

Institute of Nautical Archaeology (INA) Summary of Activities (2014-2016)

The **Institute of Nautical Archaeology** (INA) is a non-profit 501(c)3 research institute founded in 1972 and affiliated with Texas A&M University since 1976. Over the past 45 years, INA archaeologists have located, excavated, preserved, published, and put on public museum display some of the world's most important and well-known shipwrecks.

Since becoming a UNESCO affiliate in 2013, INA has continued to uphold the values of the 2001 Convention on the Protection of Underwater Cultural Heritage, by fostering excellence in all aspects of nautical archaeology and ensuring financial and logistical support needed to see projects through from excavation to conservation and publication. Between 2014 and 2016, INA provided over \$250,000 in project funding to support conservation, preservation, and fieldwork in Bermuda, Canada, Croatia, Egypt, England, Israel, Italy, Nevis, Portugal, Sicily, Spain, Sri Lanka, Tobago, Turkey, Vietnam, and the United States (see attached list of current projects).

In southwestern Turkey, INA built, owns, and operates the Bodrum Research Center (BRC), with offices, conservation laboratories and research library; the BRC's dormitory and guest suite accommodate visiting international scholars, researchers, and students. Turkish staff members of INA's BRC also provide logistical support and routine conservation assistance to our colleagues at the Bodrum Museum of Underwater Archaeology, one of the Mediterranean's most popular cultural tourism sites and an educational showpiece of underwater cultural heritage.

Also in Turkey, INA recently completed the construction of a 25 m-long state-of-the-art archaeological research vessel, *Virazon II*. She can accommodate 19 researchers and crew, including two guests in a VIP cabin, and is equipped with a 5-ton A-frame for lifting INA's two-person submersible, a 500-kg deck crane, two hull-mounted sonar units, a two-person recompression chamber, and 8 high- and low-pressure air compressors for airlifting and tank-filling with Nitrox capability.

INA's commitment to the future of underwater archaeology is realized in part through our educational partnership with Texas A&M University, where we work with graduate students enrolled in the Nautical Archaeology Program (NAP). NAP students receive field training on INA-sponsored shipwreck excavations all over the world, which are directed by NAP faculty or by some of INA's more than 50 Research Associates. The synergistic nature of the INA-NAP relationship is evidenced by the fact that many INA Research Associates are NAP graduates. In 2014, NAP introduced a new M.S. degree in Maritime Archaeology and Conservation, which is designed to better prepare students for employment in maritime museums, cultural resource management firms, the oil industry, and federal/state government agencies.

INA's commitment to enhancing public awareness about the importance of underwater archaeology is demonstrated at our annual open house called *Shipwreck Weekend*, which features scholarly lectures, hands-on activities for kids, and research presentations by students. We disseminate information about INA research via social media, popular magazines, scholarly articles, and book-length publications. In 2014, we redesigned and expanded our website (www.nauticalarch.org) to enhance user access and instituted a new monthly e-newsletter to provide updates on current INA fieldwork. The *INA Quarterly*, printed since 1974, remains our best source for distributing field reports to members. Numerous INA-excavated shipwrecks have been and continue to be published in the Ed Rachal Nautical Archaeology Series of Texas A&M University Press (see attached list of current publications).

In sum, INA continues to maintain rigorous scientific standards for the excavation, conservation, and publication of shipwrecks and maritime sites. INA is proud to be a UNESCO affiliate, and we look forward to finding additional ways to support the 2001 Convention on the Protection of Underwater Cultural Heritage and advance the field of nautical archaeology.

Institute of Nautical Archaeology (INA) Summary of Activities (2014-2016)

INA Projects (2014-2016)

NORTH AMERICA

Shelburne Steamboat Graveyard Field School (Vermont)

This three-season project focused on four scuttled 19th-century steamboats in Shelburne Shipyard on Lake Champlain, a hub of steamboat construction and maintenance from 1825 to 1906 and a gateway for transportation throughout the Champlain Valley for nearly 100 years. In addition to providing hands-on underwater training for undergraduate and graduate students, in-depth recording of Wreck 2's hull allowed the team to identify it as *Phoenix II*, which can be used to examine early steamboat construction methods. Carolyn Kennedy is the 2016 recipient of the Claude Duthuit Archaeology Grant.

The Equator Research Project (Washington)

The *Equator*, a small schooner built in San Francisco in 1888 for the South Pacific coconut trade, has a fascinating early history as a charter vessel for *Treasure Island* author Robert Louis Stevenson, a tender for an Alaskan salmon steam cannery, and a survey vessel charting underwater navigational hazards. Ultimately scuttled at the mouth of the Snohomish River in Everett, Washington, the abandoned hull was recovered and entered onto the National Register of Historic Places in 1972. The Bojakowskis are assisting the vessel's stewards– the Port of Everett – by creating a heritage preservation plan, recording some of the exposed framing, and generating a 3D digital model of the hull.

