FOURNOI ARCHIPELAGO SURVEY

EIGHT NEW SHIPWRECKS FOUND IN THE AEGEAN SEA
2018 FIELDWORK
INA’s Archaeological Committee awards over $80,000 in support of 2018 projects

2018 PROJECTS

Adriatic Coast Shipwreck Survey
Albania | Dave Ruff (Texas A&M University)

Block 37 Schooner
Canada | Julia Herbst (Texas A&M University)

Fournoi Underwater Survey
Greece | Peter Campbell (British School at Rome) & George Koutsoulakis (Hellenic Ephorate)

Grande Passe 1 Roman Shipwreck
France | Alex Sabastia (Centre Camille Jullian)

Kaukana Harbor Project
Italy | Massimo Capelli (University of Udine)

Lechoaon Harbor Project
Greece | Paul Scotton (California State University, Long Beach)

Marcamemi Marittimo Heritage Project
Italy | Justin Leidwanger (Stanford University)

Ottoman Frigate Erânumum Research
Japan | Berta Lledó (INA) & Tufan Turanık (INA)

Richelieu River Survey
Canada | Marijo Gauthier-Bérubé (Texas A&M University)

San Bartolome Survey
Spain | José Casabán (INA)

Sea Biscuit and Salted Beef
Bermuda | Grace Tsai (Texas A&M University)

Steamboat Phoenix Hull Documentation
Portugal | George Schwarz (INA)

Sudjuraj Shipwreck Excavation
Croatia | Iva Topić (INA) & Irena Radic-Rosić (University of Zadar)

Venetian Shipwrecks Archival Research
Italy | Renard Gluzman (Tel-Aviv University)

Vulkan Gold Rush Steamboat Survey
Canada | John Pollack (INA) & Robyn Woodard (INA)

ONGOING RESEARCH IN TURKEY

Burgaz Harbors Research Project
Elizabeth S. Greene (INA/Brock University)

Cape Gelidonya Metal Cargo Study
Nicolle Hirschfeld (INA/Trinity University)

Kızılburun Late Hellenistic Shipwreck
Deborah Carlson (INA/Texas A&M University)

Ships of the Theodosian Harbor at Yenikapı, Istanbul
Cemal Pulak (INA/Texas A&M University) & Michael Jones (INA/Koç University)

Tektas Burnu Classical Greek Shipwreck
Deborah Carlson (INA/Texas A&M University)

Uluburun Late Bronze Age Shipwreck
Cemal Pulak (INA/Texas A&M University)

Yassıada Byzantine Shipwreck
Fred van Doorninck (INA)

The Institute of Nautical Archaeology is a non-profit organization whose mission is to advance the search for the history of civilization by fostering excellence in underwater archaeology.

The Institute of Nautical Archaeology (INA) Quarterly (ISSN 1090-2635) is published by the Institute of Nautical Archaeology. Publication of the INA Quarterly is made possible by a grant from the Ed Rachal Foundation.

Editor
Deborah N. Carlson, Ph.D.

Assistant Editor
Stephanie Koenig

Designer
Jacqueline Munz

Printed by J&N Enterprises
Houston, Texas
www.j-nenterprises.com

Institute of Nautical Archaeology
P.O. Drawer HG
College Station, Texas
77841-5137 USA
email info@nauticalarch.org
phone (979) 845-6694
www.nauticalarch.org

The opinions expressed in the INA Quarterly articles are those of the authors and do not necessarily reflect the views of the Institute.

If you are interested in submitting an article for publication please contact the Editor at inaq@nauticalarch.org

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2018 CLAUDE DUTHUIT ARCHAEOLOGY GRANT RECIPIENT

In 2014, INA established the Claude Duthuit Archaeology Grant, a $25,000 award made annually to the underwater archaeological project that best captures the innovative, bold, and dedicated spirit of Claude Duthuit. An explorer, innovator, and pioneer of nautical archaeology, Claude was a loyal supporter of INA since its inception.

Justin Leidwanger, who earned his M.A. from Texas A&M University’s Nautical Archaeology Program and his Ph.D. from the University of Pennsylvania, is the fifth recipient of this award. The awarded funds will support the excavation of the “church wreck,” which carried prefabricated architectural elements for one or more Late Antique churches.

www.nauticalarch.org/duthuit

This season will usher in excavation of a new and complex part of the site, loaded with potential from large architectural marble down to tiny clues about the initial sinking of the ship. Meanwhile, continued conservation, artifact analysis, and 3D modeling will advance our understanding of the assemblage and socioeconomic context, while also serving the local Museum of the Sea. We are grateful and honored to have INA’s support through the Claude Duthuit Grant, and we look forward to sharing the insights made possible through this generous grant.

