

THE INA QUARTERLY

A PUBLICATION OF THE INSTITUTE OF NAUTICAL ARCHAEOLOGY

STEFFY'S FIRST SHIP MODEL

HOW IT HELPED CREATE
A DISCIPLINE



PIRATE SHIPWRECKS
OF PORT ROYAL
INA RETURNS TO
JAMAICA

THE BODRUM
MUSEUM AND INA
A DECADES-LONG
PARTNERSHIP

SUMMER 2013
VOLUME 40, NO. 2

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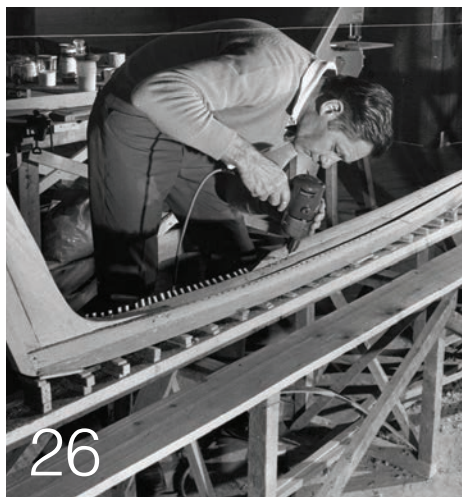
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ON THE COVER: Dick Steffy assembles the hull remains of the Kyrenia ship in the Kyrenia Crusader Castle.
Cover Photo by: Jonathan Blair

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A LETTER FROM THE DIRECTOR OF INA'S BODRUM RESEARCH CENTER

Merhaba! A Turkish 'hello' to INA members around the world! I am writing from INA's Mediterranean research center in Bodrum, Turkey, a short walk away from the Bodrum Museum of Underwater Archaeology, both of which are featured in this summer issue of the *INA Quarterly*. INA's Bodrum Research Center (BRC) is open year-round but summer is by far our busiest time of year, with visiting scholars, students, and researchers making use of our extensive facilities.

As an example, INA President and Texas A&M University (TAMU) faculty member Debbie Carlson is in residence researching material from the Late Hellenistic Kızılburun Column Wreck; she is assisted by TAMU students who are cataloging artifacts and aiding INA conservation staff with the preliminary cleaning of the marble column drums.

INA Vice President Cemal Pulak (TAMU) is also here overseeing the ongoing conservation and research of artifacts from the Late Bronze Age shipwreck at Uluburun; Nautical Archaeology Program (NAP) students are working alongside a doctoral student from the University of Paris 1 – Panthéon Sorbonne to gather volumetric data on the Syro-Canaanite amphoras on the Uluburun shipwreck.

INA Affiliated Scholar and NAP alumna Nicolle Hirschfeld (Trinity University) is also here, leading a collaborative research project with Lina Kassiani-

dou (University of Cyprus), to analyze the metal ingot fragments from the Cape Gelidonya shipwreck. Nicolle is also collaborating with an undergraduate student who is developing a computer program that plots the dispersal of the Cypriot ceramic cargo from the Uluburun shipwreck.

INA Affiliated Scholars Elizabeth Greene (Brock University) and Justin Leidwanger (Stanford University) are leading a group of students from Brock, Stanford, and Texas A&M Universities to locate and record the harbor facilities of ancient Knidos at Burgaz in collaboration with Turkish archaeologist Numan Tuna (Middle

East Technical University).

It's midsummer here in Bodrum and we have already been visited by Lee Drake, an Applications Scientist for Bruker Elemental, historian Michael McCormick (Harvard University), and Nili Lipshitz, a botanist and research fellow at Tel Aviv University, who has generously been conducting wood species identifications for INA shipwrecks over the past decade.

To learn more about the staff and facilities of the BRC, visit www.nauticalarch.org and click on 'INA Turkey.' Follow the work being conducted here on the INA blog, entitled *Summer Conservation at the BRC*.

Tüba Ekmekçi
Director of the Bodrum Research Center





CLAUDE DUTHUIT

(1931-2011)

Underwater Archaeologist,
Explorer, and INA Director

INA is honored to announce the establishment
of the **Claude Duthuit Archaeology Grant**.

This \$25,000 grant will be awarded each year
to the underwater archaeological project that best
captures the **innovative**, **bold**, and **dedicated** spirit
of Claude Duthuit – a pioneer of nautical archaeology.

Pioneer

Diver, innovator, and designer of essential
excavation and safety equipment

Scholar

Author, documentary filmmaker, philanthropist,
and passionate protector of artistic copyright

Ambassador

Loyal supporter of INA since its inception,
Army veteran and recipient of France's highest
decoration, the Legion of Honor

NEWS & EVENTS

UNESCO awards INA affiliate status, INA acquisitions in Bodrum, and NAP Alumni news

INA BECOMES A UNESCO AFFILIATE

We are pleased to announce that the 2013 Underwater Cultural Heritage Advisory Body recognized the Institute of Nautical Archaeology (INA) as an affiliate of the United Nations Educational, Scientific, and Cultural Organization (UNESCO). This decision was based on INA's commitment to scholarship, to studying shipwreck sites to the highest scientific standards, and to disseminating this information to the widest possible audience for the benefit of humanity.

In the words of UNESCO's Underwater Cultural Heritage Advisory Body, "INA has pioneered technologies and fostered excellence in all aspects of nautical archaeology, from excavation and conservation through to preservation, analysis and publication... INA also contributes to the global knowledge and the future of the discipline by providing training

grounds for the next generation of nautical archaeologists through their participation in Institute projects... INA's decades of experience in Turkey provide a model for cooperation between this American research institute and other countries... INA's dedication to and insistence upon rigorous archaeological techniques, education of local staff and archaeologists, cooperation with local governments and needs, and curation, exhibition, and publication of finds in the home country have produced one of the finest nautical archaeology institutes and museums in the world."

INA ACQUIRES BASS RESIDENCE IN BODRUM

We are delighted to announce the acquisition by INA of the two-story home of George and Ann Bass in Bodrum, Turkey. The residence, built in 1990 by local award-winning architect Ahmet "Şans" İğdırlıgil, is stylistically similar and di-

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rectly adjacent to INA's Bodrum Research Center (BRC). The addition of the Bass home expands the already impressive footprint of the BRC and ensures that the Bass' international reputation for warm hospitality will endure for many generations to come.

A.J. GODDARD PUBLICATION RECEIVES AWARD

Congratulations to Doug Davidge, John Pollack, and Lindsey Thomas, authors of *The Wreck of the A.J. Goddard* published in 2012 and winner of the **2013 Public Communications Award** presented by the Canadian Archaeological Association (CAA). The CAA describes it as "clearly written, beautifully illustrated with photos and maps... a fountain of information concerning the Gold Rush Era of the Yukon." The wreck is part of the ongoing INA Yukon Gold Rush Steamboat Survey, which has located and recorded 24 wrecks and hulks since 2005. *A.J. Goddard* was the subject of Thomas' 2011 M.A. thesis in the Nautical Archaeology Program at Texas A&M University.

INA'S TOOZE LIBRARY CONTINUES TO GROW

INA gratefully acknowledges the generosity of the late Mrs. Gülçin Çaylıgil, a lawyer renowned in Turkey for her defense of civil liberties, particularly her

protection of freedom of the press, and her colleague Mrs. Reşide Burry. Together, they donated nearly 400 art history books to the Mary and Lamar Tooze Library of INA's BRC. Additionally, the Tooze Library received more than 100 nautical and archaeological texts from a private, anonymous individual. Our thanks go to Feyyaz Subay, retired captain of INA's research vessel *Virazon*, for organizing the donations in Bodrum.

SHIPWRECK WEEKEND 2013

Shipwreck Weekend, an annual event showcasing the fieldwork and research conducted under the auspices of the Nautical Archaeology Program (NAP), the Center for Maritime Archaeology and Conservation (CMAC), and INA and held on the campus of Texas A&M University took place on April 6, with generous support from INA, CMAC, the TAMU Department of Student Organization Development and Administration, the TAMU Anthropology Department, and the Pepsi Corporation.

