
The INA Quarterly



THE INA QUARTERLY



Spring 2005

Volume 32 • No. 1



The INA Quarterly

Volume 32 • No. 1

Spring 2005

- 3 *The Legend of Kamikaze: Nautical Archaeology in Japan*
Randall Sasaki
- 9 *Episkopi Bay Survey, Cyprus, 2004*
Justin Leidwanger
- 15 *The Cairo Dashur Boats*
Pearce Paul Creasman
- 19 From the President
INA Board Meeting 2005
- 22 Just Released
The New England Steamship Company: Long Island Sound Night Boats in the Twentieth Century
by Edwin L. Dunbaugh
- 23 Just Released
Shipwreck Archaeology of the Holy Land: Processes and Parameters
by Sean Kingsley
- 24 In the Field
- 25 News and Notes
- 26 In Memoriam
Sumner Gerard
- 27 In Memoriam
Frank E. Vandiver

On the cover: A tag with Chinese inscription found at the site of a sunken Medieval Mongolian invasion fleet near Takashima Island, Japan. Photo: Takashima Board of Education

© May 2004 by the Institute of Nautical Archaeology. All rights reserved.

INA welcomes requests to reprint *INA Quarterly* articles and illustrations. Articles for publication should be submitted in hard copy and on a CD-ROM or 3.25 diskette (Windows format acceptable) along with all graphics. Please address all requests and submissions to the Editor, *INA Quarterly*, P.O. Drawer HG, College Station, TX 77841-5137; tel. (979) 845-6694, fax (979) 847-9260, e-mail kejerch@tamu.edu. The Web site for INA is <http://ina.tamu.edu>.

The Institute of Nautical Archaeology is a non-profit corporation whose mission is to foster excellence in underwater archaeology. The opinions expressed in *INA Quarterly* articles are those of the authors, and do not necessarily reflect the views of the Institute.

The *INA Quarterly* was formerly the *INA Newsletter* (vols. 1-18).

Editor: Kirsten E. Jerch

MEMBERSHIP

Institute of Nautical Archaeology
P.O. Drawer HG
College Station, TX 77841-5137

Learn firsthand about the latest discoveries in nautical archaeology. Members receive the *INA Quarterly* and other benefits.

Researcher (students only) . . . \$25
Diver \$40
Seafarer \$75
Surveyor \$150
Restorer \$500
Curator \$1,000
Excavator \$2,500
Navigator \$5,000

Checks, in U.S. currency, should be made payable to INA.

The Legend of Kamikaze: Nautical Archaeology in Japan

Randall Sasaki

In the 13th century AD, the Mongol Empire expanded rapidly and became the world's largest power, stretching from Eastern Europe to parts of western and southern Asia, and most of East Asia. Under the rule of Kublai Khan, the Mongols created the Yuän Dynasty (1271-1368) in China. Following this, Kublai's next order was to subjugate the island nation of Japan. In 1274, 900 ships were sent from Korea to southern Japan. Few historical accounts of this event have survived, but it is believed the Mongols retreated after a few days of fighting. Many historians claim the Japanese fought well, while some historians suggest the raid was merely a means to test the strength of Japanese defenses in anticipation of another invasion. In 1281, Kublai sent 900 ships from Korea and 3,500 ships from southern China to Japan. Many historical documents describe this second invasion (fig. 1). After taking control of the islands of Iki and Tsushima, the Mongols gathered at Imari Bay in southern Japan. Legend tells us the Mongols next landed on Takashima Island and killed all but two of its inhabitants (fig. 2).

After taking the control of Takashima Island, the Mongols prepared to mount an offensive attack on the mainland. Although the Japanese were prepared to fight against the invaders, the small size of the

Japanese forces

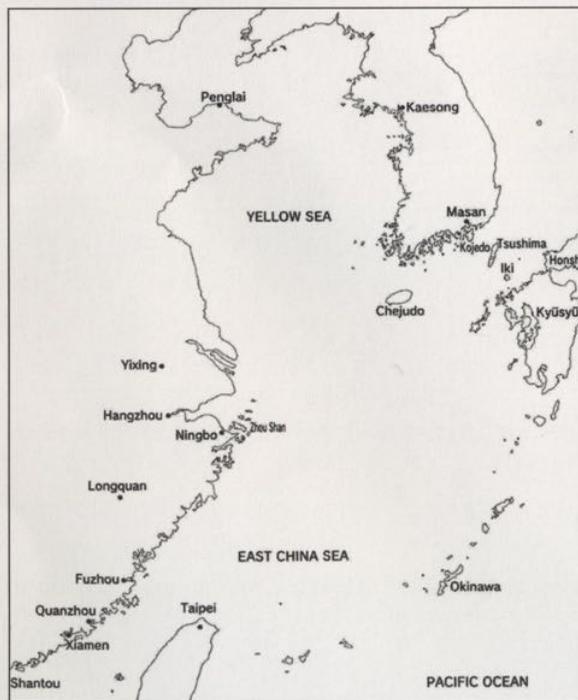
was no match for the Mongolian armada. Japan was about to become a part of the Mongol Empire when a miracle happened: a sudden and violent typhoon crushed the invading Mongolian fleet. At the time, the Japanese believed the wind had been brought on by the gods to protect Japan, thus the word *Kamikaze*, or "divine wind," was born. *Yuän shi*, *Hachimangudouki*, and several other documents all agree that a typhoon crushed the invading fleet as it gathered near Takashima. Several accounts claim more than 90 percent of the ships were destroyed, and one account mentions that a person could walk across the debris of ships from one island to another.

Since this event, the people of Japan have believed they were the chosen people of the gods, and that when the nation was in danger the gods would protect them. This belief survived until the end of World War II. The story of the Mongol Invasion was taught in Japanese elementary schools in detail to promote this belief while the government was supporting the war in Asia and against the U.S. Although the legend has survived until today, the real story of the invasion and information regarding the ships has been lost.

There have been reports for many years of fishermen collecting artifacts related to the Mongol invasion around the island of Takashima. Ceramic fragments, bricks, and even anchor stones can be found just by walking along the island's shore. A statue of Buddha was raised from the sea about 200 years ago and is now placed in a local shrine (fig. 3). In the 1980s, to commemorate the 700th



Fig. 2. Close-up of Southern Japan.



Maps: Takashima Board of Education

Fig. 1. Map of North East Asia.

anniversary of the invasion, underwater surveys and small-scale excavations were conducted and many artifacts were found. However, a marine engineer, not a professional archaeologist, directed the operation; so the site's potential archaeological significance was not fully explored. Despite the somewhat unsuccessful start of the project, the Kyusyu Okinawa Society for Underwater Archaeology (KOSUWA) took over the operation and has been conducting excavations at the request of the local government of Takashima. In 1994, during a rescue excavation for a harbor construction project, several anchors were found in a line facing the same direction. This indicated that several ships had been anchored closely together at this location in an attempt to avoid the strong wind and waves (fig. 4). Based on the direction of these anchors, an excavation was conducted in the area where the ships might have been lost. The excavations in 2001 and 2002 revealed a variety of artifacts such as storage jars, combs, helmets, swords and bundles of arrows, as well as a large collection of ship timbers. All of these can reveal much about the invasion, if they are carefully studied. We can finally begin to see the real story

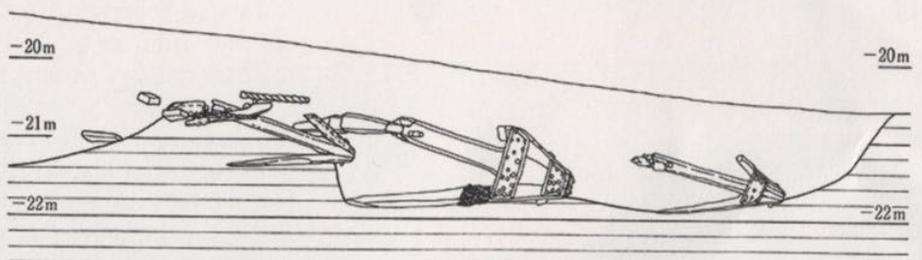
behind the legend of Kamikaze; the lost fleet of the ill-fated invasion has been found.



A last-minute operation?

Although the legend of Kamikaze survives, some scholars suggested that the number of ships reported in the historical documents was highly exaggerated, as it is difficult to believe that the Mongol Empire had the resources to gather such a massive fleet of more than 4,000 ships. Many historians believe that the invasion was not well planned and was therefore doomed from the beginning; that the legendary storm was not the sole reason for the failure of the invasion. Kenzo Hayashida, the director of KOSUWA, and others mentioned that some of the storage jars found at the site were not well fired, indicating that the jars were manufactured in a hasty manner to prepare for the invasion. Many timber fragments discovered at the site show multiple nail holes in various directions, which seem to have served no particular function; sometimes two or three nails are driven within one-centimeter intervals (fig. 5). One explanation is that shipwrights gathered reused materials

Fig. 3 (above). A statue of Buddha raised from the sea near Takashima Island.



Drawing: Takashima Board of Education



Photos: R. Sasaki

Fig. 4 (above). A profile map of the anchors found near Takashima Island.

Fig. 5 (left). Closely-spaced nail holes, indicating a possible repair.



Image: R. Sasaki

Fig. 7. A 3-D reconstruction of the Takashima underwater site, adapted from the 2002 excavation site plan.

from older vessels to construct new vessels, or that some ships were extensively repaired.

My hypothesis is that the fleet gathered for the invasion was not adequately prepared. Some of the ships were much older vessels, others newly constructed, but all were not built to last. This poor preparation may have been the real cause for the failure of the invasion. If the ships were built more carefully, the typhoon might not have inflicted such havoc. To test this hypothesis, I will first briefly consider historical documents, and then discuss the archaeological evidence in more detail.

Historical evidence

Yuän Shi is a collection of chronicles of the Yuän Dynasty. Despite the fact that it was compiled after the dynasty ended, it is the most extensive surviving historical record of the period. One section of the chronicle notes "To conquer Japan, [Kublai] ordered the construction of 600 warships in four provinces [in southern China]." It is said that most of the provinces were not able to make their ships in time. Another section of *Yuän Shi* mentions an official's concern over these orders and how they may have resulted in a local revolt. Historical documents from Korea mention that timbers were taken from Korea to southern China to build a ship for the invasion.

An inscribed wooden tag found at Takashima provides some interesting evidence (fig. 6, on cover). It reads "In the first year of..., (name of an official) has repaired and inspected this." This seems to be an official sign that "something" was inspected and approved after a repair. It is difficult to determine what the official inspected; however, the word "repair" implies that it was a large piece of equipment and not a small object. It could have been a

catapult for throwing stone shot, or perhaps for a vessel, in which case it indicates that old vessels were gathered, repaired, and inspected for use in the invasion.

Solving a jigsaw puzzle

Having participated in the 2003 excavation of the Takashima site, I realized nautical archaeology has yet to be developed in Japan. The Takashima site is the only ongoing underwater archaeological project in the country and is being excavated by volunteers, with no university personnel involved in the project. Excavated ship timbers were placed in climate-controlled pools, but not recorded. I initiated the recording of the timbers from these historically important shipwrecks. No funding from any Japanese institution was available for this project, so I sought funding from other sources. Fortunately, generous support from the Institute of Nautical Archaeology and RPM Nautical Foundation enabled me to conduct a timber recording project for six months, beginning in May 2004.