Indianola Survey (Texas)

This survey explored the offshore remains of the once prosperous Texas port city of Indianola. With the Texas Historical Commission and State Marine Archaeologist (and NAP alumna) Amy Borgens, the team successfully completed a 75-mile geophysical survey of the former Indianola wharf area and relocated a wreck, tentatively presumed to be the Morgan Steamship Company's SS *Perseverance*.

Sea Biscuit and Salted Beef (Bermuda)

Before refrigeration and canning, a shipboard diet was restricted to foods that wouldn't decompose during a long voyage. Although historical documents detail the misery and monotony of this specialized diet, attempts to ascertain its quality and nutrition have yet to be based on testable scientific data. To determine the average nutritional intake and health of sailors on 17th century trans-Atlantic ships, duplications of salted pork and beef, ship biscuits, wine and beer, and other victuals from *Warwick*, an English galleon that sank off the coast of Bermuda in 1619, will be kept in the hull of an historic sailing ship and periodically sent to a laboratory for nutritional and microbial analysis.

Yukon River Steamboat Survey (Canada)

When the Gold Rush exploded in 1897 A.D., West Coast shipyards responded to the demand, and stern-wheelers were constructed in yards as far south as San Francisco and as far north as Dutch Harbour in the Aleutian Islands. In total, 266 stern- and side-wheeled steamboats operated on the Yukon River in Alaska and Canada. When the boom dissipated in 1900 A.D., many steamship companies either went bankrupt or were bought out by competitors, and vessels were left derelict on shore along the banks of the river. As a result, the Yukon now contains one of the greatest intact collections of stern-wheel vessels known to exist, and many

Institute of Nautical Archaeology (INA) Summary of Activities (2014-2016)

are in excellent condition. The Yukon River Project, initiated in 2005, aims to document the range of construction techniques used on these late 19th-century vessels.

Carleton Island Survey (USA)

Carleton Island, situated at the juncture of Lake Ontario and the St. Lawrence River, was the principal British naval station on the Great Lakes during the American Revolution. The installation consisted of a fort (Ft. Haldimand), shipyard, dock, support structures, and Native American, Loyalist, and merchant settlements. While the fort has been studied, little attention has been paid to the surrounding land and water. The goal of this project is to investigate five terrestrial acres adjacent to the fort and the submerged bottom of Schank Harbor, to better understand the use of the island by the British and how they organized the space to control the Great Lakes.

Warwick Project (Bermuda)

The excavation of the 17th-century English galleon Warwick was successfully completed and the post-excavation study began in 2013. The next stage of our research involved reconstruction of the Warwick's hull and the analyses the hydrostatics and stability using Rhinoceros® 3-D modeling software and Orca3D® plug-in for naval architecture.

THE CARIBBEAN

Rockley Bay Research Project (Tobago)

In 1677, a French squadron with a large detachment of troops attempted to wrestle control of Tobago from the powerful Dutch West Indies Company. The Dutch managed to repel the French landing party and retain possession of the island, but lost many more vessels than the French during the skirmish. Since 2012, INA and the University of Connecticut have located and recorded several wrecks from the battle in Scarborough Harbour, Tobago to determine their construction and obtain information about daily life on a West Indies Company frigate.

Nevis Shipwrecks (Nevis)

This project is a continuation of a multi-year initiative to locate and document wrecks off the coast of Nevis. The island's tiny size and modern reputation as a quiet tourist destination contrast sharply with its history as the birthplace of Alexander Hamilton, an entrepôt for slave trade in the Lesser Antilles, and site of the US Navy's first battle. The 2014 season will capitalize on a growing network of private and governmental support generated from progress on the Project Solebay research.

EUROPE

Anaxum River Shipwreck Publication (Italy)

The Stella River is one of the most important watercourses of the Friuli region, which connected the population of the southern base of the Alps to the people that lived by the sea. The Anaxum (Roman name for the river) Project was born from the partnership between the Department of History and Preservation of Cultural Heritage of the University of Udine and the Archaeological Superintendence to reconstruct the history of the Stella River area, focusing on the relationship between man and the landscape through time.

Marzamemi Maritime Heritage Project (Sicily)

Institute of Nautical Archaeology (INA) Summary of Activities (2014-2016)

This collaborative excavation, survey, and heritage management initiative focuses on the maritime landscape and seaborne communication off the southeast coast of Sicily (Italy). The concentration of accessible sites and their location at the intersection of the eastern and western Mediterranean facilitates inquiry into long-term structures of regional and interregional maritime exchange from the early Roman era (3rd/2nd c. BC) through Late Antiquity (6th/7th c. AD).

