

IN A NEWSLETTER



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INA NEWSLETTER



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Member Contributions Welcome!

We want to include you in future issues of the INA Newsletter.

Do you have an experience you would like to share with INA members? A trip? A photograph? A museum or site you've been to? A news item? A book you've read? A conference you've attended? A suggestion?

We're interested in what you have to say and contribute. Send submissions and queries to:

Editor
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Written submissions should be limited to 1,000 words and are subject to approval and editing. **Please clearly mark everything with your name and address** so we can return it to you. We can not be responsible for items lost by the postal system, so please do not send original illustrations or photographs. Detailed format information available upon request.

Cover: *Kyrenia II* in the doldrums north of Rhodes off the Turkish coast.
(Photo: Susan Womer Katzev)

The INA Newsletter is published quarterly.
Editors: Diana Thornton and Cheryl Haldane

George Bass Receives Centennial Award

George F. Bass, INA's archaeological director, received one of 15 National Geographic Society Centennial Awards in November, 1988. The Society created the awards to honor pioneers of discovery who have devoted their lives to expanding knowledge of the earth and its inhabitants.

"I was thrilled to be given this award," said Bass. "Two of my youthful heroes were Jacques Cousteau and Sir Edmund Hillary, and to be included in their prestigious company is a great honor."

Each of the 15 men and women symbolize the best in their disciplines and reflect long associations with the National Geographic Society. George Bass received his first Geographic grant in 1961 to assist the first season of excavation at Yassi Ada, and continuing Geographic support of the Late Bronze Age shipwreck excavation at Ulu Burun emphasizes the long relationship between the Geographic and nautical archaeology.

At the centennial celebration dinner in Washington, each honoree received \$10,000 donated to organizations in her or his field of research and the Centennial Award, a Steuben crystal globe atop a crystal and silver pedestal.

Before presenting the awards, Geographic president Gil Grosvenor said, "One mark of great individuals is their ability to look beyond areas of expertise to

see the larger picture—to understand problems facing us all and to do something about them. It is gratifying to me that the Society has supported such individuals through research and exploration grants and that we are honoring them with this award."

A writer in the *Washington Post* remarked, "The list of honorees is an anthem to adventure—physical and intellectual—but perhaps most astonishing is that their accomplishments are so natural a part of otherwise quite ordinary lives. Each simply made a quiet, passionate decision to follow a dream."

George Bass had been interested in diving all his life, but only learned to dive in the weeks and days before beginning the Cape Gelidonya Bronze Age shipwreck excavation in 1960 (See *INA Newsletter* 15/2). With the discovery of the intellectual adventure that accompanied shipwreck archaeology, Bass became so enthusiastic about the field that today he is considered the father of nautical archaeology and has been excavating under water for thirty years.

As his students can well attest, he points out that the excitement of finding 3,000-year-old pots on a shipwreck is temporary and ephemeral, but the thrill of discovering what the pot means and how it fits into our knowledge of ancient life lasts much longer.

Other pioneers in undersea research honored by the Centennial awards were Jacques-Yves Cousteau, a principal developer of the Aqua-Lung; Harold E. Edgerton, who developed the stroboscopic flash and underwater camera systems including side-scan sonar; and Robert Ballard, who is thought to have spent more time in deep-diving research submarines than any other scientist. Ballard's 1985 discovery of the sunken R.M.S. *Titanic* only draws attention to his accomplishments as an explorer of the ocean floor.

And another pioneer, three-time United States senator John Glenn was honored for circling the earth three times in 1962, traveling more than 83,000 miles aboard the space capsule *Friendship 7*.

Bradford and Barbara Washburn, cartographers, were honored for their contributions to aerial mapmaking and to



mountaineering and science. Sir Edmund Hillary's commitment to science and exploration led him to reach the highest point on earth, the summit of Mount Everest, and then to build schools and hospitals for the native Himalayan Sherpas in addition to creating a national park to protect their homeland.

Jane Goodall's study of the chimpanzees of Tanzania's Gombe National Park is the longest continuous field research ever conducted on a wild animal. Bioecologists Frank and John Craighead, renowned for their definitive research on the grizzly bear, were leaders in radiotracking and satellite biotelemetry for the study of animal ecology and habitat analysis.

The lifelong achievements of Kenan T. Erim, excavator of the ancient classical Greek city of Aphrodisias in Turkey, has altered the way people view the ancient world. The achievements of Mary D. and Richard E. Leakey in the search for the beginnings of humankind at Olduvai Gorge has likewise affected our knowledge of our most ancient ancestors.

The Society also honored Thayer Soule, who has shared his unique knowledge of the world and its peoples with audiences throughout North America.

In celebration of its hundredth anniversary, the National Geographic Society has also issued a 90-minute program entitled *The Explorers* which features some of Bass' work.

Cheryl Haldane



Voyage of *Kyrenia II*

Text by Michael Katzev

Photos by Susan Womer Katzev

As readers of the *INA Newsletter* know, *Kyrenia II* is an authentic replica of a fourth-century B.C. Greek merchant ship excavated some 20 years ago off the north coast of Cyprus. *Kyrenia II* was built as a cooperative effort in experimental archaeology by the Hellenic Institute for the Preservation of Nautical Tradition (HIPNT) and the Institute of Nautical Archaeology (INA) at the shipyard of Manolis Psaros in Perama, Greece, between 1982 and 1985. She, like her prototype, is 14 meters in length, capable of carrying upwards of 30 tons burden, and propelled by a single square sail.