Owing to the ongoing remodeling of the INA and NAP offices in the Anthropology Building, this year's one-day event included short illustrated lectures, a student poster session and a light reception. Lectures included talks by current NAP Ph.D. students Staci Willis and Rodrigo Torres on new INA projects in Sri Lanka

and in Brazil, respectively. Dr. Shelley Wachsmann introduced his new book, *The Gurob Ship-Cart Model and its Mediterranean Context*. The keynote speaker was NAP alumnus Dr. Ben Ford, now Assistant Professor of Anthropology at the Indiana University of Pennsylvania, who discussed his ongoing efforts to locate the ships of the War of 1812.

NAP ALUMNI NEWS

George Schwarz (Ph.D., 2012), is now employed as a marine archaeologist and conservator with Geoscience Earth and Marine Services in Houston, Texas.

Kimberly Rash Kenyon (M.A., 2012) has been hired as a conservator with the Queen Anne's Revenge Conservation Laboratory, operated by the North Carolina Department of Cultural Resources on the campus of East Carolina University in Greenville, North Carolina.

Chad Gulseth, currently finishing his M.A. thesis, was recently hired as a Maritime Archaeologist in the Historic Preservation and Public History Division of the Wisconsin Historical Society in Madison, Wisconsin.

Opposite: The Tooze Library at INA's Bodrum Research Center. This page, left to right: The Bass Residence in Bodrum soon after construction; INA staff Mehmet Çiftlikli and Zafer Gül install the honorific plaque.

INA PROFILES:

THE PERSON

LAURA WHITE: Assistant Dive Safety Officer, INA

LAURA WHITE is a 4th year Ph.D. student in the Nautical Archaeology Program at Texas A&M University in College Station. She received her M.Sc. in Archaeological Sciences at the University of Bradford (England) in 2010, after earning a B.Sc. in Marine Sciences and a B.A. in Maritime Studies at Texas A&M University at Galveston, where her career aspirations in nautical archaeology took shape. Laura started diving recreationally as an undergraduate, and soon after began her career as an underwater researcher, a divemaster, and ultimately, an instructor for both TAMU and TAMU Galveston.

Laura is still active in diving safety and education; she is a NAUI Open Water SCUBA Instructor and a NAUI First Aid, CPR, and Emergency

Oxygen Administration Instructor. Presently, she co-teaches scientific diving classes as TAMU's Assistant Diving Safety Officer and assists INA's current Dive Safety Officer Jim Jobling. Laura served as Diving Supervisor on recent INA excavations at Bajo de la Campana, Spain and Godavaya, Sri Lanka. She also participated in two seasons of excavation at Mazotos, where the University of Cyprus is excavating a Classical Greek shipwreck. Laura's dissertation research involves the identification and analysis of pigments and tars used for maintaining ancient ships. INA has provided financial support to help Laura carry out this work, and INA researchers have granted access to material collected from previous excavations, including those at Kızılburun, Yenikapı, Kyrenia, and others.

Microscopic analysis reveals diagnostic features like scales, pores, or surface textures... Through this lens, even the very smallest ship remains have a story to tell.



THE RESEARCH

MICROSCOPIC REMAINS, BIG DISCOVERIES: The chemical analysis of ancient ships



ALTHOUGH MARITIME archaeologists often faithfully record and analyze the wooden elements of hull remains, they sometimes forget that an entire industry existed to protect vessels and to keep them waterproof and seaworthy. The materials used for this process include paints, pigments, resins, tars, and oils, which sometimes accidentally or purposefully include pollen, hair, and fibers or plant material. Some of these materials survive only as molecular traces invisible to the eye, and can only be detected through instrumental analysis. Through a series of chemical and biological tests using high-performance instruments like the Gas-Chromatograph/Mass Spectrometer and Scanning Electron Microscope, the identities and origins of these materials can be determined. In some cases, these identifications can provide clues

about the the usage, history, or origin of the vessel.

For pollen, fibers, and plant remains, identification is relatively simple; microscopic analysis reveals diagnostic features like scales, pores, or surface textures. For amorphous residues such as resins, tars, and paints; identification is much more challenging; these materials are chemically complex, impossible to distinguish based on their physical characteristics, and often mixed with other substances. In these cases, the ability to carefully separate these compounds into their base components and accurately examine them molecularly becomes paramount. They can then be identified by matching their component molecules with molecules in modern parallels...beeswax, plant and petroleum tars, animal fats, mineral inclusions, resins, mud, oil, fecal

material, and even oils from skin or hair can all be identified using this technique. I hope that my research establishes the study of these ephemeral remains as a rich source of evidence for ancient ship construction, one that extrapolates the maximum amount of information from ship remains and reveals a bit more about the decisions of the shipbuilder, the process of ship maintenance, and even the environment in which the ship was constructed. Through this lens, even the very smallest ship remains have a story to tell.

Opposite: Laura currently works for INA as the Assistant Dive Safety Officer. This page, left to right: Laura has been an avid diver since her undergraduate studies at Texas A&M University – Galveston; Laura extracts delicate microscopic remains from ship timbers for chemical analysis.

INA PROFILES:

THE PERSON

STEPHANIE KOENIG: *INA Quarterly* Assistant Editor

STEPHANIE KOENIG grew up near the Chesapeake Bay in Maryland and developed an early fascination with sailing, marine life, and the rich national history easily within grasp on the East coast. She graduated with honors from Stony Brook University in New York with a B.S. in Marine Science and Anthropology. Stephanie is currently pursuing her doctoral degree under Dr. Kevin Crisman in the Nautical Archaeology Program at Texas A&M University.

During her undergraduate studies, she participated in an archaeological field school in the Florida Keys with the Maritime Archaeological and Historical Society (MAHS) based in Washington, D.C. Under the guidance of MAHS, she coordinated a survey project in the Chesapeake Bay that tentatively identified a 19th-century coastal ship-

wreck as *Harriet P. Ely*, which served as the basis for her honors thesis. Her interests include new world seafaring and shipboard life, as well as the study of human dispersal from a paleoceanographic perspective, particularly the expansion of humans into Australia and the Americas. Using technological advancements in deep submergence archaeology and oceanography, Stephanie hopes one day to recreate paleoshorelines. Having a better understanding of these shorelines, covered thousands of years ago by rising sea levels, will aid scholars studying the movement of early humans.

Currently, she is accumulating and researching personal narratives from American Civil War sailors to collect information concerning shipboard life, as a tool for both historians and archaeologists. In her ongoing work with the Underwater Archaeology Branch of the Naval History & Heritage Command, she is studying personal effects recovered from CSS *Alabama* and USS *Tulip* to better understand life aboard Civil War-era vessels, which will serve as the basis for her doctoral dissertation.

"I think my scientific background grants me a unique perspective within nautical archaeology – one that understands both the rules of the natural world and the determination of humans, who broke many of those rules when they decided to cross open water. I try to apply this multidisciplinary approach to my studies as well as my work on the *INA Quarterly*."

Stephanie looks forward to continuing her work with INA as the assistant editor.



The Underwater Archaeology Branch provides a unique opportunity for students to participate directly in the protection and preservation of U.S. Naval heritage.

THE RESEARCH

NAVAL HISTORY & HERITAGE COMMAND



MANY PEOPLE are unaware that the United States Navy is responsible for over 17,000 historic ship and aircraft wrecks around the world, dating as far back as the Revolutionary War. These wreck sites fall under the purview of the Naval History and Heritage Command (NHHC), the official historical archive of the Department of Navy. NHHC dates its lineage back to 1800 with the founding of the Navy Department Library by President John Adams.

The NHHC's Underwater Archaeology Branch (UAB) was established in 1996 as a result of the Navy's emerging need to manage, study, and preserve its submerged cultural resources. It also houses the Command's Archaeology & Conservation Laboratory, where artifacts recovered from sunken military craft sites are conserved and curated.

The UAB's Academic Internship Program, established in 2009, provides a unique opportunity for undergraduate upperclassmen and graduate students to participate directly in the protection and preservation of U.S. Naval heritage. The multiple functions of UAB allow students to focus on their own area of interest while gaining experience in archaeological research, cultural resource management, policy development, artifact conservation

and curation, and public outreach. UAB typically works with 12 to 15 interns per year and this summer marks their 50th collaborative internship. The UAB's interns have made significant contributions to the mission and work of NHHC as well as to the overall interpretation of the maritime history of the United States.