JUSTIN LEIDWANGER
THINGS YOU CAN FIND INSIDE A PIRATE’S CANNON
Conservators in North Carolina recently recovered 16 paper scraps from inside a cannon chamber associated with Queen Anne’s Revenge (QAR), the flagship of 18th-century pirate Blackbeard. The ship was discovered in 1996 and is in the process of being excavated and studied by the North Carolina Department of Natural and Cultural Resources. In a recent National Geographic interview, QAR conservator Kimberly Kenyon, who is also an INA Research Associate and graduate of the Nautical Archaeology Program (NAP), discussed the text, which proved to be a first edition of Captain Edward Cooke’s A Voyage to the South Sea.

CONSERVING THE CAPE GELIDONYA CARGO
INA Affiliated Scholar Nicolle Hirschfeld (Trinity University) is among the first recipients of a grant from the Respon-sive Preservation Initiative for Cultural Heritage Resources, sponsored by the J.M. Kaplan Fund and the Council of American Overseas Research Centers (CAORC). The award will fund the conservation, documentation, and display of the metal cargo recovered from a Late Bronze Age shipwreck at Cape Gelidonya by INA Founder George Bass in 1960.

WOMEN IN OCEAN SCIENCE
INA Research Associate and Nautical Archaeology Program (NAP) alumna Rebecca Ingram participated in the Girls in Ocean Science Conference at the Ocean Institute in Dana Point, California on February 24. The conference featured hands-on activities designed to inspire young girls to pursue a career in science; Rebecca’s activity included plank reassembly and cataloging activity that generated great interaction with kids and adults about the importance of shipwrecks. Rebecca also serves as an Editorial Assistant for the American Journal of Archaeology and the American Antiquarian Society.

ONE OF THE MOST PRESTIGIOUS PEER-REVIEWED JOURNALS IN THE WORLD
Laurel Breece is a Professor of Anthropology and Archaeology at Long Beach City College in California, where she currently directs a terrestrial survey program designed to give students hands-on experience in mapping techniques. Laurel is also developing an underwater survey program in conjunction with the school’s Underwater Robotics Program, which will teach students to build and pilot Remotely Operated Vehicles as a means of searching for submerged cultural resources.

NEW INA SCHOLARS
We are pleased to welcome two new Affiliated Scholars to our ranks: Laurel Breece and Joseph ‘Seppi’ Lehner.

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SHIPWRECK CAPITAL OF THE AEGEAN

The Fournoi Underwater Survey

PETER B. CAMPBELL AND GEORGE KOUTSOULAKIS

The Aegean Sea is the cradle of the ancient Mediterranean, facilitating the growth of maritime cultures such as the Minoans, Mycenaeans, and Archaic Greeks. Spread around the Aegean are great maritime cities such as Athens, Miletus, and Rhodes. It is therefore surprising that the largest known concentration of shipwrecks in the Aegean lies in a rather obscure group of islands that was never home to a Greek city-state.

Lying a short distance to the south of the famous islands of Ikaria and Samos is a small collection of islands known as the Fournoi archipelago. Composed of 20 islands and islets in 17 square miles, the archipelago has passed largely unnoticed by historians. When Henry Tozer sailed past the islands on route to Patmos in the 19th century, he dismissively wrote, “we sailed between groups of islands unknown to fame.” He is correct that the islands were never home to any settlements larger than small villages. Due to their size and lack of resources, the islands are rarely mentioned by ancient authors or modern researchers. The islands were known as Korseai or Korrasiai in the few ancient sources that mention them. Despite their ignominy, Fournoi is central to the navigational landscape of the Aegean.
BACKGROUND
Since 2015, a collaborative team from the Hellenic Ephorate of Underwater Antiquities and RPM Nautical Foundation has been surveying the archipelago. 22 shipwrecks were located during the first season, 23 in 2016, and 8 more in 2017, for a total of 53. With approximately 50% of the coastline surveyed and the majority of the deep-water areas remaining to be searched, the number of sites is expected to continue to grow.

NAVIGATIONAL LANDSCAPE
The key to understanding the number of shipwrecks at Fournoi lies in its significance within the navigational landscape. The islands are neither a ship graveyard, nor a ship trap. The ships sank fully laden with cargo, rather than stripped of anything of value and abandoned as one finds in ship graveyards. While Fournoi does have a few reefs, most sites are not found on ship traps like Yassıada, Turkey. To the contrary, Fournoi is full of deep, safe anchorages where mariners can find protection from any type of weather.