In September of 1986, *Kyrenia II* made a tightly scheduled and largely ceremonial voyage from Greece to Cyprus. Regrettably, my doctor would not allow me to accompany her. I was recovering from an appendectomy complicated by peritonitis. During that trip, which in part duplicated the route of her ancient predecessor, *Kyrenia II* sailed over 400 nautical miles, averaging 2.95 knots, through becalmed to 20-30 knot wind conditions.

April 1, 1987, the 32nd anniversary of Cyprus' struggle for independence, *Kyrenia II* was scheduled to begin sailing from Cyprus back to Greece. Foolishly, perhaps, for Hesiod—a Boeotian landlubber of the seventh century before Christ—advised:

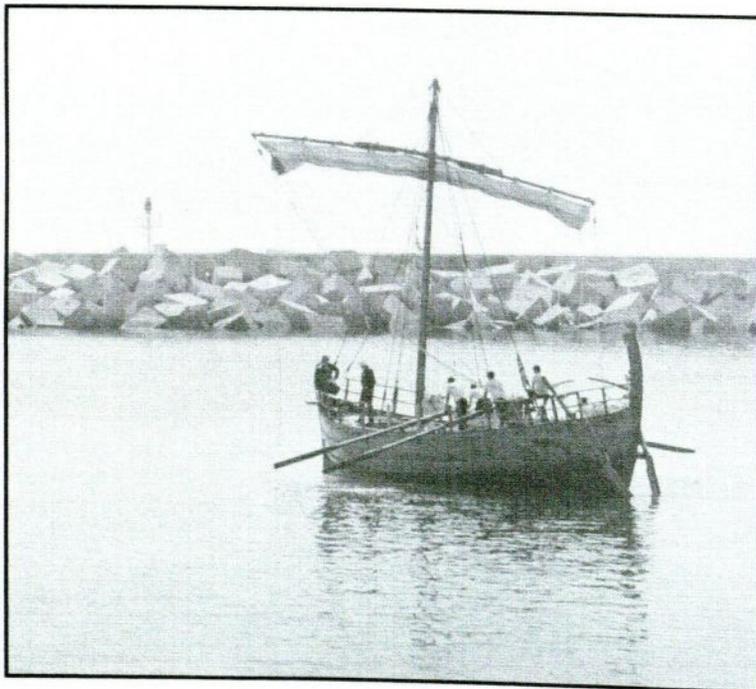
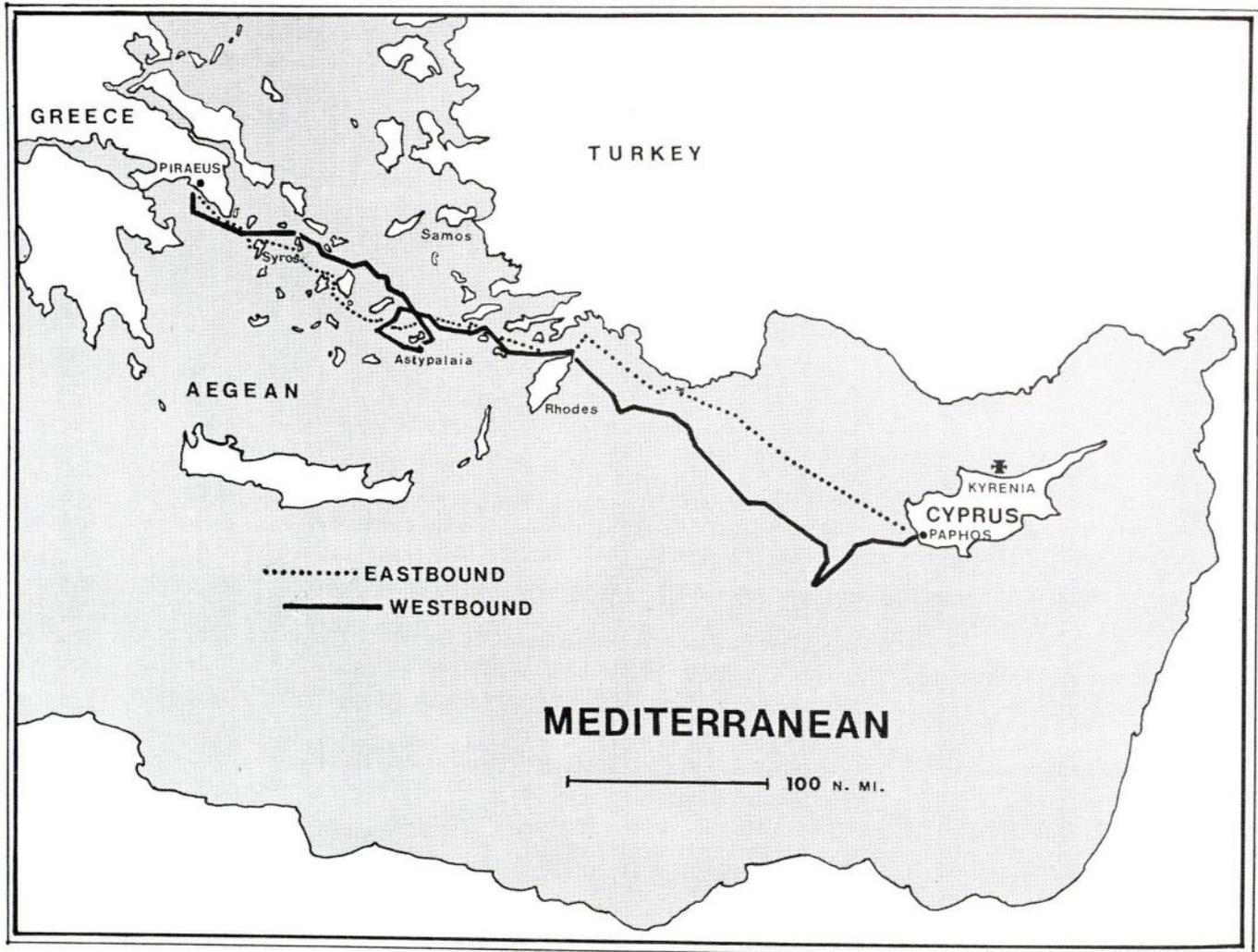
There is one other sailing season for men, in spring time. At that point, when you first make out on the topmost branches of the fig tree, a leaf as big as the print that a crow makes when he walks; at that time also the sea is navigable and this is called the spring sailing season. I for my part do not like it. There is nothing about it that I find pleasant. It's snatched. You will find it hard to escape coming to grief. Yet still and even so, men in their short-sightedness do undertake it.

