

THE **INA QUARTERLY**

BRINGING HISTORY TO LIGHT

THROUGH THE SCIENCE OF SHIPWRECKS

STEAMBOATS OF SHELBURNE

2015 FIELD SEASON

AN INTERVIEW WITH
AFFILIATED SCHOLAR
ART COHN



2015 INA BOARD MEETING

HIGHLIGHTS FROM
BURLINGTON, VERMONT



FALL 2015
VOLUME 42, NO. 3

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ON THE COVER: Launched in 1906 for passenger and freight service on inland waterways, the steamboat *Ticonderoga* now resides at the Shelburne Museum in Vermont (A. Campbell). **LEFT:** Jack Kelley was one of INA's earliest supporters.

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 *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

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Printed by
Newman Printing Co., Inc.
Bryan, Texas

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

After every busy summer research season in the Bodrum Research Center (BRC), we typically use the post-season lull to prepare our reports and winter projects at the Bodrum Museum of Underwater Archaeology. However, in late September of 2015 we faced an unexpected challenge – flooding in Bodrum for the first time in decades. The picturesque cobbled street that runs adjacent to the BRC, Saulti Sokak or ‘Underwater Street,’ was most affected when the stone retaining wall collapsed partially, blocking the street and requiring more than a week to clean up.

The retaining wall at INA's equipment storage area (known locally as the “Tin Depot”) also collapsed, blocking the city drain pipes and causing the adjacent carpenter's workshop and storage units to flood. Local authorities were incredibly busy dealing with even more severe damage elsewhere on the peninsula, so it fell upon us to clean up the aftermath.

Our conservation team continued work on various INA projects, including the finewares from the Classical Greek

Tektaş Burnu shipwreck, the bronzes and ceramics from the Late Bronze Age Cape Gelidonya shipwreck, the pilgrim flasks from the Uluburun shipwreck, various artifacts from the Burgaz Harbor excavation, and polyethylene glycol (PEG) treatment of wooden hull remains from Yenikapı in Istanbul.

As always, archaeological work is followed by paperwork, so I have been busy submitting 2015 reports and 2016 applications. We are looking forward to and planning for a joint shipwreck survey with Dokuz Eylül University, which will be the first aboard INA's brand new research vessel, *Virazon II*.

On behalf of the entire staff of INA's BRC, I would like to wish INA Directors, members, and supporters a safe, healthy, and prosperous New Year, and a reminder to pay us a visit whenever you are in Turkey!

Tuba Ekmekçi

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about INA's history

NEWS & EVENTS

Equipment donations, INA Board addition, NAP alumni news

INA BENEFITS FROM NEW AND USED EQUIPMENT

This fall, the INA Archives received two brand new top-quality commercial refrigerators to store hundreds of reels of decades-old archival film. The two units were provided to INA by the College of Liberal Arts at Texas A&M University, and will soon house INA's collection of over 400 cores of polyester motion picture film. This important footage documents INA shipwreck excavations including those at Uluburun and Yassiada, Turkey.

Thanks to College Dean **Pamela Matthews** for helping INA preserve this priceless, irreplaceable footage documenting

some of the earliest scientific achievements in underwater archaeology.

We are also delighted to acknowledge the generosity of **Bioluminescence, Inc., Susan F. Hilton, and William H. Delp II** who donated three high-pressure air compressors and more than fifty 4500 PSI steel air cylinders to outfit INA's mobile dive locker and support INA projects around the globe. Special thanks to Capt. **Mike Ange**, USN, for facilitating the donation and overseeing the safe transport of the equipment from Florida to Texas. Capt.

Ange, who is the new Diving Safety Officer (DSO) of Texas A&M University – Galveston, was helped by **Allison Baldwin**, his

Assistant DSO based at Texas A&M University in College Station. INA researchers everywhere appreciate your efforts to secure this important support for INA fieldwork!

A FAMILY LEGACY CONTINUES

INA's newest Associate Director is **Keith Langworthy**, a Financial Advisor with Morgan Stanley Wealth Management in New Jersey. Keith's father David was an INA Director from 1980 until his death in 1993 and his mother Norma joined the Board until 1996.

Keith and his wife Diane joined us in Burlington, Vermont for the 2015 INA Annual Board Meeting. For more on the



A storage unit full of donated dive equipment



Mike Ange, Kevin Melia-Teevan, and Allison Baldwin moving a compressor



Meg Anderson Hagseth with the new commercial refrigerators

history of family legacies on the INA Board, see Dr. Bass' article in *INA Quarterly* 40.4. For highlights from this year's Board Meeting, see page 18!

NAP FACULTY & ALUMNI NEWS

In August 2015, **C. Wayne Smith**, Associate Professor in the Nautical Archaeology Program (NAP) at Texas A&M University, announced his retirement after 18 years on the faculty. Smith taught courses in nautical archaeology, conservation, and digital photography, served as Director of the Archaeological Preservation Research and the Wilder Digital Imaging Laboratories, and was an INA Faculty Fellow.

NAP alumnus and INA Research Associate **Piotr Bojakowski** (Ph.D. 2011)

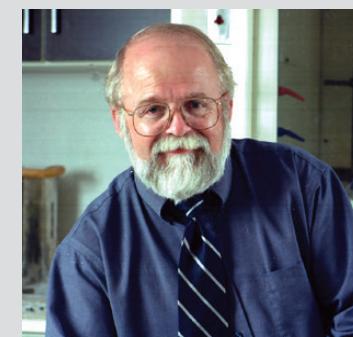
was named Postdoctoral Fellow at Defense POW/MIA Accounting Agency based at Hickam Air Force Base in Hawaii.

NAP alumna and INA Research Associate **Lilia Campana** (Ph.D. 2014) has been hired as an Instructional Assistant Professor in the Department of Visualization at Texas A&M University, where she is teaching undergraduate courses in Art History.

NAP alumna **Kimberly Rash Kenyon** (M.A. 2012) was recently named Field Director of the *Queen Anne's Revenge* (QAR) Project in Greenville, North Carolina. Kenyon, who served as Interim Head Conservator of INA's Bodrum Research Center in Turkey from 2009-11, has been working as a Conservator for the QAR Project since 2012.



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C. Wayne Smith



Keith Langworthy



Lilia Campana



Kimberly Rash Kenyon

PROFILE:

ART COHN

Vermont's powerful advocate for the preservation of underwater cultural heritage and the management of shipwrecks

Arthur "Art" Cohn was born on the Hudson River in Nyack, New York but grew up in Queens in a housing project built for returning WWII veterans. He graduated from the University of Cincinnati in 1971 with a B.A. in Sociology. Upon graduation he discovered rural Vermont and began graduate studies at Boston College Law School. As Art approached his law school graduation, he enrolled in a NAUI diving instructor program and in June 1974 received both a law degree and a NAUI Instructor certification. He divided his time working as a criminal lawyer and a professional diver, but in the end, he chose the diver's life with the ability to work close to nature. As a professional diver he has enjoyed working in a wide variety of environments including the Caribbean, the Azores, Oklahoma, the Hudson River and the Great Lakes. In 1975 Art established Northern Divers, a full-service dive business in Vermont, and quickly became a powerful advocate for the preservation of underwater cultural heritage. Having partnered with INA Vice President Kevin Crisman for over 35 years, we asked Art to discuss his strategies for spreading the word about shipwreck management in Vermont.