According to French traveler Joseph Tournefort who visited the islands in the 17th century, the name “Fournoi” originates from the Greek word for “oven” and refers to the archipelago’s many oven-shaped bays. Instead, the number of wrecks relates to the high volume of trade passing through the Fournoi Channel, that divides Samos and Ikaria. Over time, this high volume of ship traffic led to a great number of wrecks.

Fournoi is therefore strategically situated along the major north-south trade routes, but it also acts as a safe anchorage for vessels traveling west from Asia Minor to the Greek mainland.

Fournoi is evidenced by the flourishing of piracy in the islands. Joseph Georgirenes, the Bishop of Samos and Ikaria, described Fournoi in 1678 as “three miles distant from the Island [Ikaria], on the south-side towards Patmos, lye some small islands uninhabited; but know[n] by the name of Furny, and furnish’d with good harbours, capacious enough for all sorts of vessels. Here the Corsairs of Malta, and other Christians, uide to lay in wait for ships that trade from Scio [Chios] to Rhodes.” Piracy thrives on brisk commerce, which existed around Fournoi.

COMMUNITY APPROACH
The Fournoi Underwater Survey was prompted by the project directors’ conversations with sponge divers and fishermen. Sponge divers from Kalymnos reported spotting shipwrecks 30 years ago during the heyday of the sponge industry. Local free divers and fishermen reported clusters of broken ceramics on the seafloor. Using this ethnographic approach, the project directors located a number of sites, and followed with systematic diver-based survey. The project team continues to work closely with the local community to locate and docu-
ment shipwrecks. This community-based approach increases protection of the underwater cultural heritage, as it is not possible to monitor this remote location through any other means than reliance upon the local community.

**FINDINGS**
The 53 shipwrecks discovered during the survey represent a significant new dataset. The earliest shipwrecks date from the Archaic period (6th century B.C.). One was carrying amphoras from Samos, another amphoras from Miletos, while the third was transporting an unidentified Aegean amphora type. One of the more complete sites is a cargo of Hellenistic amphoras from Kos, which are still stacked neatly in rows, though the site has been disturbed by fishing nets. Of particular interest are three Roman-era cargoes of Black Sea amphoras, the first examples from this region known in the Aegean. One Late Roman ship was transporting a cargo of decorated tableware. While many of the cargoes originated in the eastern Mediterranean, one of the largest and best-preserved was comprised of North African and Iberian amphoras.

While many of the cargoes originated in the eastern Mediterranean, one of the largest and best-preserved was comprised of North African and Iberian amphoras.
FOURNOI UNDERWATER SURVEY

The Fournoi Underwater Survey is comprised of North African and Iberian amphoras. Dating to the Late Roman period, it is the deepest shipwreck (65 m) found at Fournoi and one of the most intriguing. The survey has also documented anchors dating from the Archaic through medieval periods and the submerged foundations of an early Christian village. Several Archaic stone stocks, two of which are nearly 2 m in length, are among the oldest objects our team has discovered. The 2017 season lasted three weeks in June. While the two previous seasons had been focused on identification of sites, the aim of the 2017 season shifted toward documentation. The team used the latest methods such as orthographic photomosaics and 3D photogrammetry to map the sites, while additional artifacts were raised as samples for analysis and study.

The team continued to survey large sections of the coastline, locating eight new shipwrecks. One of the most interesting was transporting a cargo of amphoras from Chios dating to the Classical period. Deep-water survey was carried out from RPM Nautical Foundation’s research vessel Hercules by using its remote sensing equipment and ROV to recover amphoras from the deep-water site. The current dataset of 53 shipwrecks may continue to grow as new areas are surveyed.

CONCLUSION
The small islands of the Fournoi archipelago did not have large settlements, but they do tell the story of maritime connectivity in antiquity. The islands served as anchorages and navigational points for ships navigating the eastern Mediterranean. The quantity of shipwrecks at Fournoi is, therefore, more a reflection of a high volume of trade than it is a reflection of Fournoi’s role as a trade destination or navigational hazard. An Ottoman map attributed to Piri Reis depicts a fleet passing through the Fournoi Channel, suggesting that this was the preferred route between Samos and Ikaria. The map also shows the large islands of Fournoi and Thymina, as well as Agios Menas, where the main concentration of shipwrecks has been located. Two sailing vessels are shown at anchor in locations that still correspond to safe anchorages identified in the modern Mediterranean. The quantity of Mediterranean trade networks in every time period. These networks connected the Black Sea and Aegean to Cyprus, the Levant, and Egypt. Some of the shipwrecks identified at Fournoi originated even farther afield, with cargoes from Italy, North Africa, and Portugal. How many shipwrecks remain to be found in the archipelago is anyone’s guess, but the current data are already contributing to our understanding of the past.