Survey for the Patacho of Pedro Diaz (Portugal)

This archaeological survey in southern Portugal is searching for the light, trans-Atlantic *navio* belonging to Pedro Díaz Carlos, which wrecked in 1608 upon its return from Brazil carrying a cargo of sugar and contraband. In addition to finding Carlos' ship, Dr. George Schwarz seeks to document all encountered submerged cultural heritage in the area to draw public and scholarly attention to the region's underwater resources, which span from the 3rd century B.C.E. to the 20th century C.E.

Bay of Kastela Roman Shipwreck Excavation (Croatia)

In 2007, a ship about 50 meters from shore was discovered off the coast of Split, Croatia. A partial excavation in 2011 revealed a 12 meter long hull, constructed with mortise-and-tenon joinery and a few nails. It was determined that circa 200 CE, the vessel had been weighed down with stones and placed against the sea wall where it was found. Located near the Roman city of Salona and the Emperor Diocletian's palace, the ship is associated with Roman seafaring of that era and is the first Roman port facility discovered in the region. The primary goal of this project is to complete the excavation of the Roman ship, and to produce a site plan and photogrammetric map.

The Twelve Apostles: Late 16th-Century Spanish Galleons (Spain)

Between 1589 and 1591, twelve galleons were built and launched in the shipyards of northern Spain. These vessels were known as the Twelve Apostles and were constructed for the coastal defense of Spain, and to escort the fleets making the Indies run. Their design was the result of a century of technological innovation in shipbuilding. The main objective of this project is to determine the original design, appearance, and outfitting of the Twelve Apostles using shipbuilding contracts, inventories, official reports, and personal letters located in the Spanish General Archive of Simancas (Valldolid), the Naval Museum (Madrid), and the General Archives of Indies (Seville).

A Submerged WWII Aircraft Survey (Croatia)

In December 1944, a US B-24 Liberator was trying to reach a landing strip on the Island of Vis in Croatia when it was attacked by a German aircraft. The Liberator, known as the Tulsaamerica, lost power and crashed into the sea close to the island. This aircraft was the last B-24 produced by the Douglas factory in Tulsa, Oklahoma. The project's goal is to produce a 3D map of the aircraft's wreckage and possible partial recovery of sections of the wreck. Secondary goals include testing aluminum conservation methods through gathering corrosion readings from the aluminum underwater.

Molecular and Pollen Analysis of Shipbuilding Materials (United Kingdom)

The aim of this project is to use robust methods of chemical and biological analysis to characterize materials used in the painting and preservation of ancient Mediterranean wooden ships. This sort of analysis has far reaching implications that can inform archaeologists about the

Institute of Nautical Archaeology (INA) Summary of Activities (2014-2016)

identity of shipbuilding materials, the location and environment in which a ship was constructed, the choices made by shipbuilders, and the process of ship maintenance.

Projecto Carta Arqueológica Subaquática da Baía de Lagos (Portugal)

This systematic survey of the bay of Lagos will be conducted in order to locate and record underwater cultural heritage that provides evidence of maritime activity. In 2014 we will examine various clusters of artifacts already identified, review proposed anchorages and fishing areas and continue mapping two newly identified shipwrecks, Lagos B and Lagos F.

Finisterre Project (Spain)

Finisterre is a small village in northwestern Spain where a large number of shipwrecks, spanning many centuries of history, lie untouched. One of the most important clusters of wrecks dates from 1596, when a Spanish fleet of 80 large ships under the command of Martin de Padilla was caught in a storm and 25 ships sank. The objective of the Finisterre Project is to study the shipwrecks in this area to gain a better understanding of 16th-century shipbuilding.

The Life, Works, and Ships of the Venetian Humanist Vettor Fausto (1490-1546) (Italy)

The assessment and study of rare Venetian manuscripts dating from 1500 to 1620 continues to add to our knowledge of Renaissance shipbuilding in this center of Mediterranean trade and culture. The 2014 season of this multi-year research project will include a full transcription of all documents concerning Vettor Fausto and an Auto-CAD reconstruction of his vessels as recorded in the *Misure di vascelli*.

Excavation of a Laced Vessel at Altino (Italy)

In collaboration with the Department of History and Preservation of Cultural Heritage at the University of Udine and the Superintendency for the Archaeological Heritage of Veneto, we will conduct a thorough examination of the hull remains of a laced boat uncovered in 1999 during a land improvement project in the territory surrounding Quarto d'Altino in northeastern Italy (ancient Altinum). This boat is part of a broader tradition of laced construction which occurred in northeastern Italy from about the 2nd century BC to the 6th-7th centuries AD. Only two complete hulls using this construction method have been thoroughly examined. Thus the Altino boat may provide key insights into this local tradition of boatbuilding.