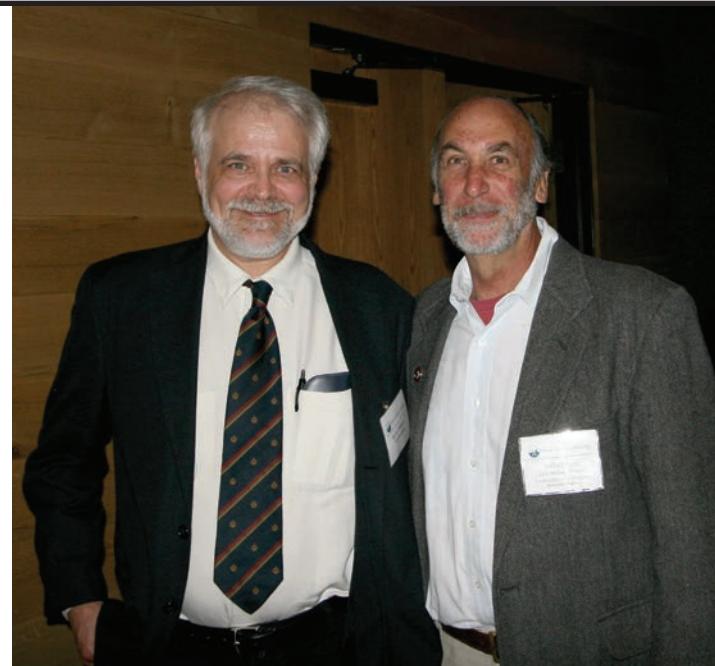
PHOTO: THIS PAGE: LAKE CHAMPLAIN MARITIME MUSEUM

How does your experience in maritime law help your advocacy for the Lake Champlain Underwater Historic Preserve?

In 1978, while working on Lake Champlain, I was hired by the State of Vermont to work with a team of Canadian archaeologists to better understand the nature, value and distinction between modern and historic shipwrecks. This led to the State of Vermont becoming one of the first states to create a diver-access Underwater Historic Preserve program.

This also led me to the conviction that salvage law as applied to ancient shipwrecks was all wrong. I went on to lobby and testify for the Abandoned Shipwreck Act of 1987 to expand the protections afforded to historic "submerged cultural resources." Since that time I have remained a passionate activist in the development of public policy strategies to protect, preserve and study the rich collection of human heritage that shipwrecks represent.

In 2000 and 2001, I was appointed to the State Department Delegation meeting at UNESCO in Paris to draft a new convention for the Protection of Underwater Cultural Heritage, which was one of the greatest experiences of my professional life.



Tell us how you started to work with INA Vice President Dr. Kevin Crisman?

Vermont was one of the early states to see the need of a framework for a shipwreck management system. In 1979, The Vermont Division for Historic Preservation and the newly organized Champlain Maritime Society (CMS) brought together a dedicated group of lake historians, mariners and divers to study the lake's history and shipwrecks. The group annually planned and implemented shipwreck study projects. The CMS first permitted field-study on the steamboat *Phoenix* (1815) and it was in this 1980 project that Kevin Crisman, as an undergraduate archaeology student at the University of Vermont, and I first met and began a research partnership that has lasted more than 35 years.

The *Phoenix* study was quickly followed by the excavation and study of the Brit-

ish sloop *Boscawen* (1759), the study of four War of 1812 shipwrecks (the U.S. Brig *Eagle* being the subject of Kevin's Master's thesis) the discovery and study of the sailing-canal boat *General Butler* (1862), the Revolutionary War "Great Bridge" between Fort Ticonderoga and Mount Independence and a survey in Arnold's Bay, VT and several other projects.

The work proved so successful that Kevin soon committed himself to becoming a nautical archaeologist. I found myself contemplating the best way to connect the public to their shipwreck legacy, which led to the founding of the Lake Champlain Maritime Museum (LCMM) as a place where this could happen.

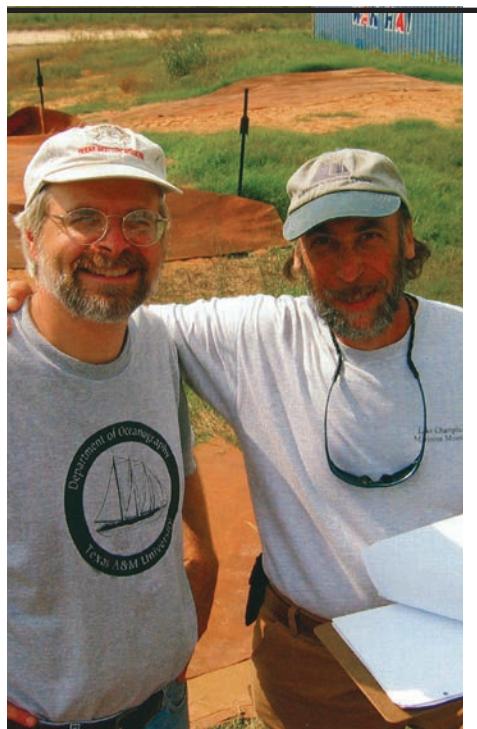
With Kevin on a path to his Ph.D., I began to spend more and more time working on growing the museum. Along the way, Kevin and I enjoyed continued summer partnerships excavating and publishing studies about the lone surviving example of a horse-powered ferry, the War of 1812 US brig *Jefferson* at Sackets Harbor in Lake Ontario, the canal schooner *OJ Walker* (1862), the steamboat *Champlain* (1868), and the Stove Boat (ca. 1840) as well as a number of other minor studies available at the Museum.

What is currently the biggest threat to shipwrecks in Lake Champlain?

In the early 90s, a new and dark cloud appeared over the Great Lakes in the form of the invasive zebra mussel. As a response to this threat, in 1996, with the cooperation and funding of many research partners, we began a ten-year whole Lake Survey, an ambitious effort to survey the entire bottom of Lake Champlain to locate and document shipwreck sites before damage from zebra mussels made this more difficult. In the process, our team located more than 80 previously-unknown shipwrecks, including the gunboat *Spitfire*.

Why should people care about the Revolutionary War Gunboat *Spitfire*?

The *Spitfire*, like the *Philadelphia*, was one of eight identical gunboats in Benedict Arnold's fleet and sank during a dramatic night-time escape during the Battle of Valcour Island in October, 1776. The *Spitfire* was discovered upright on her keel, bow cannon still on its carriage and in firing position and her mast standing more than 50 feet up toward the surface. The *Spitfire* is a tangible connection to the founding of our nation and of sacred value. Its pres-



ervation in the face of certain impact by zebra mussels is a call to action.