(The Works and Days, translated by Richmond Lattimore, lines 678-685.)

Despite Heriod's advice, our analysis of modern meteorological data indicated that April was the best month to sail northwest in the eastern Mediterranean: the summer brings the Meltemi, which blows adversely through the Aegean. But during the last week of March, Greece and Turkey again threatened to go to war with each other over oil drilling rights in the Aegean. The armed forces of both countries were mobilized for battle, and *Kyrenia II*'s departure was postponed.

Temporarily headed towards Libya, ancient land of the lotus-eaters, Kyrenia II sails close-hauled as the first day at sea ends.





The Saturday evening after that April Fool's Day, my wife Susan heard on the British Broadcasting Corporation, "The threat of war in the Aegean has been averted." Later that evening Harry Tzalas, President of the HIPNT and coordinator of *Kyrenia II's* voyages, called to say that tensions had relaxed and all systems were go for the voyage. Sunday Susan and I departed Arlington, Vermont, and Dick Steffy left College Station, Texas. We converged at the airport in Cyprus and Tuesday arrived in Paphos. There we found the ocean-going tug *Hellas*, very kindly provided by John Latsis as an escort vessel and observation platform for "scientific" observations. Yiannis Vichos, HIPNT representative was waiting for us, and we were all raring to go.

Above: Kyrenia II's path doglegged a bit as she traced the last voyage of the ancient ship, but her performance surprised us all.

Left: Kyrenia II is rowed out of harbor to catch the wind.

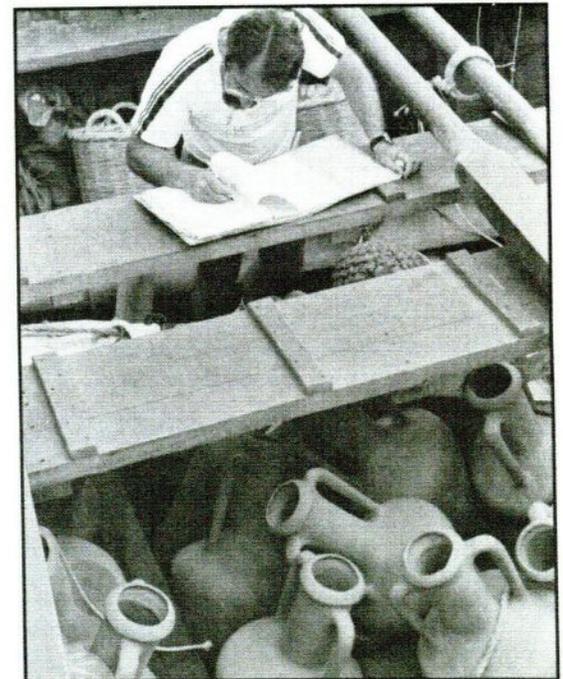
Top right: Riding the gale winds over her stern between Cyprus and Rhodes, Kyrenia II reached speeds over 12 knots.

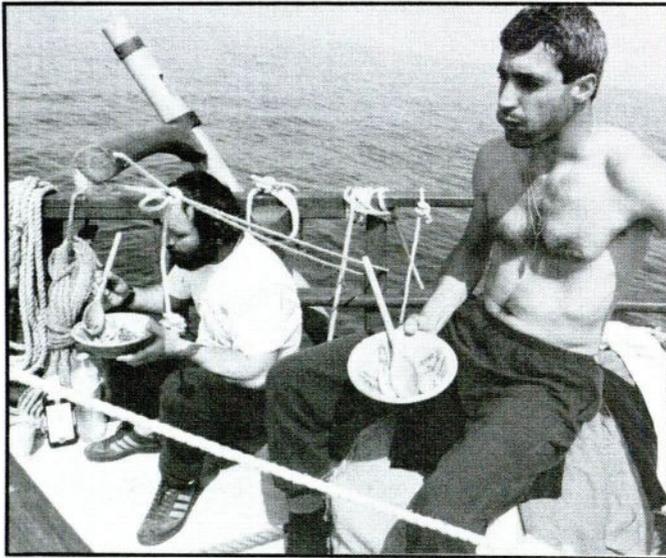
Bottom right: Likely replicating ancient red tape, Captain Glafkos Cariolou compiles for the harbor master in Rhodes a detailed accounting of his cargo. The amphoras lie unmoved by the storm.