Venice Lido Laced Timbers (Italy)

This project aims to record laced boat timbers found washed ashore in Venice Lido in November 2011. Currently, the excavated remains of laced boats represent mostly riverine and some coastal watercraft. At least two of the timbers from Venice Lido have planking thicknesses that are greater than the Commachio wreck, the largest of these vessels yet found. The size and location of these timbers suggest that they may be from a sea-going vessel, which would be unique for this construction tradition.

MIDDLE EAST

Abusir Boat Burial Research Project (Egypt)

In Fall 2015, the Czech Institute of Egyptology discovered a 3rd-dynasty boat burial during excavations at Abusir, Egypt likely dating to the 27th century BCE, making it one of the oldest excavated plank boats in the world. Believed to be similar in form to the 1st-dynasty boat burials from Abydos, the discovery of this vessel is a unique opportunity to document an early Egyptian

Institute of Nautical Archaeology (INA) Summary of Activities (2014-2016)

vessel and bridge the gap between the earliest known plank boats, Khufu's Royal Ship (4th Dynasty), and the ship remains of the Middle Kingdom. The boat is in poor condition and requires immediate documentation and evaluation for in-situ preservation.

Ioppa Maritima (Israel)

In antiquity, Yaffo, located inside modern Tel Aviv, Israel, was one of the most important ports along Israel's long, shallow, straight, and mainly harbor-less Mediterranean coast. The Jaffa Cultural Heritage Project (JCHP) carries out ongoing excavations of the ancient tel, or mound. The 2014 INA/JCHP Ioppa Maritima Project is a collaboration effort intended to add nautical or maritime dimensions to this existing terrestrial project. It consists of two independent foci: A) a remote-operated vehicle (ROV) survey, and B) a geoarchaeological/ground penetrating radar (GPR) survey of a geological depression, known locally as 'the Bassa' to determine whether it is served as an inland estuary harbor in antiquity as has been suggested repeatedly in the past.

TURKEY

Burgaz Harbors Research Project (Turkey)

This collaborative project explores the four harbors associated with the Archaic through the late antique maritime site of Burgaz, on the Datça Peninsula, Turkey. Combining excavation with surface survey and geophysical prospection both on land and under water allows the team to study the long-term development of the ancient town, its military and commercial ports, and its integration within a broader maritime cultural and economic landscape. Harbor 1 is associated with the earliest phases of habitation at Burgaz and contains well-preserved wooden hull remains buried in deep sediment.

Maritime Landscape Survey of Rough Cilicia (Turkey)

Begun in 2013, the 18km-long Maritime Landscape Survey of Rough Cilicia between modern Boğsak and ancient Aphrodisias is a five-year program prompted by shifting cultural resource needs and new academic perspectives on the inhabitation and construction of maritime space. In collaboration with the terrestrial surveys directed by Gunder Varinlioğlu in the same region, we employ coastal underwater surveys, and GIS spatial analysis, in an effort to model how this landscape may have been fashioned and used over past millennia. Preliminary results from our first season include the documentation of a set of four slipways at Boğsak Limanı, the investigation of a second set on Dana Adası, and the preliminary recording of an assemblage of pan and ridge tiles, alongside Late Roman Key 25 amphorae, at the northeastern end of Boğsak Adası.

ASIA

Godavaya Ancient Shipwreck Excavation (Sri Lanka)

The Godavaya shipwreck was discovered by local fishermen in 2003 who brought it to the attention of officials from the Department of Archaeology (DOA). Since then various exploratory campaigns have been undertaken at the site, which include a six-week INA field season in 2013, and a 12-week season in 2014. The ship was transporting a cargo of raw materials, including what appear to be ingots of iron and others of glass, as well as finished stone querns and ceramic bowls, when it sank to a depth of 35 meters in the first century A.D., making it one of, if not the oldest, shipwreck[s] in the Indian Ocean. INA's involvement in the excavation of this important site was funded by a grant from the National Endowment for the Humanities.

Institute of Nautical Archaeology (INA) Summary of Activities (2014-2016)

In 2013, when the promise of a locally-available recompression chamber failed or proved inadequate, we redoubled our efforts to find cost-effective solutions that ensured the safety of all diving participants. INA purchased a shipping container and installed within it a fully-refurbished, four-person double-lock recompression chamber, supplied by banks of six oxygen and ten air cylinders. In early January 2014, the INA shipping container departed Texas filled with 18 new steel scuba tanks, two rigid inflatable boats (RIBs), underwater lights, digital and video cameras, and all the necessary diving, excavation, and medical supplies to sustain our team of 15-20 for a four-month campaign.

