MARZAMEMI CHURCH WRECK
THE MARBLE CARGO OF A 6TH-CENTURY SHIP IN SICILY

2016 ANNUAL BOARD MEETING
HIGHLIGHTS FROM CALIFORNIA

THE OTTOMAN FRIGATE ERTUĞRUL
A DECADE OF RESEARCH AND ANALYSIS
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.

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

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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.

Nicholas Budsberg, now completing his Ph.D. in Texas A&M University’s Nautical Archaeology Program, is the fourth recipient of this prestigious award. The funds will support the excavation of what may be the earliest known European shipwreck in the Americas, likely either an Iberian caravel or nao dated to the Age of Exploration (1492–1520).

I would like to sincerely thank the Institute of Nautical Archaeology (INA)’s Archaeology Committee and Mrs. Duthuit for supporting continued work at the Highborne Cay Shipwreck site. INA’s support will allow multiple students, scholars, professionals, and local Bahamian groups to be closely involved with the work and gain invaluable knowledge and experience.

-NICHOLAS BUDSBERG

www.nauticalarch.org/duthuit
**NEWS & EVENTS**

**INA Additions, Support INA, Upcoming Lectures & Events**

**NEW FACES IN THE INA FAMILY**

We are delighted to announce the election of Kretimir Penavic to INA’s Board of Directors. Penavic graduated with honors from the University of Zagreb in Croatia with a B.S. in Mathematical Informatics and Statistics before going on to receive a Master’s degree in Applied Mathematics with a focus in Computational Geometry from the State University of New York at Stony Brook. Penavic spent most of his career developing automated trading systems at Renaissance Technologies. In 2014, he joined Clai, one of Croatia’s top producers of wine and olive oil. He currently directs Forexster, an online interactive platform for trading currencies. We are also honored to welcome Giulia Boetto as an INA Affiliated Scholar. Boetto, who is Italian by birth, is a Senior Researcher in Maritime Archaeology at the University of New York at Stony Brook. As an INA Affiliated Scholar, she is interested in the interaction between ships and the harbor structures at Ostia/Portus, as it relates to her earlier work on Rome’s Fiumicino airport.

**NEW ONLINE WISH LIST**

INA’s new online Wish List makes it easier than ever to directly support INA researchers in the field by putting needed equipment or services directly into the hands of INA archaeologists, increasing their effectiveness in fieldwork, conservation, and post-extraction research. Since the Wish List debuted at the end of 2016, several generous donors have provided funds to purchase computer equipment, camera equipment, digitize archival film, and renovate bathhouses in the dormitory of INA’s Bodrum Research Center. Interested donors may also choose to contribute a portion of an item’s cost. Check out INA’s online Wish List (www.nauticalarch.org/ina-wish-list) and help us bring history to light through the science of shipwrecks!

**SHIPS THAT CHANGED HISTORY**

Donny Hamilton, Professor of Nautical Archaeology at Texas A&M (TAMU), holder of the Abel Chair in Nautical Archaeology, the Yamini Family Chair in Nautical Archaeology, and former INA President, has organized a two-day symposium bringing together world-famous scholars to give public lectures on four of the most significant and celebrated shipwrecks of the last half-century: The Uluburun ship (1320 B.C.), Mary Rose (1545), Vasa (1628), and La Belle (1686).

The event, which is free and open to the public, will be held on April 5-6, 2017 in Texas A&M University’s Reed Arena. It will be followed on April 8 by the annual Shipwreck Weekend event featuring student presentations, activities for kids, and an open house of the laboratories and facilities of the Nautical Archaeology Program, the Center for Maritime Archaeology and Conservation, and the Institute of Nautical Archaeology. For more information visit www.nauticalarch.org/ships-that-changed-history.

**HIGH FIVES FOR FIVE BOATS**

INA Affiliated Scholar and Nautical Archaeology Program alumna Justin Leidwanger (Stanford University) is a recipient of the Whiting Foundation’s 2017 Public Engagement Fellowship, awarded annually to eight humanities scholars to empower them to engage directly with the public and fuse the nuance and complexity of the humanities into our shared culture. Leidwanger’s traveling multimedia exhibit, Five Boats: Snapshots of Mediterranean Connections, uses innovative technology to create visceral experiences of the maritime history of Sicily. Five Boats brings to life concise snapshots to illuminate the history of human mobility, communication, and cultural exchange, reminding us that each sea crossing – whether fortuitous or desperate – has and continues to remake cultural identities.

**MEDITERRANEAN SEAFARING SUMMER COURSE**

INA Affiliated Scholars Giulia Boetto (National Centre for Scientific Research and Irena Radic-Rossi (University of Zadar) are co-directing a one-week course June 3-10 in Dubrovnik, Croatia. This course will unite nautical archaeologists and other related specialists to discuss the full spectrum of Mediterranean seafaring. The format – a short, intense course conducted in an accelerated summer school session – affords students direct contact with professionals working and studying in the fields of maritime and nautical archaeology. This workshop will establish a creative environment for discussing the archaeological, historical and ethnographic present and future of nautical heritage in the Mediterranean.

