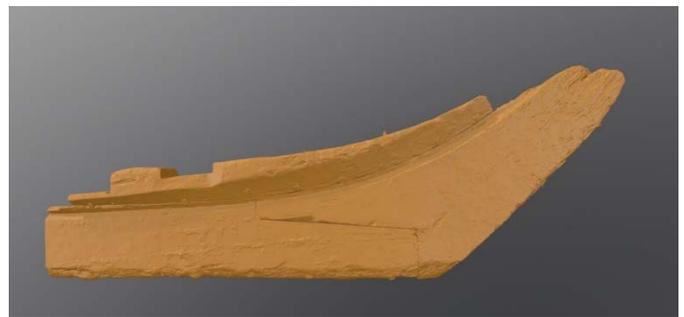
Mitigation can take several forms. Ideally, projects can be redesigned to remove the impact to significant archaeological features altogether. Still, given the complexities and requirements of development projects, this is not always possible. In cases where proposed impacts cannot be avoided, archaeological excavation and data recovery is one way to document and recover archaeological information prior to disturbance. It is important to remember that archaeological excavation itself is inherently destructive. Once an archaeologist excavates a site, that site no longer exists in the ground as it did previously. However, the important difference between an archaeologist excavating a site and a bulldozer excavating a site is that the archaeologist carefully documents the excavation so that others can understand what it was that was found.

In 2015, developers announced plans to build an upscale boutique hotel on Alexandria’s waterfront. The Hotel Indigo site, at 220 S. Union Street, was the first in a series of upcoming waterfront development projects in Alexandria. Given the project area’s location on Alexandria’s historic Point Lumley and the deep subterranean parking garage needed for the new hotel, Alexandria Archaeology required the developer to have contract archaeologists on site to identify, document, and excavate any archaeological features encountered during the project. Archaeological remains were indeed discovered as the hole for the garage was excavated, and the area was assigned a formal site number, 44AX229. In addition to features including early house foundations, a well, privies, and a fertilizer factory, archaeologists from Thunderbird Archeology, a Division of Wetland Studies and Solutions, Inc., also documented the remains of one of Alexandria’s earliest buildings (John Carlyle’s 1755 public warehouse), a bulkhead wall—and the remains of an 18<sup>th</sup>-century ship.

Historical research into the history of early Alexandria along with previous archaeological excavations show that toward the end of the 18<sup>th</sup> century, residents were actively filling in along the Potomac River waterfront in order to extend their properties toward the east. This was done for two primary reasons: to create valuable new waterfront real estate within the town of Alexandria; and to reach the deep-water shipping channel that passed close to the shoreline. Maps and deeds show that in the last quarter of the 18<sup>th</sup> century, approximately 13 city blocks were created by residents in a process called “banking out.” According to a plat submitted as part of a lawsuit over the eastern boundary of this parcel, the location in which the 220 S.



3-D model of the 220 S. Union Street Ship printed from digital scans. Courtesy of Conservation Research Laboratory, Texas A&M University

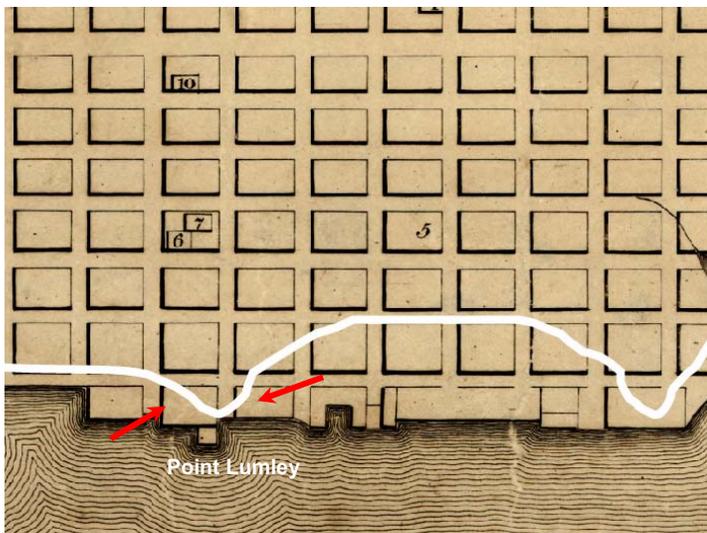


3-D digital scan of the bow stem. Courtesy of Conservation Research Laboratory, Texas A&M University.

Union Street Ship was found would have been in the Potomac River in 1788. The 1798 George Gilpin map of Alexandria shows the same location landlocked, giving us a 10-year bracket for when this ship was buried.

The 220 S. Union Street Ship is not complete. It measures 46.5 feet long by 12.5 feet wide. While substantial, this does not represent the entire ship. The remains include the bow stem, but the entire stern is missing. Digital reconstruction efforts by the Texas A&M University’s Conservation Research Laboratory suggest that the aft most of the recovered frames curve in toward the centerline and thus the stern of the ship would not have been located much beyond the portion recovered, making the complete vessel approximately 50 feet in length.

Likewise, the width of the ship is incomplete in that the recovered portion starts at the keel and only extends to just beyond the turn of the bilge. Noticeably, many of the floor timbers that should span the centerline of the ship show strong evidence of having been sawn or chopped either at or just beyond the keel. The uppermost extremities of these frames show severe signs of decay and degradation where they were probably exposed to the elements longer than the lower portions of the timbers. The keelson is absent in this ship as is



Gilpin map (1798) with 1748 shoreline overlay (solid line). Arrows indicate locations of the wrecks described in this article, indicating that they were buried as part of banking out prior to 1798: right, 220 S. Union Street ship; left RTS ships. Base map from the Library of Congress.

any evidence of decking, masts, or rigging. The remains do, however, include sacrificial planking (exhibiting extensive teredo worm damage), caulking, hull planking, frames as mentioned, and some ceiling planks. Iron fasteners and wooden pegs are also present.

One explanation for the presence of this ship in this location along the waterfront is its use as a pre-made bulkhead to facilitate banking out into the river. A second explanation can be found in early City records. In 1799, the year after the Gilpin map indicates the ship as being landlocked and buried, the Alexandria Corporation passed an act “To preserve the navigation of the Public Docks in the town of Alexandria.” A growing problem existed in the town of people:

“introducing into the public docks...the decayed and rotten hulks of old vessels, boats, and craft, of different descriptions, under the pretense of repairing the same, but in reality to serve the purposes of fuel, which when cut down to the surface of the water are willfully and negligently suffered to sink to the bottom of said docks where they remain obstructions to the navigation...”

In order to combat this problem, a 50-dollar fine was levied against any person who sank their ship at a public dock and allowed it to remain there for longer than 10 days, with an additional 5-dollar fine for every 24-hour period the ship stayed submerged beyond that limit. So, at the end of the 18<sup>th</sup> century, there would have been at least two processes on Alexandria’s waterfront to account for chopped up, abandoned, and buried ships—banking out and the need for cheap, mobile sources of firewood.