Stephanie Koenig and Megan Lickliter-Mundon, doctoral students in Texas A&M University's Nautical Archaeology Program, were among the 2012 NHHC interns. Stephanie worked with artifacts from USS *Scorpion*, creating and animating three-dimensional digital models. Megan took advantage of UAB's oversight of Navy aircraft wrecks to further her studies in aviation archaeology, helping to draft the research design and final report for the investigation of a WWII-era SB2C Helldiver off the coast of Jupiter, Florida.

Maria Grenchik, graduate of the University of Maryland, analyzed a collection of ceramics recovered from the Civil War CSS *Alabama*, wrecked off the coast of France. She was able to use the results in drafting her thesis, and presented a professional paper at the annual meeting of the Society of Historical Archaeology in Baltimore, Maryland.

Barry Bleichner, a doctoral student in

East Carolina University's Coastal Resources Management Program with a background in law, analyzed the legal standing of Liberty ships and privateers to determine their status under the Sunken Military Craft Act. This type of work directly influences the development of NHHC's policies and actions regarding management of the Navy's cultural resources.

From the inception of the nation's first fighting fleets to the aerial battles of naval aviators in the Pacific, UAB provides wide-ranging opportunities for students to conduct significant original research in the realm of American maritime heritage.

For further information on UAB please visit <http://www.history.navy.mil/ua>. If you are interested in applying for an internship, please submit a cover letter, CV, unofficial transcript, and two letters of recommendation to NHHCUnderwater-Archaeology@navy.mil. Applications are accepted on a rolling basis for fall, spring, and summer semesters.

From top left: Megan Lickliter-Mundon examines an SB2C Helldiver at the National Air and Space Museum's Udvar-Hazy Center; Conservator Kate Morrand supervises interns interested in developing their artifact conservation and collections management skills.



THE BODRUM MUSEUM AND INA: A DECADES-LONG **PARTNERSHIP**

The Bodrum Museum of Underwater Archaeology is **an integral part of INA's history in the Mediterranean**, but the Museum and the medieval Castle in which it resides have a rich history that is all their own.

BY STEPHANIE KOENIG



Visitors to the Bodrum Museum of Underwater Archaeology in coastal Turkey receive an intensive education in the physical remains of ancient seafaring in the Mediterranean. Situated inside the walls of a medieval castle, the Bodrum Museum features artifacts from shipwreck excavations undertaken by the Institute of Nautical Archaeology (INA). By providing a showcase for INA's underwater projects, surveys, and artifact conservation in the Aegean, the Museum has maintained a decades-long partnership with INA. In turn, INA is committed to making the Bodrum Museum the utmost exposition on underwater archaeology

in Turkey. An iconic symbol of Bodrum, the Castle and Museum within stand as an impressive tribute to the relationship between man and the sea.

A tumultuous history has shaped the home of one of the most distinguished underwater archaeology museums in the world. Bodrum, the site of ancient Greek Halicarnassus, was part of the Persian Empire before being captured by Alexander the Great in 334 BCE. Halicarnassus was known in antiquity as the birthplace of Herodotus and home of the tomb of Mausolus – one of the seven wonders of the ancient world. In 1402, Bodrum was conquered by the Knights of St. John of

Rhodes, also known as the Hospitaller Knights. In a militaristic effort to protect themselves against Islamic forces and Barbary pirates, they built a castle in Bodrum, which they dedicated to St. Peter, the patron saint of masons. They used local stones, interspersed with marble column shafts and relief panels appropriated from the nearby tomb of Mausolus, which had been destroyed by an earthquake before the Knights' arrival. One theory suggests the town of Bodrum takes its name from St. Peter; it was called 'Petrionium,' meaning "Peter's Place," which has been transformed by Turkish phonetics to 'Bodrum'.



Bass turned a few folding tables and handmade labels within the Knights' dining hall into an exhibit for artifacts from Cape Gelidonya.

From top left: The Castle remains the focal point of Bodrum after dark - a spectacle for those participating in the town's active nightlife; Visitors to the Bodrum Museum see a chapel (foreground) that houses the Yassı Ada Byzantine shipwreck exhibit with the French and English Towers looming in the background.

A refuge for all Christians in Asia Minor, St. Peter's Castle was essential to the Knights of St. John for over a century. It remained in the Knights' possession until 1522, when Rhodes was captured by Süleyman the Magnificent, making Bodrum part of the Ottoman Empire. The Castle was repurposed several times over the years, converted to a military base by the Turkish Army in 1824 and again by the Italians during World War I. Excavations at the site by INA and several Danish archaeologists have revealed that St. Peter's Castle was successor to several ancient structures, including a Byzantine church and the palace of Mausolus. It also served as a public bath and prison, finally standing empty for 40 years until the discovery and excavation of the Late Bronze Age shipwreck at Cape Gelidonya ushered in a

new and significant chapter in the Castle's history.

In the late 1950s, the Bodrum Castle had been serving as a storeroom for amphoras brought up by Turkish sponge divers. Following the excavation of the Cape Gelidonya shipwreck by George Bass, American journalist and diver Peter Throckmorton suggested the Castle be converted into a museum. With permission from the Republic of Turkey, Bass turned a few folding tables and handmade labels within the Knights' dining hall into an exhibit for artifacts from Cape Gelidonya. In the early 1960s, the Turkish Ministry of Culture funded and staffed an official Bodrum Museum, and since then INA has contributed significantly to the artifact conservation and exhibits within. In 1963, the Bodrum Museum's first

director, Haluk Elbe, initiated restoration of the castle and improvement of the adjacent grounds and gardens. Under subsequent directors Nurettin Yardımcı (1973-1975) and İlhan Aksit (1976-1978), the three-storey English Tower was repaired.

Oğuz Alpözen, a young archaeology student from Istanbul University who dived with Bass at Yassı Ada, became Director in 1978 and proposed that the Bodrum Museum be renamed the Bodrum Museum of Underwater Archaeology. Through Alpözen's tireless efforts and INA's continued archaeological work in Turkey, the exhibits were expanded to create a 'living museum' that has attracted hundreds of thousands of visitors to date. Alpözen wanted the visitors to "hear the voices of the old sailors calling 'Heave, ho, Pull away, boys,' the sound of the oars,

and even the heartbeats of those sailors." Alpözen retired in 2005, when Yaşar Yıldız, who had served the Bodrum Museum for 20 years as an archaeologist and government representative on several INA shipwreck excavations, became Interim Director.

St. Peter's Castle is far more than a fascinating home to the Bodrum Museum of Underwater Archaeology. It boasts a large and comprehensive collection of ancient shipwrecks and their artifacts; exhibits featuring shipwrecks from Cape Gelidonya, Uluburun, Tektaş Burnu, Yassı Ada, and Serçe Limanı tell the story of seafaring in the Mediterranean. Visitors encounter full-scale reconstructions and replicas of several shipwrecks, constructed in large part by INA staff and faculty and graduate students of Texas A&M University's Nautical Archaeology Program.

Responsible for maintaining these prized collections is the Bodrum Museum's newest director, Emel Özkan.

From bottom left: INA Founder George Bass and former Museum Director Oğuz Alpözen at the opening of the Bronze Age Shipwreck Hall; INA President Debbie Carlson and Director of INA's BRC Tuba Ekmekçi flank the Bodrum Museum's newest Director Emel Özkan.



SUGGESTED READING

Alpözen, T. 2002. *Bodrum Castle, Museum of Underwater Archaeology*. Istanbul.

Bass, G. 1996. *Shipwrecks in the Bodrum Museum of Underwater Archaeology*. Ankara.

Bass, G. 2005. *Beneath the Seven Seas*. London.

Collections are flawlessly integrated with restored elements of the original Castle, many of which were originally built to represent the various nationalities of the Knights Hospitaller. The Castle itself is full of winding passageways and decorated with hundreds of painted coats of arms and carved reliefs. In addition to the ship and amphora displays, there is the dungeon, a Turkish bath, German, French, English, and Italian Towers, the Coins and Jewelry Hall, Glass Hall, and the Secret Museum, an exhibition of statuary and various artifacts associated with birth, life, and death.