Nearly all the timbers discovered at this site are single, isolated fragments. No large sections or complete hulls of any ships have been discovered (fig. 7). The site likely contains different types of ships from China, Korea, and Japan, and it is extremely difficult to identify which timber fragments came from which ships. It's a little like trying to reconstruct 4,000 different jigsaw puzzles with only a tiny fraction of the pieces—and no picture to follow.

To fully understand the site at Takashima, it is necessary to study the shipbuilding traditions of East Asia in general. The Quanzhou and Shinan ships, found in the waters of China and Korea respectively, are the best examples of ships from this period. These vessels had a V-shaped hull with a keel and several bulkheads, which are typical of

Fig. 8. *The mast step.*



Photo: R. Sasaki

southern Chinese merchant ship construction. Bulkheads, which are vertical, transverse partitions within a hull, were used as a main support for the hull planking instead of occidental-type frames. Other than these important shipwrecks, information regarding Medieval East Asian shipbuilding technology is minimal. However, new discoveries may change how we look at the shipbuilding technology of the era.

The goal of my research at Takashima has been to catalog and create a database of the timbers that have been discovered. In the future, more data will be available for comparative analysis of the finds from Takashima with other complete excavated vessels from East Asia. Although the applicability of my research may not be apparent at the moment, it is setting the groundwork for the expansion of nautical archaeology in East Asia. Nevertheless, several important discoveries have already been made at Takashima.

Archaeological evidence

I have examined 500 timber fragments and recorded seventy of the most important timbers in detail. More than 80 percent of the timber fragments are less than 50 centimeters long. Nearly all timbers discovered on the site are single fragments of isolated timbers. There are two possible explanations for how the ship timbers scattered so indiscriminately. The first is post-depositional disturbance—natural forces, such as waves and currents—which could have caused the breakup of whole sunken ships over the last 730 years. The second possibility is that the ships were smashed into pieces

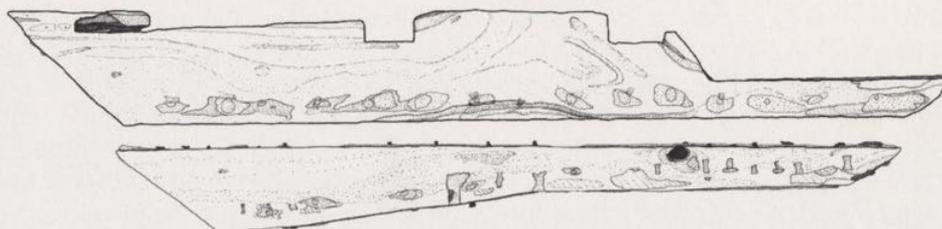


Fig. 9. *Bulkhead.*

Drawing: R. Sasaki

prior to or during their sinking and that there never were complete hull remains. Kenzo Hayashida has researched the deposition rate of the site, and there seems to be a stable rate of silt accumulation. The site is buried below 1 to 1.5 meters of loose silt. The layer containing artifacts from the invasion is compacted silt, and the layer below is a mixture of compacted sand and shells. Moreover, the four anchors mentioned above were found in line, all oriented in the same direction, and their attached cables indicated the orientation of the vessels. The anchors do not seem to have been disturbed since they were set in the storm. The stratigraphy, therefore, seems to indicate that the major breakup of the vessels was prior to deposition. This implies that the vessels may not have been constructed well. This is not to suggest that post-depositional disturbance did not occur, but it is my belief that the timbers would not have been scattered so widely had they been joined more strongly.

One of the most important pieces of archaeological evidence that the ships were not well built is a mast step. It is 1.3 meters long and has two rectangular holes (fig. 8). There are two more holes on the side of the mast step, perpendicular to the rectangular holes, where wooden pegs were probably used to securely fasten the tabernacle timbers that were inserted into these rectangular openings. Medieval Chinese vessels lacked standing rigging and thus required extensive support structures for the mast.

The mast steps from the Quanzhou and Shinan shipwrecks appear rigid, and exhibit carefully carved rectangular holes. The rectangular holes in the mast step from Takashima, however, appear off-center, and there is a third seemingly misplaced hole whose function is uncertain, indicating that the mast step may have been constructed in a hasty or careless manner. Perhaps, with so many ships being built, inexperienced workers were hired to create the fleet.

Of course, the mast step alone cannot be used as evidence that the entire ship was built in such a manner. The shipwright may have used some other support to securely fasten the mast, such as a bulkhead or a structure at deck level. It is possible that such supports were used.

Two bulkhead planks were another important discovery because they are some of the only timbers that were found connected to one another (fig. 9). The maximum width of the bulkhead timbers is 5.7 meters, and the planks are approximately 13 centimeters thick. The planks themselves are not straight pieces, but are joggled. This indicates possible repairs, or perhaps that the shipwright decided to make the bulkhead out of several pieces due to a lack of large, high-quality timber for a vessel of this size. The two bulkhead planks were fastened together with iron nails driven diagonally from both sides. The same construction can be seen on both the Quanzhou and Shinan ships,

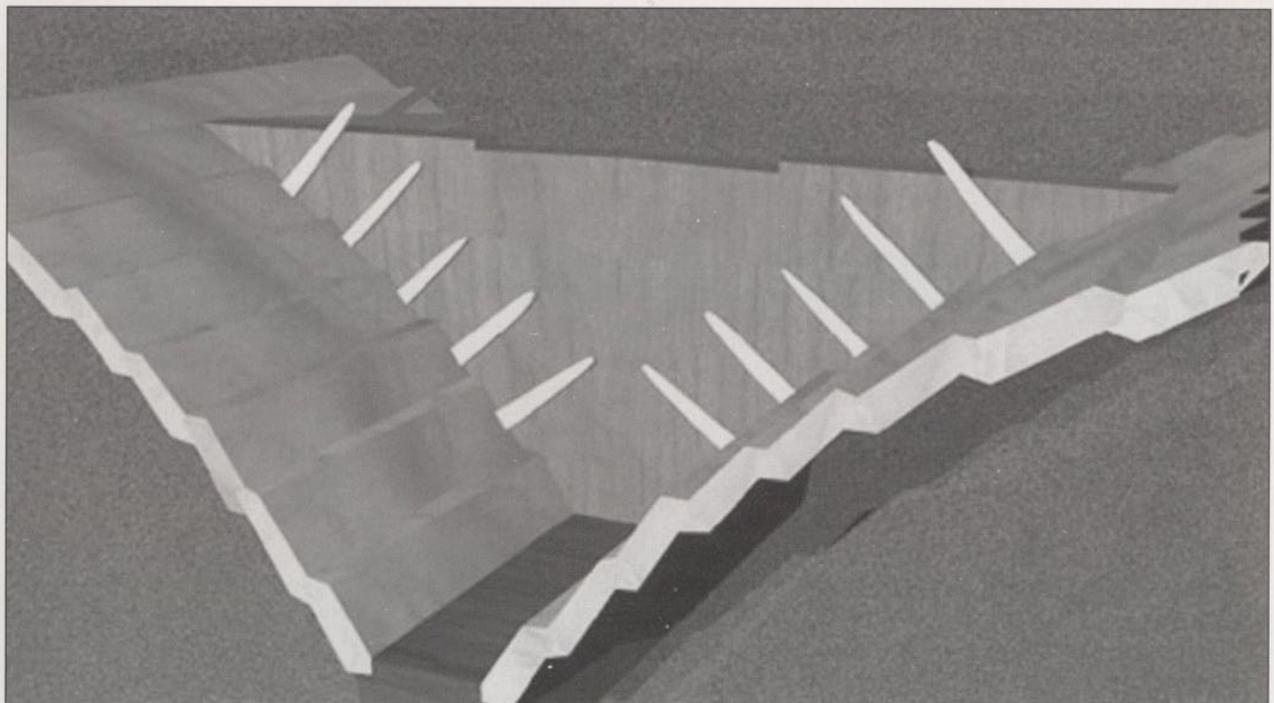


Image: R. Sasaki

Fig. 10. Hypothetical 3-D sectional view of the Shinan ship.

and it is believed to be a typical construction feature of bulkheads.

One aspect of East Asian ship construction that deserves emphasis is the method of attaching hull planking to the bulkheads. The joinery used in the Quanzhou ship uses *gua-ju* nails, which are L-shaped brackets. These iron brackets are inserted from the outside of the hull through a small cut and fastened to the surface of the bulkhead. The Shinan ship alternately uses stiffeners to join hull planking to bulkheads. A stiffener, as described by Jeremy Green, is a long wooden peg that is driven in from outside of the hull planking (fig. 10). Stiffeners are then attached to the surface of the bulkhead by iron nails. These two types of fasteners held the bulkhead together and secured the hull planking to it. However, the bulkhead from Takashima lacks these features. There was no evidence of the use of brackets, stiffeners, or any trace of similar joinery. Instead, holes found on the edges of the bulkhead hint that nails or bolts were used to attach the planks to the bulkheads. These holes are not deep—approximately 10 centimeters—and the interval between these holes is closely spaced at 10 to 13 centimeters. Concretions were found at some locations. X-ray analysis of these attached concretions may reveal what types of fasteners were used for this joinery.

It is difficult to say if *gua-ju* nails or stiffeners are stronger than nails or bolts, but it is time-consuming to construct a ship with the former. The use of iron brackets or long stiffeners also appears to distribute stresses over a greater area of the bulkhead and hull, while the use of nails or bolts concentrates stress around the joints. Thus, there is reason to believe that *gua-ju* nails or stiffeners are a better choice if shipwrights have the time to install them.

A site with great potential

While recording timbers from these important shipwrecks, I focused my research on finding evidence that the vessels used for the invasion were hastily constructed. Historical documents imply this was the case, but the archaeological evidence cannot yet fully support the hypothesis. Despite much evidence suggesting that the ships may have been built with weaker construction, no conclusive evidence was found. The interpretation of the site is problematic due to the conglomerate of ships built in Korea, China and Japan, as well as the small number of complete timbers. Still, this is one of the most important shipwreck sites in East Asia. The timbers that I have recorded will be published in Japanese in 2006 and will bring more interest to the study of shipbuilding technology in Japan, as well as in Asia. A tremendous opportunity exists at Takashima to study the shipbuilding technology of Medieval East Asia. It is truly an international site and requires assistance from Korea, China, and experts from the U.S. and elsewhere to fully realize its significance. The investigation has only begun; once full-scale research can be supported, there will be a greater chance of finding a more or less complete hull, and more important discoveries are probable.

Acknowledgements: I would like to thank Mr. Kenzo Hayashida and the members of the Kyusyu Okinawa Society for Underwater Archaeology, as well as the local government of Takashima Island, which allowed me to analyze the timbers from these important shipwrecks. Kazuma Kashiwagi, a student from Ibaraki University, and George Schwarz, from the Nautical Archaeology Program at Texas A&M University, participated in recording the timbers, and I greatly appreciate their work in Japan. The Institute of Nautical Archaeology and RPM Nautical Foundation have provided funding to conduct this research, and I appreciate their generosity. Without their support, this project would not have been possible. randy-archaeology@neo.tamu.edu ❁

Suggested Readings

Delgado, J.