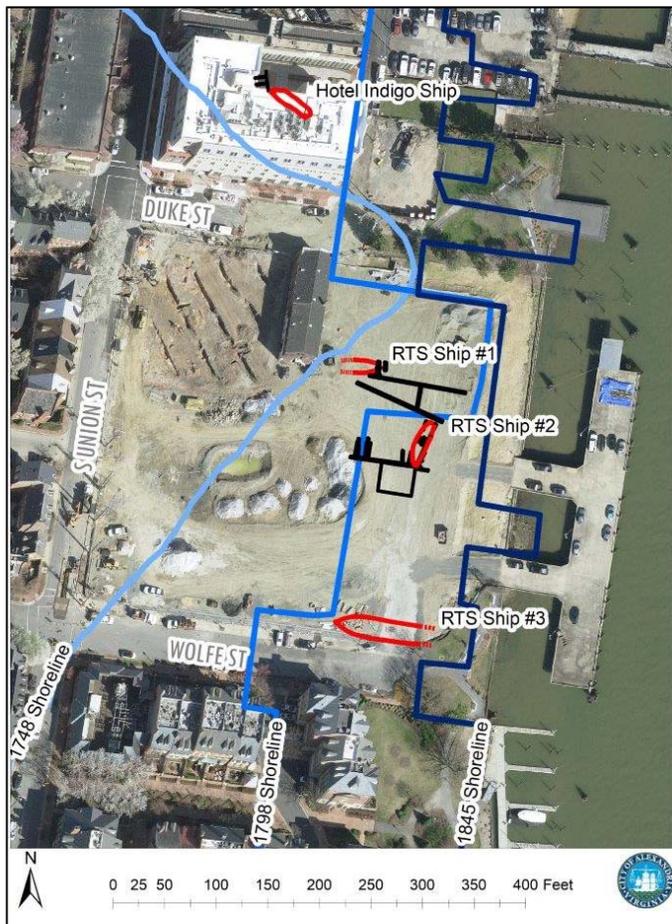
Archaeologists have another tool at their disposal to help date the remains of archaeologically recovered ships like the one from 220 S. Union Street. Dendrochronology (comprised of the Greek roots “dendro” meaning tree, “chrono” meaning time, and “logy” meaning the study of), is a dating technique that counts and measures tree-rings to assign a calendrical year to a piece of wood. While you can count the age of a freshly-fallen tree by just counting rings backwards from the outside (the present) to the center (the year the tree started growing), dendrochronology goes a step further by allowing us to determine the age of wood samples of an unknown period. It works based on the premise that tree-rings are not uniform in thickness and that this variableness is caused by several environmental factors that influence plant growth, such as annual rainfall, temperature, wind, drought, fires, or insects. Years with good growing seasons will produce thicker growth rings and years with poor growing seasons will produce thinner growth rings. Therefore, all trees of a

given species in a region will have similar patterns of thin and thick growth rings, much like a chronological and regional fingerprint. By matching the pattern of thin and thick rings from a piece of wood of unknown date to a master sequence of known tree-rings from a given region, a dendrochronologist can determine which year, which season in that year, and from what region a particular piece of wood was chopped down.

The Oxford Tree-Ring Laboratory, in Baltimore, Maryland, conducted dendrochronological analysis for the 220 S. Union Street Ship. The analysis shows that the most recent ship timber sampled could be dated to 1741. This means that the trees used to build the ship were felled sometime after 1741. We cannot say for certain which year after 1741, though, because the outermost (most recent rings) were removed when the trees were shaped into frame elements in the shipyard. Because the factors that determine tree-ring width are influenced by local environmental conditions, we can also determine where these trees grew by comparing the ring sequence to several known regional sequences. From this analysis, it appears that the trees were harvested in New England, probably in Massachusetts north of Boston.

Over several frigid days in January 2016, the 220 S. Union Street Ship was carefully documented while still in the ground with traditional pencil and paper drawings, photogrammetry, and LiDAR laser scanning. The remains were then carefully disassembled by a team of archaeologists from Alexandria Archaeology, Thunderbird Archeology, the Maryland Archaeological Conservation Laboratory, and the Navy’s Maritime History and Heritage Command. The timbers were then taken to a storage facility in the City where they were immersed in large tanks of water until plans for conservation could be made.

Under careful supervision by City staff, the timbers stayed submerged in the tanks of water for a year and a half, coming out only once to install liners in the tanks to prevent corrosion and for a round of photography and documentation. In June 2017, the timbers were again removed from their tanks, carefully wrapped in foam and plastic, loaded onto a truck, and transported to the Conservation Research Laboratory (CRL) at Texas A&M University, where they will undergo conservation for the next five years. The conservation process involves stabilizing the metal fasteners remaining in the wood, followed by soaking the timbers in a polymer called polyethylene glycol (PEG) until most of the water has been removed from the cells of the wood, and lastly by freeze drying the timbers to remove any remaining water. Following this lengthy process, the wood will be returned to the City of Alexandria and incorporated into



*Alexandria waterfront development showing the locations of ship remains including the 220 S. Union Street Ship (labeled Hotel Indigo Ship) and the three Robinson Terminal South vessels (RTS).  
Courtesy of Alexandria Archaeology.*



*RTS Ship #1, unexcavated overview. Courtesy of Alexandria Archaeology.*

an as-yet-to-be-determined historical interpretation on the waterfront.

The CRL has also been conducting their own round of documentation of the ship’s timbers, carefully scanning each timber with a FaroArm (a portable coordinate measuring machine) that allows them to create a digital model of each individual timber. From these individual models, they can digitally piece the ship back together, correcting any warpage or distortion that has occurred while the ship was buried, all without having to lift a single heavy piece of wood. They can even fill in the parts of the ship that are missing in order to reproduce the entire vessel digitally. Visit their website for more information on conservation efforts as well as links to their digital models:

<http://nautarch.tamu.edu/CRL/Alexandria/>

While we are excited about the progress conservators are making with the 220 S. Union Street Ship, across the street another archaeological project is currently going on as developers are building on the former site of the Robinson Terminal South

warehouse for a development called Robinson Landing. Excavations started in early 2017, and finds so far include a late-18<sup>th</sup>/early-19<sup>th</sup>-century neighborhood, a gigantic steam flour mill, a bakery, warehouses, wharves, cribbing, and several wells and privies. Also discovered were the Strand (the paved road that skirted the edge of Alexandria’s waterfront in the 1790s) and *three more ships*.

So far, historical research has not been able to give us a specific date range for when these ships went into the ground, although we can say that they appear to have been buried sometime in the late 18<sup>th</sup> or early 19<sup>th</sup> century. We hope further documentary research will help us narrow these date ranges. In addition, wood samples from the ships and the bulkheads they were found near have been submitted for dendrochronology, and we are anxiously waiting for those results. Whereas the 220 S. Union Street Ship was found sitting next to a bulkhead wall, these three ships all appear to have been deliberately incorporated into the bulkhead system to be used as a way to contain the wharf fill.

The first ship, the aptly-named Robinson Terminal South (RTS) Ship #1 (or Feature 200) was discovered in



*RTS Ship #2, unexcavated overview. Wharf cribbing fragment visible approximately amidships. Courtesy of Alexandria Archaeology.*



*RTS Ship #3, unexcavated overview. Wharf cribbing in background and cribbing timbers cross the hull in middle ground. Courtesy of Alexandria Archaeology.*

early March 2018. It is possibly smaller than the 220 S. Union Street Ship. So far, only about 23 feet have been exposed, but it is already clear that the timbers are less robust and may already be curving back in where the ship disappears under the sidewall of the site. Unlike the 220 S. Union Street Ship, RTS Ship #1 has a keelson, which appears to be notched where it is bolted into the frames with iron fasteners.

RTS Ship #2 (Feature 155-1) is probably the most similar of these three new ships to the 220 S. Union Street Ship. The remains measure approximately 46 feet long and include the lowermost section of the bow stem where it meets the keel.

The latter has been exposed all the way aft to the sternpost connection.

An iron fastener protrudes from the aft end of the keel and shows where the sternpost would have been attached, although it was not present. Like the 200 S. Union Street Ship, the frames of RTS Ship #2 have all been cut at the keel, leaving us with only half of a ship. Unlike that ship, this one has a keelson present but no ceiling planking. On the keelson is what has been initially identified as a pair of closely-spaced mast steps and grooves where stanchions would have held up the decking above. Interestingly, a complex wooden superstructure had been built on top of the ship's hull as a means for incorporating it into the system of cribbing. Both the bow and stern ends of the keel were pinned under bulkhead walls.