Tell *INA Quarterly* readers about the Lake Champlain Maritime Museum. Focusing on the mission, we embarked on a creative effort to connect the public to their shipwrecks. In 1988, we initiated a replica-building program with *Perseverance*, a 36-foot Colonial-era bateau. Surprised at the power of the project to capture public attention, we followed this with a more ambitious project, in partnership with the Smithsonian Institution, to build a clone of the Revolutionary War-era gunboat *Philadelphia*, which had been recovered in 1935 and was now part of their collection. After a three-year building-effort, we launched the *Philadelphia II* in 1991. After two years of outreach around the lake and Quebec, it became a key exhibition at the Museum.

I became convinced that the vehicle of an archaeologically-inspired replica could entertain and teach the public about history and shipwrecks. In 2000 LCMM embarked on our most ambitious project yet, with a proposal to build an 88-foot long replica of the *General Butler* and the *O.J. Walker*, two fully documented 1862-class canal schooners on the bottom of Burlington Harbor. The four-year construction took place within $\frac{1}{2}$ mile of the originals and the *Lois McClure* was launched to much enthusiasm and fanfare in 2004. As of this writing, we have traveled the region's waterways for more than a decade, visiting over 200 ports-of-call, connecting more than 300,000 people to the history and archaeology of the region.

One unintended but wonderful consequence of this project has been the opportunity to fully restore the 1964 34-foot wooden tugboat *CL Churchill* that was gifted to us by the Shelburne Shipyard. The *Churchill* has been indispensable for moving the *Lois McClure*

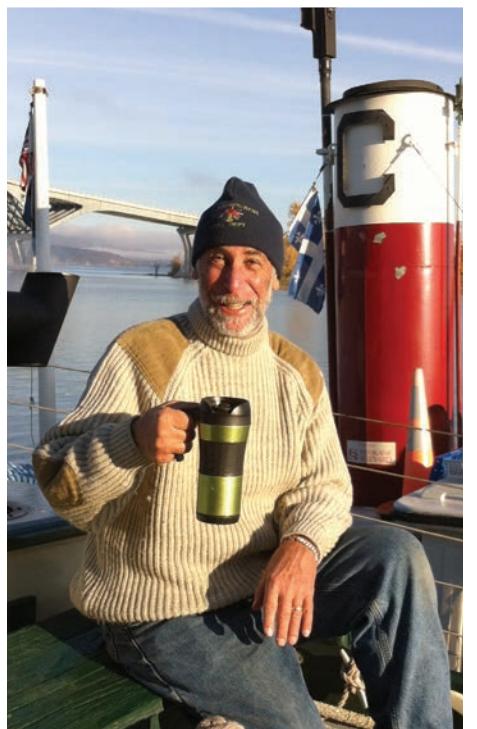
through her tour schedule on Lake Champlain and the interconnected waterways. For the past decade I have lived and worked aboard the tugboat as we have traveled the Hudson, St. Lawrence, Ottawa, and Richelieu Rivers and New York and Canadian Canals at five knots. What a privilege.

What did you say to yourself when *Lois McClure* was set to embark upon its first cruise?

Keep your eyes on the mission; "to preserve and share the history and archaeology of the region." As I gave the signal for house-mover Norm Messier to begin backing the freshly completed 88-foot long wooden replica of a 19th-century schooner into the waters of Lake Champlain at Burlington, I remember all the doubts. Would she float? How would she perform as a watercraft? More importantly, how would she perform as an attraction designed to meet the mission? Would the public warm to a blue-collar, cargo-carrier that didn't have cannons or treasure? That took place on July 3, 2004 and I'm pleased to report that all the doubts have been resolved and I can honestly look back over the past 12 years and say that the canal schooner replica *Lois McClure* has proved to be the most effective mission-centered project of my career.

If you could tell the world one thing about nautical archaeology, what would it be?

Our generation will determine, by the values it assigns and the law and public policy it develops, what underwater cultural heritage will survive for future generations. Technological advances will continue to expand access to vulnerable sites, and INA's involvement is critical to guard against exploitation, while continuing the important work of learning from, preserving and sharing these underwater cultural sites with the public.



This page, from top: Kevin Crisman and Art working together to document the steamboat *Heroine* in the Red River, Oklahoma; Captain Art in 2015 aboard the replica schooner *Lois McClure* after the ship returned from a major dry-dock refit. **Opposite page:** The 1776 gunboat *Spitfire* "as found" on June 6, 1997. Painting by marine artist Ernie Haas based on film and still images gathered by ROV.

PHOTO: THIS PAGE, BOTTOM: CHRIS MCCLAIN; OPPOSITE PAGE: LAKE CHAMPLAIN MARITIME MUSEUM





SHELBURNE SHIPYARD STEAMBOAT GRAVEYARD

The identification of four 19th-century Lake Champlain steamboats in Shelburne, Vermont

BY CAROLYN KENNEDY

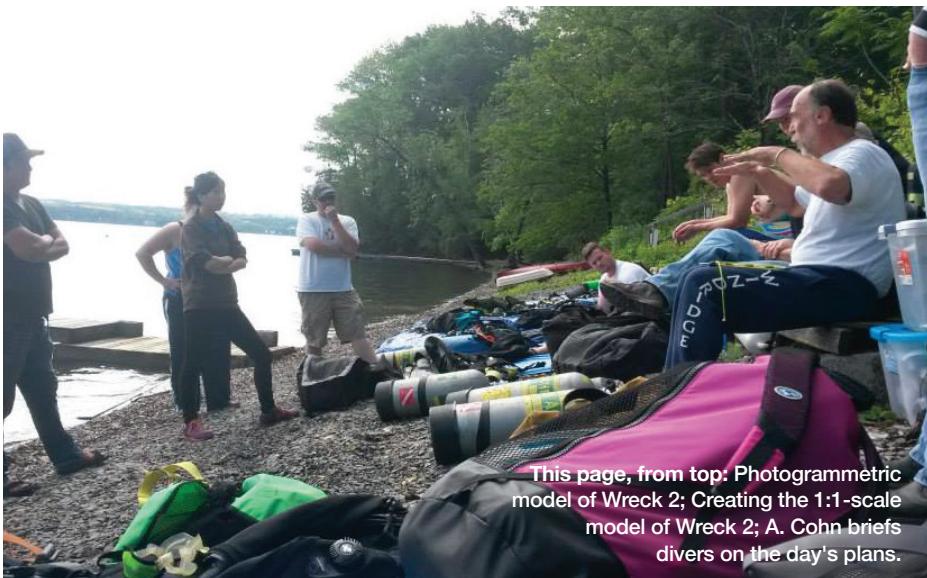
Enormous engine bed timbers on Wreck 4 (*Whitehall*) challenged the photogrammetry process in the low visibility of Lake Champlain.