The 2014 team was comprised of four Texas A&M University graduate students and three staff members from INA's research center in Bodrum, Turkey. Once on the island, we were joined by 10 team members from the Sri Lankan Department of Archaeology (DOA) including divers, conservators, two cooks, and a driver. DOA archaeologists Palitha Weerasinghe and Amalka Wijesuriya served as our primary collaborators in the field and oversaw the coordination of the Sri Lankan team, while the two local fishermen who discovered the shipwreck (and continue to be its year-round caretakers) completed the 2014 excavation team.

Although rough sea conditions and the early onset of the monsoon season hampered archaeological work on site, the weather proved not to be our greatest challenge. In late April, the Sri Lankan Navy informed us that their regional office had not received copies of the paperwork sanctioning our diving operations and that the presence of American and Turkish archaeologists diving in Sri Lankan waters posed a problem. DOA Director General Senarath Dissanayake, under whose authority the project was permitted and who staunchly defended INA against an anonymous critic lodging scurrilous complaints in a local newspaper, attempted to discuss this issue with the Navy Commander but was referred up the chain to the Secretary of Defense. Ultimately, the Secretary of Defense decided that the excavation season was over and advised us to leave the country with our equipment. The Director General of the DOA requested that Sri Lankan divers be allowed to remove INA's safety equipment from the seabed and cover any exposed artifacts, which they did. In May 2014 we prepared to ship all the equipment we had worked so hard to bring to Sri Lanka back to Texas. Before leaving the island we delivered all excavated artifacts into the capable hands of Anusha Kasthuriarachchi, head conservator at the Chemical Conservation Laboratory in Colombo, who had been with us on site at Godavaya.

The accomplishments of this nascent project cannot be overstated. Our international team overcame significant logistical and safety challenges to carry out two seasons of underwater excavation on a site that has tremendous archaeological potential and historical value. We successfully trained and thoroughly enjoyed working with various staff members of the DOA in many key aspects of INA's dive safety and excavation protocol. Where we were unsuccessful has much to do with the fact that the organization of archaeology (and particularly maritime archaeology) in Sri Lanka is both deeply polarized and politically charged.

In 2014, any U.S.-funded project would have suffered from governmental ill-will owing to heightened tensions between the U.S. and the regime of former President Mahinda Rajapakse over alleged human rights violations in the Tamil north. In addition, the project endured interference from local officials who sought participation in and control of the project, a result of fragmentation and politicization of archaeological institutions and personnel during the Rajapakse regime. Now that a regime change has occurred in Sri Lanka and new global alliances are being shaped we are hopeful that governmental institutions will be positively affected and, as such, we are optimistic about resuming archaeological work under the auspices of the Department of Archaeology.

Institute of Nautical Archaeology (INA) Summary of Activities (2014-2016)

Naval Battlefield Archaeology in Vietnam (Vietnam)

In October-November 2013 an international team conducted fieldwork at naval battlefield sites relating to the 13th-century invasion of Vietnam by Kublai Khan. The expedition was a joint project with the Asia Research Centre at Murdoch University (Australia), Monash University (Australia) and the Institute of Archaeology in Hanoi. The team investigated sites associated with two highly significant naval battles when Kublai Khan's invasion fleet was defeated by Dai Viet (Dynasties of Vietnam) at Van Don and the Bach Dang River in 1288 AD. Efforts continue to encourage further work and preservation of the historical remains in inland waters and seas.

ONGOING INA RESEARCH AND PUBLICATION PROJECTS

Uluburun Late Bronze Age Shipwreck (Turkey)

Cape Gelidonya Late Bronze Age Shipwreck (Turkey)

Bajo de la Campana Phoenician Shipwreck (Spain)

Tektaş Burnu Classical Greek Shipwreck (Turkey)

Kızılburun Late Hellenistic Column Wreck (Turkey)

Yassıada Byzantine Shipwreck (Turkey)

Ships of the Theodosian Harbor at Yenikapı (Turkey)

Santo Antonio de Tanna the Mombasa Wreck (Kenya)

Ottoman Frigate *Ertuğrul* (Japan)

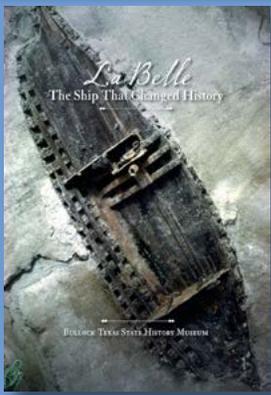
Civil War Blockade Runner *Denbigh* (Texas)