**IN MEMORIAM**

The INA Family is deeply saddened to report the passing of Anna McCann Taggart (1933-2017), a pioneer and leader in the field of maritime archaeology. During her prestigious career she excavated, researched, and published many sites both shallow and deep, though she is perhaps best known for her award-winning 1987 book, *The Roman Port and Fishery of Cosa. A Center of Ancient Trade*. McCann dived, worked, or collaborated with such iconic figures as Jacques Cousteau, George Bass, and Bob Ballard. In 1998 she was awarded the Gold Medal of the Archaeological Institute of America for her achievements in archaeology.

We are equally sad to relay news of the passing of Waldemar “Vlady” Illing (1937-2017), who was a team member of George Bass’ pioneering excavations at Cape Gelidonya and Yassada, Turkey. Vlady also traveled from Germany to the U.S. to assist with research that led to the construction of the first commercially built American research submersible, *Alabaster*, launched in 1964. In 2010, Vlady reunited with George Bass and Claude Duthuit (1931-2011), who was a team member on the day of his passing, having recently passed together 50 years earlier. Vlady’s love for diving persisted even as he grew older; on the day of his passing, having recently turned 80, Vlady had just surfaced from his favorite dive spot off Cat Island in the Bahamas, where he operated a dive resort for many years. “It is still very unreal for us that our father is gone,” son Florian wrote to George Bass. “But it is a relief to think he passed like he always wanted to, right after a fantastic dive.”
The 6th century AD was marked by the ambitious rule of Justinian (527-565) and his brief renaissance of the Roman Empire. More than two centuries of division and setbacks in the west had left half of the once Mediterranean-wide empire in the hands of Vandals, Ostrogoths, and others. Dedicated efforts by Justinian and his stalwart generals brought North Africa, Dalmatia, Sicily, Italy, and the Iberian peninsula back into the fold. Driven by the vision of an empire unified not only politically, but economically and religiously, Justinian launched prolific building projects that sought to restore the symbolic features of Roman life: civic spaces, fortifications, and religious structures. Military triumphs are often short lived, and Justinian’s empire soon lost much of its reconquered territory, but the mark of this flourish survives today particularly in the many 6th-century churches constructed across the Mediterranean, including the Basilica of San Vitale in Ravenna, and the magnificent centerpiece of his program, Hagia Sophia in Constantinople. These buildings feature marble from the imperial quarries at Proconnesus in the Sea of Marmara paired with a lavish assortment of decorative stones drawn from all corners of the Mediterranean world, a symbol of the breadth and power of the imperial order.

Discovery and Early Exploration
In 1959 a local fisherman spotted marble columns and carved stone blocks about a kilometer off the coast of Marzamemi in southeast Sicily; explorations throughout the early 1960s by Gerhard Kapitän identified these as elements of religious architecture and connected the submerged remains to a lost ship from the era of Justinian. Kapitän spearheaded the recovery of hundreds of artifacts, surveyed the site remains, and published a moving narrative of the “church wreck,” with its cargo of prefabricated components destined for assembly somewhere in North Africa.

There is obvious appeal to such a system of standardized imperial construction in the late Roman world, particularly in association with Justinian’s interest in religious architecture, but this narrative may tell only part of the story. To what degree does the assemblage stand as a symbol of imperial agency in rebuilding the Late Roman west, and how much influence did the emperor hold over economic connections between the quarrying and transport of marble on the one hand, and the financing, design, and construction of churches on the other? Was the emperor the primary instigator of luxury shipments, or did massive quantities of marble travel as standard commercial goods alongside the wine, oil, and grain that fed the empire? Who was charged with their transport, and what sort of ship was entrusted with this massive and expensive stone cargo weighing more than 100 tons?

New Investigations at Marzamemi
With such questions in mind, a collaborative team from Stanford University and the Sicilian Soprintendenza del Mare began investigating the “church wreck” at Marzamemi in 2013. Through survey, excavation, and analysis, the research program has begun to answer questions about the ship’s place in the complex interconnections—political, economic, and religious—of the late antique Mediterranean. At a depth of only about 8 m (25 ft), the site is marked by its collection of marble elements in a sandy depression on a seabed of reef and rock. The shallow depth means that winter storms buffet the site, wedging small artifacts deep beneath boulders, and on occasion moving even larger elements. Multi-ton rocks and reef have collapsed onto the site and now sit atop columns. Such challenging topography in a dynamic marine environment has made careful mapping through traditional and innovative systems a priority in order both to contextualize Kapitän’s earlier work and to keep track of objects that appear and disappear in shifting sands between seasons. Excavation relies on an ever-growing international team. In 2016 the core group was comprised of more than 30 student and staff archaeologists, conservators, and specialists from six countries. The shallow depth facilitates the use of water dredges to remove sand. Because each dredge can be operated with a single water pump, surface support for dive operations is relatively minor: a single extra boat ferries pumps, fuel,
A JUMBLE OF BUILDING BLOCKS