PHOTO: K. CRISMAN

In 2014, ten researchers representing and supported by both INA and the Nautical Archaeology Program (NAP) at Texas A&M University (TAMU) began archaeological work at an old shipyard in Lake Champlain. This year, a field school consisting of 12 undergraduate and graduate students from TAMU returned to Shelburne, VT, to continue the archaeological recording under the direction of NAP Professor and INA Vice President Kevin Crisman and myself. Alongside the students, Kevin and I worked closely with the Lake Champlain Maritime Museum (LCMM) Archaeological Director,

Christopher Sabick (also a NAP alumnus), and Director Emeritus, Arthur Cohn (also an INA Research Associate profiled in this issue), who served as our divemaster. Ron Adams also returned to assist with divemaster duties in 2015 and we had plenty of help from friends and volunteers including property owners Mark Brooks and Charlie Tompkins.

Since the 1820s Shelburne Shipyard has been home to several steamboat companies including the Champlain Transportation Company (CTC). By 1833 the CTC bought all property from its competitors, which included the shipyard in Shelburne Bay. The



This page, from top: Photogrammetric model of Wreck 2; Creating the 1:1-scale model of Wreck 2; A. Cohn briefs divers on the day's plans.

shipyard was home to the construction of new steamers, the repair of working boats, and a dumping ground for condemned vessels. Since wooden boats often lasted fewer than 15 years on the lake, their hulls were often stripped of valuable machinery and fittings before their owners left the wooden timbers to rot in the harbor. The remains of these steamboats retain no engine or boiler parts, but their wooden structural components are well-preserved in the cold, fresh water of Lake Champlain. Their deposition in this sheltered harbor offers archaeologists an easily accessible, small site with an abundance of ship timbers to examine.

In 2013, a satellite image of Shelburne Shipyard revealed four vessels sunk in shallow water in an area of approximately 47,360 ft² (1.08 acres). When we first examined the wrecks in person in June 2014, we identified the hulls as steamboats due to the large engine bed timbers found on all four. Engine bed timbers are heavy, longitudinal timbers on which the engine machinery was anchored. By incorporating these long, structurally sound timbers, shipwrights ensured the engine machinery would be securely fastened to the hull and also that the weight of the engine and boilers would be distributed along the length of the vessel instead of centered amidships, causing potential sagging.

Our first season on site revealed that these timbers, along with other major structural components, varied greatly in shape and design between the four hulls. Historical research paired with archaeological data led us to believe that the four wrecks were *A. Williams* (1870), *Winooski* (1832), *Burlington* (1837) and *Whitehall* (1838), labeled Wrecks 1-4, respectively. Wrecks 3 and 4 (*Burlington* and *Whitehall*) shared the most similarities. They were both very large (158 ft. and 214 ft.), had similar framing patterns and engine bed timber placement and construction. The framing pattern of Wreck 2 was the most different, with heavy, large, frames that were square in section and spaced much more closely than Wrecks 1, 3 and 4. Wreck 1 had light framing, similar to Wrecks 3 and 4, though

PHOTOS : THIS PAGE, FROM TOP: D. BISHOP, A. PASSEN; OPPOSITE PAGE : K. YAMAFUNE



The 2015 field school team (top L-R) R. Adams, C. Kennedy, K. Melia-Teevan, G. Tsai, D. Bishop, (middle L-R) M. Deckinga, R. Matheny, M. Barthule, S. Koenig, K. Crisman, D. Billman, J. Belisle, A. Cohn, (bottom L-R) K. Yamafune, C. Sabick, D. Israel-Meyer, L. Carpenter, T. Ehlers, C. Miller, A. Passen.

the ship was much smaller overall. It also contained six pairs of longitudinal bed timbers versus the three pairs found on Wrecks 3 and 4.

It was observed soon after the 2014 field season that the preliminary site plan for Wreck 2 closely resembled the site plan of *Phoenix I* (1815), studied as a doctoral dissertation by NAP alumnus George Schwarz in 2009-2010. The similarities between the two wrecks apparently built 17 years apart struck us as odd, considering Wrecks 2, 3 and 4, all built within one decade, were so different. For that reason, I selected Wreck 2 as the focus of our 2015 field school.

2015 DISCOVERIES

Work included measuring and drawing cross sections of Wreck 2. The cross sections revealed a fact that was overlooked in 2014: the beam of Wreck 2 was over 26 ft. This did not match *Winooski*'s documented 20.5-ft. beam. Our initial identification was therefore proven incorrect and Wreck 2 was, once again, a mystery. Even though we were certain Wreck 2's general construction was older in style than the other three wrecks, according to our historical sources no other steamboats built prior to *Burlington* seemed to fit. Though we continued the recording process throughout the month of June, my plan for the rest of the summer was to determine the

identity of Wreck 2. I was lucky enough to have access to a collection of documents gathered by A. Peter Barranco, longtime friend and affiliate of the LCMM.

After nearly a month of perusing historical documents related to Lake Champlain, I stumbled across the steamboat enrollment papers. Much to my surprise, I discovered that one steamboat, whose final resting place was unknown, was actually 7 ft. shorter than recorded in Ogden Ross' *Lake Champlain Steamboats 1809-1930*, the primary source I had been using for shipwreck identification. The steamer was *Phoenix II*, built to replace *Phoenix I* after the latter sank in 1819 due to fire. According to the enrollment papers, *Phoenix II* was 143 ft. long rather than 150 ft. long, with a 27 ft.-beam. This placed *Phoenix II* within the range of plausible measurements for the 133 ft.-long wreck, since Wreck 2 was missing several feet forward of the apron, possibly accounting for the disparity. A similar inconsistency shows that the recorded length of *Phoenix I* was 146 ft. while the length of the actual vessel was 133 ft. Furthermore, *Phoenix I*'s remains were also 133 ft. long; however the historical length of the steamer was 146 ft. Not only were the sizes of both wrecks comparable, the resemblance in the site plans suddenly made sense. Ross states that the Lake Champlain Steamboat Company (which built *Phoenix I*

and *Phoenix II*) "apparently determined that the steamboat *Phoenix* [II] should resemble its self-perpetuating mythological predecessor in more than name only." We have since noted minor differences in the construction of the two vessels, but this could easily be explained by five years of advancement in design. Though we may never know for sure what steamer Wreck 2 represents, *Phoenix II* is currently our most educated guess.