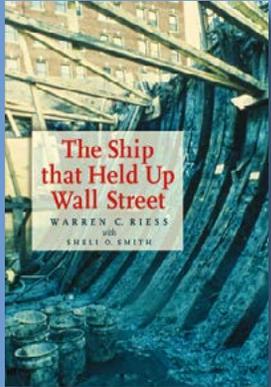
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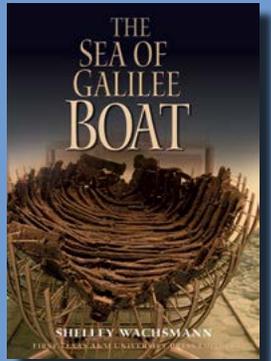
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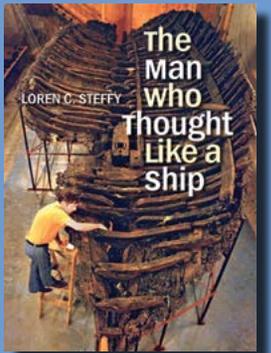
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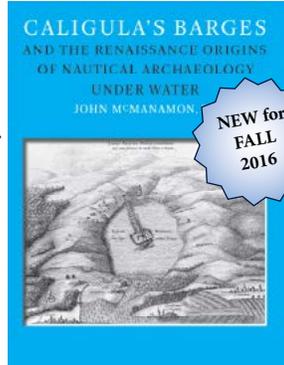


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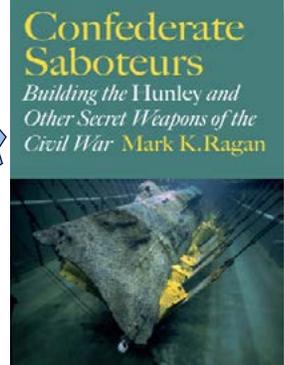
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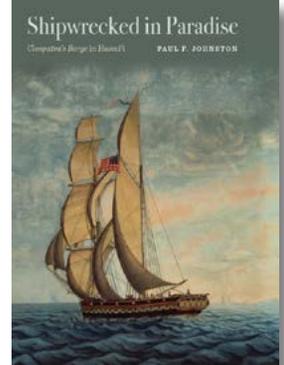