2003 "Relics of the Kamikaze." *Archaeology* 56.1.

Green, J., and Kim, Z.

1989 "The Shinan and Wando Sites, Korea: Further Information." *International Journal of Nautical Archaeology* 18.1, 33-41.

Green, J., et al.

1998 "The Ship from Quanzhou, Fujian Province, People's Republic of China." *International Journal of Nautical Archaeology* 27.4, 277-301.

Inoue, T.

1991 *A Nautical Archaeological Study of Kublai Khan's Fleets*. Masters Thesis, Texas A&M University.

Episkopi Bay Survey, Cyprus, 2004

Justin Leidwanger

Harbor-filled Cyprus... abounds with such manifold fertility in all things that, without any outside aid, from its native resources alone, it builds merchant ships from keel to topsails and entrusts them, fully outfitted, to the deep.

-Ammianus Marcellinus, *Res Gestae* XIV.8.14

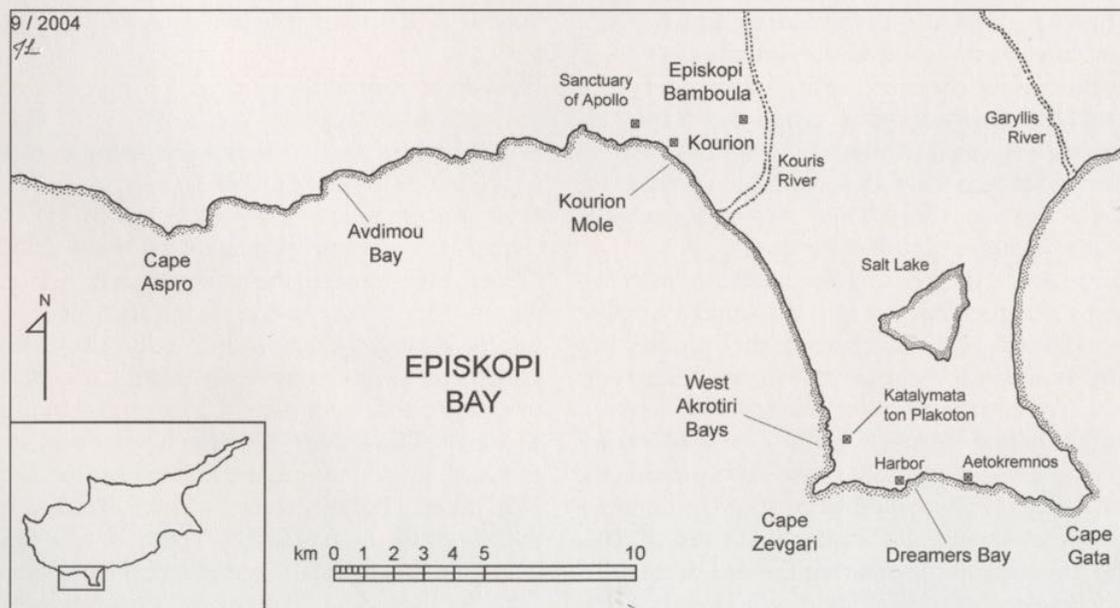
Cypriots are certainly not strangers to the sea, and it is hardly possible to understand their distinguished history without coming to terms with their maritime culture. For millennia, the island's merchant mariners have harvested a seemingly limitless wealth of resources, building ships "from keel to topsails" and setting out across the waves, carrying her natural bounty to shores near and far. In the description of the 4th-century Roman historian Ammianus Marcellinus, the island is no less than the gentle, nurturing mother of a maritime race.

Cyprus' natural blessings were not only a boon for these ancient mariners, but have endured to this day, providing an ideal hunting ground for nautical archaeologists. For not only did she foster the exploits of multitudes of seafaring entrepreneurs for ages, but today her environment safeguards quite well the remains of so many ill-fated ventures. Seabeds of sand and mud, ideal for good

preservation, stretch for kilometers from the coastal shallows yet remain within easy diving depths. On the north coast, it was in precisely such an environment that the magnificent Kyrenia ship was found at only 30 meters of depth. Along the southern coast of Cyprus, in the area of Episkopi Bay and Akrotiri, similar conditions will hopefully lead to the discovery of more well preserved wrecks.

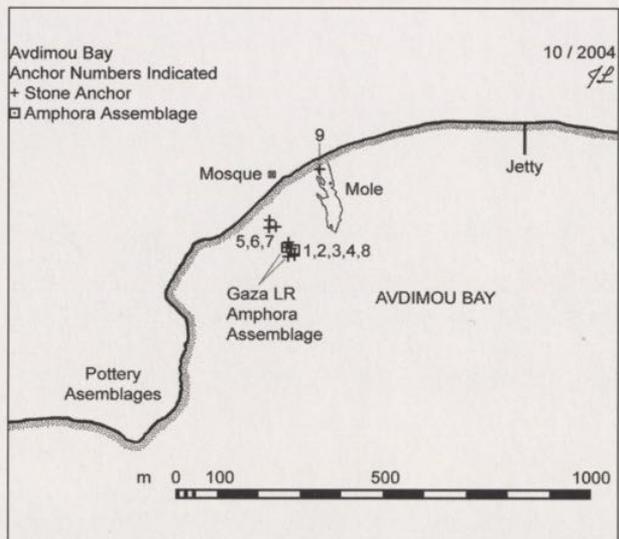
2004 Survey

For six weeks this past summer, a second season of underwater survey work was carried out in the area of Episkopi Bay and the Akrotiri Peninsula (fig. 1). The project, which is part of the University of Cincinnati excavations at the Late Bronze Age site of Episkopi *Bamboula* (directed by Dr. Gisela Walberg), is graciously supported by RPM Nautical Foundation of Florida (see Leidwanger 2004). In addition to the author, the team included two American



Map: J. Leidwanger

Fig. 1. Map of Episkopi Bay and Akrotiri.



Map: J. Leidwanger

Fig. 2. Map of Avdimou Bay.



Photo: J. Leidwanger

Fig. 3. View of Avdimou Bay looking west toward promontory.

archaeologists from Texas A&M University and Boston University, as well as several Cypriot archaeologists and local volunteers.

The team successfully worked seven days a week from June 28 through August 6, with an additional two weeks of conservation and documentation, including cataloguing, drawing and photography. By kind permission of the Department of Antiquities, the survey area was extended to include new parts of Akrotiri to the east, which meant even more exciting areas to explore, both shallower and deeper. Unfortunately, time crunches and equipment problems meant that the remote-sensing component of the 2004 survey had to be postponed. And so, as in the 2003 season, operations were low-tech and focused on some of the most promising areas closer to shore. There was no shortage of these, especially with the permit extension.

All dives were therefore quite shallow, with the deepest being 12 meters. An obvious advantage at these depths is the extraordinarily long bottom time, limited not so much by physiological concerns as by practical aspects of tank volume. Archaeologists were able to spend between two and four hours underwater over the course of a work day. While some dives, especially those at Avdimou (see below), were easily accomplished from shore, most were carried out from the same small fishing boat hired in 2003.

Due to time constraints nearing the end of the 2003 season, artifacts raised in the field had only been preliminarily cleaned and mended to a degree sufficient for effective documentation. With local volunteer help, final

desalination was accomplished in the fall so that when the crew returned to the field in mid-June, they were able to clean and mend the artifacts more thoroughly. The first days of the 2004 survey were then given over to answering additional questions that had arisen since the previous field season. Archaeologists returned to conduct limited operations at the Kourion Mole, West Akrotiri Bays and Cape Zevgari. The rest of the season was dedicated to the systematic exploration of two new areas.

New areas explored

Avdimou Bay

Toward the western edge of the survey area, sheltered conditions in Avdimou Bay suggested the possibility of an ancient anchorage (figs. 2 and 3). J. Leonard of the Cyprus Coastal Survey has raised the possibility that the "Treta" mentioned in the *Geography* of the Augustan writer Strabo (14.6.3) may reside in this area (Leonard 1995, 233, fig. 5). Indeed, at the western edge of Avdimou, on the weathered promontory that protects the bay, the author recorded surface deposits of pottery that may date as early as the late Classical or early Hellenistic period. During later times, it was here that the Muslim fleet landed for the 1426 invasion of the island. A small shrine onshore marks the site of their first martyr. Today, the bay provides safe haven for a handful of fishing and pleasure craft.

A long, wide row of large stones augmenting the bay's natural shelter can be found near the center of the bay (figs. 2 and 4). A preliminary AutoCAD map of its shape

and orientation reveals that the structure extends approximately 140 meters and reaches over 35 meters in width. The top of the structure, 3.5 meters off the seabed at the farthest end from shore, lies just below water and does not break the surface except in stormy conditions. Subsidence may have taken its toll on the structure, resulting in the burial of lower courses of stone. No edge fastenings or other noteworthy construction features were observed, and the area is nearly devoid of pottery. Thus, no secure date can yet be asserted.

Archaeologists also spent several days documenting ceramic and other cultural material across the remainder of the bay. A concentration of various stone anchors, dating probably from several different periods of antiquity, suggests that this stretch of coastline, though only slightly protected from harsh weather, served as a suitable anchorage (figs. 2 and 5). No metal anchors were identified in this area. However, an assemblage of fragmentary 5th- or 6th-century AD Late Roman jars from the Gaza region, perhaps lost while at anchor, provides more securely dated evidence of use of this shelter into the Early Byzantine period (fig. 6). It may not be unreasonable to suggest that some of the stone anchors are at least contemporaneous, if not part of the same assemblage. Additional research being undertaken by the author aims to determine approximate dates for this collection of anchors.



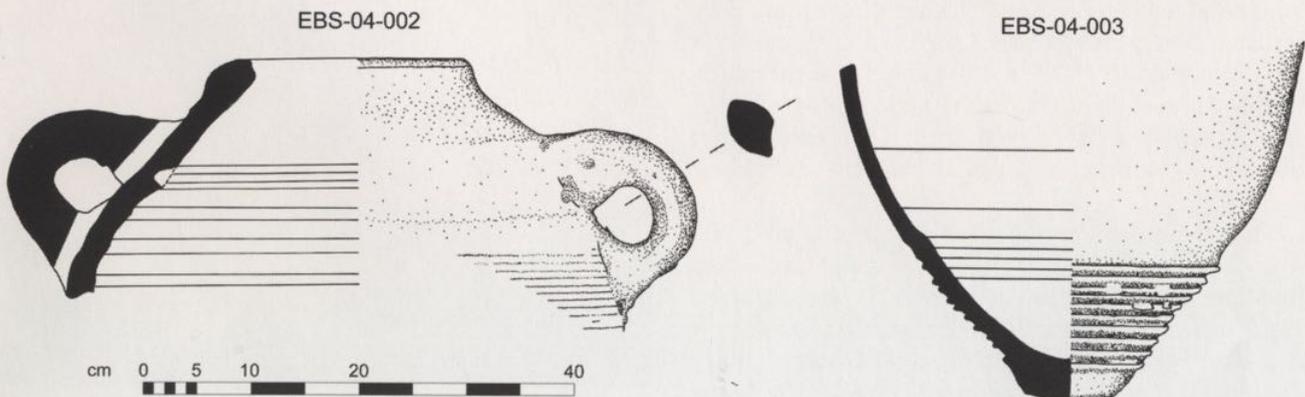
Photos: J. Leidwanger

Fig. 4 (above). Underwater construction at Avdimou Bay.