The work on Wreck 2 was not restricted to recording cross sections. Since this field season began one week earlier than the previous year, we were fortunate to arrive



before the lake vegetation obscured many of the wreck timbers. Our first few days on site granted us the best visibility we had throughout the entire month. During the orientation dive on our first day we discovered features we had not observed in 2014. These included a section of frames from Wreck 3 (*Burlington*) that were detached and had fallen over between Wrecks 3 and 2. Another feature was nearly 90 ft. of side planking from Wreck 2 that had fallen

their purpose was unknown. At first we believed they could be part of a hogging truss, a feature commonly employed on longer steamboat hulls to prevent drooping of the bow and stern. The structure was deemed too large, however, to be part of a truss. Our second assumption was that it might be the wooden A-frame of Wreck 4's walking-beam engine; however, at only 16 ft. it was too short. Just as we resigned ourselves to another unsolved

exciting aspects of the 2015 field season was our incorporation of photogrammetric recording. Kotaro Yamafune, currently completing his Ph.D. in the Nautical Archaeology Program at TAMU, organized the photogrammetric recording of the four steamboat wrecks. Wreck 2, the target of this year's field work, was recorded with more than 10,000 photographs taken with a Nikon DSLR camera and fish-eye lens. The other three wrecks were also recorded

The 1:1-scale, three-dimensional model of Wreck 2 will serve to supplement and cross-check the measurements our divers made by hand using traditional recording methods for hull timbers.

over from the port side. Since Wreck 2 lists slightly to port, the rocks covering the hull had partially rolled over to the port side, making it more difficult to identify features beneath the rocks and sediment.

On Wreck 4 (*Whitehall*), a triangular feature off the starboard side near the stern was discovered late in the 2014 season. In 2015, one dive team examined this structure in more detail. Despite having a much clearer picture of these timbers,

mystery, steamboat scholar Jean Belisle joined us on site for a few days. Belisle brought with him a collection of scanned Boulton & Watt machinery plans. Among the plans was a drawing of a paddlewheel-box support structure, which was nearly identical to our own drawings of the structure on Wreck 4. Based on a reconstruction made the previous year, the measurements fit almost perfectly with *Whitehall's* paddlewheel box. Finally, one of the most

photogrammetrically using video feed. While the 1:1-scale-constrained models of the three other wrecks are still in the processing phase, the results from Wreck 2 are complete. In order to create a 1:1-scale model, Kotaro had our team measure distances between control points. Over the course of four long dives, two teams of three divers measured over 100 distances between control points. These measurements had to be extremely precise in order

PHOTOS: FROM LEFT, D. BISHOP, K. YAMAFUNE

to create an overall accurate 1:1 model. Our teams were excellent, as the model was correct within 1.2 in. accuracy after the first try! Even Kotaro was surprised to see this level of accuracy on such a large wreck. The 1:1-scale, three-dimensional model of Wreck 2 will serve to supplement and cross-check the measurements our divers made by hand using traditional recording methods for hull timbers. If measurements are missing from the field notes, the 1:1-scale-model can be used to obtain these measurements without having to return to the site.

FUTURE PROJECTS

The troublesome rock piles that prevented recording of the port side frames in 2014 continued to block our progress. Though Dr. Crisman and I successfully recorded two cross sections, one at the midships frame and one just abaft the largest rock pile, these are not sufficient to reconstruct the full shape of the hull. Removing the rocks and ceiling planking in order to record the curves of the cross sections revealed that the buried timbers were in pristine condition. The color of the wood and the sharp corners of the

timbers appeared as if the timbers had been cut yesterday. We have high hopes that removing more of the rock pile will uncover equally well-preserved wood.

Though we were able to dig out almost 2 ft. of silt around the sternpost, creating a large hole between the rudder and the sternpost, the bottoms of both features remain buried. After observing the excellent preservation of the frame timbers buried under the rocks and silt, it seems reasonable that the timbers making up the stern assembly are equally well-preserved.

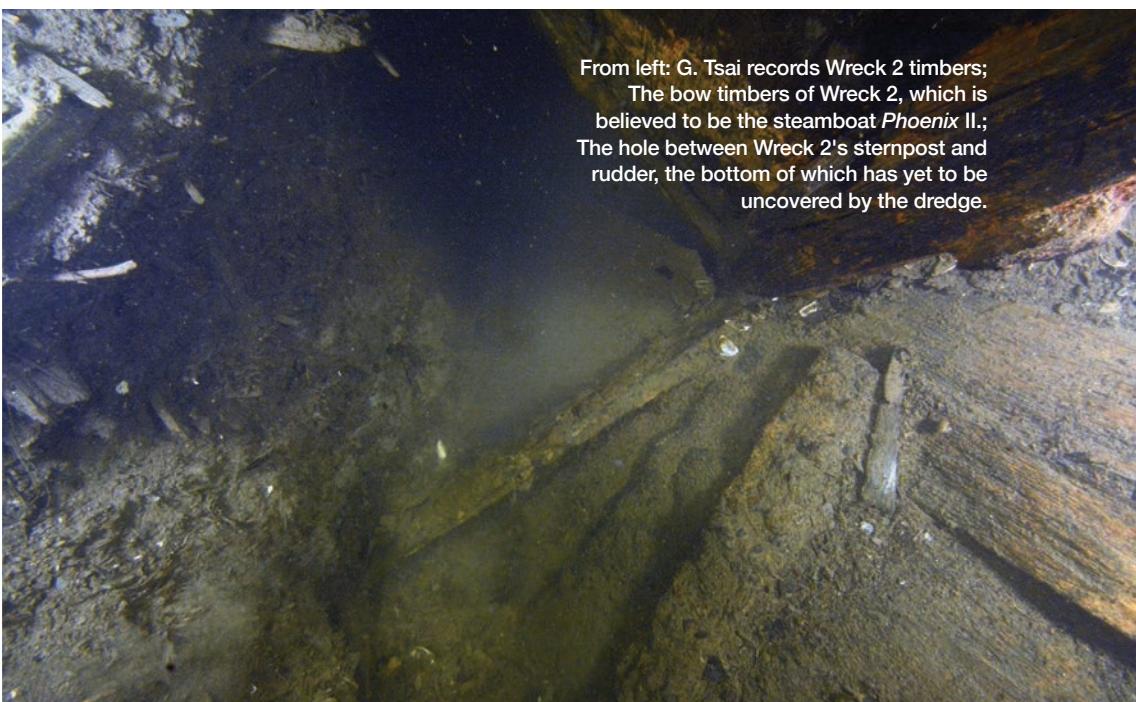
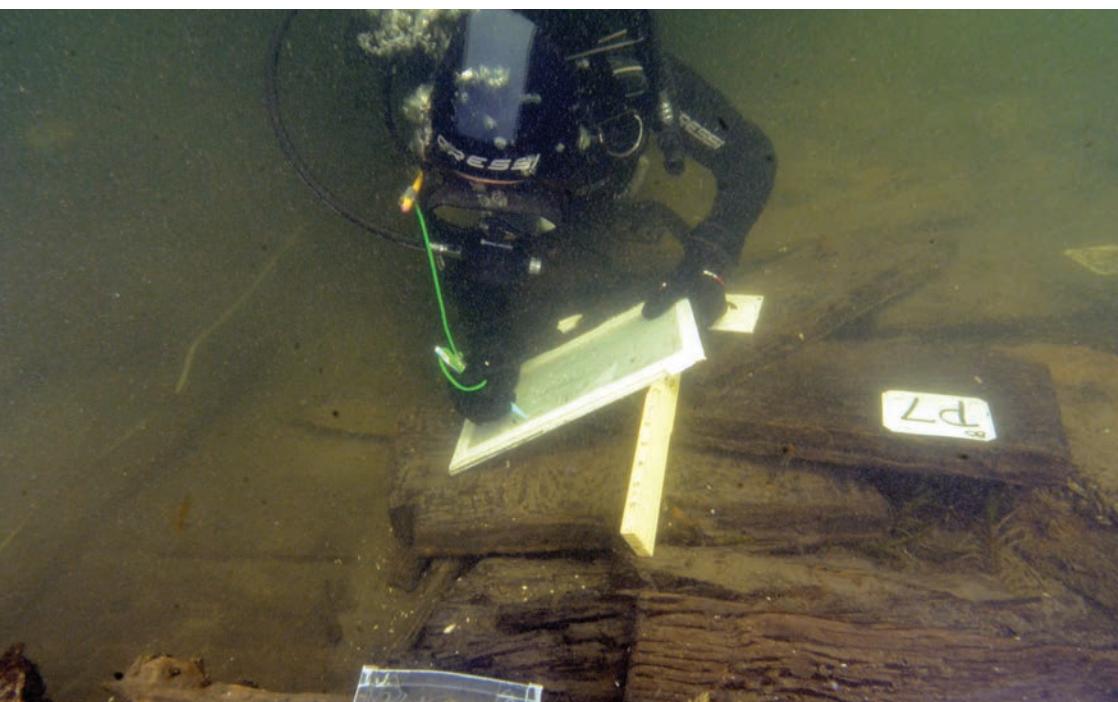
Owing to the bow being not as deeply buried in silt, we were able to hand-fan away a fair amount of the silt that obstructed the starboard forward end of the wreck. The bow assembly proved more complicated than expected. Large blocks were discovered between the garboard planking and the keel on the starboard side, no doubt an effort to strengthen the outer hull. These blocks, or chocks, are not typical features of the bow assembly. Aside from the strange filler blocks, the stem timbers were difficult to interpret due to heavy erosion. The keel traveled forward and was rounded as if beginning the rake, however was cut abruptly