By sheer mass, the most abundant objects recovered from the site are stone. Kapitän recorded 28 columns, capitals, and bases prefabricated in Proconnesian marble, which he believed represented a columnade lining the central space of a church. His discovery of panels and other distinctive elements in a striking mortared green stone—the famous revet antico quarried in northern Greece—pointed to the inclusion in the cargo of an ambo, the elevated platform used by the clergy for liturgical reading and speeches. Panels of light grey marble decorated with Latin crosses, ivy, and christograms would have been assembled into a chancel screen that separated the clergy and congregation. Together with a likely altar and ciborium (altar canopy), these pieces reflect the focal points of the early Christian liturgy.

Yet recent excavation has revealed small finds to the surface. Kapitän had realized, suggesting that the narrative behind this “church set” might not be quite so straightforward.

Small finds discovered in association with the stone may suggest a shipment that included not only the major building blocks for a church, but elements for its adornment as well.

PAINT BY NUMBERS AND MORE

Small finds discovered in association with the stone may suggest a shipment that included not only the major building blocks for a church, but elements for its adornment as well. In a jarring context to the blue-green depths of the underwater environment, small lumps of golden ochre, red-orange realgar—both compounds of arsenic—stand out. Such minerals have been found on ships before, including the Yassıada vessel, but it raises questions about how such opportunistic ventures might be explained in the context of an imperial shipment. An assortment of fragmentary cooking and dining wares in a variety of forms and fabrics might also hint at a more diverse crew than the earlier model affords.
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a complaining servant compares himself to
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What sort of ship was needed to carry this
cargo, galley wares, hull fasteners, and
The new elements raise questions about not only the size and scale
of the religious building program for which this cargo was destined,
but the patronage and mechanisms behind such projects.

FIRST CLUES TO THE SHIP
What sort of ship was needed to carry this
massive cargo of building stone, decorative
elements, and amphorae? In a discus-
sion of stone as a symbol of luxury, Pliny
(36.1) noted the cutting of mountains to
yield marbles of a thousand colors, and the
ships that transport them across the sea,
but offered no clues about the construc-
tion of the actual vessels. The sole hint at
specialization comes from the satiric novel of Petronius (Satyricon 117.12), in which
a complaining servant compares himself to
a beast of burden or a stone-carrying ship
(lapidaria navis). Scholars often imagine
such vessels as heavily built with reinforced
hulls to accommodate the dense loads.
While the shallow dynamic environ-
ment combined with the warm waters of southeast Sicily offer little hope of
extensive wood preservation—even in the
1960s, Kapitän recorded only “splinters”
of wood from the site—clues to the hull
are preserved in the concreted shells of
hundreds of iron nails and other fasten-
ers. Multiple sites of bolts, clenched nails, and
small tacks offer preliminary evidence for a hull that was perhaps not so differ-
ent in construction from any other vessel
sailing the late antique Mediterranean. The
ever-present threat of shipworm (teredo
navalis) damage to timbers is visible in
preserved fragments of lead sheathing with
small tack holes, while wooden fragments
crushed beneath columns are riddled with
worm casings. Was this ship purpose-built
to carry columns from imperial quarries,
or was its last voyage one of many oppor-
tuneistic journeys by profit-minded sailors
who stopped at Proconnesus and perhaps
other quarries for their final consignment?

RETHINKING THE
“CHURCH WRECK”
After four field seasons at Marzamemi,
it is abundantly clear that no one object
or class of objects should dominate the
socioeconomic interpretation of the site.
The stone architectural elements, ceramic
cargo, galley wares, hull fasteners, and
small finds together offer glimpses into the
varied models for late antique maritime
connectivity that might be read into the
shipwreck assemblage. Among the most
critical questions at stake are the roles of
different agents—the emperor himself at
Constantinople, the provincial elite, and
the hungry urban masses—in driving
economic enterprise. Religious construc-
tion programs featured prominently in
daily life during the 6th century, serving as
symbols not only of faith and architectural
ingenuity, but also of wealth, patronage,
and imperialism. To understand the vessel’s
final journey we must look at the columns
and capitals, the ambo, chancel screen and
other religious furnishings together with architectural markers of the sailors and

ACKNOWLEDGMENTS

The Marzamemi Maritime Heritage Project
would not be possible without the collabora-
tion of many institutions and individuals,
especially Sebastiano Tusa and Nicoletta Bruni
of the Sicilian Superintendency del Mare,
Matteo Azzaro and Raffaele Amore of El
Cachalote Diving Center in Marzamemi,
and Lokolde Repola and his team from
Sover Omala Benincasa University in Naples.