RTS Ship #3 (Feature 159) is the largest of the four ships recently found on the waterfront. It is located adjacent to and under the Unit Block of Wolfe Street. Unlike the other three ships, this vessel is resting at an incline, with the bow raised up at the west end and sloping down and away to the east and the stern end, as if it had been pulled up on the beach and left there. The line of preservation on these timbers is flat where the water table has preserved the part of the ship that remained wet; instead of being only the bottom of the ship, the remains of RTS Ship #3 are shaped like a wedge, with the bottom of the bow assembly and apron preserved at the western end and more and more present as the ship dives deeper and deeper toward the river. It is currently unknown how much of the ship remains toward the stern end, but it appears that both the port and starboard sides are present, and the curvature of the frames has almost reached vertical by the time the eastern end disappears under the site wall.

As of mid-May, 2018, the second ship has been documented, photographed for photogrammetry, disassembled, and placed in wet-storage just as with the 220 S. Union Street Ship. Planning is underway to excavate ships #1 and #3 at Robinson Terminal South, and City archaeology staff are examining long-term options for documentation, storage, conservation and/or display of these newest ships. At this point, our understanding of these ships is still changing and evolving as we further document and excavate them in conjunction with Thunderbird Archeology and an ever-growing circle of maritime experts, who are much more knowledgeable about ships and their construction (as well as their de-construction) than we are, and to whom we are indebted.

These four ships (and almost certainly others like them yet to be discovered) are both literally and figuratively the foundation on which the modern city has been built. As Alexandria seeks to redevelop along its waterfront, the Alexandria Archaeology Protection Code has given us this opportunity to discover and preserve the past.

Stay up to date with the excavations at the Robinson Terminal South site as we move forward with conservation of the 220 S. Union Street Ship, as we further study RTS Ship #2, and as we uncover, document, and excavate RTS Ships # 1 and #3. See the web site at [www.alexandriava.gov/historic/archaeology/default.aspx?id=96265](http://www.alexandriava.gov/historic/archaeology/default.aspx?id=96265).

Note, the following press release was issued during preparation of this article for publication:

### Alexandria's 18th Century Ship Awarded Second Conservation Grant

The City of Alexandria has received a Maritime Heritage Preservation Grant of \$97,117 from the National Park Service, in partnership with the U.S. Department of Transportation's Maritime Administration, for the conservation of the 18<sup>th</sup>-century ship discovered by archaeologists in 2015 during the construction of Hotel Indigo on the City's waterfront.

The matching grant will be used during the multiyear conservation of the ship's fragile wooden timbers. Texas A&M University's Conservation Research Laboratory at the Center for Maritime Archaeology and Conservation is under contract with the City to complete the work.

This is the second ship conservation grant received this year by Alexandria Archaeology, a division of the City's Office of Historic Alexandria. In February, the City received a \$4,000 grant from the Virginia Association of Museums after the ship won second place in the [Top 10 Endangered Artifacts Competition](#).

"Archaeological work along the waterfront continues to enrich the maritime history of Alexandria," said City Archaeologist Eleanor Breen. "The City is coordinating efforts to determine a long-term plan for the historic ships."

*Benjamin Skolnik is an archaeologist with Alexandria Archaeology, Office of Historic Alexandria, City of Alexandria, Virginia. ⚓*

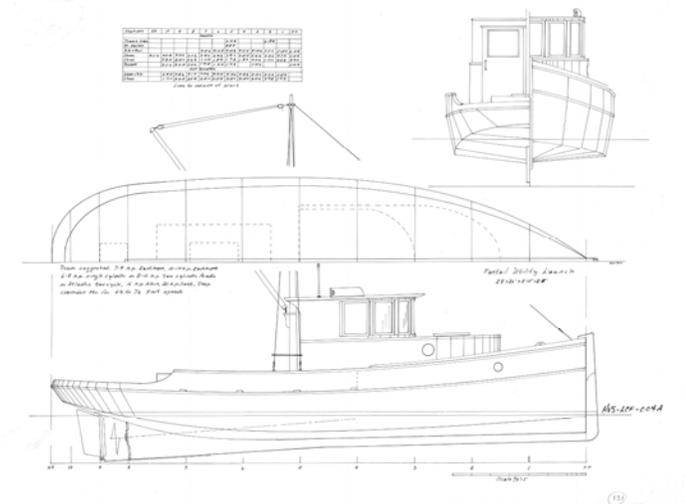
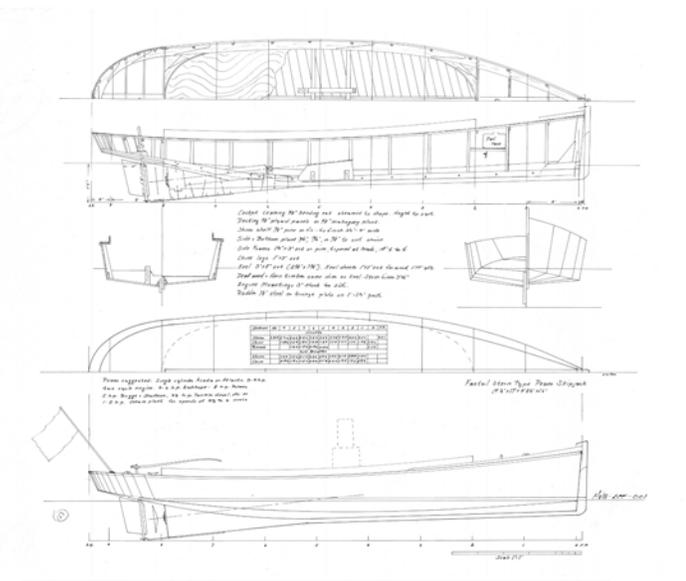
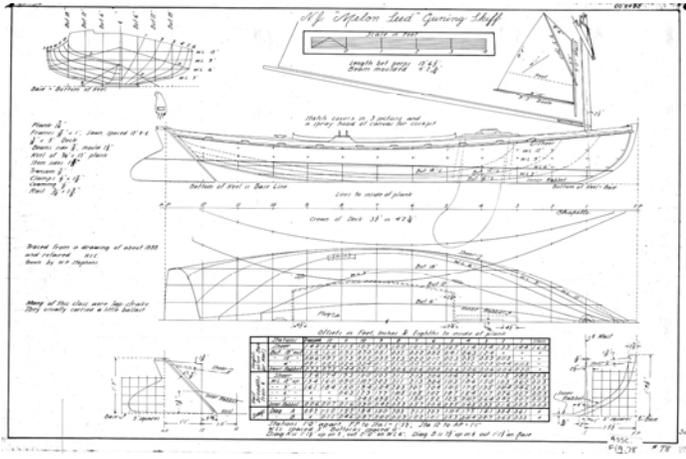
## Smithsonian 2017 TSCA John Gardner Grant

*by Paul F. Johnston*

In 2017, the Division of Work & Industry at the Smithsonian's National Museum of American History received a John Gardner Grant from the Traditional Small Craft Association (TSCA) in the amount of \$1,850 to support the digitization of the Smithsonian's small craft and boat collection of design drawings. In the past, the division scanned, printed and sent out drawings on demand, as they were ordered. This resulted in a random digitization of the ship and boat plans drawings, which were scanned only when new orders were received. This grant has permitted a more systematic and complete process, which will generate faster results for any questions about specific issues, and far quicker responses for actual plans orders. Now that our small craft drawings are scanned, their digital files can be directly printed from a server, without the need for accessing, scanning and returning to storage the actual drawings.



*Plans Manager Jim Smailes readies small craft plans for digitization. Photo by the author.*



Digitized plans from the small craft and boat collection. Top: New Jersey skiff; middle: power skipjack; bottom: utility launch. Courtesy of the Smithsonian's National Museum of American History, Division of Work & Industry.