Responsible for maintaining these prized collections is the Bodrum Museum's newest director, Emel Özkan. Özkan studied art history at Ege University in İzmir and spent almost two decades on the staff of the Turkish and Islamic Art Museum in Bursa. After earning the highest score on the museum administration place-

ment exam in Turkey, Özkan was given her choice of eligible museums, and she selected the Bodrum Museum of Underwater Archaeology. INA looks forward to maintaining its historic partnership and furthering the tradition of excellence that has attracted hundreds of thousands of visitors to the Bodrum Museum of Underwater Archaeology and the Castle of St. Peter.

For more information and a guide to the history and exhibits of the Bodrum Museum of Underwater Archaeology, please visit www.bodrum-museum.com.

This page: Bodrum as the active, bustling harbor and tourist attraction seen today. **Opposite, Clockwise from top left:** A full-scale reconstruction using hull timbers recovered from the Serçe Limanı wrecksite; several glass jars from the Glass Hall, lit from below to glow from within; a faience drinking cup in the shape of a ram's head from the Uluburun shipwreck.

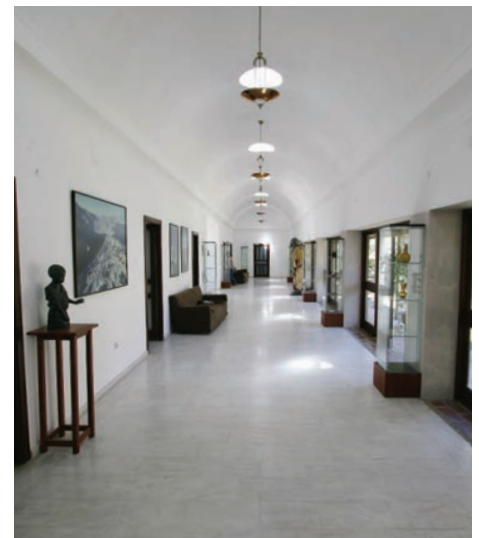




THE BODRUM RESEARCH CENTER

How a plot of land purchased 25 years ago, overlooking the sea and distinguished by a **short circuit of the ancient Hellenistic city wall**, became INA's Bodrum Research Center

BY JOHN D. LITTLEFIELD



AUTHOR



JOHN D. LITTLEFIELD
Ph.D. student, Nautical
Archaeology Program

The Institute's first fieldwork was conducted primarily in Turkey where Dr. Bass had already worked for 15 years; his archaeological crews were the only groups of foreigners permitted to dive in Turkish waters or to excavate shipwreck sites. This fortunate position and the scholarly wealth of the underwater sites along the Turkish coast is the reason that INA's main thrust has always been in this area." -Don Frey, Former INA President, *INA Quarterly* 11.1: 4

INA operates a Mediterranean research center in the coastal Turkish town of Bodrum, also home to the Bodrum

Museum of Underwater Archaeology. The Bodrum Research Center (BRC) is headed by director Tüba Ekmekçi who oversees a permanent staff of 20 people, some of whom have worked for INA for decades.

In 1988 a core group of INA visionaries purchased an olive grove 2.5 acres (10,000 m²) large on the crest of a hill, just outside the Hellenistic city wall of ancient Halicarnassus. Four dönüm went to INA for its headquarters, and the remaining six dönüm were purchased by Tufan Turanlı, Cemal Pulak, George Bass, and Fred van Doorninck for their own homes. The four houses were built side-by-side, all in differ-



ent styles by different architects, on Sualti Sokak, which translates to 'Underwater Street,' a fitting name for the home-base of INA and underwater archaeology in Turkey (see Bass' article in *INA Quarterly* 21.4: 22-23).

Turgut Cansever, a local, two-time Ağa Han award-winning architect featured in the Turkish journal *Arkitekt*, designed the BRC's main buildings using his signature architectural style, blending traditional Aegean materials with contrasting features in exposed concrete. Phase one of the construction included offices, a dormitory and guest suite, communal kitchen, drafting room, dark room, and conservation facility. The main building and dormitory started being utilized in 1994, and with help from the Nason Foundation, were dedicated and officially opened on 7 July 1995.

The construction of the south dormitory building was made possible by generous contributions from Marja and Ron Bural and family, Cynthia and Fred Campbell and family, Barbara and Claude Duthuit, and Jean and Jack Kelley. The north dormitory building was realized through the support of Danielle Feeney. Connecting the two is a single level corridor with a central kitchen, indoor and outdoor

dining areas, restrooms, and showers. A total of 25 people can be housed in the two dormitory buildings. The top floor of the south dormitory acts as a VIP suite; it accommodates 2 people and includes its own kitchen, living room, and bathroom.

The multi-level research library, constructed with funding from Frances Rich and furnished by Mary and Lamar Tooze Jr., was dedicated in July 2000. At the heart of the collections are more than 4,000 titles from the library of classical archaeologists Homer Thompson and Dorothy Burr Thompson. These were augmented by the collections of G. Edward Rogers, Peter Throckmorton, and Joel Shiner. Today, the Library contains more than 10,000 non-circulating books and journals and is quickly becoming one of the best archaeological research libraries in Turkey. The BRC's full-time librarian, Nurgül Kulah received her degree in Library Sciences from Istanbul University and worked as a librarian with the British Consulate before joining the BRC staff in 2003.

The Griffis Conservation Lab is named for Nixon Griffis, a participant in the 1960 Cape Gelidonya excavation and one of the 15 founding members of INA's Board of Directors. This laboratory, along



with the Nethea Nye Wood Conservation Facility and Library, was dedicated in 2000. These two conservation facilities are open year-round and staffed by a small group of very talented women. They are to be credited for cleaning, stabilizing, consolidating, reassembling, mending, and monitoring artifacts from the many broken pieces of pottery, glass, and ivory that are discovered on the seafloor by INA and other archaeologists. Under the tutelage of Kimberly Rash-Kenyon, former Interim Head Conservator at the BRC, the laboratory technicians also learned to conserve metal concretions using radiography and epoxy casting methods (see Kenyon's article in *INA Quarterly* 40.1: 25-27).

Wood conservation is also a major task undertaken at the BRC, not only of the hull timbers of ancient ships, but also of wooden artifacts from terrestrial sites like the tombs at Daskyleion. Many of the shipwreck remains excavated by INA in Turkish waters are on display at the Bodrum Museum of Underwater Archaeology, housed in the seaside Castle of St. Peter, operated by the Turkish Ministry of Culture, and located just a short walk from INA's Bodrum Research Center.

Opposite: The interior (right) and exterior (left) of the BRC's central office building. This page from top left: The main portal to the Bodrum Research Center; conservator Güneş Yaşar at work in the Griffis Conservation Laboratory.



PIRATE SHIPWRECKS OF PORT ROYAL

INA Returns to Jamaica to examine the wreckage of a ship that may have belonged to Captain Bartholomew Roberts, who controlled the seas of West Africa during the ‘Golden Age of Piracy.’

BY CHAD M. GULSETH

The Institute of Nautical Archaeology (INA) has a long-standing history of archaeological work in Port Royal, Jamaica. Jamaican Prime Minister Edward Seaga invited INA to survey and excavate Port Royal, a haven for privateers and pirates that sank in a catastrophic earthquake in 1692. In 1981, Dr. Donny Hamilton began a decade-long archaeological field school for graduate students of the Nautical Archaeology Program (NAP), mapping the brick floors of various structures and uncovering hundreds of pewter, glass, porcelain, and wood artifacts that yielded precious information about 17th-century colonial life. Several students participated in the excavation, which provided the artifactual material for more than 15 M.A. theses and Ph.D. dissertations by NAP students [see sidebar]. Chad Gulseth, M.A. candidate, is the most recent in a long line of NAP students to carry on the research initiated by Hamilton, a past INA president, current holder of the George T. & Gladys H. Abell Chair in Nautical Archaeology and Yamini Family Chair in Liberal Arts, and Director of the Conservation Research Laboratory at Texas A&M University.