Among the key staff in 2016 were several
INA regulares: Director Sheila Matthews
and Associate Director Ken Trethewey.
Additional thanks are owed to the
Guardia di Finanza, Subalves Inc., and
Houtum Scuba Academy. For the 2016 season we
are grateful for financial support from the
INA Archaeological Committee as well as
Stanford University, Brock University, and
the Loeb Classical Library Foundation.

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FOR MORE INFORMATION about the “church wreck” excavation and the
Marzamemi Maritime Heritage Project, visit the Facebook page (IMarzame-
miProject) and website: marzamemi.stanford.edu.

JUSTIN LEDIWANGER
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ELIZABETH S. GREENE
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PHOTOS: THIS PAGE: J. LEIDWANGER; OPPOSITE PAGE, LEFT: L. REPOLA

SUGGESTED READING
The loss of the Ottoman frigate Ertuğrul in Japan in 1890 was a disaster with lasting diplomatic consequences for Turkey. Sent out a year earlier on a goodwill mission by Sultan Abdulhamid under Admiral Osman Pasha, the frigate sank off Oshima Island, Wakayama. The tragedy remains a cornerstone of relations between the two countries, a symbol of friendship and mutual support kept alive by the Turkish Memorial Museum and the Ertuğrul Monument on Oshima Island.

From the beginning, the Ertuğrul Project’s team has been involved not only in excavation of the shipwreck but also in initiating public archaeology activities as a continuation of the voyage’s mission of collaboration and cultural exchange between the two countries.
Our knowledge of the voyage and crew, gathered from official documents and personal letters, is vividly illustrated by the excavated artifacts. We collaborate with private and civic organizations, in Turkey and Japan, to spread this knowledge using the archaeological materials. Since 2010, the team’s archaeological research has been shared with thousands of people, thanks to the more than 600 newspaper articles and our traveling exhibits, hosted in prominent museums in both nations. Ertuğrul was built in Istanbul between 1854 and 1864 as a three-masted, 76 meter-long wooden frigate, which sailed to Portsmoutth, England to immediately repair. Upon its launching in Turkey, it became a powerful protector. Ertuğrul’s voyage became a public relations trip for the Sultan’s pan-Islamic politics.

During the voyage, the frigate and her 609 crew endured complications that forced them to spend time in the Suez Canal and Singapore, either undergoing repairs or awaiting better weather. Ertuğrul finally reached the harbor of Yokohama, Japan, 11 months after her departure. Presents were exchanged between Rear Admiral Ali Osman Pasha and the Japanese Emperor Meiji, along with intentions of further communication, although no formal treaty was signed. In short, the diplomatic goals of the mission had not yet achieved solid results when the frigate had to return, but before they could depart the crew were struck by cholera and had to be quarantined in the harbor.

Finally, on September 15, 1890, Ertuğrul left Yokohama heading south. Although warned about bad weather, the officers and crew were eager to offset the delay. Orders from Istanbul were clear: sails should be used as much as possible to save the cost of coal, the ship should avoid danger, and made several politically strategic stops on the return voyage. Unfortunately, the crew never had the chance to fulfill these orders because Ertuğrul sank during a tremendous typhoon the very next day off the coast of Oshima Island, near the town of Kushimoto. Of the 609 crew members, only 69 reached a nearby lighthouse, after climbing up the steep cliffs, mostly thanks to the help of islanders. Ertuğrul’s last hours are described in several letters and official reports sent to Istanbul by the 69 survivors. The following is an extract of one sent on September 30th from Kobe, Japan, where the witer was recovering from his injuries:

In very short time the storm was stronger, the speed of the ship fell and the hit the rocks called Kii, one mile away from the rocky coast, Pasha was killed by a piece of timber in a blue to the head. In order to go forward I struggled with the waves but they dragged me under. I was praying hopelessly. After I sunk in the sea three or four times, I managed to climb onto a piece of wood again. Then, thank God, I reached land safely after a struggle of 4 or 5 hours with the sea. There was no way to reach the lighthouse and there were steep rocks everywhere. It was all too difficult. I spent that night wearing only shorts and a shirt. On the one hand it was so rainy and cold that it seemed impossible not to be frozen to death, and on the other hand, it was very hard to bear the painful cries of the injured.

Following daylight, all of us survivors walked around with the hope of finding a way to the lighthouse. At last we found a goat path and reached it. The keepers tried to cure the wounded as much as possible and served us food. We explained how the vessel sunk and how we saved our lives. However, more casualties than the previous two masts. Life boats with davits were pulled under the vessel by the rushing waves. At that time nobody on board could hear the cries of the men. I was then on deck near Osman Pasha, who was crying in despair. In five minutes, the ship was completely shattered and her parts dispursed on the sea. Osman Pasha and I climbed onto a broken mast.