The Gardner grant, together with matching funds from the Division of Work & Industry's ship plans revenues, employed our part-time plans manager (and MAHS Board member) Jim Smailes for 119 hours, specifically to scan our small craft plans from such published volumes as Howard I. Chapelle's *American Sailing Craft, Boatbuilding, Bark Canoes & Skin Boats of North America*, as well as Harry V. Sucher's *The Flat Bottom Boat* and *The V-Bottom Boat*. The drawings from Chapelle's *American Small Sailing Craft* had already proved so popular that the entire volume's drawings were scanned before the grant period. A few additional unpublished Chapelle plans and miscellaneous small craft drawings also were scanned. Naval small craft (mostly British in origin) were not included in this grant cycle.

Over a three-month period ending in December 2017, Smailes scanned a total of 804 sheets of 521 plans. Some of the designs were single sheets, but many had multiple drawings/details. All of the drawings in the above-mentioned books have now been scanned and are available for a nominal fee that covers our costs of retrieving, scanning, printing and mailing out our drawings, as well as scanner maintenance costs. Having scanned digital images also means that we will rarely—if ever—need to handle the original drawings again. This is significant, for many of the leading edges of our older design drawings are tattered and torn from decades of feeding into large-format copiers and printers.

Our ship and boat plans are available via three separate catalogs. All of our small craft and boat drawings, including the ones scanned for the Gardner grant plans, are in the *Ship Plans List*, our 263-page volume described in detail on our ship plans web site (<http://americanhistory.si.edu/about/departments/work-and-industry/ship-plans>). The volume is available for \$20 postpaid. The other two catalogs of naval ships and boats (*Smithsonian Collection of Warship Plans*) and the Maritime Administration (*The Maritime Administration Collection of Ship Plans 1939-1970*) will be of less interest to small craft builders and sailors, although all three works are available through information on our web site.

The mailing address for orders is Smithsonian Ship Plans, MRC 628, PO Box 37012, Washington, DC 20013-7012; questions may be sent to [shipplans@si.edu](mailto:shipplans@si.edu).

This article was originally published in a slightly different format in *The Ash Breeze*, Spring 2018, the publication of the *Traditional Small Craft Association*, and is used by permission. Their website is <https://tsca.net/>. ⚓

# Ship, Navire, Navío, Nave, Buque: Creating a Multi-Language Glossary for Early Modern Ships

by Marijo Gauthier-Bérubé

For the past 10 years a group of international scholars has been working on a multi-language glossary for early modern Iberian ships, a preliminary version of which was recently published on the Academia website. The project, conducted under the supervision of Dr. Filipe Castro, of the J. Richard Steffy Ship Reconstruction laboratory (Nautical Archaeology Program) at Texas A&M University, originated from the Nautical Archaeology Digital Library (NADL) Project<sup>1</sup>. A multilingual glossary was a central tool in the NADL that allowed the collection and interpretation of archaeological data stored in different formats. The NADL made it possible to carry out research in five complementary areas: site excavation, the recovery process, artifact collections, research into shipbuilding treatises, and the modeling and reconstruction of ships. An interface was developed to depict the different terms relative to shipbuilding with translation as part of a wider ontology or categorizing of shipbuilding.

Since the NADL was part of a research grant, it was not possible to secure funding to populate and maintain the digital library. It also could not grow as an open tool that archaeologists could use to enter data and query existing data. Therefore, the NADL project did not continue after 2009. Castro later became involved with the ForSea Discovery Project<sup>2</sup>, at which time the need for a glossary became evident, given the diversity of the multidisciplinary team. A comprehensive illustrated glossary that focused on early modern Iberian shipbuilding was thus developed in a format designed to be shared and improved.

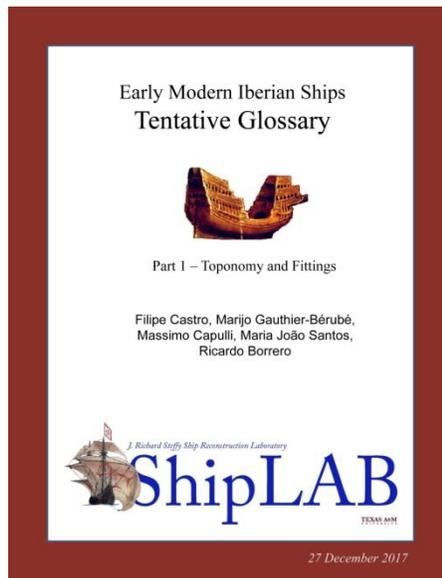
Many arguments can be made in favor of creating an illustrated glossary of shipbuilding terms. First of all, despite the dominance of English as the language of scholars and international communication, nautical archaeology is widely practiced outside the Anglo-Saxon

world by non-English-speaking scholars. No statistic exists to support this statement, but a quick look at the papers presented at major international conferences eloquently illustrates the wide variety of languages spoken within the discipline. And in spite of the fact that most modern journals are in English, scholars must do their underlying research in the original languages of the primary data—and most shipbuilding treatises and contracts were not written in English.

Secondly, it should be noted that even within one language, the vocabulary used to designate nautical structures or features can vary. It is not uncommon to see variation in the terms used for the different timbers in a mast step complex, for example, or to describe rigging elements of the same period. The use of different dictionaries, different treatises and different background knowledge brings variations that can be confusing when trying to gather information for a holistic analysis of shipbuilding traditions. Rising awareness within our community about the importance of sharing a common language can only be beneficial for the growth of our discipline.

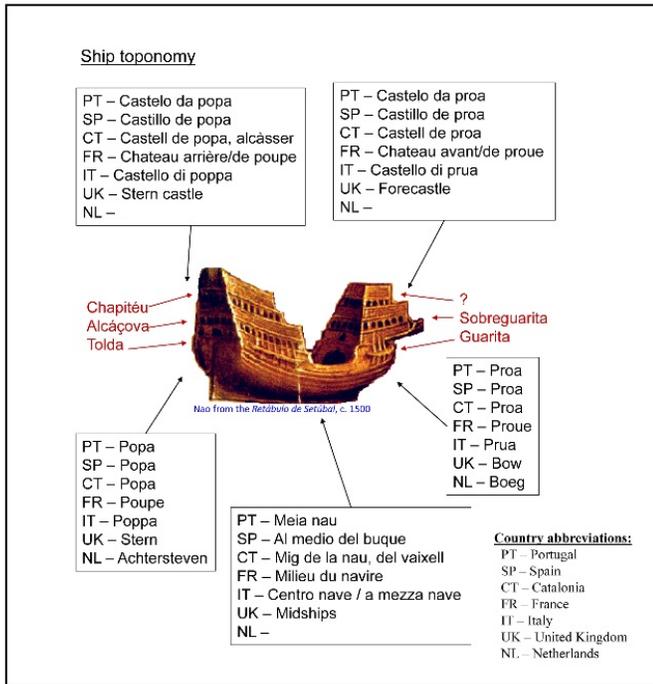
Thirdly, it can be hard to find reliable sources when dealing with multi-language research. Often scholars rely on the English sources as a bridge between other languages, and this practice increases the risk of losing precision and meaning in translation. We do not deny the existence of many dictionaries that have proven their usefulness, but we do have to recognize their limitations. Moreover, many of the historical dictionaries were published in the 19<sup>th</sup> century, and they can be problematic when dealing with vocabulary pertaining to earlier shipbuilding. And finally, glossaries found in archaeological publications are often limited to the structures discovered on the shipwreck being detailed.