ACKNOWLEDGEMENTS
The authors would like to thank Angeliki Simosi, the director of the Ephorate of Underwater Antiquities, for her continued support. The season would not have been possible without the support of the Institute of Nautical Archaeology, The Hellenic Ephorate of Underwater Antiquities and RPM Nautical Foundation provide personnel and equipment, without which the project could not have happened. The local community in Fournoi, especially the mayor, business association, and local collaborators, have been critical to the success of the project. Finally, the authors would like to acknowledge the hard work of the archaeologists, divers, conservators, and surface support that compose the Fournoi team.

FOR MORE INFORMATION

SUGGESTED READING

AUTHORS
PETER B. CAMPBELL
British School at Rome

GEORGE KOUTSOUFLAKIS
Hellenic Ephorate of Underwater Antiquities
JOIN OR SUPPORT INA TODAY!
Bringing History To Light Through The Science Of Shipwrecks

The Institute of Nautical Archaeology (INA) is a non-profit international research organization committed to locating, excavating, recording, preserving, and publishing shipwrecks and other archaeological sites of maritime significance. INA was founded over 40 years ago by Dr. George F. Bass, who in the 1960s pioneered the science of archaeological excavation under water. INA is devoted to the archaeological study of ships as major vehicles of exploration, colonization, innovation, and cultural exchange. Based in College Station, Texas and affiliated with Texas A&M University, INA conducts work around the globe on shipwrecks and submerged sites.

Today there is greater need than ever before to support the work done by INA. The world’s submerged archaeological sites are threatened not just by the ravages of time, but also by the destructive activities of dredging and commercial fishing. With funding for archaeological fieldwork and research always in short supply, INA depends on friends like you to help us protect threatened sites and promote scholarship by supporting survey, excavation, conservation, preservation, and education. INA members are institutions, professionals, enthusiasts, and students united in their passion for discovering the untold stories that lie hidden beneath the sea. Join INA today and become a patron of discovery!

Some Noteworthy INA Excavations

For more than 40 years, INA archaeologists have been directing or participating in shipwreck excavations around the world. These archaeological projects, which represent all historical periods and geographic regions, are how INA brings history to light through the science of shipwrecks.

14th-century BC Bronze Age shipwreck at Uluburun, Turkey
13th-century BC Bronze Age shipwreck at Cape Gelidonya, Turkey
7th-century BC Phoenician shipwreck at Baja de la Campana, Spain
8th-century BC Archaic Greek shipwreck at Patara Burnu, Turkey
5th-century BC Classical Greek shipwreck at Tektaş Burnu, Turkey
3rd-century BC Hellenistic shipwreck at Sarı Limani, Turkey
1st-century BC Hellenistic column wreck at Kızılburun, Turkey
4th-10th-century shipwrecks at Tantura Lagoon, Israel
4th-/5th-century Late Roman shipwreck at Yassada, Turkey
7th-10th-century shipwrecks at Yenikapı, Turkey
7th-century Byzantine Shipwreck at Yassada, Turkey
9th-century Byzantine shipwreck at Bozburun, Turkey
11th-century medieval glass wreck at Şirka Limani, Turkey
16th-century shipwreck at Molasses Reef, Turks and Caicos
16th-century Ottoman shipwreck at Yassada, Turkey
17th-century pipe wreck at Monte Cristi, Dominican Republic
17th-century Nossa Senhora dos é Martins in Lisbon, Portugal
17th-century Santo Antonio de Tana at Mombasa, Kenya
17th-century sunken city of Port Royal, Jamaica
18th-century shipwreck at Sadana Island, Egypt
1830s side-wheel steamboat Heroin in Red River, Oklahoma
1890s Civil-War blockade runner Derbini in Galveston, Texas
19th-century horse-powered ferry in Burlington Bay, Vermont
19th-century Gold Rush steamboat survey in Yukon, Canada

JOIN OR RENEW AND HELP INA BRING HISTORY TO LIGHT

BENEFITS OF INA MEMBERSHIP

- Four print or digital issues of the INA Quarterly, now in its fifth decade
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- 30% discount on nautical archaeology titles from Texas A&M University Press
- 20% discount on membership in the Nautical Archaeology Society (NAS) which includes two issues of the International Journal of Nautical Archaeology (IJNA)
- 10% discount on merchandise available through INA’s online store