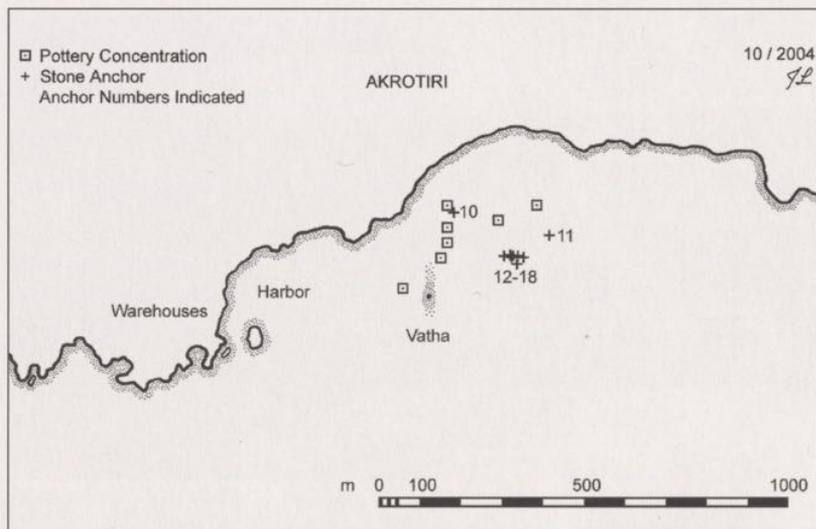
Fig. 5 (right). Stone anchor 8 from Avdimou Bay.



Fig. 6 (below). Late Roman "Gaza" amphoras from Avdimou.



Drawing: J. Daniel



Map: J. Leidwanger

Fig. 7. Map of Dreamer's Bay.

Dreamer's Bay

The Department of Antiquities graciously granted a permit extension for the 2004 survey, which allowed underwater investigations along the southern coast of Akrotiri at "Dreamer's Bay," an area where much valuable new information has recently been brought to light (figs. 7 and 8). During terrestrial reconnaissance in 2003, massive surface deposits of pottery had been noted on shore, along with foundations of a half-dozen or so long galleries, best identified as the storage warehouses often uncovered in conjunction with ancient port facilities (fig. 9). Originally, the surface deposits had been dated by the local archaeological society to the 5th and 6th centuries AD. However, J. Leonard and S. Demesticha, as part of the Cyprus Coastal Survey, have re-analyzed pottery on shore and shown that substantial revision of the site's chronology is required. Though the greatest representation does indeed come from the Late Roman period, the presence of earlier sherds suggests that the initial occupation date should be pushed back to at least the Early Roman period, if not the Hellenistic era. This earlier date would then also allow Dreamer's Bay to be identified as the enigmatic "Kourias" mentioned by the Augustan geographer Strabo (Leonard and Demesticha 2004, 191-5; Leonard 1995, 232 n. 14). Indeed, several sherds from amphoras as well as dull black-gloss wares were recorded by the Episkopi Bay Survey in 2003, confirming that this settlement did function from at least the Hellenistic period.

With this information in mind, archaeologists dived careful lines across the bay, beginning with the shallowest western shore and extending eastwards. The westernmost part of the inlet, well sheltered by a small island, is snorkeled by local personnel from the nearby British military base. It is marked by numerous sherds of both amphoras and roof tiles. While most sherds provided little secure information, the earliest verifiable piece was an easily-dated

2nd-century BC Rhodian handle, confirming that this port facility had probably already been in use for 500 years before the Late Roman period. Throughout the area, the exposed but uneven bedrock lies not far below the water's surface, suggesting that ships would have had to anchor sufficiently offshore unless substantial uplift has taken place since antiquity, which is highly unlikely.

Farther east, in the more open part of the inlet, a reef named "Vatha Rocks" breaks the surface (figs. 7 and 8). Some have suggested that this was actually an ancient mole or breakwater of ashlar masonry. Careful underwater inspection of some of shallowest stones has yet to reveal any verifiable construction elements, though aerial photos taken by an amateur archaeologist from the Akrotiri base several years ago do suggest that this natural reef may have been augmented with ashlars. If, indeed, it is an ancient construction, it curiously provides little substantial protection.



Photo: J. Leidwanger

Fig. 8. Aerial view of Dreamer's Bay.

Fig. 9. Warehouses onshore at Dreamer's Bay.



Photo: J. Leidwanger

North and east of Vatha Rocks, pottery scatters and assemblages demonstrate that the Late Roman and Early Byzantine periods were busy times for the Akrotiri area. Several groups of common Late Roman amphora forms were present, including especially 5th- and 6th-century AD LR1 jars (fig. 10). Notable here were also large numbers of roof tiles, several of which were raised for reconstruction. The presence of the finger-inscribed Greek initials *lambda* and *epsilon* allows attribution of these Laconian-style tiles to a 6th- or 7th-century AD producer on the island's western coast (fig. 11). Much work remains to be done on trade in such building materials, which is well attested by evidence from underwater around Cyprus and abroad.

The area east of Vatha Rocks also apparently functioned as an anchorage during antiquity, as attested by a scattering of nine stone anchors of simple weight and composite styles (fig. 12). The arrangement of the anchors around an open sandy patch among rocks at a depth of 10 meters suggests that the anchorage was carefully selected, and indeed the sandy character of the floor here can be seen from the surface. Four large iron concretions found among 5th- to 7th-century AD Late Roman and Early Byzantine material just north of here may be the remains of additional later anchors. More research is required to establish a chronology for use of this bay as an anchorage or harbor.

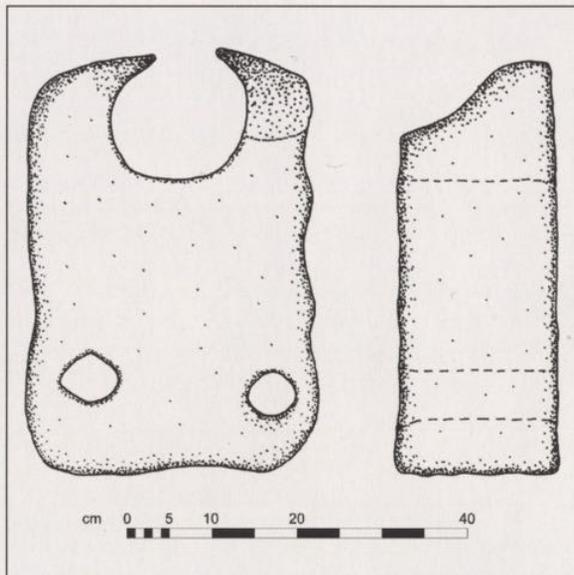
Fig. 10 (left). LR1 amphora from an assemblage at Dreamer's Bay.



Fig. 11 (right). Laconian style roof tile from Dreamer's Bay.

Photos: J. Daniel





Drawing: J. Daniel

Fig. 12. Stone anchor 16 from Dreamer's Bay.

General observations and future plans

The results above, when considered in conjunction with last year's finds, will certainly help further understanding of the regional and international roles of *Bamboula* and Kourion. The two new harbor/anchorage sites at Avdimou and Dreamer's Bay are elucidating the web of Cypriot coastal trade routes. The additional wreck assemblages, especially the coherent Gaza amphora cargo from Avdimou, have greatly expanded the inventory of known wreck sites on the island. Especially important for determining the maritime connections, specifically of *Bamboula*, is the uncovering of the first material that can be dated to the Late Bronze Age, namely some of the stone anchors. More intrusive and detailed exploration for pottery or other remains at the several harbor constructions could help establish their dates.

The addition of remote-sensing in this area certainly offers much potential. The combination of sonar and magnetometer data should prove ideal for exploration of this rich but scarcely touched maritime route. As mentioned previously, the evenly graded sand/silt and shallow depths of Episkopi Bay should combine to make such an endeavor profitable.

Acknowledgements: Once again, I am deeply indebted to many people. The Department of Antiquities and its past and present Directors, Drs. Hadjisavvas and Flourentzos, as well as Dr. Hadjicosti (also of the Department), were so kind as to allow continued surveying not only in Episkopi Bay, but also along an extra stretch of coastline at Akrotiri. Dr. Gisela Walberg, director of the University of Cincinnati excavations at Episkopi *Bamboula*, has lent her support and guidance for this survey from the very beginning, and I am proud to be a part of her *Bamboula* project.

RPM Nautical Foundation again generously provided the bulk of logistical and financial support, and my sincerest thanks go out to its Executive Committee and staff, including George Robb, Jim Goold and Dr. Jeff Royal. Dr. Donny Hamilton and the staff of INA have continued to provide efficient help both at home and in the field.

I owe debts of gratitude to archaeologists and friends on the island, including Frank and Anthea Garrod and Dr. Danielle Parks (Brock University). I enjoyed sharing information and hope to cooperate in the future with John Leonard (Cyprus Coastal Survey) and Duncan Howitt-Marshall (Western Cyprus Underwater Project). Dr. Tom Davis, Director of the Cyprus American Archaeological Research Institute, allowed me to address the CAARI Annual Workshop. Many thanks are due to Episkopi village and the Western Sovereign Base Area, both of which were most welcoming in cheerfully accommodating the team.

I have twice been blessed with an amazing team. Josh Daniel (Texas A&M University) and Kelcy Sagstetter (Boston University) did their own shares of the work and several more, while Emilia Vassiliou, Marios Avgousti, Michael West (Texas A&M University) and others helped out energetically whenever they had the time. In particular, Josh proved to be a true colleague every step of the way, eagerly taking up each task, performing it to the best of his superb abilities, and making this project and research very much his own. EPHARISTO! jleidwa@hotmail.com ✨

Suggested Readings

Leidwanger, J.

2004 "Episkopi Bay Survey, Cyprus, 2003." *INA Quarterly* 31.2:17-27.

Leonard, J.R.

1995 "Evidence for Roman Ports, Harbours and Anchorages in Cyprus." In *Cyprus and the Sea*, edited by V. Karageorghis and D. Michaelides, 227-246. Nicosia: University of Cyprus.

Leonard, J.R. and S. Demesticha

2004 "Fundamental Links in the Economic Chain: Local Ports and International Trade in Roman and Early Christian Cyprus." In *Transport Amphorae and Trade in the Eastern Mediterranean. Acts of the International Colloquium at the Danish Institute at Athens, September 26-29, 2002*, edited by J. Eiring and J. Lund, 189-202. Aarhus: Aarhus University Press.

The Cairo Dashur Boats

Pearce Paul Creasman

In ancient Egypt, the pharaoh Senwosret III, also known as Khakaure, reigned for some nineteen years during the Middle Kingdom, around 1850 B.C., though the exact dates are difficult to establish. This was a very prosperous time for Egypt, as Khakaure led his people to great military victories and helped re-conquer the Upper Nile, where strife had significantly contributed to the decline and fall of the Old Kingdom.