flat on its forward end. What appeared to be the apron was the only surviving upright timber of the bow assembly, and was strangely scarfed to fit over the keel.

It was clear that in between the apron and keel at least one timber was missing or badly damaged, most likely completing the stem. While we have a much clearer understanding of the bow features than we did in 2014, more study is needed. The 2015 field season yielded just enough data for us to conclude that Wreck 2, along with the other three wrecks in Shelburne Shipyard, will aid our understanding of this experimental phase in steamboat construction during the 1920s and 1930s.

The incredibly heavy frame timbers of Wreck 2, paired with the massive chocks found at the bow and quite different from the light timbers found on Wrecks 1, 3, and 4 indicate that priorities in shipbuilding were shifting between the 20s and 30s, an extremely short period of time in the conservative world of ship construction. Dr. Crisman and I are pleased with our progress and are optimistic about returning to Shelburne, Vermont in 2016 to continue our work on Wreck 2 and the other steamboats.

From left: G. Tsai records Wreck 2 timbers; The bow timbers of Wreck 2, which is believed to be the steamboat *Phoenix II*; The hole between Wreck 2's sternpost and rudder, the bottom of which has yet to be uncovered by the dredge.





HIGHLIGHTS OF THE 2015 BOARD MEETING IN VERMONT

INA Directors, Officers, and Researchers gathered in autumnal Vermont to celebrate another successful year

Every autumn, INA's Board of Directors comes together to learn about the results of ongoing INA surveys, excavations, research, and publications. The 2015 meeting took place in mid-October in Burlington, Vermont among the stunning fall foliage. Highlights included an afternoon of illustrated project presenta-

tions at the lovely Essex Resort and Spa, dinner aboard the 19th-century steamboat *Ticonderoga* at the Shelburne Museum, and a guided tour of the Lake Champlain Maritime Museum (LCMM) led by Art Cohn, Founder of LCMM and INA Affiliated Scholar (profiled in this *INA Quarterly* issue!). One of the most