INA MEMBERSHIP CATEGORIES

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Surveyor ($75) - Join at this level and receive all the benefits of Diver membership plus a DVD featuring an INA project
Institutional ($100) - Libraries, museums, and educational organizations receive all the benefits of Diver membership and an acknowledgment in the INA Quarterly as a supporting institution
Excavator ($150) - Join at this level and receive all the benefits of Surveyor membership as well as a select piece of INA merchandise
Seafarer ($500) - Join at this level and receive all the benefits of Excavator membership plus a replica artifact
Explorer ($1000) - Join at this level and receive all the benefits of Seafarer membership plus a book autographed by INA Founder Dr. George F. Bass
Navigator ($5000) - Join at this level and receive all the benefits of Explorer membership plus the opportunity to join INAs annual meeting as an Associate Director

Vist us at www.nauticalarch.org to become a member or call (979) 845-6694
It has been 50 years since the first shipwrecks from Spain’s ill-fated Armada against England in 1588 were found and investigated using modern archaeological techniques. Defeated as much by bad planning and unseasonable weather as by the English fleet, the 130-strong Armada, having failed to escort a Spanish invasion force to a landing beach in England, made for home somewhere north of the British Isles. The autumn gales of that year – the Winds of God, as their Protestant adversaries called them – blew early and with unusual ferocity, leaving many of the returning Spanish ships wrecked on the wild Atlantic coasts of Scotland and Ireland. Though some were salvaged shortly afterwards, most remained undiscovered. In 1967 the Belgian underwater explorer Robert Sténuit found the wreck of the galleass Girona, lost close to the Giant’s Causeway in Northern Ireland. Nothing remains of the ship at this exposed and shallow site, but rock gullies had preserved many heavier objects. These fall into two main categories. The most widely publicized is a remarkable collection of Renaissance jewelry, now displayed in Belfast’s Ulster Museum. Many on board had been wealthy aristocrats and their heavy coins and ornaments gravitated into the deepest crevasses. With them were a large number of cannon balls. Paradoxically, although the jewelry is the more striking discovery, the cannon balls are historically more diagnostic, for...
The critical finds are three matching 2½-ton bronze guns, with identical 7¼-inch bores...They are described as cañones de batir [battery cannons] with carriages and limbers for transport on land.

historians believed they should not have been there at all.

For various reasons many had concluded that the Armada failed because it ran out of shot. The English (they believed) did not, so it was only when the Spanish guns fell silent that Queen Elizabeth’s warships were able to come in close and drive the Armada into the North Sea. It was also thought that the Spanish had the heaviest guns, including 7¼-inch-bore bronze monsters which threw a 40-pound shot. These, said the historians, were short-range ship-smashers, which should have given the Spanish the upper hand in close combat against the English, who favored a lighter armament that emphasized the long-range types. Only when the Spanish had fired all their shot, the argument concluded, could the English deploy their lighter guns with impunity and win the day.

The Girona finds suggested otherwise. But had the Spanish perhaps just run out of heavy shot? No. A year after Girona was discovered, Sydney Wignall’s team (of which I was a member) found the remains of another Armada ship in Blasket Sound off southwest Ireland. The Santa María de la Rosa was an important fighting vessel, vice-flagship of the Armada’s Guipuzcoan squadron. What we found was her lower hull, pinned down by stone ballast. The upper part, including the ship’s guns and most of its contents, had broken off and drifted away with the tide. It has never been located. But a large cache of ammunition had been stowed in the bow, atop the ballast, and there we found many hundreds of pieces of shot, of all calibers up to and including 40-pounders. So why hadn’t they been used to smash the English ships?

The answer emerged in 1971, when members of the City of Derry Sub-Aqua Club found the remains of La Trinidad Valencera on a sandy seabed in Kinnagoe Bay, Ireland. At 1,100 tons she had been the fourth largest ship in the Armada. I was lucky enough to be asked to direct the excavation of the site, bringing our newly-founded Institute of Maritime Archaeology at the University of St Andrews in Scotland to work in collaboration with the Club in what became a long-term and extremely productive project. It continued into the 1980s, and the finds are now displayed in the innovative Armada Museum of what is now Londonderry.

The critical finds are three matching 2½-ton bronze guns, with identical 7¼-inch bores. We know exactly what they are, for lists of equipment loaded onto the ship in 1587 are preserved in Spain’s Royal Archives at Simancas. They are described as cañones de batir [battery cannons] with carriages and limbers for transport on land. They were not ship guns at all, but siege artillery intended to support the Spanish army’s march on London when the Armada landed the invasion force on English soil. On the voyage they were stowed in the hold, along with their heavy carriages and ammunition. The 40-pound shot carried by the Armada was there to batter Queen Elizabeth’s castles, not her ships.