While we were trying to approach the coast, Pasha was killed by a piece of timber in a blue to the head. In order to go forward I struggled with the waves but they dragged me under. I was praying hopelessly. After 1 week in the sea three or four times, I managed to climb onto a piece of wood again. Then, thank God, I reached land safely after a struggle of 4 or 5 hours with the sea. There was no way to reach the lighthouse and there were steep rocks everywhere. It was all too difficult. I spent that night wearing only shorts and a shirt. On the one hand it was so rainy and cold that it seemed impossible not to be frozen to death, and on the other hand, it was very hard to bear the painful cries of the injured.

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Quercus cerris

In 2007, a sidescan sonar and magnetometer survey yielded very few results. Nevertheless, a visual survey by local Japanese and INA divers revealed that narrow channels on the seabed between the Funa-nese and INA divers revealed that narrow channels on the seabed between the Funa-nese and INA divers revealed that narrow channels on the seabed between the Funa-nese and INA divers revealed that narrow channels on the seabed between the Funa-nese and INA divers revealed at least one major break in the hull. Researchers from Tel Aviv University were even more surprised to discover a large concentration of ammunition, small copper objects, some wood, and a large copper cauldron. Identification of what appeared to be part of the hull by researchers from Tel Aviv University was reassuring: Turkish Oak (Quercus cerris), confirming that this was the location of a Turkish shipwreck.

During the initial 2007 season in Kushimoto, we had the privilege of being joined by INA Founders George and Ann Bass, INA Directors Claude and Barbara Duthuit, INA President Donny Hamilton, INA Vice President Cemal Pulak, as well as Selcuk Koley, an expert in steam engine design and member of TINA. Despite the discouraging results of the survey, with no large parts of the ship visible anywhere, when we started excavating in 2008, we discovered a rich layer of artifacts beneath the gravel. In four excavation campaigns, although we uncovered only a small part of the archaeological site, which spreads along a narrow area more than 70 m long, we have registered over 8,000 objects.

A good example of our approach is provided by the ship’s copper sheathing. During the excavation we recovered only one, fairly complete, measuring 60 cm x 35 cm (and another 265 fragments). A rough estimate based on this example indicates that the 76 meter-long ship would have been roughly 7000 pounds like the one we excavated, but most of them are missing, reflecting the extent of the 1890 salvage. The copper, which does not appear on any of the shipping lists, was presumably sold for scrap.

When she left Yokohama for a long trip back to Turkey, Ertuğrul carried about 450 tons of coal (its maximum capacity), funds for the trip (at least 5000 Turkish Liras in cash), and the provisions received from the Japanese Emperor.

Some of the coal may have been salvaged, if not for its market value, perhaps for use by local families. Still, coal is everywhere on the site, making some areas all black. The cash carried by the commander was obtained in Japan, as documented by bank transfer from Istanbul. 2,067 coins were recovered in the salvage of 1890, and sent back to the Ottoman government.

These were mostly Japanese mints of different types (gold, silver, copper), found in boxes, purses, or loose on the seabed. Our excavation between 2007 and 2012 recovered 13 coins, including a Gold British Sovereign, three silver Crown Yen, a Hong Kong silver 10-cent piece, three Japanese 5 sen coins, and 5 unidentified coins. Among the presents or souvenirs of Japanese origin, the most common are various types of Japanese porcelain. Although now fragmentary, some are unique. They remind us that Yokohama was one of few Japanese ports then open to international trade. At the end of the 19th century, modernist Europe welcomed Japanese orientalia, and the Japanese embraced the opportunity to enter into a market dominated by chinaware, which was cheaper because it was mass produced. Where Japanese porcelain exports could be counted in the thousands, Chinese examples were counted in the millions. The porcelain finds from Ertuğrul belong to a type ornamented exclusively for export to the West, and not sold in Japan at all. In fact, the Yokohama porcelain found in association with Ertuğrul is the first of its kind found in Japanese territory. One example of this westward trade in orientalia is the mustache cup, a specially-designed tea cup and saucer developed in England and decorated with Mount Fuji. Mustache cups were used by society gentlemen to protect their waxed mustaches from the tea’s hot steam.

Each of the many finds from the Ertuğrul shipwreck opens a window onto the tragic in Japan. For more information about the excavation of this site, visit the Ertuğrul Ottoman Frigate Excavation project page on our website! also recovered decorated Japanese lead trays, flower pots in green glaze, blue decorated Imari ware, glass, personal items such as belt buckles, buttons, shoes, perfume bottles, and a glass paper weight. They serve as a poignant reminder that no matter how fragmentary the material remains of an archaeological site, they all bring history to life.

ACKNOWLEDGMENTS

The Ertuğrul project has been funded by generous donations and support from YapiKredi Emeklilik, David Koch, Kushimoto Municipality, Wakayama prefectural government, Osaka Maritime Museum, Wakayama Prefectural Museum and Kushimoto Maritime Park. We also thank INA for logistic support and the use of its multifaceted research center in Bodrum, where we were able to use the portable XRF scanner for analyzing artifacts.