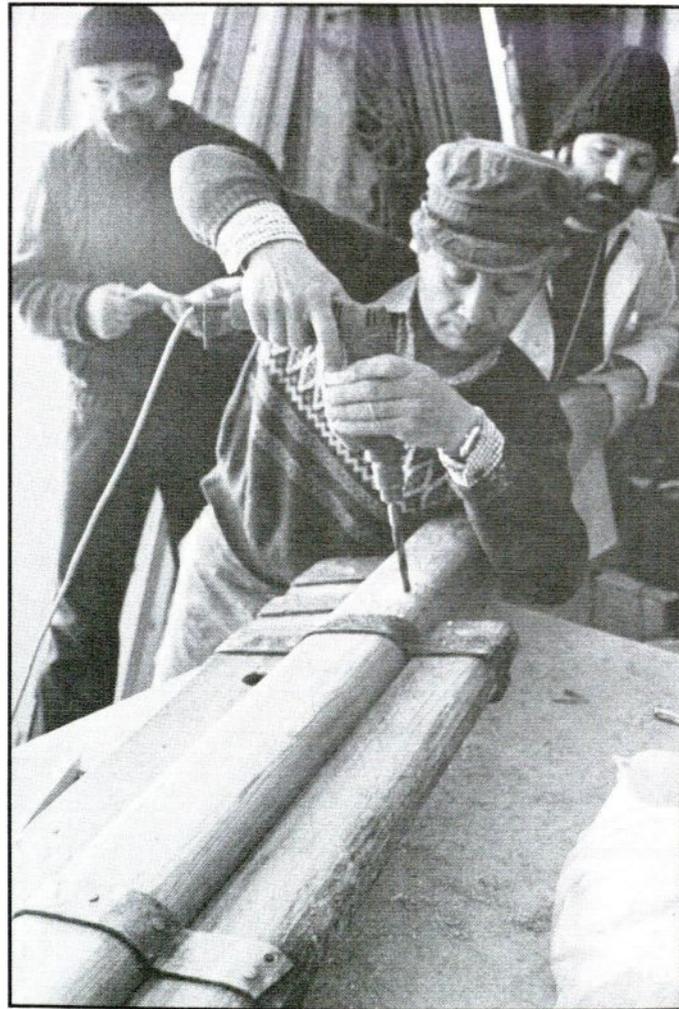
On Wednesday, April 8th, *Kyrenia II* set sail from Paphos for the Piraeus at Athens. She had no planned schedule, and her course was dictated only by the wind and sea. Her captain was Glafkos Cariolou, son of Andreas who had originally discovered the *Kyrenia* shipwreck. Initially, he set a course southwestward, towards where Odysseus found the Lotophagi (lotus-eaters), and after two days I began to wonder if he was intending a courtesy call on Muammar el-Qaddafi.

But the wind shifted, and during the fourth day *Kyrenia II* encountered a storm with gale winds and gusts of well over 40 knots between Cyprus and Rhodes. Over high seas spread with spindrift she sailed through rain for the first time. Though she heeled considerably, no water came in over her sides, and the hull remained relatively dry. Furthermore, some 35 amphoras—alas empty of wine—moldmade by Sophocles Mourides of Nicosia and replicating about one-tenth of the ancient ship's cargo of Rhodian amphoras, did not move at all,





Above: Out of Astypalala, Costas (left) and Stamatis (helmsman) "enjoy" lunch.



Right: The quarter rudder under repair by carpenter Konstantinos of Astypalala. Glafkos (left) and Costas looks on.

laden as they were atop sacks of gravel. The log frequently reached its maximum of 12 knots. In fact, Captain Cariolou recorded that during a 6-hour period *Kyrenia II* made 70 nautical miles, i.e. averaging over 11 knots. My notes indicate that for the 24 hours of that day she sailed 138 nautical miles, making an average speed of almost 6 knots. Quite a day for any sailing ship, but especially for one with only a single square sail. When we reached Rhodes, Dick learned that all the local fishing caiques had scurried home to ride out the storm.