In addition to the reunion of Upper and Lower Egypt, the Middle Kingdom is known for social and cultural growth, so it should come as no surprise that when Senwosret III died he was sent to the after life in grand style. Unfortunately, the pharaoh's pyramid at Dashur was a target for looting and grave robbing over the millennia. But excavations by French archaeologist J.J. De Morgan in 1894 revealed great finds, including five, or possibly six small boats. The exact number of boats has been debated since the early 1900s. While De Morgan's excavation report noted six vessels, it mapped only five. It is likely that during De Morgan's excavation in 1894 only three of the vessels were removed, and that later work, perhaps by one of De Morgan's previous assistants, accounted for the removal of the fourth and possibly a fifth boat. Other contemporary records, letters and reports tend to place the exact number at five. Today, only four of the "Dashur boats" can be located with certainty. Two are in the United States; one in the Carnegie Museum of Natural History in Pittsburgh and one in the Field Museum of Natural History in Chicago, while two remain in The Egyptian Museum, Cairo (figs. 1 and 2). The two boats in the United States made their way over by way of private investors. Andrew Carnegie himself was rumored to have purchased one boat for his own collection, but it was then delivered to the Carnegie Museum, an unexpected delight for the curator at the time.

Since their excavation the Dashur boats remained relatively inconspicuous until the 1980s, when the two boats in the United States were recorded and studied by Dr. Cheryl Ward, then a graduate student of the Nautical Archaeology Program at Texas A&M University. However, to date, a similar comprehensive work on the two boats in The Egyptian Museum does not exist.



Photos: P. Creasman

Fig. 1 (left). Cairo Dashur Boat G.C. 4926.

Fig. 2 (above). Cairo Dashur Boat G.C. 4925 with deck planking removed.

I decided to take on this project for several reasons. As noted by Dr. Ward in her masters thesis (Texas A&M, 1984), the Dashur boats were largely unpublished. Dr. Ward cured half of this problem with her work on the vessels in the United States, but the two in Cairo still remain largely unpublished. In fact, the photographs included with this article are likely the first series of published images that can, with certainty, be identified as the Cairo Dashur boats. Furthermore, while I was conducting research in the fall of 2003, prior to visiting Cairo, to draft a set of lines for one of the vessels in Cairo, I found several significant discrepancies of critical measurements, amplified by the limited number of articles and publications. Drafting the first set of lines "blind," with only the very limited written records on the Cairo boats, made me realize that these boats were in need of more attention.



Fig. 3. Detail of dovetail fastenings.

There were also some questions posed in Dr. Ward's work that would surely benefit from a more in-depth study of the Cairo boats. All four boats exhibit what is considered an atypical construction method for ancient Egyptian vessels: dovetail fastenings between the planks (fig. 3). While dovetails were frequent in ancient Egyptian furniture and not uncommon in construction of other wood structures such as coffins, they are notably rare in the archaeological and iconographic records of boats. Typically, a system of rope lashings combined with mortise and tenon joinery were used to keep the hull planks from separating under normal use and stresses. Both Cairo Dashur boats exhibit frequent mortise and tenon joinery and dove-

tails but the only evidence of lashing is confined to the bow, stern and wash-strake (upper-most plank) of each boat. A key question is, are these dovetails an original part of the boat's construction, or are they the result of modification, adaptation or repair made by the excavators at the turn of the 20th century? In De Morgan's excavation report he notes that the hulls of the boats were still in such good condition that all that was required in order to transport the vessels to Cairo was a simple cradle support system. He makes no note of dovetails or lashings. The question remains: were the dovetails original or are they post-excavation replacements? If they are modern replacements, why do all four hulls, at least one of which was exhumed from the sand years after De Morgan's excavation was complete, exhibit identical features?

To research these questions, I wrote to the Director of The Egyptian Museum, Dr. Mohammad El Damaty, in December 2003, requesting permission to record and study the boats in their care. Less than three weeks after posting my request I received a favorable response and began the task of raising funds for the project. To begin raising support in January with an expected departure in early May of the same year was daunting, but with help, went well.

Texas A&M Nautical Program students Alex Hazlett and Brian Hill accompanied me to Cairo (fig. 4), two weeks before the end of the semester, with the intent to fully record both of the Dashur boats. We arrived in Cairo and immediately went to work. Little did we know what the first day of "work" at the Museum had in store. After a thorough examination of our gear, supplies and letter of permission by the Tourist

and Antiquities Police that guard the Egyptian Museum, we were ushered to the Directors office. To our surprise, the name on the door was not Dr. El Damaty as it had been less than one month before! As it turned out, Dr. Wafaa Elsedek had recently moved into position as director, explaining the brief gap in communications I had experienced in the two weeks prior to leaving for Cairo. This was a shock not only to us, but also to the new director, who was confused as to why three American graduate students were at her door. Naturally, we were concerned about this new development. Yet, with the aid of an assistant curator, Wahed Adwader, I met with Dr. Elsedek and she could not have been more helpful. Within twenty-four hours new

Photo: P. Creasman



Photo: P. Creasman

Fig. 4. The team (l-r): Pearce Paul Creasman, Shima Sadek, Brian Hill, Alex Hazlett.

letters of permission were written, signed and approved, and work was to begin the following day.

On our third day in Cairo we finally began recording. After going through what would become our daily ritual for the next three weeks of X-rays, searches and pat-downs each time Brian's Texas-size belt buckles set off the metal detector, we started with the first boat, known only by its museum catalogue number "G.C. 4925" (fig. 2). Also on this day, the team was blessed with a very welcome addition, Shima Sadek, a sharp conservator employed by the museum. Shima stayed with us for the remainder of our work in Cairo and was an invaluable negotiator with any guard who was not informed about our presence and permissions from the director, and with wandering tourists who found themselves on the wrong side of the exhibit barrier. In addition, she was the best artist on the team and contributed beautiful sketches and drawings of the more detailed components of the boat, such as the ceremonial Horus-heads (fig. 5). Even with our new addition, we were unsure how long our welcome would last, so we made good time and recorded the first boat of 10 meters in about five days. Very soon we discovered that the Egyptian workweek, from 9 o'clock in the morning to 2:30 Saturday through Wednesday, was shorter than imagined, and we had to adjust our schedule accordingly.

After another week we finished fully recording both of the hulls, their decks, the fragments of four quarter rudders and all other components of the boats. The opportunity to study the quarter rudders was an unexpected bonus, since very little attention has been dedicated to them since the excavation. Next we made over 200 square meters of full-size tracings on clear acetate paper of the boats and their attributes. Finally, we spent several days photographing each individual timber. During the photographing I realized just how welcome we had become in the museum as without requesting we were issued several ladders and offered backdrops.



Photo: P. Creasman

Fig. 5. Ceremonial Horus head at the stern of G.C. 4925. With the sun and moon for eyes, Horus was the sky God and protector of the reigning pharaoh.

Since we were excused from working in the museum on Fridays (the Muslim holy day) we had the opportunity to take in some of the sights of Cairo and surrounding areas. Our first trip took us across the Nile River to the Giza plateau for a visit to the Great Pyramid, the Sphinx and the Khufu (also known as Cheops) Barge Museum. After exploring several pyramids and haggling for a camel ride, we called it a day. Another trip took us about twenty miles south of Cairo to none other than the plain of Dashur. Several pyramids lay on this sandy rise well off the current bank of the Nile, including the Bent Pyramid—the first known attempt at building a “pyramid-shaped” pyramid, gone slightly off tilt as the name suggests—the Red Pyramid and Senwosret III’s mud-brick pyramid.

The plain of Dashur has only in the last several years been demilitarized by the Egyptian government; however, we were issued our own personal guard in a conspicuous forest-green suit, M-16 at the ready, for our tour. I wondered if this was for our protection or to prevent us from straying off into the neighboring military establishments; likely a little of both. The pyramid of Senwosret III was, unfortunately, closed. The pyramid only vaguely resembles its former glory as its limestone casing was mostly removed sometime before De Morgan’s excavations, and the infrequent rains over the years have significantly eroded away at the mud-brick mound. Fortunately for the survival of the structure, the last time it rained of any consequence in Cairo and the surrounding area was nearly five years ago. We investigated Dashur and went as close to the pyramid of Senwosret III as the M-16-toting guard would allow. Conveniently, en route back to Cairo was the

step-pyramid of Zoser, the earliest known grand-scale pyramid ever built. After a brief visit with Zoser we headed back to the heart of Cairo for a dinner of kebab and kofta.

When our work in the museum was completed and the team dispersed, I was presented with a great opportunity. A fellow Nautical Archaeology Program student asked me to take some photographs and measurements of Khufu’s Barge, a magnificently preserved 43.5-meter-long, 4,500-year-old funerary ship that had been excavated near the Great Pyramid at Giza, and is now housed in the museum of the same name we had visited earlier. One morning I ventured to the museum half an hour before it opened and asked permission to take measurements and photographs. After producing my INA business card, I was ushered in and given permission to take whatever measurements I could manage. The solitude and silence in the museum that morning, with the shadow of the Great Pyramid cast down through the glass walls onto the barge, was spectacular.

As a whole, the three weeks the team spent in Cairo could hardly have gone better. In addition to recording and processing two nearly complete boats I was informed that we were the first American research team to conduct serious scientific work in the museum in upwards of ten years! At a time when Americans seem to be extremely concerned about our relationship with the Middle East, I am glad to report that our time in Cairo was not only productive but enjoyable. I look forward to returning to The Egyptian Museum this May and June to continue my research.

Acknowledgements: I would like to thank the Institute of Nautical Archaeology and its staff. Also, Dr. Wafaa Elsedek, Mdm. Salwah, Waheed Adwader, Shima Sadek, and Dr. El Damaty of the Egyptian Museum. Without the efforts of Waheed and Dr. Wafaa and their understanding and interminable support throughout the project it would have been a long trip back to Texas. If it were not for the contributions of Mr. George Robb and Dr. Jeffrey Royal of RPM Nautical Foundation and Dr. Donny L. Hamilton, George O. Yamini Chair in Liberal Arts, the project may have never left Texas. In addition I would like to thank the Melburn G. Glasscock Center for Humanities Research, Dr. James Rosenheim, Dr. Cemal Pulak and Dr. Filipe Castro as they are central to the editing and publication of this work. Finally, I would like to thank my parents, Clinton and Kay M. Creasman. For updates and other research information please see my Web site: <http://nautarch.tamu.edu/pcreasman>. p.creasman@tamu.edu ☼

Suggested Readings

Haldane, C.W.

1984 *The Dashur Boats*. M.A. Thesis, Texas A&M University.

Patch, D.C. and C.W. Haldane

1990 *The Pharaoh’s Boat at the Carnegie*. The Carnegie Museum of Natural History, Pittsburgh.

Ward, C.A.

2000 *Sacred and Secular: Ancient Egyptian Ships and Boats*. Archaeological Institute of America Monographs, No. 5. University of Pennsylvania Museum, Philadelphia.