The rise of technology and automatic translation tools can bring partial answers to the translation of shipbuilding terminology. It is, however, important to understand that these tools are far from perfect, and the results should never be taken for granted. As an example, I once stumbled on a scholar who used one of these automatic tools to translate a French treatise on rigging. The person was getting slightly frustrated as she kept getting *parrots* as the translation of the French



<sup>1</sup> NSF Grant IIS-0534314, PIs: Richard Furuta and Filipe Castro (2006–2009), <http://nadl.tamu.edu>

<sup>2</sup> Marie Curie Multi-ITN projects (agreement no.: 607,545) entitled *Forest resources and Ships for Iberian Empires: ecology and globalization in the Age of Discovery*. PI: Dr. Ana Crespo Solana and Dr. Nigel Nayling (2013–2017).



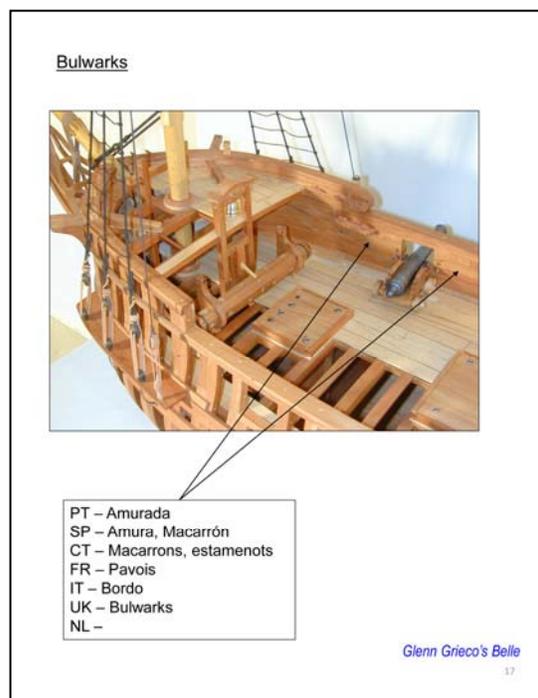
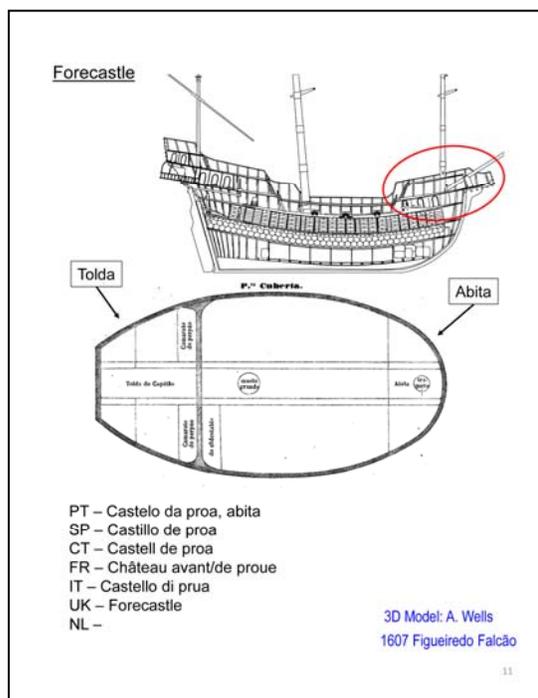
Sample page from the Glossary showing basic ship terms.

term *perroquet*, which did not make sense. Of course, the translation was not wrong in itself; in vernacular French, it is logical. However, when dealing with shipbuilding, one must know that the French used to give birds' names to their sails, and that the right translation was a topgallant sail.

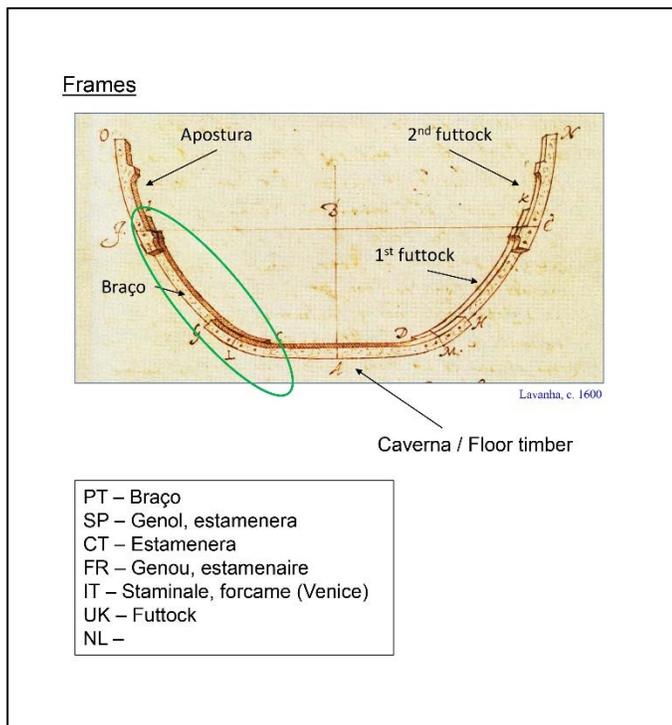
How can we overcome this obstacle to achieve greater understanding and promote discussion? First, we

can engage scholars and urge them to use common technical language when describing a wreck and to provide project-specific glossaries with their publication to ensure a better understanding of their work. Secondly, we can engage students by providing them with documentation made by nautical archaeologists, but also by encouraging them to learn a second language, especially in the English-speaking countries. As an example, data from the United States Census Bureau and the European Commission show that in the years 2009–2013, approximately 80 percent of the United States population spoke only English, in contrast to the European Union, where 54 percent of the population spoke a second language, and among those, 25 percent reported a conversational knowledge of a least two languages other than their own, and 10 percent of at least three other languages.

The result of this research is the multi-language lexicon *Early Modern Iberian Ships: Tentative Glossary*, a specialized glossary of nautical terms in a variety of languages. Issued in late 2017, this work aims at disseminating knowledge within our discipline, but also to the general public interested in wooden shipbuilding. As of today, the glossary is presented in three volumes. The first is related to the toponymy, or terms for general locations within a ship such as port/starboard, bow/stern, or the various decks. Also included in the first volume are fittings such as catheads, bits and anchors. The second volume is dedicated to ship timbers. The third volume describes the different rigging elements and terms for ships types according to their rigging arrangement. The Glossary currently includes seven



Ship terminology from the Glossary: left forecastle; right, bulwarks.



Sample page from the Glossary showing terms for ship frames.

European languages, reflecting the major shipbuilding traditions of the early modern period: Portuguese, Spanish, Catalan, French, Italian, English and Dutch.

The Glossary is a work in progress, improving through the input of the scholars working on the project, but also by comments and suggestions coming from the archaeology community and the general public. We intend to include more information on the variation of terms within the same language, both through time and from place to place. At a later stage we intend to include sources and semantic interpretations of words whose significance and origins are not always well understood. For example, in a Portuguese treatise by Fernando Oliveira, the word *buçarda* (in English, breasthook) is used to describe the bow Y-frames. Both structures have a similar shape but do not refer to the same architectural structure.

A fourth volume has been proposed that would include vocabularies used to describe the environment surrounding the shipbuilding industry in general, such as tools, shipyards, the art of rope making and other processes. The compilation of the Glossary has also triggered interesting discussions about the linguistic evidence of some common roots or the unique development of particular nautical structures, subjects that will be investigated in the future.

The project represents many hours of work, and it can only be achieved through the dedication of graduate students and scholars. We are always happy to welcome any input and anyone who wishes to contribute to it.

For further information about the *Early Modern Iberian Ships: Tentative Glossary*, please consult the Academia page of Dr. Filipe Castro or of the author: ([http://www.academia.edu/34462963/Early\\_Modern\\_Iberian\\_Ships\\_Tentative\\_Glossary\\_Part\\_1\\_Toponymy\\_and\\_Fittings](http://www.academia.edu/34462963/Early_Modern_Iberian_Ships_Tentative_Glossary_Part_1_Toponymy_and_Fittings)).