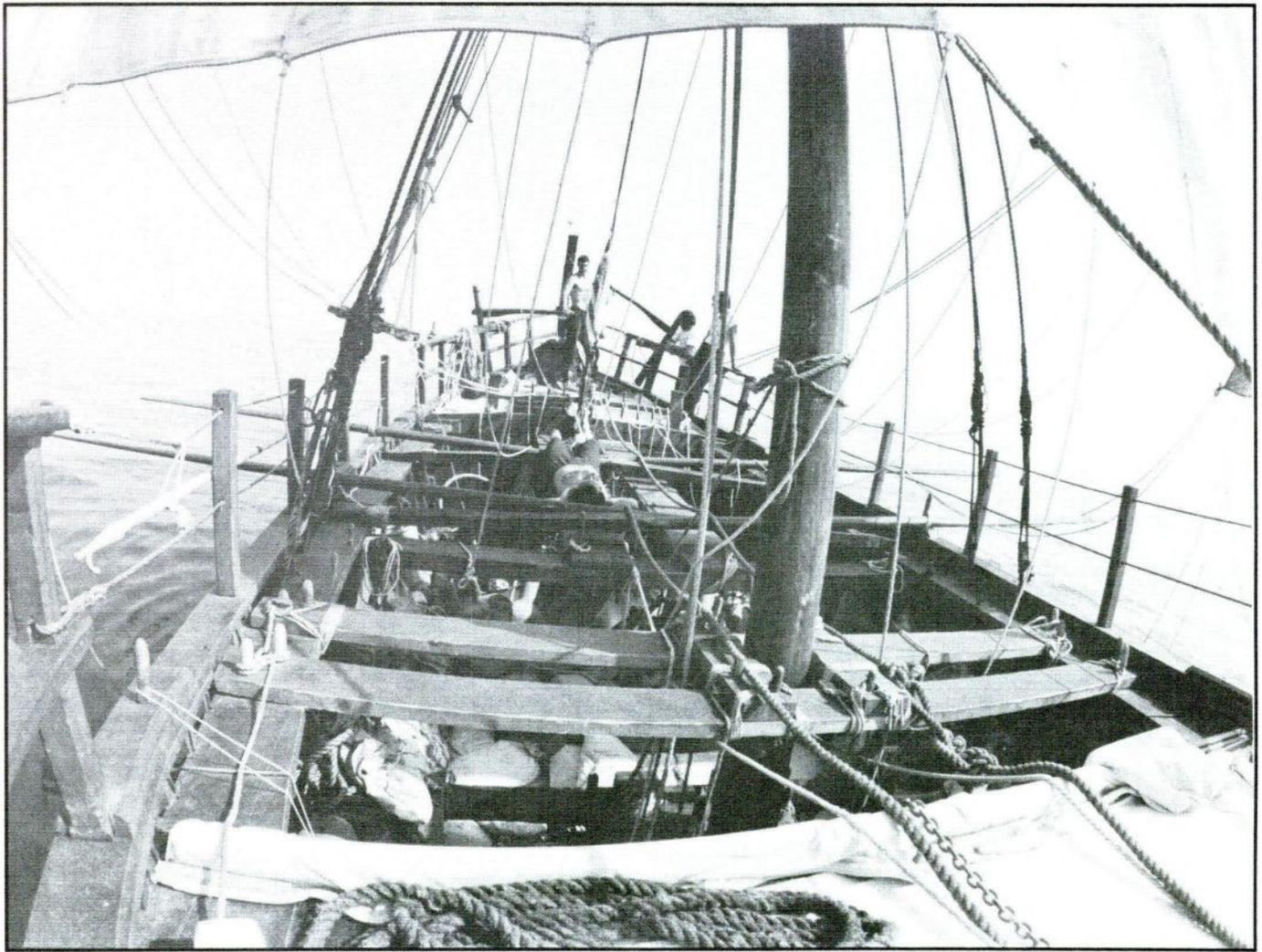
Our crew of four closely reflected the crew I believe manned the ancient *Kyrenia* ship. In addition to Glafkos Cariolou, they were Stamatis Chrisaphitis and Nikos Mertiris from Greece, and Costas Agathangelou and George Pafitis from Cyprus. Provisions on board included

water, milk, wine, brandy, olives, olive oil, honey, salt, oregano, garlic, onions, lemons, oranges, bananas, raisins, dried figs, almonds, peanuts, hardtack, goat cheese, lentils, white beans, sardines, tuna, salami, and smoked pork—which is to say that the crew nearly duplicated the victuals carried on the ancient ship. Because no hearth or stove had been found during the excavations, the crew cooked their food ashore, where it was served hot on primitive pottery with wooden spoons. By the way, both Glafkos and George whipped up delicious onion and lentil stews. The leftovers were later eaten on board simply warmed in the pot by the sun.

After leaving Rhodes, the crew experienced more rain and then frigid temperatures. In the night east of Astypalala, *Kyrenia II* sailed close-hauled

through a storm with the wind gusting from the north to almost 55 knots. During a three-hour period around midnight she averaged over 7 knots on a starboard tack and frequently made speeds of 10 to 12 knots. However, under the stress of the intensifying storm, the tiller of her port quarter rudder broke. The captain decided to take refuge at Astypalala. There, the town carpenter, Konstantinos Nikolakis, repaired the tiller for free, and as *Kyrenia II* was the most unusual vessel to wander into this quiet island's port in a long time, the ship became a celebrity and we all enjoyed the hospitality of the mayor and his wife in a marvelous Easter celebration.

Setting out from Astypalala, sailing northwestward, *Kyrenia II* found only light breezes of 4-6 knots. Even while sailing close-hauled 50-60 degrees of the



Top: From the foredeck looking aft over the open hold, one sees the complexity of lines used to handle the ship.

Right: Stamatis (left) aids Nikos sewing a leather sheath over the center of the yard to protect the halyard from wear.



Captain Cariolou went over the side to replace the quarter rudder in the storm brewing off Syros.



direction of the wind, she was still able to make over 2 knots. No one had ever expected a replica of an ancient ship with only a single square sail to move so closely into the wind at such an effective speed.

In both balmy and inclement weather conditions sleeping on board was surprisingly pleasant. Taking turns through day and night, the crew found comfortable space in the cuddy below the foredeck, on reed mats atop the amphoras, or in the stern locker beneath the steersman's aft deck where it was dry and one was sheltered from the cool damp night air—as I can personally attest.

East of Syros, *Kyrenia II* ran into another brewing storm. With the wind rapidly increasing to well over 20 knots, she was again sailing close-hauled at almost 7 knots when the loom of the port quarter rudder broke. While under sail, Captain Cariolou replaced it with a spare. But as the force of the wind continued to increase, Cariolou decided to ride out this storm's brunt in the safety of the port of Syros.

Early in the morning of April 26th, *Kyrenia II* arrived in the Piraeus. Through light winds and three gale storms she had sailed almost 500 nautical miles, averaging 2.85 knots. Should we have followed Hesiod's advice and stayed at home? No! We learned so much from this voyage. Dick is still pondering how to better mount the steering oars so they will not break under stressful conditions. I am hoping that we can yet observe her sail through the Mediterranean laden with a full cargo of 30 tons or more. But, in the meantime, we have seen *Kyrenia II* sail through a variety of conditions. She is very seaworthy, and her strong shell-first hull has remained tight and dry through high seas. She has proven her ability to sail into the wind, whether light or strong, and attain remarkable speeds. With a fair wind over her stern, *Kyrenia II* sails like a filly thoroughbred breaking track records, speeding well beyond our highest expectations.