From the President

With this 2005 Spring issue of *INA Quarterly* (Volume 32:1) the editorship is changing from Christine Powell to Kirsten Jerch who will edit the current volume before relinquishing it to someone else. Christine edited the *INA Quarterly* from the Fall 1995 issue (Volume 22:3) through the Winter 2004 issue (Volume 31:4). She served as the editor longer than any previous editor and is to be commended for the admirable job she has done over the past decade. Now she is devoting her time to completing the requirements for her degree. Everyone at INA wishes her success in all of her future endeavors. Kirsten is a new graduate student in the Nautical Archaeology Program at Texas A&M University and has experience in newspaper publishing that will be helpful as she takes on these new responsibilities. She has a challenging job ahead of her in filling Christine's shoes, but we are confident that she will rise to the challenge. I trust that everyone will join me in welcoming her and thanking Christine for the impressive job she did editing the *INA Quarterly*.

The first major event of 2005 was the annual INA board meeting held at The Mansion on Turtle Creek in Dallas, Texas. We had the standard committee meetings and an exciting Board of Directors Meeting that put into play all the plans for the coming year. It was decided that INA will hold a board meeting in Bodrum, Turkey so the board members can have the opportunity to visit the new excavation at Kızılburun, and visit INA's impressive research facilities. Side trips will be taken to notable archaeological sites. An exciting itinerary is being planned for the dual meeting/trip from July 11 to 17, so be sure and mark the dates on your calendar. A second 2005 INA board meeting has been scheduled for October 21 and 22 in New York City. The full INA membership is invited, so everyone save the dates and join in on the fun in New York! An agenda will be sent to all the INA board members prior to the meeting.

As usual, everyone enjoyed seeing old friends and meeting new ones. Most significantly, everyone was delighted to visit with John Baird, one of the few remaining original Directors of INA. He has been with us and supported INA since the beginning in 1976! Also present at the meetings, after an absence of several years, was Jack Kelley, one of INA's three founders, who returned with his lovely wife, Jean and his delightful granddaughter, Whitney White. Everyone enjoyed seeing them once again. We also were pleased to welcome INA's newest board member, Mr. Selçuk Kolay who was in attendance with his wife, Nida, of Nisantasi, Turkey. As is evident in these photos from the meetings, everyone thoroughly enjoyed viewing the renown exhibit, "Splendors of China's Forbidden City" at the Dallas Museum of Art, which was arranged by past chairman of the board, Ned Boshell.

This time of year is always exciting and at the same time stressful. Stressful in that all of the professors and students are preparing for the end of the academic semester and at the same time getting ready for the different INA projects scheduled for the summer. We are all excited to be starting a new excavation of a 2nd-century BC Roman shipwreck at Kızılburun, Turkey. The ship was carrying a monumental marble column consisting of eight drums and a capitol that, when assembled, would have been 30 feet tall. Everyone may look on our new Kızılburun Web site at <http://ina.tamu.edu/kizilburun> for a description of and updates about the upcoming project.

We are also excited about INA's joint survey venture with the RPM Nautical Foundation, founded by INA Director George Robb, to determine once and for all whether or not it is possible to locate the shipwreck that yielded the famous Demeter statue, which has been the subject of several INA articles over the years. This will be the third survey to locate this shipwreck in recent years and we are hoping that the sophisticated technology possessed by the RPM Nautical Foundation research vessels, the *Hercules* and *Juno* will provide us with the required edge to locate the shipwreck, if it exists. RPM Nautical Foundation will be conducting additional surveys with Nautical Archaeology Program graduate students Justin Leidwanger in Cyprus, Dante Bartoli in Italy, and Alexis Catsambis in Greece.

In the United States, Dr. Kevin Crisman will undertake a third excavation season at the site of the *Heroine*, a 19th-century riverboat in the Red River in Oklahoma. Plans are still pending on a possible excavation of an early 16th-century Spanish shipwreck in Panama. Reports on all of these projects will be appearing in future issues of the *INA Quarterly*.

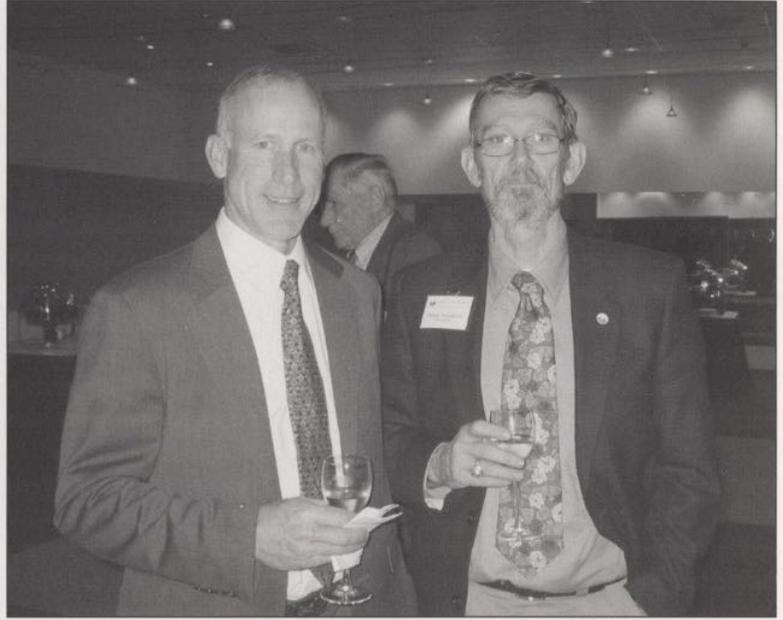
We have a busy research summer ahead of us and I want to take this opportunity to thank everyone for their support. Without this support, INA could not carry out its stated mission "to look for and excavate the most archaeologically important shipwrecks in the world."

-Donny L. Hamilton



INA Founders Jack Kelley (left) and George Bass converse, along with Dr. Bass' wife, Ann Bass.

Photos: Peter Fix



Director Gregg Cook (left) pictured with INA President Donny Hamilton.



Dr. Shelley Wachsmann (far left) poses with (l-r) Associate Director Robyn Woodward, Russ Shaw, Chairman and General Counsel Jim Goold, and Past Chairman, Ned Boshell.



New Director Selçuk Kolay with his wife, Nida Kolay.



Founder Jack Kelley with Jenniffer Perlman (left) and his granddaughter, Whitney White. Pictured in the foreground is Mrs. Jean Kelley.



Ann Bass and BJ van Doorninck.



Director Claude Duthuit with Founder George Bass.

Just Released

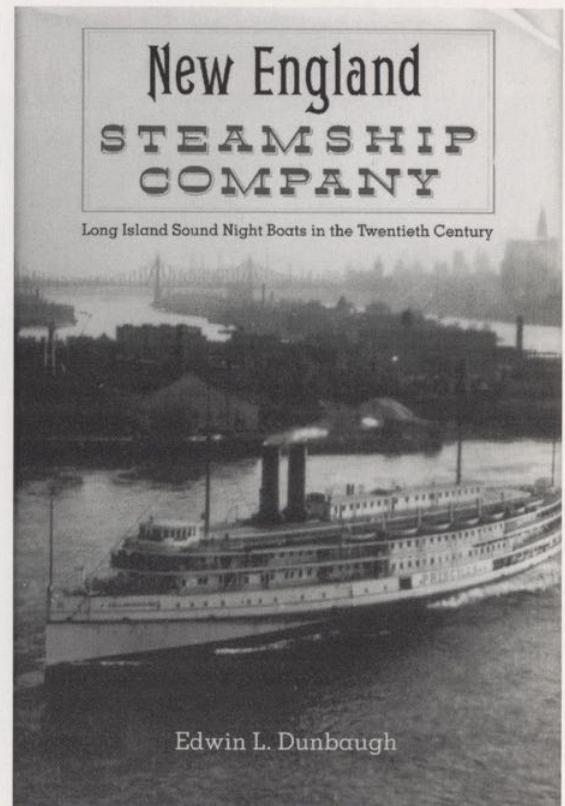
*The New England Steamship Company:
Long Island Sound Night Boats in the Twentieth Century*
by Edwin L. Dunbaugh

During the second half of the nineteenth century and the first decades of the twentieth century, the most efficient and glamorous means of transportation from New York to Boston was aboard an overnight steamboat. These vessels departed southern Manhattan in the early evening and steamed through Long Island Sound during the night, reaching Fall River and other southern New England ports in the early morning, just in time for the passengers to board special trains bound for Boston and various points north. The same route, originating in Boston, was also run in reverse each evening, with the sister ships on each line passing in the Sound six evenings a week. These vessels were the first reliable and consistent form of transportation in the region for tourists and business travelers, as well as for tons of cargo. As such, night boats served an essential role in the communication, commercial, manufacturing, and industrial communities of New England. Edwin Dunbaugh's new book, *The New England Steamship Company*, is the third and final installment in his series on New England's overnight steamboats, which includes *Night Boat to New England* and *The Era of the Joy Line*.

The New England Steamship Company traces the development of the overnight steamer industry from 1900 to 1942. This is the period during which the steamship lines were consolidated into the hands of a few owners, experienced a great boom, and ultimately met their demise due to competition from automobiles and the requisitioning of steamers for service in World War II. During this period, the New England Steamship Line, the New Haven Railroad's primary marine subsidiary, was the dominant operator on Long Island Sound, and, as a result, is the primary focus of the book. Mr. Dunbaugh's history, based on extensive research utilizing contemporary marine journals, newspapers, and other primary documents, focuses on the steamships. This is not an economic history, nor does it provide extensive biographies of the individuals involved with the steamship lines; instead, Mr. Dunbaugh tells the story of the steamships in such a way that they seem to be the protagonists of the story. He explores the effects of technology, competition, and natural disasters, which place the economic development and decline of the overnight steamship lines in a larger historical context.

From the perspective of a maritime historian, the text is a valuable reference for New England during the early twentieth century. Mr. Dunbaugh provides a detailed chronological account of the vessels and companies that provided night service on the Long Island Sound. By beginning with a brief summary of the development of steam service on the sound prior to 1907 (Chapter 1) and dividing the text into clearly titled chapters with a thorough index, Mr. Dunbaugh has made it possible for historians both to enjoy the entire story of the New England Steamship Company and to quickly reference his work for specific periods and vessels.

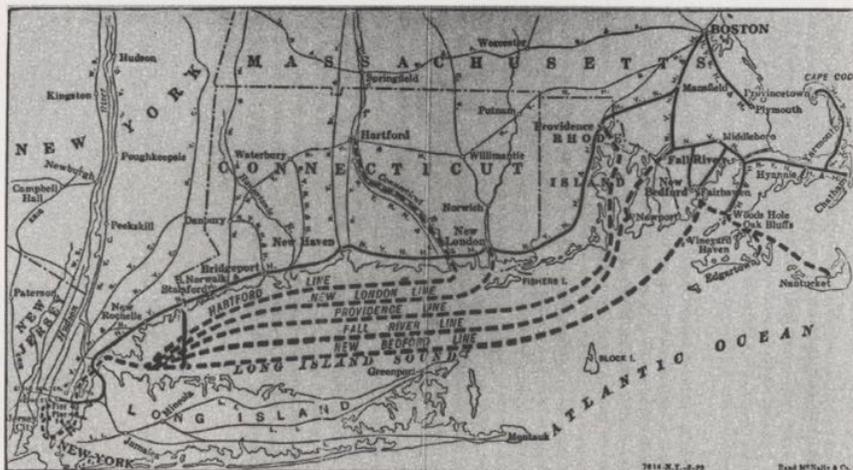
The New England Steamship Company is of further use to nautical archaeologists because it provides detailed information on the ships of this period and the experience of traveling on the Fall River Line. Appendix B consists of an alphabetical list of all the steamships that plied Long Island Sound during the twentieth century. The list includes information on the date, place, and type of construction, basic measurements, and propulsion systems of the vessels. There is also a brief chronology of the ship, including its final disposition. Besides this technical information, Mr. Dunbaugh provides a wonderful first person account of a journey on an early twentieth-century night boat (Chapter 2). The account, written by Mr. Dunbaugh in the voice of a nameless middle-class traveler, captures the awe of a first voyage on one of these glamorous steamers while neatly summarizing the itinerary of a typical voyage. The narrator explores



Gainesville: University of Florida Press 2005,
ISBN: 0-8130-2792-6, 407 + xiv pp, 49 black and
white illustrations, 1 map, 2 appendices,
bibliography, index. Cloth: \$59.95

much of the vessel, notes the cost of the trip and meals, describes the routines of the ship's crew, and succinctly provides all manner of information that is not readily available in the archaeological record. The humanity of this description offsets and provides depth to the more technical history that follows. For all these reasons, *The New England Steamship Company* is a valuable contribution to recent maritime history.