Opposite: Chad Gulseth raises one of two onion bottles recovered from the Great Ranger wrecksite.

Port Royal was known as the ‘Wickedest City on Earth,’ its location in the middle of the Caribbean made it the perfect base for privateers and pirates to prey upon treasure fleets departing from the Spanish mainland. Port Royal quickly became one of the largest towns in the English colonies by the end of the 17th century. As the local trade in slaves, sugar, and raw materials became increasingly important, Port Royal evolved into the mercantile hub of the Caribbean. The slave trade, however, was negatively affected by the city’s reputation as a haven for pirates, so in 1687, Jamaica passed several anti-piracy laws and Port Royal quickly became known as a place of pirate execution. Port Royal’s emergence as a commercial power was halted, however, when a massive earthquake hit Jamaica in 1692, submerging a large portion of the town. Ravaged by fire, more earthquakes, and hurricanes, Port Royal remained active but never returned to its former glory.

Captain Bartholomew Roberts was a Welsh pirate during the ‘Golden Age of Piracy’ who rose from third mate on a slave ship to pirate Captain in a matter of months. Traditionally he is known as ‘Black Bart’ (a reference to his dark skin and hair), a nickname posthumously

assigned to him in the poem of the same name by I. D. Hooson. Roberts was allegedly hesitant to accept a command post, but eventually conceded, saying, “if a pirate I must be, ‘tis better being a commander than a common man.” In just three years, he had seized 400 ships as prizes and became feared across the Atlantic.

Roberts commanded nine different vessels during his career as a pirate. During his final battle with the British Royal Navy, he sailed with three. The 40-gun flagship *Royal Fortune* was originally the British Royal African Company ship *Onslow*. The 16-gun French light frigate, *Count de Toulouse*, was renamed *Ranger*, and later became *Little Ranger*, after the acquisition of the 32-gun French frigate *Great Ranger*, originally *St. Agnes*. These vessels, however, were not long in his



THESES AND DISSERTATIONS ON PORT ROYAL MATERIAL

Sheila Clifford (M.A. 1993) *An Analysis of the Port Royal Shipwreck and Its Role in the Maritime History of Seventeenth-Century Port Royal, Jamaica*

Katie Custer (M.A. 2004) *Wrought Iron Hand Tools from the Underwater Archaeological Excavations of Colonial Port Royal, Jamaica, C. 1692*

Helen C. Dewolf (Ph.D. 1998) *Chinese Porcelain and Seventeenth-Century Port Royal, Jamaica*

Madeleine Donachie (Ph.D. 2001) *Household Ceramics at Port Royal, Jamaica, 1655-1692: The Building 4/5 Assemblage*

Georgia L. Fox (Ph.D. 1998) *The Study and Analysis of the Kaolin Clay Tobacco Pipe Collection from the Seventeenth-Century Archaeological Site of Port Royal, Jamaica*

Marianne Franklin (M.A. 1992) *Wrought Iron Hand Tools in Port Royal, Jamaica: A Study Based Upon a Collection of the Tools recovered from Archaeological Excavations and on Tools Listed in the Probate Inventories of Colonial Port Royal, c. 1692*

Shirley Gotelipe-Miller (M.A. 1990) *Pewter and Pewterers from Port Royal, Jamaica: Flatware Before 1692*

Tommy I. Hailey (Ph.D. 1994) *The Analysis of 17th-, 18th-, and 19th-Century Ceramics from Port Royal, Jamaica for Lead Release: A Study in Archaeotoxicology*

David A. Johnson (M.A. 2001) *Port Royal, Jamaica, and the Slave Trade*

Patricia McClenaghan (M.A. 1988) *Drinking Glasses from Port Royal, Jamaica, Circa 1660-1850: A Study of Styles and Usage*

C. Wayne Smith (Ph.D. 1995) *Analysis of the Weight Assemblage of Port Royal, Jamaica*

Diana Thornton (M.A. 1992) *The Probate Inventories of Port Royal, Jamaica*

Timothy Trussel (Ph.D. 2004) *Artifacts of Ambition: How the Seventeenth-Century Middle Class at Port Royal Foreshadowed the Consumer Revolution*

Cathryn Wadley (M.A. 1985) *Historical Analysis of Pewter Spoons Recovered from the Sunken City of Port Royal, Jamaica*

Debra Lynn Winslow (M.A. 2000) *Analysis of the Hollowware Pewter From Port Royal, Jamaica*

possession, as Roberts was killed off West Africa in February, 1722 when engaged with 50-gun man-of-war HMS *Swallow*. Captain Chaloner Ogle of the Royal Navy defeated Roberts and seized his ships, crew, and treasure.

After executing half of the pirate crew at Cape Coast Castle, Captain Ogle sailed with Roberts' fleet – *Royal Fortune*, *Great Ranger*, and *Little Ranger* – across the Atlantic to Port Royal. After only two weeks in the harbor, a hurricane struck and sank two of the three vessels. A year later, the third ship was identified on a naval chart as a submerged navigational



Roberts' 3 ships have remained under water at Port Royal for the past 290 years.

hazard. Roberts' three ships have remained under water at Port Royal for the past 290 years. The purpose of our recent return to Port Royal was to locate the remains of the fleet with the hopes of finding diagnostic artifacts that might enable us to identify the ships and contextualize their location.

From May 27 to June 25, 2012, four

graduate students from the Nautical Archaeology Program at Texas A&M University surveyed and recorded the remains of the vessels. Since the location of *Great Ranger* had already been identified from a navigational chart drawn in 1724, the majority of our recording efforts were concentrated on this wreck. The wreck lies 14 feet (4.25m) below the surface; a mound of rock and eight mortar balls are all that is left. 37 large, tightly spaced framing timbers and a futtock timber are still intact. The ship's remains rest directly above a section of the sunken Port Royal known as Fisher's Row. Therefore extensive care was taken to preserve contextual information, so as to determine which artifacts originated from the wreck and which belonged to the earlier portions of the city.

This project was conducted using SCUBA, with divers routinely working in two teams of two divers each. The shallow depth of the site meant that some dives lasted as long as two hours. Before the survey, the team consulted the site plan from Hamilton's excavations at Port Royal and loaded the UTM grid coordinates of the *Great Ranger* wreck site into a handheld GPS. The wreck was quickly located, a baseline was put into place, and the site was recorded in detailed quadrants. A water dredge was used to clear off the ends of protruding timbers and examine the keelson, and a total of 20 artifacts were recovered for study.

The best preserved artifacts from the wreck are two unbroken glass onion bottles, named for their distinct shape. English onion bottles were produced in the 1680s and served as the predomi-

This page: Dr. Donny Hamilton, NAP faculty member and Director of the Conservation Research Laboratory at TAMU. Opposite from top left: The team, consisting of NAP students Chad Gulseth, John Albertson, Chris Cartellone, and Rodrigo Torres, raises a futtock timber from *Great Ranger*; 26 mortar balls removed from the wreck in the 1960s by Robert Marx.

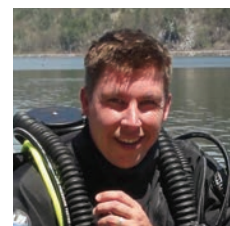


nant wine and spirit bottle until the introduction of English “mallet” style liquor bottle in the 1730s. Made from dark olive-green glass, they appear black in color. Onion bottles were used for roughly 50 years, and there is enough deviation in style that a chronological typology permits relative dating. Based on Noel Hume’s typology (1969), it is very likely that these two onion bottles are from the wreck of *Great Ranger* and were used by the pirate crew or the Royal Navy crew that captured the ship.

Five fragments of clay tobacco pipes were discovered in association with the *Great Ranger* wreck site, though only one fragment is diagnostic. The volume of pipes discovered by Hamilton at Port Royal resulted in a comprehensive typology created by NAP Ph.D. graduate Georgia L. Fox in 1998. This collection suggests that the fragment’s pronounced heel and straight-angled bowl dates between 1680 and 1730. Clearly, this period spans both the earthquake of 1692 and the hurricane of 1722, so further contextual information would be necessary to positively tie the pipe fragments to *Great Ranger*.