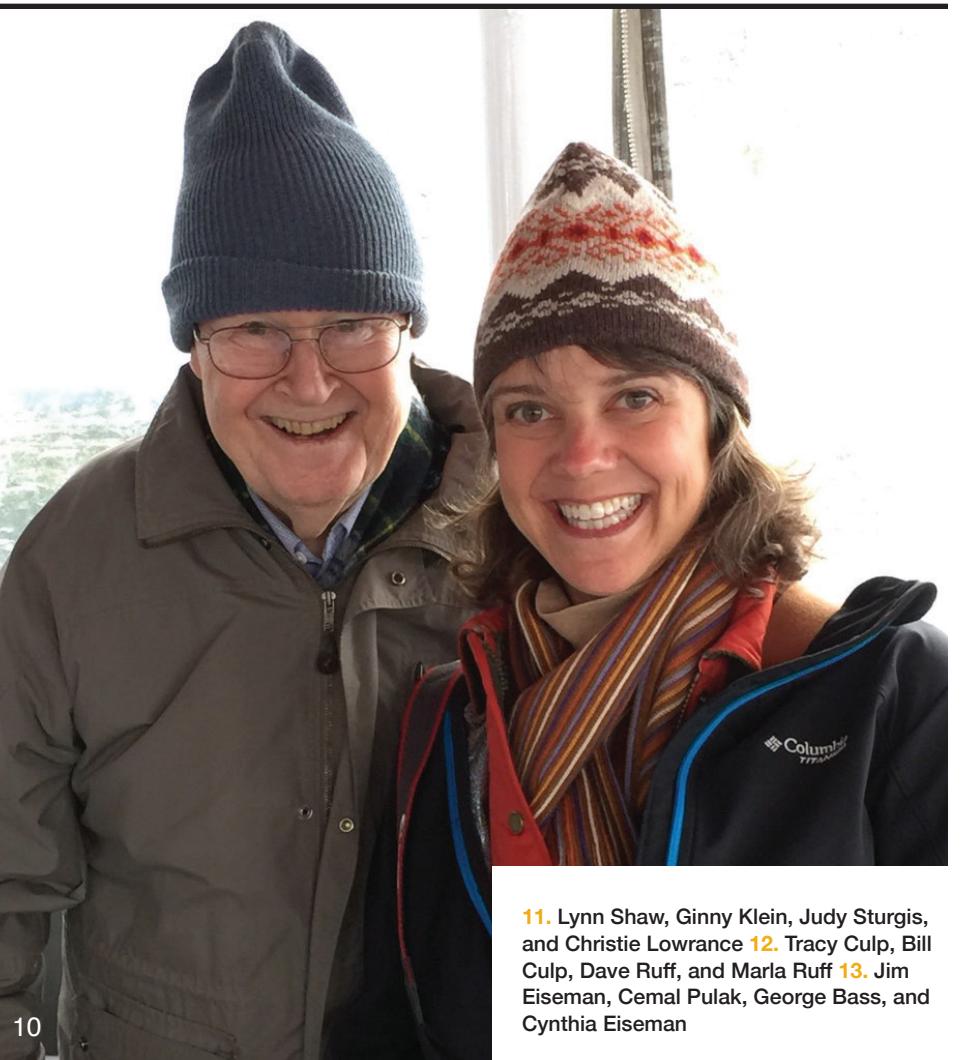
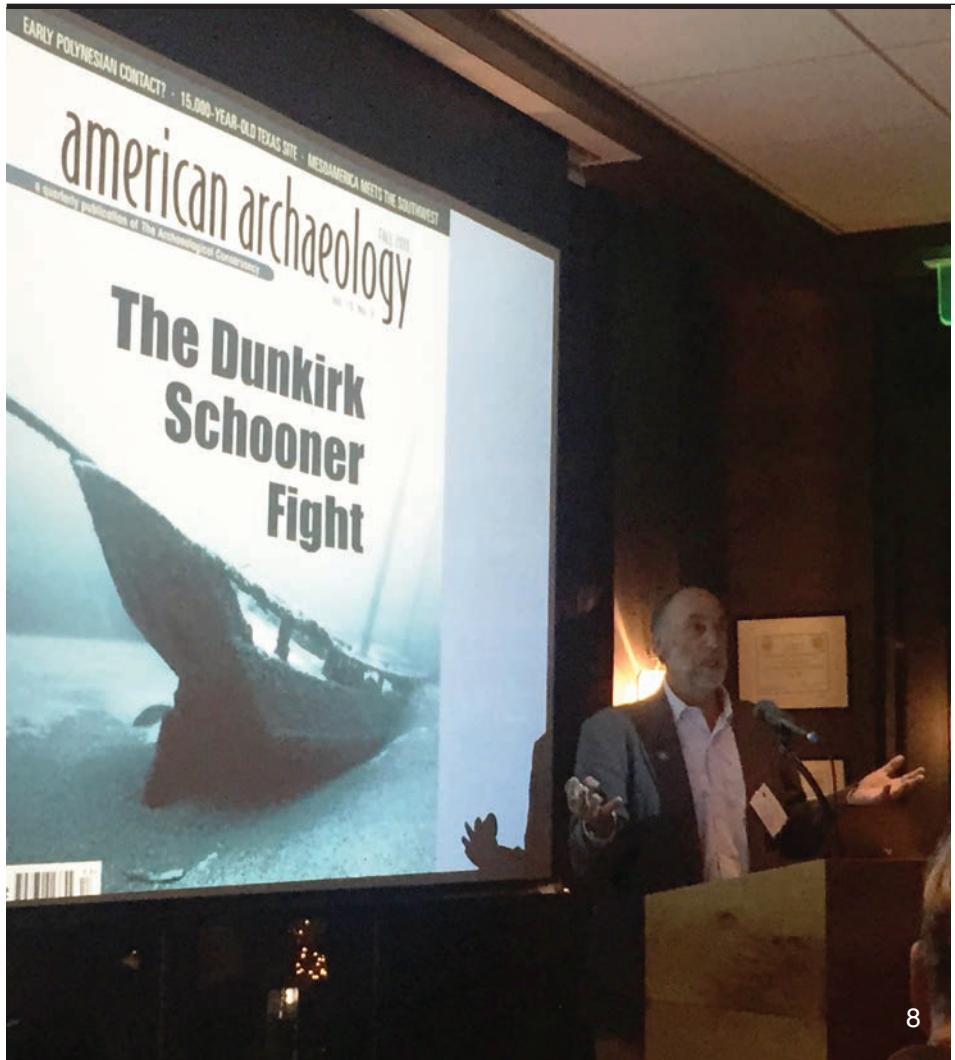
exciting outcomes of the 2015 meeting was that five enthusiastic members of the INA Board donated \$25,000 to support the 2016 Turkish shipwreck survey aboard INA's new research vessel *Virazon II*. Our thanks to all those who attended the Vermont meeting and continue to make INA such a vibrant and dynamite organization!





4. Group photo aboard *Ticonderoga*
5. George and Ann Bass 6. Monica
Trethewey, Ken Trethewey, Orkan
Köyağasioğlu, George Bass, John De
Lapa, and Ann Bass 7. NAP alumnus
Chris Sabick dazzles the Father of
Underwater Archaeology at the Lake
Champlain Maritime Museum





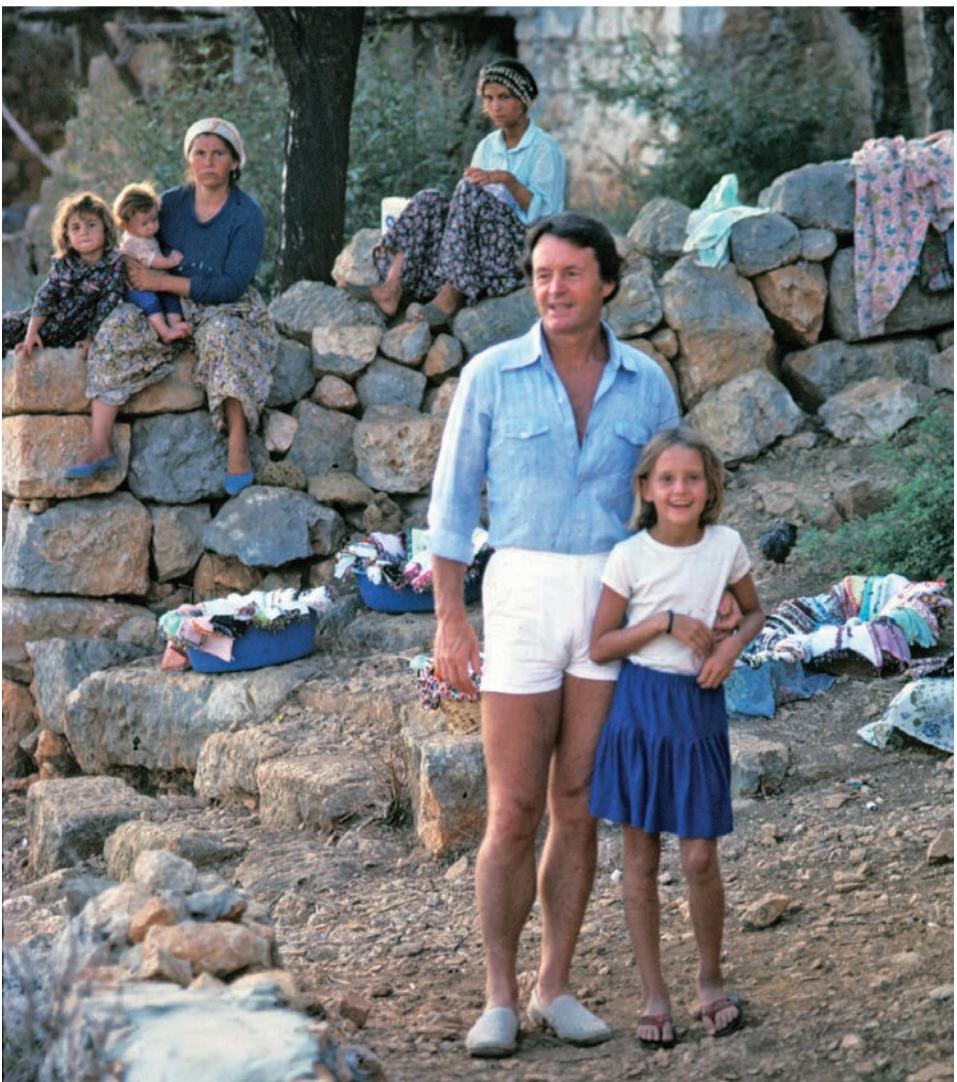
TRIBUTE JACK W. KELLEY (1931-2015)