The three cañones, all dated 1556, are marked individually with their weights in Spanish libras of 460 grams – 5186, 5260, and 5316. These match exactly the weights recorded in the Armada documents, which describe the guns in detail. They bear the arms of Philip II, joined with those of Mary I of England, whom he married in 1554. He was therefore King Consort of England until she died in 1558. The documents tell us that the arms were highlighted in the royal colors, though no trace of paint survives. Their breech-rings carry the name of Juan de Acuña Vela, Philip’s Captain-General of Artillery at the time, and – in larger letters since in Hollywood terms he was the bigger star – that of Remigy de Halut, the king’s Gunfounder Royal at Malines near Antwerp. Malines had been renowned as a bronze-founding center for many years: even before the advent of cast metal artillery in the later 15th century, fine bells had been produced there.
Remigy de Halut proved to be as skilled a gunfounder as his predecessor and, ably partnered by Hedwige, continued to produce fine guns of all types and calibers.

The most famous of the Malines master-founders was Hans Poppenruyter, who began making high-quality bronze ordnance in the 1480s and who, in the first two decades of the 16th century, cast more than 144 guns for Henry VIII of England. During these years Henry amassed, in the words of the Venetian Ambassador, ‘cannon enough to conquer Hell.’ Work for England was suspended at Malines in 1526 because Henry, always short of money, proved a bad payer. In the meantime, however, Poppenruyter secured an even more lucrative contract. In 1520 Charles V, who that year became ruler of both Spain and the Holy Roman Empire, bestowed on Malines the profitable honor of making it his Royal Gunfoundry. Poppenruyter was granted the title of Founder Royal in succession to Hans Poppenruyter. Had 21st-century moral codes applied, he might just as well have awarded it to Hedwige.

Nonetheless Remigy de Halut proved to be as skilled a gunfounder as his predecessor and, ably partnered by Hedwige, continued to produce fine guns of all types and calibers. In 1550 Charles V confirmed Remigy’s appointment as Founder Royal. In due course Charles V confirmed Remigy’s appointment as Founder Royal in succession to Hans Poppenruyter. Had 21st-century moral codes applied, he might just as well have awarded it to Hedwige.

Evidence of supporting equipment
The Armada generated a wealth of documentation about its composition and strategy, now meticulously preserved in the Simancas archives. No major event in Early Modern European history is so richly endowed with written sources.

Archaeology has played a crucial role in understanding the Armada’s biggest guns. One of the three Remigy guns from the Trinidad Valencera was drawn to scale in 1587 by Philip II’s Captain-General of Artillery, Juan de Acuña Vela, in a technical memorandum sent to the king. It is identified by the 5186 libra weight mark, which he carefully included in his drawing. I measured and drew the same piece in 1987, unaware that someone had beaten me to it by four centuries. When Acuña Vela’s version turned up in the archives and we compared it with mine we found that the proportions and details recorded independently across the centuries matched almost exactly. To find that Don Juan and I had used similar conventions for our drawings sent a shiver down my spine. I’ve never felt so close to a real person from the past.

This page, from top: The gun’s sprightly lifting dolphins; Credit lines showing the founder, Remigy de Halut; The weight mark 5186, replicated in La Trinidad Valencera documents and in Juan de Acuña Vela’s 1587 drawing. Opposite page: The old foundry at Malines, demolished in 1837 showing the remains of a furnace at bottom left.

TWO DRAWINGS, FOUR CENTURIES APART

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The Armada generated a wealth of documentation about its composition and strategy, now meticulously preserved in the Simancas archives. No major event in Early Modern European history is so richly endowed with written sources. Yet it has taken archaeology – read in conjunction with documents – to understand what the Armada’s biggest guns were really for. Archaeology does not begin at any particular date; it is relevant whenever it adds fresh understanding to any topic or period. And it works particularly well when it can be combined with contemporary records.

ARTWORK (TOP): COURTESY OF THE AUTHOR’S COLLECTION; DRAWINGS (TOP): ARCHIVO GENERAL DE SIMANCAS; (BOTTOM): C. MARTIN; PHOTOS: C. MARTIN

One of the three Remigy guns from the Trinidad Valencera was drawn to scale in 1587 by Philip II’s Captain-General of Artillery, Juan de Acuña Vela, in a technical memorandum sent to the king. It is identified by the 5186 libra weight mark, which he carefully included in his drawing. I measured and drew the same piece in 1987, unaware that someone had beaten me to it by four centuries. When Acuña Vela’s version turned up in the archives and we compared it with mine we found that the proportions and details recorded independently across the centuries matched almost exactly. To find that Don Juan and I had used similar conventions for our drawings sent a shiver down my spine. I’ve never felt so close to a real person from the past.