This page: A Tokai University student volunteers on the Ertuğrul Research Center, Kushimoto (2016); Porcelain cup from Yokohama; Objects from the exhibit include a buckle and several perfume bottles. Opposite page: The Ertuğrul exhibition at the Istanbul Naval Museum in 2015.

Follow INA Online: For more information about the excavation of this site, visit the Ertuğrul Ottoman Frigate Excavation project page on our website!

BERTA LLEDO
Archaeological Director, Ertuğrul Project
INA Research Associate
A 1993 survey conducted by INA revealed five shipwrecks off the Turkish Aegean coast, near Kızılburun (“Crimson Cape”). Two of the wrecks date approximately to the 6th century A.D.; two are medieval; and the fifth, the “column wreck,” dates from the first century B.C. This fifth wreck, excavated between 2005 and 2011 by an INA team directed by Deborah Carlson and Donny Hamilton, was transporting a cargo of eight monumental marble column drums and a Doric capital, architectural blocks, and various ceramics.

During five seasons of excavation on the column wreck, a number of intrusive ceramics were recovered that clearly postdate the column wreck. This report is a short summary of my 2017 Master’s thesis at Texas A&M University, in which I place the intrusive ceramics in broader contexts—of trade networks, historical events, and settlement patterns. By contextualizing the intrusive ceramics recovered at Kızılburun, this otherwise non-diagnostic material can regain some informative power, providing evidence for early Byzantine trade mechanisms.

Transport amphorae, finewares, and coarsewares comprise the intrusive material. Many of the transport amphorae, particularly those located on or near the wreck itself, belong to a type known as Late Roman 1 (LR 1). Early LR 1 styles appear in the 3rd century A.D., but the style seen at Kızılburun dates to the 6th century, the pinnacle of this amphora type’s production. This type is found across the Mediterranean, as well as in the Black Sea, the Levant, and North Africa. Production centers have been identified in southern Turkey, Cyprus, and possibly Roman Syria.

Other intrusive transport amphorae from Kızılburun include the globular Late Roman 2 (LR 2) type, also seen in large quantities on the 7th-century shipwreck at Yassıada; the Late Roman 5 or “bag-shaped” type, produced in the Levant; and the small, tapering spatheion (meaning “sword”) type. All transport amphorae recovered appear to date to the early Byzantine period, ranging from the late 5th through the 7th century A.D. These ceramics—particularly the transport amphorae—tell of agriculturally rich regions taxed to support activity, primarily of a military nature, along unstable frontiers as what was once a unified Mediterranean fell to external and internal pressures.

Only a small number of coarseware ceramics other than amphorae were found. These consist of diverse forms, ranging from a Roman baking pan with a parallel in the Athenian Agora dating to ca. 250 A.D., to a mostly intact amphoriskos from the early Byzantine period. The most intriguing fine ware object is a small intact moldmade Knidian reliefware amphoriskos, a form popular from A.D. 70 to 250, featuring two Dionysian scenes.

Being intrusive material, it is difficult to connect these ceramics to any one shipwreck, and the possibility that they were jettisoned or otherwise discarded from a passing ship further complicates contextualization. However, the two 6th-

How extraneous artifacts spanning five centuries provide evidence of Mediterranean trade

BY PHIL L. WATSON

0 cm 5 cm
...two regions - the Balkans and North Africa - can be tentatively proposed as possible long-distance destinations for the two early Byzantine ships that came to grief at Kızılburun. Traveling northward, prevailing northerly winds (e.g., meltemi) from landmasses in the Aegean and Asia Minor favor southerly travel, while currents running in a counter-clockwise direction facilitate travel in a northerly direction. To travel north, ship captains could hug the coast, frequently engaging in "port-hopping," or cabotage. The reasons for this relate as much to finance as to navigation, as the Roman state provided subsidies for state business, but ship owners could carry (and sell) private cargoes simultaneously. In the 6th century A.D., fortunes could be made by taking advantage of state subsidies to engage in long-distance trade while trading additional cargo at various ports en route to the final destination.