We bid a fond farewell to one of INA's Founders

Jack Kelley was never one to shy away from a challenge, and his tenacious, entrepreneurial spirit endured from his childhood on a west Texas ranch until his recent passing at the age of 84. After graduating from Oklahoma State University with degrees in Architectural Design and Structural Engineering in 1954, he and his team designed and built 16 iconic skyscrapers across the country. Once Jack retired from the development business, he set his sights on underwater archaeology. Jack Kelley was the first person to make a substantial financial commitment to the newly incorporated American Institute of Nautical Archaeology, making the budding institute's survival possible. A strong advocate for INA, he not only served on the board of directors, but also found other supporters to ensure INA's long-term success. Not one to stay on the sidelines, he became deeply involved in several INA excavations in Turkey, including those at Serçe Limani and Uluburun, singlehandedly putting together the film on the Uluburun shipwreck shown around the world by NOVA. As INA's first major donor and continuing advocate, Jack Kelley was a driving force in bringing INA to where it is today.

Few people have had the profound impact on my life and career as did Jack Kelley. After I resigned a faculty position at the University of Pennsylvania in 1973 to form an institute devoted to the archaeology of ancient ships, I found myself out on a limb. I had almost despaired of success, when I received a phone call from Jack, only an acquaintance at the time, who said how excited he was by the idea. He not only made a financial pledge for three years to help the Institute of Nautical Archaeology get started, but offered to attract other potential donors to help form a board of directors.

Jack did more than work behind the scenes, however. He worked till his hands bled in camp constructions, putting divers half his age to shame. But Jack did so much more. He helped negotiate the terms of affiliation that brought the institute's headquarters to Texas A&M University. Along the way, I received awards and accolades, culminating with the presentation of the National Medal of Science by President George W. Bush at the White House. But my career might well not have turned out as it did without Jack's initial support for an untried new institute. Of course I thought of Jack as one of my very best friends in the world, and loved my visits to his home in Tulsa, where I discovered what an outstanding



Jack enjoyed being a regular part of the team ... Jack simply loved being one of the "guys," and we adored him all the more for his good nature, his modesty, his smile, his jokes, his drive, and his unfailing positivity.

cook he was. And we had some unforgettable times together, from Paris to San Francisco, from Istanbul to Kiev. Jack and I were both strongly opinionated, and didn't always agree about institute policies. I am so grateful that only recently I was able to tell Jack how much I owed him and how much he meant to me.

-GEORGE F. BASS

During the excavation of the Glass Wreck at Serçe Limani, we worked the whole summer long. Student volunteers included myself, Cemal Pulak, Tufan Turanlı, Sina Mandalinci and others. It was hard work, two dives a day and six days a week. At the end of the season,

From left: Jack with Kristen Biehl (daughter of past INA President and photographer Don Frey) in Turkey; (from left to right) Murat Tilev, Jack Kelley, Yaşar Yıldız, Claude Duthuit, and Tufan Turanlı aboard *Virazon* in 1984.

we had removed three feet of sand but we could not leave the site exposed. Finally George decided that we should sail to the next sand beach, fill the flour sacks with sand, carry them to the boat, sail back, dive to the wreck and use the sand to cover the site. Then a major sponsor was coming to visit us from the US: an oil-rich Texan with his wife. We were all told to behave well. We cleaned the kitchen. We all showered and shaved and got ready to welcome the guests. George's idea about the sand sacks was genius as always except for one tiny flaw. None of us were strong enough to lift them! Jack Kelley single-handedly carried them all. Jack turned out to be the man who had more muscles than all of us, including Tufan. That is how I met Jack, who later invited me to be the first Turk on the INA Board. I miss him.

-AYHAN SICIMOĞLU

I met Jack Kelley in 1977 during the initial campaign of excavation of the Glass Wreck at Serçe Limani. An architect by training, Jack and I got along quite well, perhaps because I was an engineer. Jack joined us on many excavations and surveys. It was Jack who produced the very first sketch plan of the Uluburun shipwreck when we dived on the site for the first time in 1983. His sketch plan proved so informative and reliable that it was later published in the first article on the Uluburun shipwreck. Jack enjoyed being a regular part of the team, participating not only in diving and excavation, but insisting on being included on the daily roster for menial tasks. Jack simply loved being one of the "guys," and we adored him all the more for his good nature, his modesty, his smile, his jokes, his drive, and his unfailing positivity.

-CEMAL PULAK



I have known Jack since 1976 and I've respected him as one of the founders of INA and a great team player, which I learned when he joined one of our shipwreck surveys in the Aegean. We were surveying around the Datça peninsula and I had anchored *Virazon* at Knidos harbor. It was cold and windy and I was worried that *Virazon*'s anchor might not hold, so I had the team keep watch in shifts. But I did not ask Jack, who was participating in all the other chores as well as the diving, to keep watch because I thought it would be too much. On the second night, while I was on watch, Jack walked into the wheel house, kind of quiet, looked into the darkness and said without looking at me "I came here as a team member, not as a spectator, you know." Jack was on the next watch, and I had seen another facet of this fascinating man.

-TUFAN TURANLI

One expression I remember Jack saying often was 'flowers for the living' which meant that we shouldn't wait until we had lost someone to let them know how much they meant to us. So here we are, Jack is gone, and I just hope he knew how much Sanne and I appreciated our friendship. We had some great times in the field together, including looking for the next shipwreck that INA would excavate. And then, in the 70s, when George wanted someone to take over running INA, Jack was the one who said "Why not Don?" and it really changed my life! Without his support and confidence would I have taken the job? But I did and in the decade that followed I must have made a dozen trips around the U.S. visiting INA Directors, always with great stops in Tulsa to reflect on our shared adventures and friendship!

-DON FREY

This page, from top: Jack working on the Uluburun site plan in 1984; Jack with his wife Jean in Sozopol, Bulgaria (1992). Opposite page: (clockwise from top left) Ali Uygun, Don Frey, Yaşar Yıldız, Jack Kelley, and Sezgin Gökman after a 1980s survey of the 6th-century A.D. shipwreck at Datça.





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