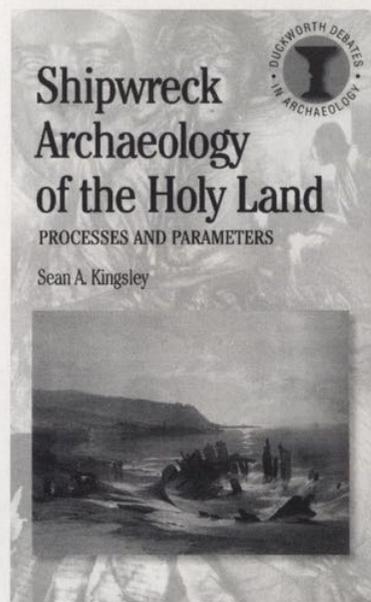
-Ben Ford



Map: reprinted from E. Dunbaugh

Steamship routes in Long Island Sound.

Just Released



London: Duckworth 2004, ISBN 0-7156-3277-9, 159 pp, 25 black and white illustrations, 4 maps, bibliography, index. Paperback: \$22.00

Shipwreck Archaeology of the Holy Land: Processes and Parameters by Sean A. Kingsley

Decades of work off Israel's shores have vividly demonstrated this land's rich maritime history as well as its prime underwater archaeological potential. Along its shallow seabed lie the remains of perhaps thousands of ships densely packed, which have gradually been exposed due to coastal development over the past century. While creating an unprecedented boon for marine archaeologists, the situation has also prompted acute challenges to the cultural resource management program. Perhaps nowhere are the dilemmas and potential more obvious than at Dor, where fieldwork and research over the past three decades have led to a series of important publications, this book by Dr. Kingsley being the most recent.

With more than 15 years of experience both underwater and on land, Kingsley is ideally qualified to comment on the current understanding of the Holy Land's maritime past and the health of the discipline in Israel in general. Drawing on his own publications and work at Dor, the author provides an engaging summary and analysis of the material and what it reveals about the socio-economic history of Palestine during Late Antiquity. From his chapters on Byzantine shipwrecks and specialized production and exchange of wine, glass, cloth and dye, Kingsley arrives at new and refreshing, if unorthodox, conclusions about the extent and character of maritime trade in this prominent Byzantine province. The author not only utilizes the corpus of published finds, but also includes previously unpublished material, as well as a range of valuable historical and literary sources to counter-balance and evaluate the shipwreck evidence.

Most importantly, this discussion is embedded within a wider debate over the current mandate and methodology of underwater archaeology. Throughout the book, Kingsley challenges the theoretical agendas governing much of the current underwater research, and argues vehemently for a more analytical approach that situates shipwrecks soundly within their historical and economic contexts. As the technology and scope of underwater archaeology extend to new shores and deeper seabeds, the author calls for those engaged in such pursuits to integrate their results more fully into the mainstream of archaeology and history.

Kingsley's overall conceptual breadth, detailed discussions and generous bibliography provide a useful reflection for students and scholars alike, but his book also offers a quick and accessible read for the casually interested.

-Justin Leidwanger

In the Field

INA research associate Alexis Catsambis writes from Greece...

Preparations for the Corinthian Gulf Project are proceeding at an increasing pace with positive developments occurring almost daily.

This large-scale survey will be a collaborative effort between the Institute of Nautical Archaeology, Texas A&M University, the University of Birmingham (U.K.), the British School of Athens, the Hellenic Centre for Marine Research and several Archaeological Ephorates of the Greek State including the Ephorate of Underwater Antiquities.

The archaeological investigation itself will be subdivided into a terrestrial and a marine survey, the latter of which, will be co-headed by the Ephorate of Underwater Antiquities and the Institute of Nautical Archaeology/ Texas A&M University. The underwater survey is intended to be

non-intrusive and aims solely at recovering and documenting evidence of submerged cultural heritage sites within the area. The site is littered with submerged structures and has already yielded an impressive bronze statue of Poseidon, now in the National Archaeological Museum in Athens.

Presently the project is almost entirely funded by two Greek institutions that would like to remain anonymous at this time. RPM Nautical Foundation has generously agreed to allow use of their two research vessels, R/V *Hercules* and R/V *Juno*, for the duration of the project, while a team of archaeologist-divers and nautical archaeologists are also preparing to lend their services. Among them are five students from the Nautical Archaeology Program of Texas A&M University.

We are still waiting to hear from the Greek Department of Underwater Antiquities concerning the permit for our survey, but we have been repeatedly encouraged by the Greek authorities. Upon receiving the permit we can proceed with all the logistics of bringing the research vessels and the team to Greece for a survey to take place from mid-May to mid-June. If everything goes as planned, this project is looking to be one of the largest surveys that have taken place in Greece, and one of the first large-scale projects in the country to benefit from INA involvement. It is the hope of all of the participants that the successful completion of the survey will form the beginning of a long-term relationship.

An East Indiaman in Australia

At the invitation of Jeremy Green of the Western Australian Maritime Museum, NAP student Wendy van Duivenvoorde conducted research on the *Batavia* hull remains in January and February 2005. She was assisted by Hanneke Jansen, a Dutch archaeologist and geodetic expert.

The *Batavia*, a Dutch East Indiaman, sank in 1629 on its maiden voyage to the Indies on the Houtman Abrolhos reef off the coast of Western Australia. Notorious for the mutiny and horrific massacre that engulfed the survivors after they wrecked, the remains of the ship were discovered in 1963, and excavated between 1971 and 1980 by a team of archaeologists from the Western Australian Maritime Museum.

The surviving hull timbers, raised from the seabed by archaeologists, weigh 30 tons, and represent approximately eight percent of the original hull. They include the transom and part of the aft port quarter of the vessel, including the sternpost, a fashion piece, transom beams, 20 planking strakes, ceiling planking, and remnants of approximately 40 frames. A significant part of the hull remains has been reassembled and is displayed in the Western Australian Maritime Museum.

To date, *Batavia* represents the only excavated remains of an early seventeenth-century Dutch East Indiaman that has been raised and conserved in a way that permits detailed study. This is of great significance since there are no construction plans, lines drawings, or building records for any East Indiamen of this period. Ms. van Duivenvoorde's research, which will be included in her Ph.D. dissertation, will greatly benefit historians and archaeologists alike.

Sunken harbor survey, Amalfi, Italy

A joint INA-RPM Nautical Foundation research team worked between March 7 and 30, along with the *Centro di Cultura e Storia Amalfit-*



Photo: A. Catsambis

Ancient submerged wall running parallel to shore.

ana, in the waters off the Italian Mariner Republic of Amalfi, 20 miles to the south of Naples. Using a Reson 8125 multibeam system mounted on board RPM's research vessel *Juno*, it was possible to collect raw data that, once processed, will produce the first three-dimensional map of all the submerged architectural remains present on the seafloor between 6 and 120 feet deep.

According to the written sources, during the night of November 24, 1343, an entire portion of the city suddenly disappeared under water in a disastrous seaquake that struck the Mariner Republic. At first glimpse, the instrument's data revealed what seems to be a huge breakwater, 450 feet long and 45 feet wide, along with other possible structural elements, that RPM personnel are currently analyzing.

Some other ancient remains have been mapped along the 11 miles of coastline to the north and to the south of Amalfi: Roman walls in *opus reticulatum*, and a possible natural anchorage area, where ships were loaded and unloaded. The work will hopefully continue during summer



Photo: L. Campana

Amalfi survey team (l-r): Giovanni Addabbo (diver), Domenico Gambardella (archaeologist and photographer), Crescenzo Violante (geologist), Giuseppe Gargano (CCSA P.I.), Dante Bartoli (INA P.I.), John Wray and Chris Murphy (boat captains).

2005, with visual inspection of the submerged structures.

Spreading the word

INA and the Nautical Archaeology Program were well represented this past January at two major archaeological conferences. Underwater archaeology was the theme for this year's Archaeological Institute of America (AIA) conference, held January 6 through 9 in Boston. George Bass,

Cemal Pulak, Richard Steffy and Shelley Wachsmann were among the senior participants, while papers were also given by graduate students Dante Bartoli, Margaret Choltco, Nancy DeBono, Justin Leidwanger, Josh Levin, Mark Polzer, Randall Sasaki, and Alexis Catsambis, who won the student poster presentation competition for his presentation, "Before Antikythera: The First Underwater Survey in Greece."

The annual conference of the Society for Historical Archaeology (SHA) took place January 5 through 10 in York, England. INA affiliates who made their way across the Atlantic to deliver papers included professors Debbie Carlson, Kevin Crisman and C. Wayne Smith, INA conservator Helen Dewolf, and graduate students Catherine Inbody Corder, Ben Ford and Ali Steere.

Professor receives appointments

Congratulations to Filipe Castro, the Frederic R. Mayer Professor of nautical archaeology, who has been elected both to the Executive Board of Directors of the Advisory Council of Underwater Archaeology, and as Chair of Publications Subcommittee. Dr. Castro has also been named the McCann and Taggart Underwater Archaeology speaker by the Archaeological Institute of America. ☼



Photo: J. Davis

INA faces past and present at the SHA conference, York, England: (standing l-r) M. Scafuri, E. Washburn, K. Crisman, C. Corder, C. Moore, L. Mott, R. Smith, B. Jordan, F. Castro, C.W. Smith, F. Hocker, M. Meniketti, R. Neyland, B. Ford. (kneeling l-r) H. DeWolf, K.C. Smith, D. Merwin.

In Memoriam Sumner Gerard

Sumner Gerard, former American ambassador, Montana legislator and cattle rancher, and maritime archaeology enthusiast, died of natural causes at a hospital in Vero Beach, Florida, on February 24 at the age of 88.

Born in Melville, New York, Sumner earned both a B.A. and an M.A. degree from Trinity College, Cambridge. During World War II, Sumner served in the Army, the Navy and the Marine Corps, where he achieved the rank of captain. In 1948, he moved to Montana, where he engaged in cattle ranching and business ventures with the Billings Corporation. He was a Republican member of the Montana State Legislature in the 1950s and 1960s, having served as minority leader in both houses.