Roughly 600 years of trade are encapsulated in this impromptu ceramic assemblage. The catalyst of the trade represented may be that of Byzantine imperial military supply to the Balkans. The assemblage may represent, along with the shipwreck of architectural elements, a 6th-century building program, possibly in North Africa. My forthcoming thesis focuses on the historical developments that may have prompted this trade, the trade routes involved, and further contextualization of these ceramics.
Every autumn, INA’s Board of Directors comes together to learn about the results of ongoing INA surveys, excavations, research, and publications. The 2016 meeting took place in Santa Monica, California, and the warm weather brought near record attendance. Highlights of our three-day meeting included a guided tour of the J. Paul Getty Villa in Malibu, a White House luncheon under the wings of Air Force One at the stunning Ronald Reagan Presidential Library, a keynote lecture by John Papadopoulos of the Cotsen Institute at UCLA, and six fantastic speakers delivering illustrated project presentations at the lovely Ocean Institute in Dana Point. Our sincere thanks to all those who attended and continue to make INA a vibrant and influential leader in the field of nautical archaeology!
13. Robyn Woodward practices her Nancy Reagan impersonation
14. Charlie Steinmetz celebrates his own historic election
15. Danielle Feeney (center) with daughters Juliette Timsit (left) and Camileen Feeney (right)
16. Debbie Carlson next to a section of the Berlin Wall at the Reagan Library
17. Allan Campbell takes the helm of Spirit of Dana Point
18. INA Chairman Bob Walker welcomes the board
The Origins of the Lost Fleet of the Mongol Empire

Randall J. Sasaki tackles a difficult task in his book, The Origins of the Lost Fleet of the Mongol Empire, by supplementing a critical moment in history, mythologized in Japanese tradition. The Mongol empire, under the leadership of Khubilai Khan, launched an invasion of Japan in 1281 CE. After a brief incursion into Japanese territory, the Mongols retreated to their ships for reasons that are still unclear. Scholars disagree, with various theories about the reasons for their retreat. The retreat of the Mongols has been a contested topic in East Asian scholarship. The Mongol empire was among the largest, and its soldiers were equipped with advanced weaponry and innovative warfare strategies. The Mongol navy was organized to defeat the navy of the Southern Song Dynasty, which was then incorporated into the Empire in 1279 CE. After a brief incursion into Japanese territory, the Mongols retreated to their ships for reasons that are still unclear. Scholars disagree, with various theories about the reasons for their retreat. The retreat of the Mongols has been a contested topic in East Asian scholarship.

In the concluding chapter, Sasaki reiterates the chapters as they occurred, rather than cross-referencing the evidence to provide a more complex synthesis. The analysis presented in this book is well-referenced and thorough, as are the photographs and drawings. The photographs are not ideal, the drawings are a great resource for understanding the nuances in joinery. The book can be used both as a reference for maritime scholars and an entry-point for those curious about medieval East Asian seafaring.
A legendary oil man, INA director Lew Ward was founder and chairman of Ward Petroleum Corporation in Enid, Oklahoma. He was not only a highly successful entrepreneur and committed INA director, but a delight to be with. I was thrilled when he and his wife Myra visited INA’s Uluburun excavation in Turkey. My visits with them in Enid were as memorable. Once, when Lew had me speak to the local Rotary Club, he also took me a short distance away to a drilling rig, where we were met by his son, Bill, who had also visited our projects in Turkey. Now they gave me the opportunity to experience actual drilling. Although for four decades I’ve seen myriad working pumps nodding slowly in Texas oilfields, being on a rig, close to the roughnecks, was as fascinating to me as I hope was their experience of the diving operation 165 feet below Vïnizam at Uluburun. That evening Lew and I talked about everything from the controversial search for oil below Siljan Crater in Sweden to his offer to arrange for me to meet Enid’s operatic soprano Leona Mitchell, who sang for almost twenty years at the Metropolitan Opera. On another evening in Enid Lew asked me to show slides of INA projects to a number of out-of-town colleagues, hoping to encourage some to share his interest in INA. It was the most unusual ending for any after-dinner talk I’ve ever given when an announcement of approaching severe weather led to an aborted lecture and instant mad dashes by Lew’s guests to their nearby private jets to beat the imminent storm!

Lew hoped that his daughter, California vintner Cassidy, might follow him on the INA board of directors. I had met Cassidy when she, too, came to experience our work in Turkey and am delighted to learn that she was elected to the board at last year’s annual meeting. Bill is now CEO of Ward Petroleum. We are glad that Ward family traditions continue, as we greatly miss Lew’s friendship, wisdom, and modesty.

-GEORGE F. BASS

Lew Ward and I met for the first time in the late ’60s when I was working at Pepperdine University in Los Angeles, California. Lew received his B.S. Degree in Petroleum Engineering from the University of Oklahoma and served in many programs in his state and through the nation in the oil and gas industry. He was serving on the President’s Council and very interested in “The Freedom Forum,” which brought speakers from across the nation to the campus.

In 1968 I began working at Texas A&M University and our friendship was renewed when I started helping Dr. Bass with INA fundraising. Lew was introduced to Dr. Bass by Jack Kelley, one of INA’s founding members from Tulsa, Oklahoma. Lew made at least three trips to Turkey and was a very generous supporter. It is an honor to have his daughter Cassidy now serving on the INA Board to carry on the legacy of her father.

He was a wonderfully positive man to be around and always seemed to bring out the best in all he met. I will always remember his sense of humor. Lew Ward always made a difference in anything he was involved in.