The author also suggests the following articles on the NADL project:

Monroy, C., Furuta, R., and Castro F., "Using an Ontology and a Multilingual Glossary for Enhancing the Nautical Archaeology Digital Library". *Joint Conference on Digital Libraries JCDL*, Queensland, Australia, 2010, pp. 259–262.

Monroy, C., Furuta, R., and Castro F., "Ask Not What Your Text Can do For You. Ask What You Can do For Your Text (a Dictionary's perspective)" *Digital Humanities 2009*, College Park: University of Maryland, MD, June 22-25 2009:344–347.

Monroy, C., Furuta, R., and Castro, F., "Design of a Computer-based Frame to Store, Manage, and Divulge Information from Underwater Archeological Excavations: the Pepper Wreck Case," in Castro, F. and Custer, K., eds., *Edge of Empire*. Proceedings of the Symposium held at the 2006 Society for Historical Archaeology Annual Meeting, Sacramento, California. Lisbon: Caleidoscópico, 2008.

Monroy, C., Furuta, R., and Castro, F., "A Multilingual Approach to Technical Manuscripts: 16th and 17th-century Portuguese Shipbuilding Treatises," Edie Rasmussen (Chair) Proceedings of ACM/IEEE Joint Conference on Digital Libraries, Vancouver, BC, Canada (2007), 413–414.

Monroy, C., Furuta, R., and Castro F., Poster: "Ancient Technical Manuscripts: the Case of 17th-century Portuguese Shipbuilding Treatises." Schmit et al. (eds.) *Digital Humanities 2007 Conference Proceedings*. University of Illinois, Urbana-Champaign, June 4–7, 2007, 67–69.

Monroy, C., Furuta, R., and Castro F., "Texts, Illustrations, and Physical Objects: The Case of Ancient Shipbuilding Treatises." 11th European Conference on Research and Advanced Technology for Digital Libraries ECDL, Budapest, Hungary, 2007.

Monroy, C., Parks, N., Furuta, R., and Castro, F., Poster: "The Nautical Archaeology Digital Library," in Gonzalo et al. (eds.), *European Conference on Digital Libraries 2006 LNCS 4,172* :544–547, Berlin and Heidelberg: Springer-Verlag, 2006.

*Marijo Gauthier-Bérubé is currently conducting her doctoral studies at Texas A&M University in the Nautical Archaeology Program. Her research focuses on France's forestry management behind the shipbuilding industry in the 17<sup>th</sup> and 18<sup>th</sup> centuries. She is a co-founding member of the Canadian non-profit Institut de Recherche en Histoire Maritime et Archéologie Subaquatique and is involved in public outreach through that organization. ⚓*

## **Florida's Lost Galleon: The Emanuel Point Shipwreck**

**edited by Roger C. Smith**

(University Press of Florida, 2018)

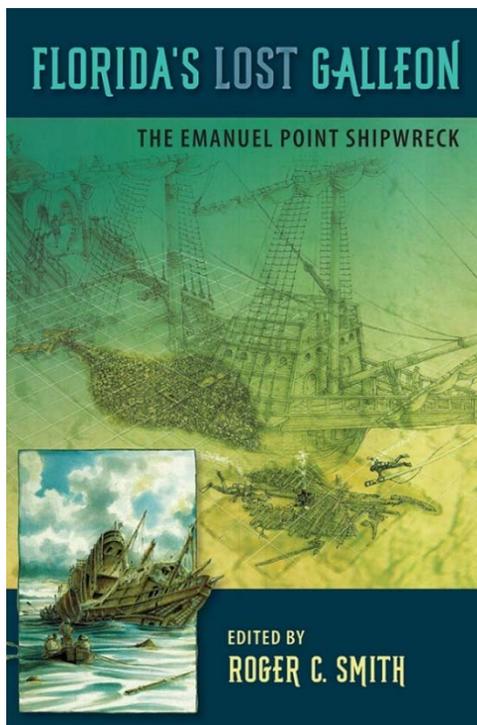
reviewed by Dennis Knepper

In 1599, Tristán de Luna left Veracruz with a fleet of a dozen ships that carried 1,500 settlers, including soldiers, colonists, slaves, and others, to the northern coast of the Gulf of Mexico. It was the third attempt at settlement of *La Florida*, as the Spanish then referred to the southeastern U.S. Learning from earlier *entradas*, or expeditions, Luna carried provisions to supply the settlers for a full year, allowing them to be self-sufficient, able to plant and harvest crops and avoid the need to barter with the potentially hostile local population for food.

But only weeks after their arrival off what is today Emanuel Point in Pensacola Bay, a massive hurricane destroyed the settlement and sank half of the ships, including those with most of the provisions stored onboard. The settlers held out for two years, but eventually abandoned the colony.

*Florida's Lost Galleon*, edited by long-time Florida state underwater archaeologist Roger C. Smith, tells the tale of the doomed expedition in a narrative assembled from the results of thorough and meticulous historical and archaeological research. The book follows the development of the years-long project sequentially, beginning with the original survey of the Bay, as Smith began his tenure at the Florida Bureau of Archaeological Research in the late 1980s. The wreck was discovered in 1992, when a magnetometer detected an embedded anchor near a mound of ballast stone. Testing and data recovery followed soon after. Excavations ended in 1997, while artifact conservation and public outreach are ongoing today. The book, thus mirroring the timeline of the project, allows the reader to follow the investigation as the discoveries were made, a technique that successfully adds to the narrative effect and makes for an engaging and often exciting story, and generally a good read.

Like several other books recently reviewed in the MAHS newsletter, *Florida's Lost Galleon* reports a collaborative effort by historians, field archaeologists, and conservation and public outreach specialists. As an indication of the considerable coordination that the



project entailed over the years, the list of volunteer and professional contributors included in the Acknowledgments section runs to a page and a half. Several writers contributed to the text, but in contrast to multi-authored books written with one voice, Smith's work is presented as an edited volume, with the individual specialists credited with chapters that detail their particular part of the investigation.

The wreck, referred to as the Emanuel Point Galleon, was a large, 16<sup>th</sup>-century Spanish ship that sank after striking the shoal off the point that bears its name. The report describes the nature of the wreck and how it was determined to be one of Luna's ships. The story begins with a brisk and entertainingly presented

summary of the field investigations, followed by a short but thorough examination of the historical background of Spain's unsuccessful attempts to settle North America in the 16<sup>th</sup> century and the events leading to Luna's expedition.

The report then provides extensive information on the structure of the vessel, presenting data gathered from construction contracts and contemporary treatises on shipbuilding, as well as from analysis of the archaeological remains of the hull itself.

The often remarkable preservation of wooden ship structure after 450 years was in large part due to the physiography of the bay. While shallow, the harbor is generally sheltered from large ocean swells. Storm winds at the time of the wrecking event wreaked havoc on the ships as they lay at anchor, but once the remains had sunk into the sandy bottom sediments they were protected: "we see evidence that only the top 25 cm of sand are oxygenated by water movement and that below this level there is an anaerobic environment that protected the lower hull after the initial wrecking event."

It was a large vessel, larger than researchers anticipated on the basis of other excavated Iberian vessels of the 16<sup>th</sup> century, with a keel length in excess of 20 m and a hull length of more than 34 m. The ship bore the hallmarks of a large cargo transport vessel,

solidly built, judging by the sizes of timbers and the number of fasteners used in its construction. It carried relatively little ballast, however, indicating that it was heavily laden with cargo and munitions.