The Armada generated a wealth of documentation about its composition and strategy, now meticulously preserved in the Simancas archives. No major event in Early Modern European history is so richly endowed with written sources. Yet it has taken archaeology – read in conjunction with documents – to understand what the Armada’s biggest guns were really for. Archaeology does not begin at any particular date; it is relevant whenever it adds fresh understanding to any topic or period. And it works particularly well when it can be combined with contemporary records.

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This page, from top: The gun’s sprightly lifting dolphins; Credit lines showing the founder, Remigy de Halut; The weight mark 5186, replicated in La Trinidad Valencera documents and in Juan de Acuña Vela’s 1587 drawing. Opposite page: The old foundry at Malines, demolished in 1837 showing the remains of a furnace at bottom left.

TWO DRAWINGS, FOUR CENTURIES APART

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2017 INA BOARD MEETING

Directors and Officers gather in Monte Carlo to celebrate another outstanding year

Every autumn, INA’s Board of Directors comes together to discuss the results of ongoing INA surveys, excavations, research, and publications. The 2017 meeting took place in breathtaking Monte Carlo, Monaco, at the generous invitation of longtime INA Director Danielle Ferney. Highlights of the five-day itinerary included the Villa Ephrussi de Rothschild, the Villa Kerylos, the Oceanographic Museum of Monaco, the Matisse Museum, the flower market of Nice, the Fragonard Museum of Grasse, and the enchanting medieval hill town of Saint Paul de Vence. Our sincere thanks to our hostess Danielle and all attendees, but especially to the INA Board for their continued support of our superb organization!

1. View of the harbor of Monte Carlo
2. Afternoon tea at the Villa Ephrussi de Rothschild
3. Robyn Woodward and Bob Walker
4. Jenny Arkhipov and Dana McGlinnis
5. Dinner at the iconic Cafe de Paris in Monte Carlo
12. Tuba Ekmekçi and Kenan Yılmaz
13. Danielle Feeney with a 1:32 scale model of INA’s new research vessel Virazon II
14. Lucija Aydemir and Oğuz Aydemir
15. Touring the Fragonard Museum in Grasse

6. John Cassils and Cemal Pulak
7. Luncheon at La Reserve in Nice
8. Past INA President Donny Hamilton with daughter Amy Hamilton-Foster
10. Clockwise from left: Roger Williamson, Gaye Klaain, Judy Sturgis, and Lucy Darden
11. Danielle Feeney and Debbie Carlson at the Armistice Day ceremony in Nice
H. L. HUNLEY RECOVERY OPERATIONS
Edited by Robert S. Neyland and Heather G. Brown

H. L. Hunley Recovery Operations

Reviewed by Richard Hendren

Shortly after the loss, with all hands, of the Argentine submarine ARA San Juan, I was asked to review this book about H. L. Hunley. Having spent a large part of my 30-year navy career in submarines, every time I hear of the loss of a submarine, and the crew that gave her life, I cannot help but think, “There, but for the grace of God, go I.” This sentiment is common among most submariners, yet, except for a few navies, submarine duty is strictly voluntary. The H. L. Hunley story makes one realize the amazing determination and bravery of the men who crewed her. Considering that the first two crews of Hunley were lost with all hands, and each crew member knew of the demise of the crews that preceded them, but still volunteered, it is little wonder that they persevered in sinking the USS Housatonic.

In 1995, a team under the direction of novelist Clive Cussler discovered the wreck of the Confederate submersible Hunley. Once her location was known, it was feared that unscrupulous individuals might loot the wreck, and in so doing desecrate the grave of the crew, assumed to be entombed within the hull. It took five years to plan and execute the vessel’s recovery.

This volume, the first in a planned series of archaeological reports, documents those years of effort in a series of phases: historical, planning, execution, analysis, and conclusion. In the first phase, the authors place Hunley in historical and environmental context, and detail the previous investigations culminating in her discovery. The second phase covers initial planning and preparation efforts for recovery and conservation, including a conservation symposium and the design and construction of the Warren Lasch Conservation Center in North Charleston, S.C. The report’s third phase concerns the execution of field efforts, including the development of the frame and slings used to recover Hunley, as well as excavation, recovery, and post-recovery survey operations. Analysts include: site description, the artifacts and their condition; the geology, biology, and the site formation process; hull analysis, detailing the hull design of this and comparable vessels, Hunley’s operational systems; and a review of the artifact assemblage. The final chapter presents conclusions including speculation about potential root causes for Hunley’s sinking.