Additional Reading

Katzev, Michael L.

- 1970 Resurrecting the Oldest Known Greek Ship. *National Geographic* 137(6):841-857.
- 1974 Last Harbor for the Oldest Ship. *National Geographic* 146(5):618-625.
- 1980 A Replica of the Kyrenia Ship. *INA Newsletter* 7(1):1-6.
- 1981 A Sailing Model of the Kyrenia Ship. *INA Newsletter* 8(2):4-7.
- 1986 Kyrenia II. *INA Newsletter* 13(3):1-11. Susan and Michael Katzev.

Steffy, J. Richard

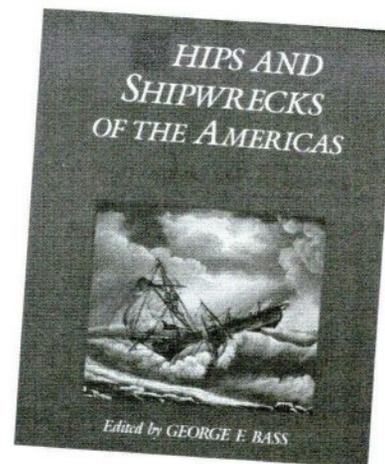
- 1985 The Kyrenia Ship: An Interim Report on Its Hull



INA Review

Book

Ships and Shipwrecks of the Americas, edited by George F. Bass, brings together for the first time the remarkable work of leading nautical archaeologists of America and Canada, many trained at Texas A&M University, to tell the story of watercraft in the Americas. (272 pages, 376 illustrations) Published by Thames and Hudson, Ltd. of London and New York at \$40.00, it is available to INA members for \$25.00, while supplies last.



Reviewed by Barrett Richardson

In the late 1950s, retired contractor Kip Wagner, floating on an inner tube in shallow water near Sebastian Inlet, Fla., came across the remains of a vessel that proved to be part of a convoy of Spanish treasure ships sunk by a hurricane in 1715.

Other underwater archaeological treasures have proved a lot tougher to find. George F. Bass documents some outstanding examples in his innovative approach to the history of the New World, offering information about the ships used to discover, explore, settle and defend it.

In *Ships and Shipwrecks of the Americas*, Bass presents chapters by prominent nautical archaeologists writing about their particular fields of expertise. By studying sunken vessels, researchers are able to compare historical accounts with archaeological evidence and fine-tune the facts.

Beginning with a chapter on early watercraft such as rafts, canoes, skin boats and Viking ships, the book progresses through the end of the age of sail in the 19th century.

One of the most fascinating chapters concerns the four New World voyages of Columbus and the search for some of his ships lost in the West Indies. On his initial voyage, Columbus' flagship *Santa Maria* struck a shoal near what is now Haiti, becoming the New World's first recorded shipwreck. The great discoverer lost four caravels on subsequent voyages. Though no certain remains of them have been found, the search continues.

Columbus' shipwrecks are included in a two-page graphic that lists vessels lost in the New World from 1492 to 1520 and maps their approximate locations.

The earliest New World shipwrecks that have been dated and explored are found off Padre Island, Texas. In 1554 three Spanish ships were driven against the Texas barrier reef and wrecked. Together, the ships constitute an archaeological benchmark—the touchstone used to assay the antiquity of other shipwreck sites.

The book is richly illustrated with color plates and line drawings. Included are photos of modern replicas of the *Susan Con-stant*, *God Speed* and *Discovery* that brought English settlers to

Jamestown. Also shown is a replica of an 18th century bateau found in downtown Richmond where more than 60 such craft were discovered at the site of an old canal.

The chapter on "The Civil War at Sea" spotlights the Hampton Roads battle of the Union *Monitor* and the Confederate *Virginia*. In addition, the chapter follows the *Monitor* to her watery grave off Cape Hatteras where she sank on Dec. 31, 1862. Considerable space is devoted to the twentieth century search for the *Monitor*, which eventually was found bottom up on the ocean floor in 1973.

Artifacts recovered from the *Monitor* have been consigned to the Mariners' Museum for display and conservation. The National Oceanic and Atmospheric Administration is working in conjunction with the National Trust for Historic Preservation to develop plans for preserving the vessel.

A chapter on shipwrecks of the War of 1812 describes the remarkable well-preserved wrecks of the *Hamilton* and *Scourge* found resting on the bed of Lake Ontario. There are also fascinating chapters on Basque whaling vessels off Labrador and steamboats in the inland waterways.

Finally, the book has an epilogue dealing briefly with famous 20th century wrecks such as the liners *Titanic* and *Andrea Doria* and the submarines *Thresher* and *Scorpion* and the development of deep search-and-recovery techniques used in connection with them.

Ships and Shipwrecks of the Americas carries the reader on an exciting search for archaeological treasures that have long been buried, and into shadowy niches of history that need to be illuminated. It also raises questions about the propriety and ethics of disturbing early shipwrecks in the quest for monetary gain.

Barrett Richardson is assistant editor of the commentary section for the *Virginian-Pilot* and the *Ledger Star*. Reprinted with permission. (Sunday, December 4, 1988)

COMPUTER GRAPHICS IN ARCHAEOLOGY

by Glenn Darrington

Glenn Darrington is a first year graduate student in the Nautical Archaeology Program at Texas A & M University. He is a research assistant for the Port Royal Project and is working with computers for recording site information.

Maps, site plans, schematics, and profile drawings have always been tedious yet necessary for archaeologists to record three-dimensional space in two dimensions. Accuracy and attention to detail is crucial because future scholars will be unable to study the archaeological features first hand. Furthermore, as a site is being excavated, it is being destroyed and lost forever. Therefore, graphics, maps and site plans must record and convey as much data as possible.