Sumner entered the Foreign Service in 1969, first stationed in Rome as a delegate to the United Nations Food and Agriculture Organization, then as Director of the U.S. Aid Mission to Tunisia.

Sumner's lifelong interest in maritime archaeology brought him into contact with INA during this time, when he made his first dive on a Roman shipwreck site in Tunisia. His contact with then-INA president Michael Katzev did not lead to a joint excavation at the time, but the experience and contacts he gained while serving as Ambassador to Jamaica from 1974 to 1977 eventually led to his active participation in a major INA project.

In 1978 Sumner approached George Bass on behalf of Charles Adams, Chairman of the historic subcommittee of the Cayman Islands Tourist Advisory Council and a representative of the newly-formed Caymanian Heritage Trust. Adams was interested in organizing a survey of the islands' historic shipwrecks, and with Sumner's help the first INA project in the Caribbean was born. During the summers of 1979 and 1980 the Cayman Islands Project located and documented 77 sites in the waters surrounding the three islands, and compiled the first inventory of shipwrecks for the British colony. As one of INA's directors, Sumner also supported the establishment of an annual field school at the sunken city of Port Royal, Jamaica which became the training ground for many of today's underwater archaeologists, and the excavation of the earliest European shipwreck in the New World at Molasses Reef, Turks and Caicos Islands. "Admiral" Gerard's research vessel *Morning Watch* also became a platform for underwater investigations in the Dominican Republic and Haiti, although no long-term projects resulted from the reconnaissance.

Sumner is survived by his son, also named Sumner, his four daughters, Jenny G. Brown, Molly Gerard, Helen Gerard, and Anne Gerard, and his second wife, Teresa Dabrowska Gerard, from whom he was divorced in 2004. He was preceded in death by his first wife, Louise Grosvenor Gerard, from whom he was divorced in 1966. ❀

In Memoriam Frank E. Vandiver

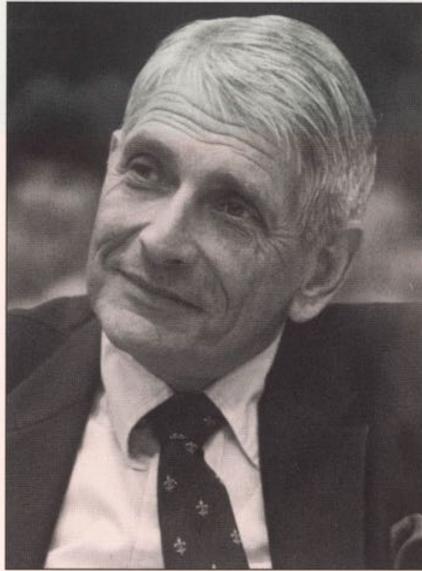


Photo: Courtesy of Texas A&M
Cushing Memorial Library archives

We regret the passing of former Texas A&M University President Frank E. Vandiver, 79, who died at his home in College Station on January 7, 2005. As the university president, Frank was a member of the INA Board of Directors during his tenure from 1981 through 1988, though his interest in INA activities was more than honorific.

One of the nation's foremost Civil War historians, Frank made his first acquaintance with INA regarding the disposition of a Civil War-era shipwreck off the coast of Texas, the USS *Hatteras*. After taking on leadership of Texas A&M, he became a strong supporter of the alliance between INA and the university, recognizing its contribution to the overall quality of faculty, students and research at the University. His attendance at an INA Board Meeting in Jamaica, where current INA President Donny Hamilton was excavating Port Royal, gave him a chance to see INA's fieldwork and mingle with other INA Directors. Impressed by what he saw, he increased the University's commitment to the Texas A&M/INA affiliation to a level that we still enjoy. Don Frey, who was then INA President, comments that "Frank was a wonderfully warm and enthusiastic person, and I never made a trip to College Station without dropping in to say hello and share bear hugs."

A native of Austin, Frank Vandiver received his master's degree by examination from the University of Texas at age 19, then went on to receive his doctorate from Tulane University. An author with over 20 books and dozens of scholarly articles to his name, some of Frank's better known publications include *Mighty Stonewall*; *Their Tattered Flags: The Epic of the Confederacy*; and *Black Jack: The Life and Times of John J. Pershing*, which was a finalist for the National Book Award. He taught history at several institutions, including West Point, Washington University in St. Louis, Rice University and Oxford University, and served as president of North Texas State University and of Rice, before coming to Texas A&M.

With Frank Vandiver at the helm, A&M saw prolific growth. He created the Faculty Senate, helped A&M to be named a space-grant institution, hired its first Nobel Laureate and Pulitzer Prize winners for the faculty, and saw the university's endowment surpass \$1 billion. After stepping down, he continued to teach at the university as a distinguished professor, and held the John H. and Sara Lindsey Chair in Liberal Arts. He also served as director of the Mosher Institute for Defense Studies (now the Mosher Institute for International Policy Studies), an A&M think tank.

He is survived by his wife, Renee, three children and six grandchildren. He was preceded in death by his first wife, Susie. ❀

INSTITUTE OF NAUTICAL ARCHAEOLOGY



INA QUARTERLY EDITOR

Kirsten E. Jerch

OFFICERS - ADMINISTRATION

Donny L. Hamilton, Ph.D., President*
Cemal M. Pulak, Ph.D., Vice President
Claudia F. LeDoux, Chief Accounting Officer and Assistant Secretary
Michelle Chmelar, Assistant Accounting Officer
Tufan U. Turanlı, Administrator, Bodrum Research Center

BOARD OF DIRECTORS

William L. Allen
Oğuz Aydemir
John H. Baird
Joe Ballew
George F. Bass, Ph.D., Founder*
Edward O. Boshell, Jr.,
Past Chairman*
Elizabeth L. Bruni
John Cassils, M.D.
Gregory M. Cook

Lucy Darden*
Thomas F. Darden
John De Lapa
Claude Duthuit
Danielle J. Feeney*
Robert Gates, Ph.D.
Donald Geddes III, Secretary*
James A. Goold, J.D.
Chairman & General
Counsel*

Charles Johnson, Ph.D.*
Jack W. Kelley, Founder
Mustafa Koç
Selçuk Kolyay
Francine LeFrak-Friedberg
Alex G. Nason
George E. Robb, Jr.
Lynn Baird Shaw

Ayhan Sicimoğlu
J. Richard Steffy
William T. Sturgis
Frederick van Doorninck, Jr., Ph.D.*
Robert L. Walker, Ph.D.*
Peter M. Way, Vice-Chairman*
Garry A. Weber
Sally M. Yamini

*Executive Committee

ASSOCIATE DIRECTORS

Raynette Boshell
Allan Campbell, M.D.
William C. Culp, M.D.
Nicholas Griffis

Robin P. Hartmann
Faith D. Hentschel, Ph.D.
Susan Katzev
William C. Klein, M.D.

George Lodge
Thomas McCasland, Jr.
Dana F. McGinnis
Michael Plank

Molly Reily
Betsey Boshell Todd
Robyn Woodward

NAUTICAL ARCHAEOLOGY PROGRAM FACULTY

Deborah Carlson, Ph.D., Assistant Professor, Sara W. & George O. Yamini Fellow
Filipe Castro, Ph.D., Assistant Professor, Frederick R. Mayer Faculty Fellow of Nautical Archaeology
Kevin J. Crisman, Ph.D., Associate Professor, Nautical Archaeology Faculty Fellow
Donny L. Hamilton, Ph.D., George T. & Gladys H. Abell Chair in Nautical Archaeology, Yamini Family Chair in Liberal Arts
Cemal M. Pulak, Ph.D., Frederick R. Mayer Professor of Nautical Archaeology
C. Wayne Smith, Ph.D., Associate Professor, INA Faculty Fellow
Shelley Wachsmann, Ph.D., Meadows Professor of Biblical Archaeology

NAUTICAL ARCHAEOLOGY PROGRAM FACULTY EMERITUS

George F. Bass, Ph.D., George T. & Gladys H. Abell Chair in Nautical Archaeology, Yamini Family Chair in Liberal Arts, Distinguished Professor, Emeritus
Frederick H. van Doorninck, Jr., Ph.D., Frederick R. Mayer Professor of Nautical Archaeology, Emeritus
J. Richard Steffy, Sara W. & George O. Yamini Professor of Nautical Archaeology, Emeritus

INSTITUTE OF NAUTICAL ARCHAEOLOGY STAFF

Esra Altınanıt-Göksu
Münevver Babacık
Mustafa Babacık
Mehmet Çiftlikli
Ozlem Dogan
Tuba Ekmekçi

Donald A. Frey, Ph.D.
Zafer Gül
Bilge Güneşdoğdu
Chasity Hedlund
Janna Jackson
Jim Jobling, M.A.

Gülser Kazancıoğlu
Bayham Kosar
Nurgül Kulah
Sheila D. Matthews, M.A.
Asaf Oron, M.A.
Muammer Özdemir

Robin C. M. Piercy
Şükran Şenyüz
A. Feyyaz Subay
Murat Tilev
Edith Trnka, Ph.D.
Süleyman Türel
Güneş Yaşar

GRADUATE FELLOWS

Mr. & Mrs. Ray H. Siegfried II Graduate Fellow: Alexis Catsambis
Marian M. Cook Graduate Fellow: Josh Levin
Tooze Graduate Fellow: Christine A. Powell

RESEARCH ASSOCIATES

J. Barto Arnold, M.A.
Dante Bartoli
Kroum N. Batchvarov, M.A.
Alexis Catsambis

Katie Custer, M.A.
Jeremy Green, M.A.
Justin Leidwanger

Margaret E. Leshikar-Denton, Ph.D.
Bjørn Lovén
María del Pilar Luna Erreguerian

John McManamon, Ph.D.
Ralph K. Pedersen, Ph.D.
Brett A. Phaneuf
Donald Rosencrantz

ADJUNCT PROFESSORS

Ayşe Atauz, Ph.D.
Arthur Cohn, J.D.
Elizabeth Greene, Ph.D.

Nergis Günşenin, Ph.D.
Jerome L. Hall, Ph.D.
Faith D. Hentschel, Ph.D.

Fredrik T. Hiebert, Ph.D.
Frederick Hocker, Ph.D.
Carolyn G. Koehler, Ph.D.

Jeff Royal, Ph.D.
Cheryl Ward, Ph.D.
Gordon P. Watts, Jr., Ph.D.

SUPPORTING INSTITUTIONS

Australian Institute of Maritime Archaeology
Boston University
Brown University
Bryn Mawr College
University of California, Berkeley
University of Cincinnati
Cornell University

Corning Museum of Glass
Departamento de Arqueología Subacuática de
la I.N.A.H., Mexico
University of Maryland, Baltimore County
New York University, Institute of Fine Arts
University of North Carolina, Chapel Hill

Partners for Livable Places
University Museum, University of Pennsylvania
Texas A&M Research Foundation
RPM Nautical Foundation
Texas A&M University
The University of Texas at Austin

Institute of Nautical Archaeology
P. O. Drawer HG
College Station, TX 77841-5137

NONPROFIT ORG.
U.S. POSTAGE
PAID
COLLEGE STATION,
TEXAS 77843
PERMIT NO. 19