A red ceramic sherd, part of a utilitarian bowl made from red earthen clay and tempered with shell, is reminiscent of a drinking vessel for ‘rum punch,’ a communal drink among pirates. This inex-

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pensive type of ceramic has been used for hundreds of years and is too widespread geographically to assign a date or place of origin. The ceramic sherd retains enough of the rim and body to project the rest of the vessel; its rim diameter would have been 33 cm.

We discovered a lead scupper pipe on the starboard side of the wreck. On the deck of the ship, along the waterway,

a number of holes were cut into the bulwark and lead scuppers were fitted through the holes from the inside, to facilitate the drainage of water from the deck. The scupper was fastened with three large square nails across the middle of the plate and 20 small round tacks around the plate's edge. Lead scupper pipes are especially important for understanding how the ship was constructed, because

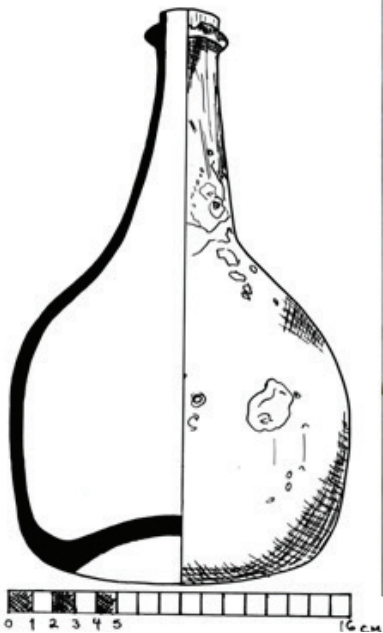
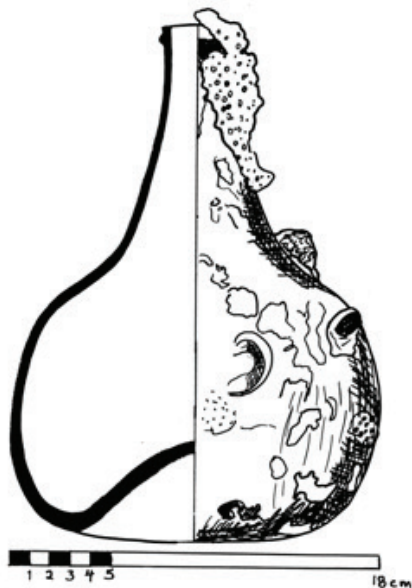
they can be used as an indirect indicator of bulwark thickness. This scupper pipe is approximately 24 cm long, but protruded out at a downward 20° angle, based on its mounting plate and the direction in which the nails were driven. I estimate the bulwark of the *Great Ranger* to be roughly 20 cm thick.

When unfavorable weather conditions prevented the search for *Little Ranger*

The 2012 Port Royal survey is one example of the long-term benefits of sustained research at a given site.

and *Royal Fortune*, the team collected two core samples from the sea floor to understand the rates of sedimentation in this area over the past 300 years. The trajectory of the wind was plotted based on weather data reported from observers of the 1722 hurricane, so that the most probable area for wreckage along the coast could be identified. The Earthquake Unit at the University of the West Indies volunteered to analyze these core samples, which will help determine if the wrecks are likely to be visible on the sea floor or buried in sediment. We are optimistic that proper remote sensing equipment will be successful in locating Roberts' other two ships.

The modest artifact assemblage collected from the wreck site in 2012 supports the identification of this ship as *Great Ranger*, as the onion bottles and clay pipe fragments coincide with the chronology of the ship's transfer to Port Royal. This as-



This page: One of the glass onion bottles, drawn before and after conservation; Opposite: The lead scupper pipe, installed to facilitate drainage at deck level; a red earthenware ceramic sherd with shell temper excavated from the site; a kaolin clay pipe fragment.



semblage in particular reveals the valuable direct evidence for shipboard life and ship construction. Further research regarding the other vessels from Roberts' lost fleet is poised to further enhance the identification and interpretation of the pirate shipwrecks of Port Royal. I also believe that a survey of two wrecks in close proximity to *Great Ranger* will help us understand site formation processes better, explaining how a ship that survived the 1722 hurricane became a submerged navigational hazard less than two years later.

The 2012 Port Royal survey is one example of the long-term benefits of sustained research at a given site. Years of excavation and study at Port Royal, initiated by Donny Hamilton, have enabled numerous students to benefit from research conducted by their peers and predecessors. Robyn Woodward, who earned her M.A. from Texas A&M's Nautical Archaeology Program using research from Port Royal, expanded upon Hamilton's work and carried out archaeological study in Sevilla la Nueva, the first European permanent

European settlement in Jamaica (see suggested reading). As INA maintains its archaeological presence in Port Royal, students work toward the shared goal of recreating what life was like in this 17th-century colony.

ACKNOWLEDGMENTS

Thanks go to the staff of the Jamaica National Heritage Trust and the Conservation Research Laboratory at Texas A&M University, who were responsible for artifact conservation.

SUGGESTED READING

Burl, A. 2006. *Black Barty: Bartholomew Roberts and His Pirate Crew 1718-1723*. Gloucestershire.

Hamilton, D. L. 2006. "Pirates and Merchants: Port Royal, Jamaica," in *X Marks the Spot: the Archaeology of Piracy*, edited by R. Skrowronek and C. Ewen, 13-30.

Hamilton, D. L. 2005. "Resurrecting 'The Wickedest City in the World': Port Royal, Jamaica," in *Beneath the Seven Seas*, edited by G. Bass, 164-171.

Hamilton, D. L. and R. Woodward. 1984. "Sunken 17th-century city: Port Royal, Jamaica," *Archaeology* 37.1: 38-45.

Hume, I. 1969. *A Guide to Artifacts of Colonial America*. Philadelphia.

Robert, M. 1973. *Port Royal Rediscovered*. New York.

Woodward, R. 2011. "Feudalism or Agrarian Capitalism? The Archaeology of the Early Sixteenth-Century Spanish Sugar Industry," in *Out of Many, One People: the*

Historical Archaeology of Colonial Jamaica, edited by J. Delle, M. Hauser, and D. Armstrong, 23-40.

Woodward, R. 2006. "Medieval legacies: the industrial archaeology of an early sixteenth century sugar mill at Sevilla la Nueva, Jamaica" [Dissertation, Simon Fraser University].



THE SHIP MODEL THAT STARTED IT ALL

J. Richard Steffy's son tells the story of the ship model that created a discipline and **shaped the future of the Institute of Nautical Archaeology**

BY LOREN C. STEFFY

A version of this article originally appeared in the Houston Chronicle.

The lid of the cardboard box opens and the past spills out.

I stare down at the ship model inside, feeling simultaneously amazed and nostalgic. The model, a representation of an ancient Egyptian ship from 1400 BC, seems frighteningly alive with color – the caramel of the hull, the blue paint on the sternpost. For decades, the model existed for me only in photos taken for newspaper articles in 1963. Now, I'm looking upon the 4-foot-long, square-sailed wooden model for myself.

My father, J. Richard "Dick" Steffy, started working on it in the 1950s, and it took him about 12 years to complete. He wasn't sentimental about his ship models, but this one carried a significance that

even he couldn't ignore. It was, as he later told a colleague, what he used to convince INA founder George Bass that "models could be used for archaeological reconstruction" of ancient ships. That discussion, almost five decades ago in Philadelphia, would play a key if unheralded role in creating the Institute of Nautical Archaeology (INA) and bringing it to

Texas A&M University.

Underwater archaeology was in its infancy when my father completed the model in 1963. Bass had conducted the first underwater excavation of a shipwreck off the coast of Turkey just three years earlier. My father, meanwhile, was a hobbyist driven by a lifelong fascination with ships. He had no formal training or, for that matter, college education. He built dozens of other models, but the Egyptian one is remarkable both for its survival and for the research techniques that would turn a hobby into a unique career.



Opposite: Building the Kyrenia ship model. This page: Steffy's first ship model, of an Egyptian seagoing ship, was completed 50 years ago and is now permanently part of the INA Archives.