This detailed description of risk management, decision-making, management structure, and the division of responsibilities provides a great example of a complex, well-run and highly successful enterprise.

This volume provides something for everyone: readers interested in history, technology of early submersibles, the Civil War, complex maritime archaeological projects, underwater site formation processes, or the importance of our fragile underwater cultural heritage will find this report especially thought-provoking. The editors, Neyland and Brown, have done a masterful job merging the 16 chapters into a congruent volume wherein the authors provide a detailed explanation of the daunting technical complexities involved in planning and executing the excavation, recovery, and conservation of this culturally significant vessel. Each of the chapters can stand on its own merit, allowing a reader with specific interest, or lacking time to read the entire volume, an opportunity to readily glean needed information. Chapters are written in an accessible style, which simultaneously provides the high level of technical information and data expected by academics and researchers. Excellent photographs, illustrations, and data enrich each chapter and contribute greatly to my understanding of the material. The appendices provide a wealth of supporting data, including the summary of proceedings of the symposium organized to gather information about how best to conserve Hunley.

This report differs from many in that it provides a look behind the scenes at the complexities of managing a large multi-stage project. This detailed description of risk management, decision making, management structure, and the division of responsibilities provides a great example of a complex, well-run and highly successful enterprise. I would consider this volume a valuable resource for anyone designing a complicated underwater archaeological project.

Neyland served as the Principal Investigator for the Hunley project, and provides in the introduction background information regarding previous efforts to recover intact vessels, and the challenges involved in conserving iron ships and marine equipment. Some of these cases were successful, while others ended poorly. Considering that the structural condition of Hunley was an unknown, the presentation of these examples underscores the level of risk inherent in this type of operation and the absolute necessity of planning and preparation for each project phase from initial investigation to museum display. This theme of deliberate planning with regard to safety, archaeology, logistics, and cost is evident throughout the book.

Neyland notes in the introduction that finding a stopping point was a real challenge, but he chose to close this first volume as conservation of Hunley was getting underway. I noted with pleasure that he diverged from that decision with his inclusion of facial reconstructions of the crew, which are based on actual skeletal remains. As a submariner, I am most grateful to Neyland and his team for the respectful treatment of H. L. Hunley’s last crew; their names, stories and facial reconstructions were thoughtfully presented, honoring them, and giving life to this fascinating artifact of American history.

Richard Hendren is a Ph.D. student in the Nautical Archaeology Program at Texas A&M University. He served 30 years in the U.S. Navy and earned a Master’s degree in Human Relations from the University of Oklahoma. His research interests include remote sensing and naval artillery.
RETROSPECTIVE:
VIRAZON
INA’s first research vessel embarks for the Mediterranean in 1964

For 50 years, archaeologists, students and volunteers participating in INA research projects in Turkey had the pleasure of diving from and living aboard Virazon. Virazon is a former U.S. Army T-boat built in New Orleans in 1953. In 1964 the U.S. Army loaned Virazon to INA Founder Dr. George Bass in order to test equipment in the emerging field of underwater archaeology. She was loaded aboard Ruth Lykes and carried as deck cargo to Athens before joining INA archaeologists excavating the Byzantine shipwreck at Yassıada, Turkey. INA acquired Virazon permanently in 1979 and for 35 years she served on dozens of INA shipwreck surveys and excavations. In 2016 Virazon was sold to a Turkish couple offering daily scuba diving trips and certification courses from Bitez Marina outside of Bodrum (www.barakudabodrum.com).

In 2016 INA christened Virazon II, the first ship to be classed as an Archaeological Research Vessel. Virazon II was designed and built by Navtek Naval Technologies in Istanbul and is fully equipped to support the next generation of INA archaeologists and explorers conducting research around the world.

WILL YOU ACCEPT THE CHALLENGE?

Less than one year ago INA constructed Virazon II – a custom-built, state-of-the-art archaeological research vessel. Now INA is pleased to announce the launch of a $1 million matching challenge grant sponsored by a single INA donor. The grant will ensure that Virazon II is always project-ready and equip project directors with additional funds to make the cost of conducting surveys and excavations aboard Virazon II as affordable as possible.

HOW CAN YOU HELP?

Every dollar donated toward the Virazon II Challenge Grant between now and June 1, 2018 will be matched, up to one million dollars. With every donation, no matter how small, you will help INA archaeologists bring history to light through the recovery of our shared maritime past! Your tax-deductible contribution can be made payable to:

The INA Foundation
PO Box 2310 College Station, TX 77841-2310

www.nauticalarch.org
INA thanks all those who supported our archaeological work in 2017.
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