-ROBERT WALKER
YAAKOV "YAK" KAHANO (1947-2016)

TRIBUTE

Yak is perhaps best known to the archaeological community for his numerous and diverse contributions to our understanding of Mediterranean hull construction in ancient and medieval times. He ‘cut his teeth’ during the excavation of the fifth-century BC Ma’agan Mikael shipwreck, arriving as a participant in the second season of excavation, in 1989. Yak went on to conserve and reconstruct the hull, which remains to date the only ancient vessel from the Israeli Mediterranean coast to have been completely excavated, conserved and reconstructed. The hull is on permanent exhibition in an annex of the Hecht Museum on the Haifa University campus. With the late Dr. Elisha Linder, Yak co-edited the shipwreck’s two volume final excavation report, entitled The Ma’agan Mikael Ship: The Discovery of a 2400-Year-Old Merchantman (published in 2003 and 2004), much of which Yak also authored. The conservation, research and rapid publication of the meticulous final report were exemplary.

It was my pleasure to collaborate with Yak in the field during our work at Tan- tura Lagoon (1994-1996), a joint INA- University of Haifa survey in which he served as co-director. Our work revealed seven wrecks (Tantura A-G), all but one dating from late antiquity to the medieval period. Yak took on the responsibility of recording the ships’ hulls. During that project we studied two shipwrecks in situ and examined small sections of the others. Following the survey, Yak returned with his students and excavated several of the Tantura shipwrecks, using them as Ph.D. dissertation topics for his students, thus producing a new generation of Israeli hull reconstructors. Yak had a special relationship with the late Richard “Dick” Steffy, a TAMU Professor, whom Yak considered a mentor.

During the final years of his life, beginning in 2014, Yak’s research focused on the construction of a 1:1 replica of the Ma’agan Mikael shipwreck built with pegged mortise-and-tenon construction. The replica saw water under its hull in the last months prior to Yak’s passing. If I had to describe Yak in one word it would be tachles, a Yiddish term that has entered the Israeli slang lexicon with the meaning of ‘getting to the essence,’ or ‘getting to the point.’ Yak always focused on the result and moving forward. He also had a wry sense of humor: one of our last discussions revolved around the tongue-in-cheek question of whether to christen the Ma’agan Mikael replica with an amphora. Yak is survived by his wife, a sister, three children and nine grandchildren. We will miss him.

-SHELLEY WACHSMANN

I first heard of Yak in 1986 from Richard “Dick” Steffy upon his return from Israel after studying the newly excavated 1st century B.C./A.D. Kinneret Boat at the invitation of Shelley Wachsmann. I was a student in the Nautical Archaeology Program at Texas A&M University and very keen on ancient ship construction. Dick divulged the unusual construction details he had observed on the boat along with several excellent volunteer students he had met there. Yak had stood out for Dick as being curious, sharp, and asking many questions on ship building.

Circumstances, however, made it possible for us to meet in 1993 during the 5th TROPIS Conference. We discussed ancient ship construction, a rather lonely subject with only a few followers back then, but one both of us were passionate about. That was the beginning of our long friendship spanning more than two decades, fating tenaciously on the waters of distance and time. Henceforth, I looked forward to seeing Yak at international meetings to catch up with his shipwreck excavations in Israel and to discuss his research on ship construction. I was most touched when he showed up in Bodrum, just to find out how I was doing after a traffic accident I had had several months earlier; a true friend he was indeed!

Yak joined the excavation team of the Ma’agan Mikael shipwreck in 1989, and thereafter spent a good portion of his nautical life reconstructing this remarkable well-preserved 2400-year-old ship. His doctoral dissertation investigated the ship’s unusual method of hull assembly, and the exemplary two-volume final publication of the shipwreck he co-authored with Elisha Linder is one of the most detailed, thorough, and extensive ancient shipwreck reports ever written. Now fully assembled and on public display for all to see, the Ma’agan Mikael ship stands as a monument to Yak’s passion, dedication, knowledge, and love for this vessel.

The final stage of any ship reconstructor’s dream is recreating a full-scale replica of the ship. Yak and one of his students had already embarked on this final stage of hull study. I very much looked forward to its completion in order to examine specific construction details but much more so to sail on it with Yak to observe its handling and performance. Sadly, Yak passed away before we could sail the wine dark sea on his beloved ship, but not before witnessing its successful launching to great fanfare.

The ever so curious, enthusiastic, and passionate researcher, Yak Kahanov was the quintessential student of ancient ship construction. My eyes will continue to scour conference halls in search of Yak. I shall miss him dearly.

-CEMAL PULAK
The Institute of Nautical Archaeology and the Nautical Archaeology Program at Texas A&M University

BRINGING HISTORY TO LIGHT
THROUGH THE SCIENCE OF SHIPWRECKS FOR OVER 40 YEARS

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