Historians and archaeologists studied the Pyramids, the Parthenon or the Colosseum to understand how they were built. My father looked at ships and asked himself the same thing. "This model is the physical expression of those early questions," INA President Deborah Carlson told me.

Searching for the answers meant models were rarely finished. He didn't build them to look nice but to mimic the building techniques so he could learn how ancient shipwrights thought and worked. "The models are just the results of things I come across," he told a newspaper at the time. "Sometimes I carve just half a hull or just a portion of the frame of a ship to understand better how things were done."

From left: Steffy lays the first keel piece in his reconstruction of the Kyrenia hull remains; Loren Steffy, age 7, cuts trenails for one of his father's ship models.

"At the time he was building it, people really didn't have an understanding of how ancient ships were built," said Cheryl Ward, a professor of maritime archaeology at Coastal Carolina University. "He was really pioneering the field of study."

He would later say that ships were "the first everyday technology," linking societies by travel and commerce. They were, in effect, the Internet of their time. Shipbuilding, he realized, was more than a purely technological pursuit. Ships reflected the societies that built them. He began to study the people, their customs, their tools and their building materials.

He discovered the Egyptians built ships with short planks, about three feet long, because they didn't have large trees. They also didn't use frames or keels to maintain the curvature of the hull. Instead, the stem and stern posts were connected by a rope truss, which was tightened to the proper

pressure to give the hull its curvature.

Mimicking the ancient building techniques required a tedious pace in assembling the model's 1,000 pieces. He cut the wood into planks about one and a half inches long, true to the scale in which he was working. He fastened together the short pieces to form a strake, which was laid down much as a keel would be on later vessels. Then he fashioned the gunwales.

He clamped the strake and the gunwales together at the bow and stern, then ran the truss between the ends, using a spacer in the middle to hold the shape. He tightened the truss until the skeleton took on the curvature dictated by his calculations. Then he began gluing the rest of the planking in place, starting amidships and working outward toward the bow and stern. He even floated the model in a tank of water to make sure his interpretation of





the hull design was seaworthy.

Ward, who would become one of my father's students and later oversee construction of *Min of the Desert*, a replica of an ancient Egyptian seagoing ship, said the model is remarkably close to what is now known about Egyptian shipbuilding.

Its role in the history of nautical archaeology, though, is more profound than its accuracy. In 1964, my father read Bass' article in *National Geographic* about the 7th-century Byzantine wreck at Yassi Ada in Turkey. He wrote Bass and asked if he might build a model of the ship. Bass, then a professor at the University of Pennsylvania, agreed to meet. My father loaded the Egyptian model in the back of our Ford sedan and drove the 60 miles to Philadelphia. Bass, new to the study of ships himself, didn't know what to make

of it. "I had no way of knowing how accurate it was or anything else," Bass recalled. "It was the first time I'd ever looked at the model of an ancient ship."

Nevertheless, Bass was impressed with my father's enthusiasm and agreed to let him build a model of the Byzantine ship. The ensuing friendship and professional collaboration that grew from the meeting would span four decades and help define the field. In 1972, at age 48, my father quit his electrical business to pursue ship studies full time, even though he didn't know how he'd earn a living. The move inspired Bass to leave his professorship at Penn and form INA. Within four years, both men would be teaching in A&M's fledgling Nautical Archaeology Program -- my father instructing graduate students each of whom had more education than he did.

Meanwhile, the Egyptian model disappeared, overshadowed by more exciting projects that grew from the meeting with Bass. He was building more intricate, scholarly designs now, and he began applying their lessons to rebuilding actual ancient shipwrecks. As a professor, he used models not just to study how ships were built, but how they came apart when they sank. It didn't bode well for their longevity. "Given that your dad never kept his models, it's extraordinary that this one has survived," said Cynthia Eiseman, INA's first executive director, who helped me track down the Egyptian ship.

In researching a book on my father, I

Steffy studies the Sea of Galilee boat with excavator and NAP faculty member Dr. Shelley Wachsmann.



found an exchange of letters from 1969 between him and Eiseman, who was then working as a curatorial assistant at the Philadelphia Maritime Museum. The museum wanted to clarify if my father had intended to donate the model, which it apparently had in its possession. "It was a surprise to hear the model is still in existence as it was not built for display purposes and has led a hard life," he wrote to Eiseman. "I would like to see the model on my next trip to the museum to find out why it has not disintegrated because it is basically only held together by the pressure of its own gunwales."

I set the letters aside, making a note to follow up on them later, and they became a loose end left dangling well after the book's publication.

In early 2010, in one of my last interviews for the book, I spoke with A&M professor Cemal Pulak, another of my father's former students. Talking with Pulak that day, we counted on one hand my father's surviving models: a half model of the Byzantine ship on display in Bodrum, Turkey; the Brown's Ferry vessel in South Carolina; a diorama of the Serçe Limanı wreck hanging in the INA offices.

After that conversation, I wondered if others might have survived. My father's crowning achievement was reconstructing the 2,300-year-old Kyrenia Ship in Cyprus, an effort that included a 1:5 scale model that was about half finished when war divided the country in 1974. No one had seen the Kyrenia model since, but after I asked about it, Laina Swiny, one of the original project members, checked in the Kyrenia Castle that houses the reconstructed ship. In 2010, she found the model, long forgotten, in a Castle store room. It's now on display next to the ship itself.



This page from top left: In 1963, Steffy's Egyptian ship model won 'Best of Show' in a local hobby show; Dick Steffy and George Bass. Opposite: The scale model of the 7th-century Yassi Ada ship, housed in the Bodrum Museum of Underwater Archaeology.



Emboldened by that success, I returned to the letters between my father and Eiseman in 1969. Eiseman didn't remember the exchange but offered to check with the maritime museum, which had been renamed the Independence Seaport Museum and moved to the banks of the Delaware River at Penn's Landing. She quickly found out

thought processes. He never kept journals or project logs, and his techniques evolved largely in his own mind. What would later be dubbed the "Steffy Method" began, in a rudimentary way, with the long-lost Egyptian model.

Just as my father saw ships as a window into the minds of ancient shipwrights,

under-water dig, the field has acquired a history of its own.

As I look at the model, I imagine my father bent over it in the wee hours of the morning, younger than I am now by almost a decade, placing hull planks at the tedious pace of six an hour. He thought he was building a ship, but he was also building a dream.

Just as my father saw ships as a window into the minds of ancient shipwrights, future students... may find the model a window into his.

that not only did the museum still have the model, it had been searching for a home for it because the model didn't fit its focus on the maritime history of Philadelphia.

I wonder if my father might cringe at one of his earliest efforts being displayed. "Compared to what he ended up doing, it was fairly crude or primitive," Bass said. That, though, is precisely the point. It offers a rare window into my father's early

future students who study his techniques may find the model a window into his. It will become both a teaching tool and, as Carlson put it, "an artifact of a discipline that he helped create." Nautical archaeology is now a recognized field of study, thanks to decades of effort by pioneers such as Bass, Fred van Doorninck, my father and the students they taught. With the 50th anniversary of the first

AUTHOR



LOREN C. STEFFY

Award-winning business columnist and author of *The Man Who Thought Like a Ship*

REVIEW

THE MAN WHO THOUGHT LIKE A SHIP

By Loren C. Steffy

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REVIEWED BY SHEILA MATTHEWS

This biography chronicles the life of J. Richard Steffy and his astonishing transition from electrical engineer to professional ship model builder. The memory of Steffy, known as “Dick” to his friends, is nostalgically portrayed by one who knew him best – his younger son Loren. Describing a man with an unusual and hitherto unknown knowledge in the area of ancient and modern ship technology, Loren Steffy paints a portrait of the man responsible for establishing the discipline of ship reconstruction. The title says it all; his father Dick had a passion for understanding ships and their construction.