For the past three decades, archaeologists have taken advantage of computer technology, particularly for statistical processing, but it is only in the last ten years that computers have become a practical and cost effective tool with a wide range of applications. Today archaeologists are incorporating computer aided design in their repertoire of research techniques.

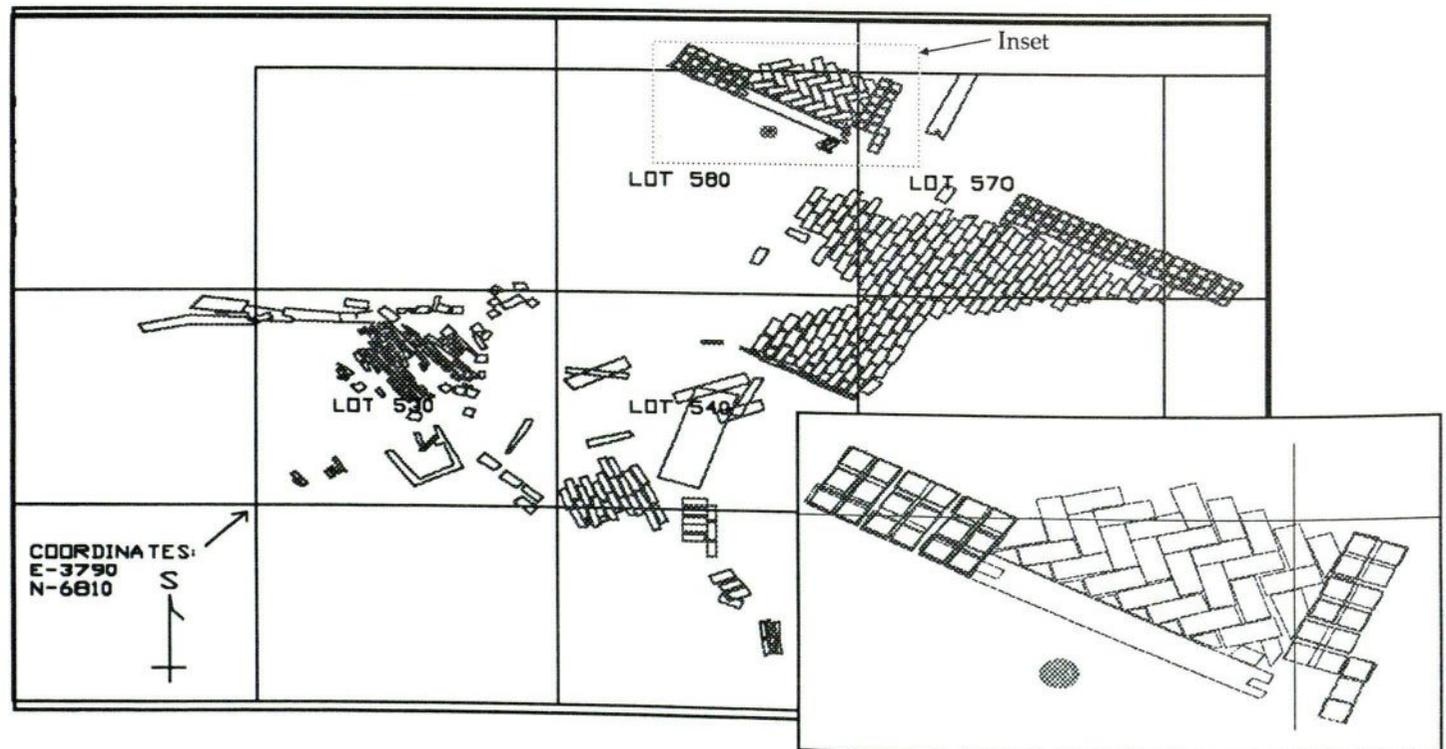
Since 1984, INA has used a design software package called AutoCAD (published by Autodesk, Inc.) to assist in the prepara-

tion of site plans. AutoCAD, one of many design software programs available, can be run on an IBM compatible computer system. It can even be run on laptop computers used in the field.

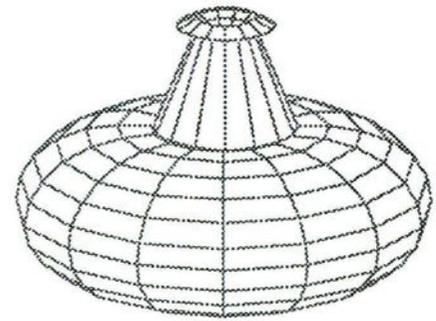
AutoCAD does not allow a user to draw more quickly. Its principal advantage is the time it saves in editing. Drawings can be saved, copied, changed, and combined rapidly without losing detail or information. The computer drawings it produces are also very accurate, with each point having up to 14 significant digits of precision. Angles are precise and lines are exactly straight. An object or plan of any size can be drawn by AutoCAD because scale is determined by the user. An archaeologist can look at an overall site plan, then zoom in to examine a specific area or artifact included as a detail in the drawing.

Another distinct advantage is AutoCAD's ability to use data collected by other devices to create a drawing. One example of this is the SHARPS device used by INA (see *INA Newsletter* 15/2). For the last five years AutoCAD has been used extensively by D.L. Hamilton for the Port Royal Project in Jamaica. The distribution and association of finds at Port Royal are plotted on AutoCAD drawings generated by measurements taken by ex-

This site plan was created with AutoCAD using coordinates and data from the Port Royal Project 1987 excavation. The inset is a detail of a doorway and walls (shown three-dimensionally on the next page) showing the association of an onion bottle.