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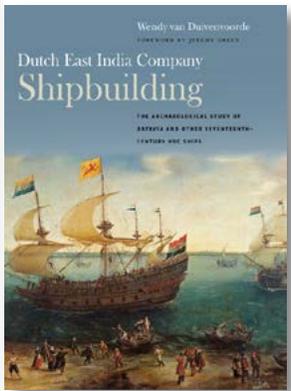
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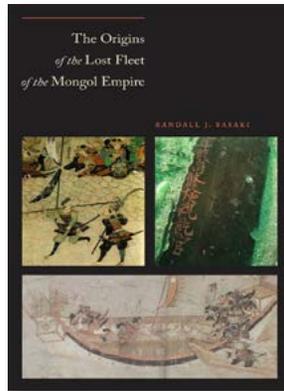
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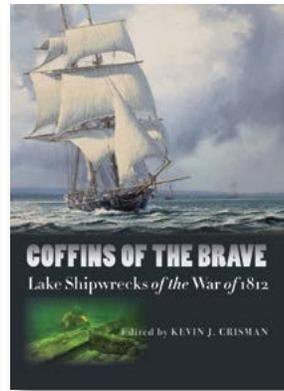
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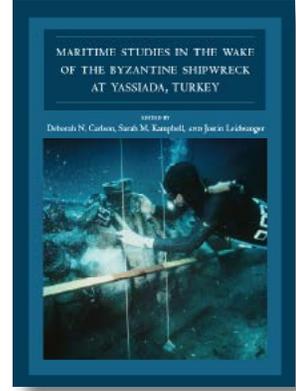
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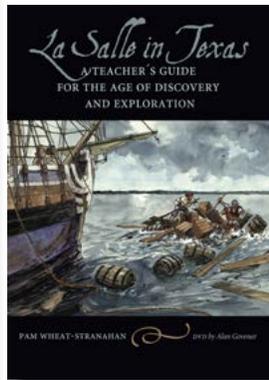
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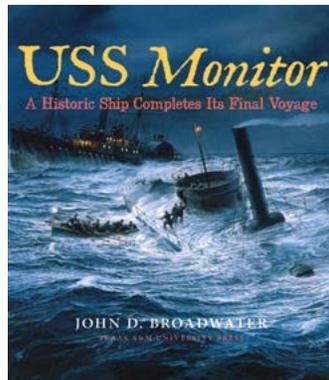
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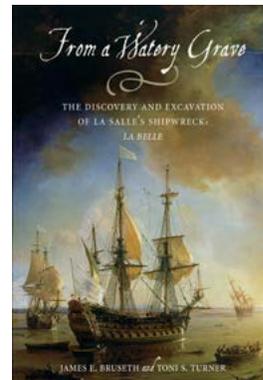
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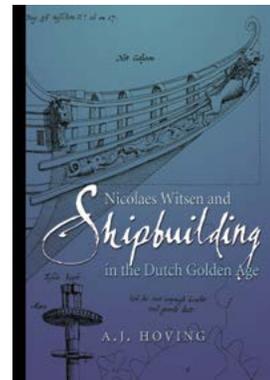
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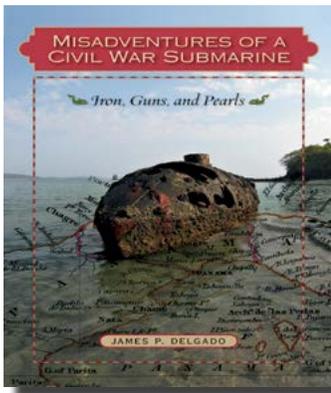
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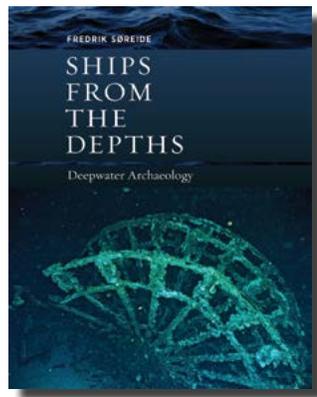
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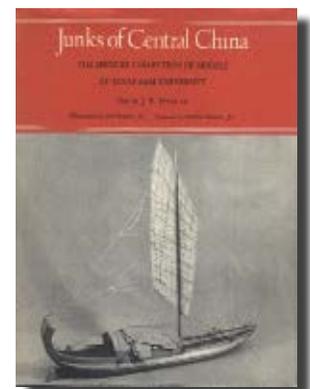
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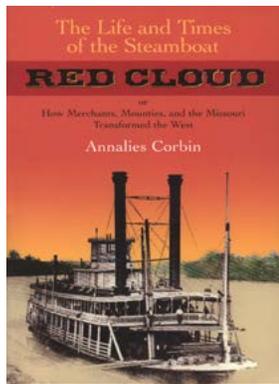
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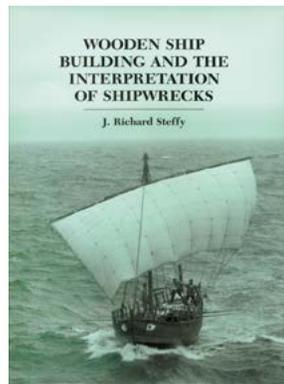
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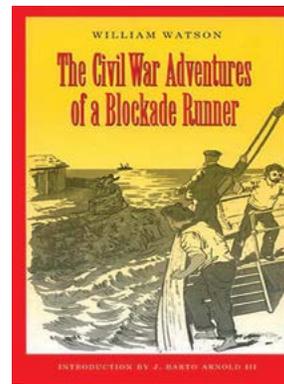
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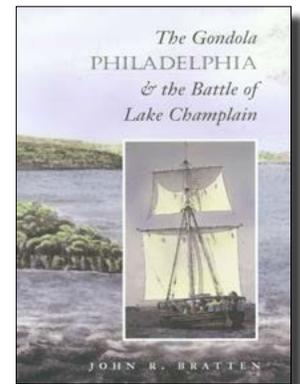
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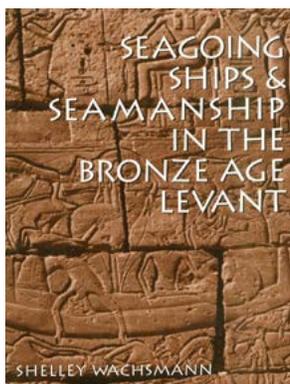
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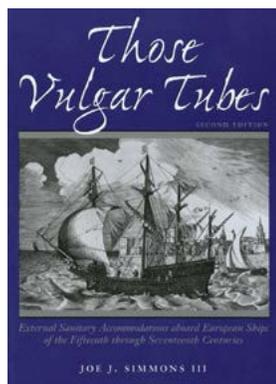
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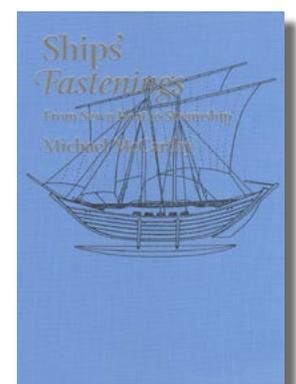
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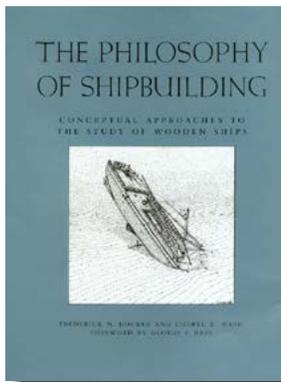