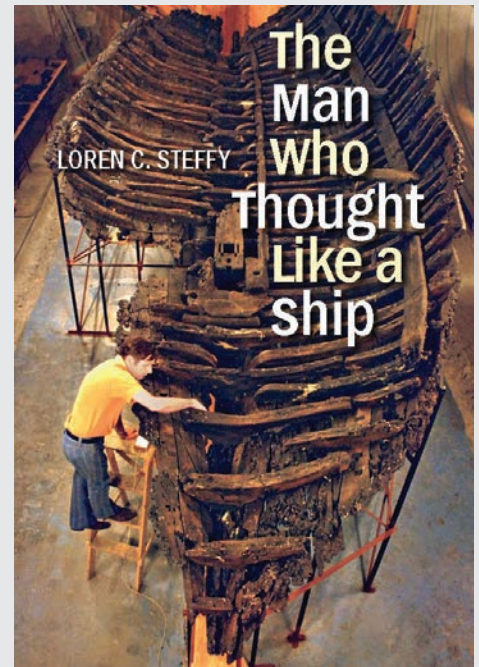
After spending years creating ship models as a hobby, Dick Steffy happened upon a National Geographic article detailing Dr. George Bass’ recent underwater excavations of a Late Bronze Age shipwreck in Turkey. At his wife’s urging, Steffy wrote to Bass, explaining how the study of ships and their construction can improve modern understanding of history, economics, and technology. Within a year Steffy met Bass in Philadelphia and was introduced to Dr. Fred van Doorninck, who was studying the hull remains of a 7th-century Byzantine ship. Steffy began working with van Doorninck’s drawings to represent them in three dimensions, which would assist in proving the archaeological significance of studying and reassembling ship remains.

Ship reconstruction and the field of

nautical archaeology were brought into the realm of academia upon meeting Michael Katzev, who was directing the excavation of the 3rd-century BCE Kyrenia shipwreck off the coast of Cyprus. Katzev recognized the academic value of Steffy’s work and offered him the opportunity to reconstruct the excavated hull remains. These three men – Bass, Van Doorninck, and Katzev – together helped Steffy achieve his dream of making ship reconstruction an accredited archaeological discipline. When Bass brought the Institute of Nautical Archaeology (INA) to Texas A&M University and created the Nautical Archaeology Program, Dick Steffy started his long career as a professor, teaching what he loved most to generations of students.

The author provides personal insight into some aspects of his father’s life, of which Dick’s close friends and colleagues were probably unaware, including the unwavering support of Dick’s wife Lucille as he struggled to persuade the academic world that ship reconstruction was a valid archaeological endeavor. He supplements the biography with his own experiences as a child in Cyprus, where his playground was a 15th-century castle and his playmates were project members. Loren Steffy’s book encompasses many facets of Dick Steffy as a father and dedicated researcher.

Throughout this book, I was transported back to the Bodrum Museum where Dick and I spent hours together perusing tables full of ship fragments, discussing problems, and poring over drawings of ship’s lines. For me, this is an accurate and poignant account of Dick the teacher – creative,



thoughtful, and quiet, but filled with a palpable enthusiasm that was contagious to all around him. Loren Steffy has captured the essence of his father recalling with fondness his humor, quiet passion, and determination – traits well known to those of us who were fortunate enough to work with him.

Loren Steffy brings to life his father’s skill, passion, and determination while telling the story of those visionaries who saw the bright future of a previously non-existent field of study. In this book, one feels the thrill, frustration, and satisfaction of turning a dream into reality, the long years of financial hardship encountered as the fledgling INA and new disciplines of nautical archaeology and ship reconstruction were being tested and gaining ground.

TRIBUTE:

BJ VAN DOORNINCK (1931-2012)

Friends and Members of INA Honor a Great Lady

Betty Jean "BJ" van Doorninck, the late wife of Nautical Archaeology Program Professor Emeritus Dr. Fred van Doorninck, took an active role in her husband's archaeological research in Turkey and was responsible for the illustration of hundreds of graffiti on the transport amphoras that continue to occupy Fred to this very day. Regular visitors to Bodrum for almost 50 years, the van Doornincks eventually built a home not far from INA's Bodrum Research Center, which became a haven for many.

During the early years in Bodrum, the electricity was turned off every night. I remember fun times in the van Doorninck kitchen where BJ made some of the most incredible meals by kerosene lamp.

—SHEILA MATTHEWS

Bodrum always had certain constants: the Halikarnas disco laser light shows visible even at the Institute, calzones at Sunger when we've eaten one kebab too many, and BJ greeting us from her gate as we make yet another trip to the tin depot while organizing pre- and post-season gear.

—LIZ GREENE & JUSTIN LEIDWANGER

BJ was once explaining her Eastern European ethnicity. When asked where she was from, she replied with her typical hilarity "I'm from that place where the clippety clop horses in Budweiser commercials come from." —DINA STREET

Poker nights in Bodrum could be big affairs. Fred alternated between a steely-eyed glare and surprised innocence, while BJ feigned ignorance. "Fred, does two pair beat three of a kind or the other way round?" We all ended up making substantial contributions to the van Doorninck retirement fund.

—FRED HOCKER

Our son Altay learned how to swim thanks to BJ's great teaching and patience. When they were practicing in Fred and BJ's pool, it was so wonderful to see the happiness on both their faces.

—SEMA & CEMAL PULAK

BJ sat under their legendary olive tree often, and so did we. She is still there, and every time we pass by that garden, we think of her fondly.

—BERTA LLEDO & TUFAN TURANLI



BJ loved Bodrum, where she offered warm hospitality to friends and neighbors. Among our happiest Bodrum memories are the evenings we sat under the olive tree solving all the problems of the world!

—ANN & GEORGE BASS

The van Doorninck home sits like an oasis at the end of a quiet, narrow, shaded street. Long summer days culminated in a hot uphill walk from the Bodrum Castle, and the sound of BJ's gregarious laugh was like a beacon that meant you had made it to safety...and cold drinks. —DEBBIE CARLSON

She and Fred offered a table that was welcoming to all, intellectually stimulating, and open well into the night. I've never found another table like it.

—PETER VAN ALFEN

The van Doornincks were rarely apart during their decades in Bodrum, whether at work (left) or at play (above).



INA REMEMBERS:
MARY TOOZE (1923-2013)
We bid farewell to a friend and dedicated INA supporter

The Tooze Library houses the largest collection of nautical archaeology books and journals in the eastern Mediterranean.

Mary Ausplund Tooze, champion of the arts, philanthropist, and nautical archaeology enthusiast, leaves behind many appreciative friends at the Institute of Nautical Archaeology (INA) and its Bodrum Research Center (BRC) in southwestern Turkey. Mary and her husband Lamar contributed generously to INA and endowed the Tooze Fellowship to support graduate students in the Nautical Archaeology Program at Texas A&M University. Through her involvement with the Northwest Friends of INA in Portland, Oregon and her role as an INA director, Mary Tooze was a dedicated supporter of INA's work in Turkey.

In 2000, INA dedicated the Mary and Lamar Tooze Library at the Bodrum Research Center. With almost 10,000 volumes, the Tooze Library houses the largest collection of nautical archaeology books and journals in the eastern Mediterranean. Dozens of visiting students and researchers every year utilize the growing collection, built around the library of classical archaeologists Dorothy

and Homer Thompson. Nurgül Külah, the collections manager for the past decade, recalls that visitors who are unable to find rare books elsewhere in Turkey have often found them at the BRC's Tooze Library.

The Tooze Fellowship, endowed in 2001, supports a Nautical Archaeology Program graduate student conducting fieldwork in Turkey or researching Turkish subject matter. The most recent Tooze Fellow is Ryan Lee, who spent an academic year in Bodrum gathering data for his M.A. thesis on the rigging of ancient ships, recording the timbers of the Yenikapı 24 shipwreck and creating 3-dimensional models of two copper-alloy anchors in the Bodrum Museum of Underwater Archaeology.

Donations and endowed gifts like those from Mary Tooze are vital to the continued success of INA, its projects, and researchers. INA owes a great debt of gratitude to all of our supporters who make possible the archaeological excavation of shipwrecks that tell the story of seafaring around the world.



This page: Mary Tooze visiting INA's excavation at Kizilburun, Turkey in 2005. Opposite page: Diving in INA's submersible *Carolyn* on that same trip, with pilot Feyyaz Subay.



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