Variations in the type of damage observed on the surviving timbers—broken portside frames contrasting with eroded, worm-eaten starboard members—provided information about how the vessel sank, suggesting that it struck the shoal on its port side with great force and went down rapidly, with the forecastle, poop deck, exposed decking and superstructure then torn away.

The ship was a veteran of several Atlantic voyages, and archaeological evidence of earlier journeys was observed. Traces of mercury, or quicksilver, brought from Spain for use in extracting precious metals from crude ores, were found in the hold. Many insect remains were preserved among the timbers, including a species of hide beetle that was considered evidence of cargoes of animal hides shipped to Europe for leather working. In addition, there was ample evidence of hull repairs, with several European oak timbers replaced by American oak, leaks patched with lead, and tarred cloth and lead strips used along planking seams for protection against shipworms in the tropical waters.

The text includes a variety of short but interesting digressions into details such as estimating the size of the vessel from surviving timbers and scantlings. A complicating factor in this process was the need to account for variations in architectural dimensions, such as the value of the *codo* or cubit, the basic unit of measurement used by contemporary Spanish shipwrights. In another instance it was necessary to correctly identify the term tonnage, whether referring to weight, displacement, or cargo carrying capacity (internal volume).

**B**eyond the extensive documentation of interest to those of us drawn to ship architecture, a considerable portion of the book is dedicated to the artifacts recovered from the wreck—their description, analysis, and conservation.

Following the storm, the wreck site was accessible from shore. The water in which it lay was not deep, and much of the cargo appeared to have been salvaged. But many items remained. Among those recovered were copper utensils, including several cauldrons, a pitcher and part of a skillet; ceramic storage jars; several types of lead glazed and tin-enameled ceramic table wares; and native Aztec pottery, presumed to have been personal items belonging to the Indian contingent on board. All of the artifacts were common items in general use by the settlers, with little evidence of higher-class objects.

Numerous animal bones were also encountered, including butchered pig, cow, sheep and chicken, all part

of shipboard provisions, and vermin such as mice and rats. Olive pits found in association with jar fragments were further evidence of foodstuffs carried as cargo, as were seeds of both European and local fruits, including cherry, plum, persimmon and papaya.

Little military gear was left behind other than stone cannon balls, a few crossbow bolt points, and the remains of an iron breastplate. The latter was found contained in marine encrustation, with none of the original iron remaining. Measured drawings from CAT scans, however, allowed a replica to be constructed. The researchers assumed that most armor and munitions carried on board were deemed valuable by the settlers, and thus had been salvaged immediately after the storm.

**T**he Emanuel Point Shipwreck project was well-documented in the local news and volunteer participation was encouraged at many levels. Project personnel developed a public lecture series, set up artifact displays in a variety of venues, conducted lab tours for school-aged children, and organized public and professional symposia.

The format of the current volume is clear and coherent, and the production is high quality. Despite the multiple authors, the narrative comes through in a single voice, indicating thorough editing. The photographs included in the text are disappointingly dark and muddy, however. All are black and white, and details are hard to make out in the low-contrast reproductions, demonstrating the difficulty of printing underwater images taken in low visibility estuarine waters such as occur in Pensacola Bay.

The future is promising for further investigations into Luna's expedition. It is estimated less than 40 percent of the wreck has been excavated—a substantial portion remains undisturbed for future research. In addition, two other wrecks, both identified as part of Luna's fleet, have been discovered since the end of the investigation described in Smith's book. Settlement sites have been identified nearby on shore as well.

*Florida's Lost Galleon* is the much-anticipated report of an early Spanish shipwreck discovered in Pensacola Bay in the 1990s. It is an important work that documents a highly significant archaeological site—the well-preserved remains of the earliest shipwreck in Florida, and one of the oldest in the New World. It shows the extent and complexity of the archaeological and historical research processes at work. Smith has provided an excellent example of a well-managed, long-term investigation, expertly organized and clearly and intelligently presented.

*Roger Smith recently retired from a long career as State Underwater Archaeologist for Florida. He lives in Tallahassee. ⚓*

# ***Submerged History: Underwater Archaeology in Florida***

edited by Roger C. Smith

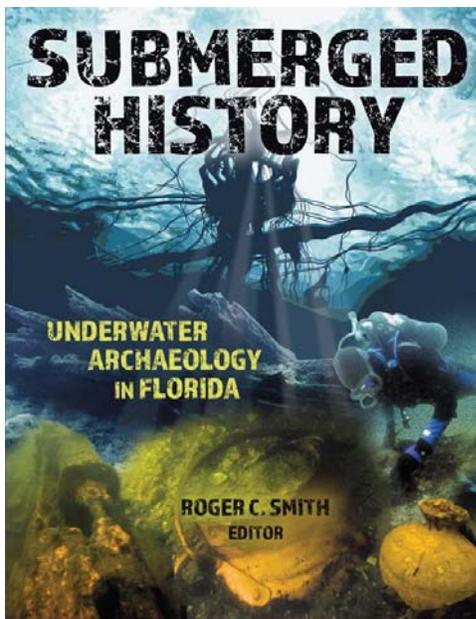
(Pineapple Press, 2018)

reviewed by Dennis Knepper

To say that Florida is rich in maritime history would be a considerable understatement. The state is essentially a peninsula that extends into the Caribbean Sea, boasting tropical waters, reef ecosystems, a long Atlantic coastline, the sweeping coast of the Gulf of Mexico, and extensive inland waterways. Estimates suggest there are 8,500 miles of coastline and even more thousands of miles of streams, rivers and canals. Roger Smith's edited volume, *Submerged History: Underwater Archaeology in Florida*, surveys the range of underwater cultural resources associated with these environments throughout the state.

The book consists of a series of twelve articles by a variety of authors covering an array of topics in underwater archaeology in Florida. After an introduction in which Smith briefly describes what archaeology is and how it is conducted underwater, the chapters follow a general chronological order, ranging from studies of several types of submerged prehistoric sites, through remains of early European exploration and settlement attempts, to the investigation of a slave ship. The chapters continue with a maritime study of the port town of St. Augustine and the lab work and artifact conservation that is conducted in the state. The book closes with public outreach and a short final word on underwater site management and the future of underwater archaeology in Florida.

Florida is known for its karst topography, a porous limestone bedrock that ground water and underground streams have eroded and dissolved in places to form caverns, caves and sinkholes that are partially or completely flooded. Several of these, such as Warm Mineral Springs and Little Salt Spring, both in Sarasota County, hold extensive prehistoric archaeological remains. Similarly, a number of rivers have been drowned by slowly rising sea levels over the millennia, sea level rise that is not related to current global warming trends but is the result of the retreat of continental glaciers at the end of the last Ice Age some 25,000 years ago. Many of these streams house prehistoric archaeological sites along former banks that are now submerged. Page-Ladson, on the Aucilla River, is a site highlighted in the book at which archaeologists



have found evidence of mastodon hunting that occurred as early as 14,000 years ago.

The portion of the continental shelf on which Florida lies extends 150 kilometers or more into what is now the Gulf of Mexico, and much of this land surface was exposed and dry when sea levels were lower thousands of years ago as the Ice Age glaciers were still in retreat. Archaeologists have used remote sensing technology to follow the relict channels of rivers such as the Suwannee, Aucilla and Ochlocknee that once flowed across this landscape far out into the Gulf. Early prehistoric sites, some at least 6,000 years old and

many older than that, have been identified along the streams, and some have been excavated.

Other prehistoric finds in the state include remarkably well-preserved dugout canoes. Because much of Florida's landscape has been submerged in the last few thousand years, many of the canoes have escaped deterioration and have been found underwater near the shores of lakes or streams or exposed briefly when modern water levels drop during extended periods of drought. Preservation is often such that manufacturing techniques can be studied; adze marks are still plainly visible in some cases, as are charred areas from burning out the logs, or from later fires transported from site to site. One canoe was partially finished but abandoned when a flaw in the wood was encountered.