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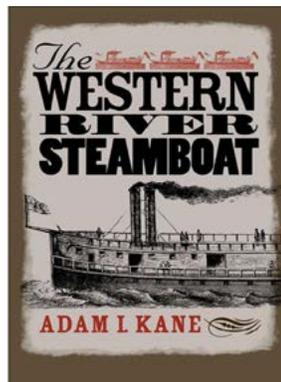


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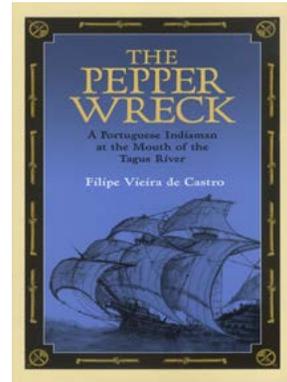




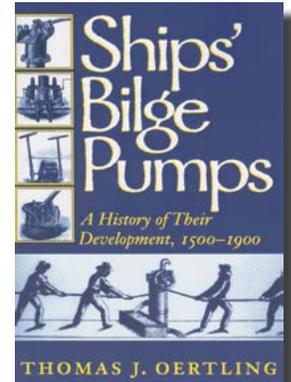
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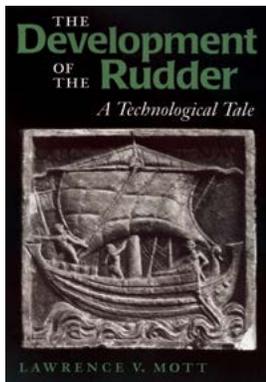
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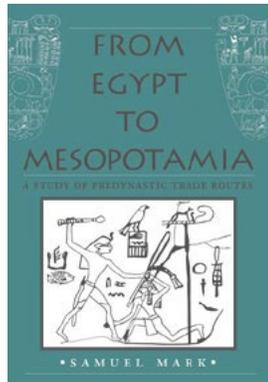
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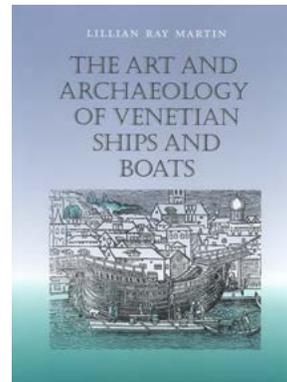
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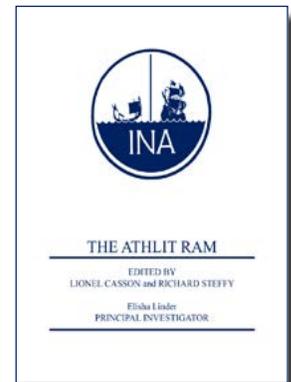
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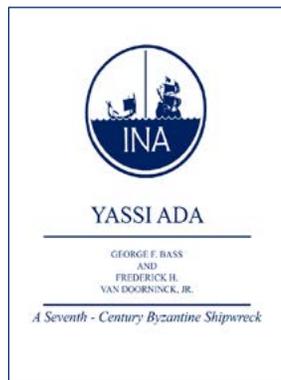
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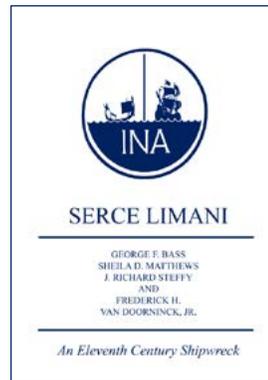
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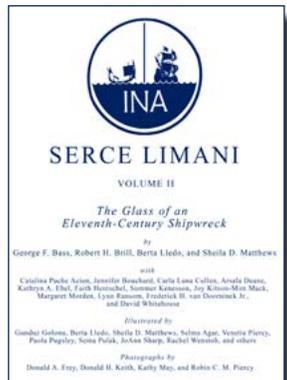
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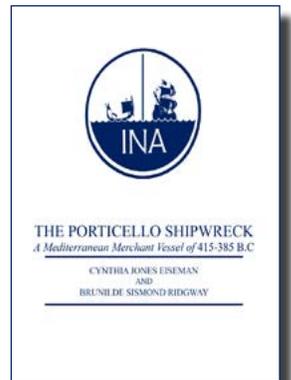
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