Florida is renowned for ship traps, locales where vessels become caught without chance of escape. Shoals, uncharted rocks, and devastating storms that quickly develop in the Atlantic or the Gulf of Mexico combine to make the state's coastline full of traps that have caught ships ranging from Spanish galleons to early-20<sup>th</sup>-century steamers. The so-called Spanish Plate Fleet of 1733 had just begun its return voyage to Spain from Havana when it was caught in a hurricane that scattered and sank all but four of 21 ships in various locations along the Keys. Harbor entrances were particularly dangerous due to shifting sandbars in the days before consistent dredging was undertaken.

*Industry*, a military transport sloop carrying munitions and tools to a British garrison in St Augustine, became stranded and broke apart on a sandbar entering the harbor in 1764. *Commodore*, a wooden-hulled steamer running guns to Cuba, sank entering the St. Johns River south of Daytona. *Catherine*, a ship-rigged Norwegian cargo hauler, was lost among shifting sand bars along the Florida Panhandle in 1894.

Some of the oldest shipwrecks in Florida are the remains of Tristán de Luna's small flotilla that sailed from Mexico to what is now Pensacola Bay in a luckless attempt at colonizing the west coast of the state. As detailed in Smith's book, *Florida's Lost Galleon: The Emanuel Point Shipwreck*, reviewed in this issue of *MAHSNEWS*, several of the vessels still lie in the bay, relatively protected by silt and sand. The sediments have preserved a surprising amount of organic material, including hull timbers and bone and seeds, the latter being the remains of provisions intended to see the colonists through the first years of settlement. A hurricane sank many of the ships soon after their arrival and most of the provisions were lost.

A dark era in Florida's history is examined in the search for and excavation of the English slave ship *Henrietta Marie*. The ship was lost at the turn of the 18<sup>th</sup> century on a reef near the Dry Tortugas, likely blown there and sunk during a storm. Only a portion of the hull has been located: some timbers, a bilge pump, two 4-pounder cannon, and the ship's bell, dated 1699. Among the artifacts recovered were trade goods including thousands of small glass beads, pewter (tankards, plates, spoons), and iron bars, all used in trade for slaves. Representing the trade from Africa were several elephant tusks and about 80 sets of iron manacles or shackles for restraining the human cargo.

A chapter on St. Augustine provides a brief history of that port, the oldest in the continental United States, and continues with a description of LAMP, the Lighthouse Archaeological Maritime Program based in the community. Another chapter, on artifact conservation and analysis, focuses on the lab established in Pensacola for the Emanuel Point Shipwreck Project, recounting how the facility was equipped and describing techniques familiar to many archaeologists such as electrolytic reduction, which removes chlorides from metal objects that would otherwise hasten their deterioration. A less familiar conservation procedure involved the reconstruction of an iron breastplate that was recovered from the wreck as a large encrustation with almost none of the original metal remaining. High-quality CAT scans of the object allowed measured drawings to be made that supplemented an epoxy mold from the concretion. The final product of the process was a replica of the armor piece.

Public outreach has long been an important part

of underwater archaeological research in Florida. A series of underwater archaeological preserves—eventually 12 in all—developed into the Florida Maritime Heritage Trail. Nine sites lying in the Florida Keys National Marine Sanctuary were designated as a formal Shipwreck Trail. Subsequent trails focused on the 1733 Spanish Plate Fleet and sites along the Florida Panhandle. The programs have been successful enough to inspire similar preservation parks in other states. Educational programs and the participation and contributions of non-professional and avocational groups such as FPAN (the Florida Public Archaeology Network), MARC (the Florida-based Marine Archaeological Research and Conservation), and out-of-state organizations like DWP (Diving with a Purpose) and MAHS, have also grown in recent years.

Smith has brought together a number of well-known players in Florida's underwater archaeological community as chapter authors. His book is extensively illustrated, with many well-reproduced color photographs. Although soft cover, *Submerged History* is like a coffee table book, with an easily accessible text that is largely absent of jargon but packed with information. Many of the chapters are written as investigation procedurals, detailing the stories of the archaeological projects—how the sites were first discovered, what underwater conditions were like, who worked on the sites, difficulties met and overcome. This type of approach makes for engaging reading, although more of the history behind the some of the sites themselves would have been of interest. Interesting side bars are found in several chapters, with supplementary information on subjects such as the cross-section of a sinkhole, how to take a sediment core underwater, or descriptions of specific wrecks or artifacts.

In his concluding chapter, Smith characterizes the status of underwater archaeology in Florida as “alive and well.” Active archaeological work over the last 30 years, with increased cooperation between professional and avocational researchers, and the growing interest and involvement of the public in maritime historic preservation bode well for the future.

Smith's *Submerged History: Underwater Archaeology in Florida* is a varied and important collection of reports on underwater archaeology in the state. It does not focus entirely on shipwrecks but surveys our understanding of the full range of prehistory and history as recorded in submerged archaeological sites. As such, the work will be satisfying to the general reader and to academics and specialists alike.

*Roger Smith recently retired from a long career as State Underwater Archaeologist for Florida. He lives in Tallahassee. ⚓*

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 \_\_\_\_\_

Table with 2 columns: DUES ENCLOSED, Amount, Category. Rows include \$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

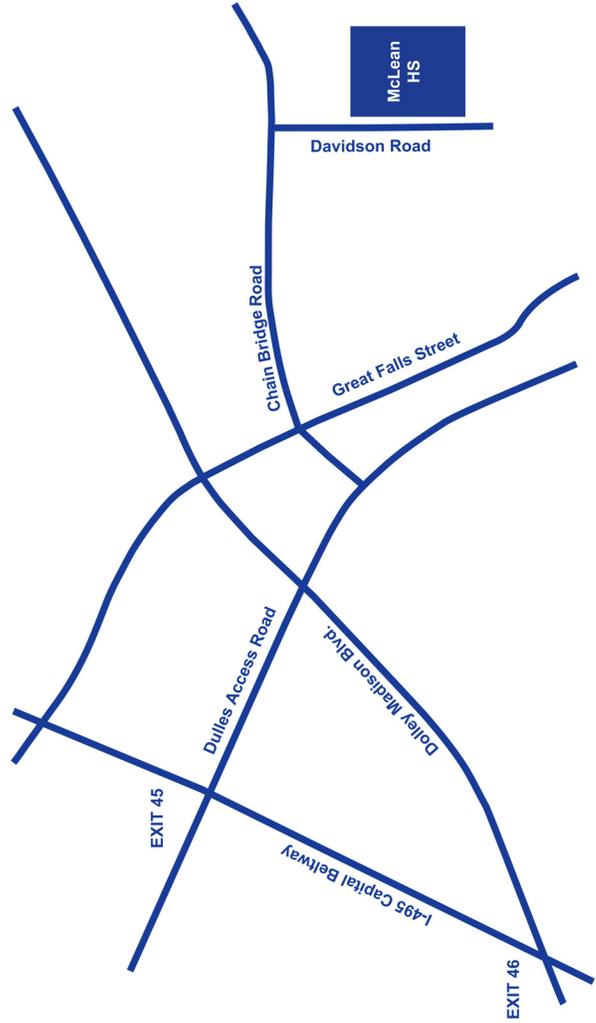
General membership meetings of the Maritime Archaeological and Historical Society are held on a bi-monthly basis, the second Tuesday of the month. Meetings are held at 7:30 p.m. at McLean High School, in McLean, Virginia, except in August and December. Meetings in August and December are held at other 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](http://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!



## MARITIME ARCHAEOLOGICAL AND HISTORICAL SOCIETY

PO BOX 44382, L'Enfant Plaza  
Washington, DC 20026  
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