This drawing of an onion bottle, shown as a separate entity (right), and incorporated in the views below, is meant as a representation of that artifact. Computer graphics do not replace drawing and photographing artifacts.

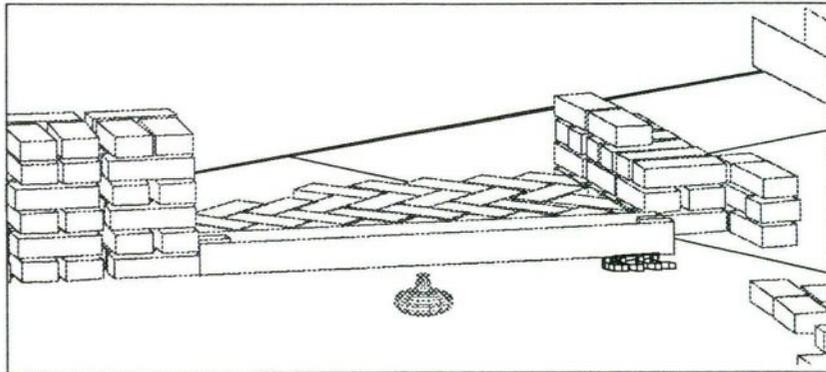


cavators working underwater. Hamilton uses AutoCAD to plan future excavations, for the placement of underwater datum points, and the layout of excavation grids. In addition, historical maps of Port Royal are now being entered into the computer with a digitizing pad. Once this is done, these computerized maps can be combined and overlaid for comparison with archaeological plans.

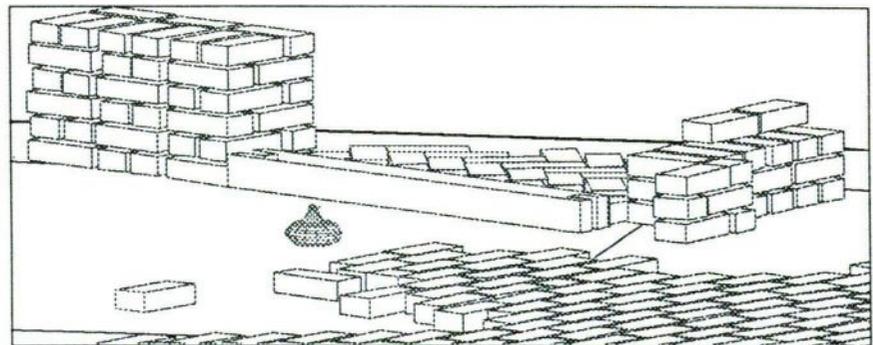
A new feature of AutoCAD is its ability to draw "fair lines" used in the representation and reconstruction of ships. Lines can be extended, trimmed, broken, and erased quickly and accurately. Shipwreck cargos can be plotted and displayed to show their original relationships. Since individual entities can be easily moved, the computer drawing can even be used to analyze how a ship broke apart and scattered its contents.

One aspect of AutoCAD which holds potential for archaeologists is its ability to display three-dimensional representations. Artifacts can be compared using the accuracy of the computer and not the flaws of the human eye. Sites recorded in 3-D space can be rotated and examined from any perspective, even from underneath. Three-dimensional drawings are helpful diagnostic and display tools for rebuilding the structures of antiquity on paper.

Computer aided design software does more than just draw maps for the archaeologist. Computer graphics can be used for complex diagrams, charts, and graphs in reports and publications. Drawings can also be arranged to create a computer-generated "slide show," with special projectors to display drawings for presentations directly from the computer. 



An infinite number of three-dimensional views can be generated from a single drawing simply by altering the "viewpoint". The two views of the doorway and associated artifacts shown below were actually created from the same plan on the previous page..



News & Notes

Turkish Prime Minister Presented with Sword

George Bass, INA's archaeological director, presented Turkish Prime Minister Turgut Ozal with a replica of a Canaanite sword at a reception during Ozal's December visit to Houston, Texas. The original sword was excavated from the Late Bronze Age shipwreck at Ulu Burun, Turkey. INA Director Peter Way and his wife, Mary Faye hosted the reception which also honored Mrs. Ozal. INA President Robert Vincent gave Mrs. Ozal a replica of a gold pendant from the Ulu Burun shipwreck.

The reception, covered by the Turkish television network TRT and broadcast the following day in Turkey, was also attended by Cemal Pulak, field director for the Ulu Burun excavation.

The presentation of the artifact replicas recognized the nearly 30-year-long relationship between INA and Turkey and was intended as a measure of thanks for the strong support given to INA by the Turkish government and people.



Chinese Archaeologists Visit INA

China has a vast coastline and a long history of seafaring, but Chinese archaeologists were not involved in underwater archaeology until 1987 when the Museum of Chinese History in Beijing began a national scientific research program in this area. **Zhang Wei** (above left), the director of the Underwater Archaeology Program, and **Yang Lin** (above right), the coordinator of Underwater Archaeology at the State Administrative Bureau for Museums and Archaeological Data in Beijing, were placed in charge of dev-

elopng this program. They have come to College Station to study advanced methods and theories of underwater archaeology at the Institute of Nautical Archaeology.

Although they will be here only four months, they are auditing classes in nautical archaeology and ship research and participating in conservation of artifacts at the Molasses Reef Laboratory. Their visit has opened the door to future cooperation between Texas A&M University and the Museum of Chinese History.

SERÇE LIMANI GALLERY TO OPEN IN BODRUM

We are pleased to report that the Serçe Limani Gallery in the Bodrum Museum of Underwater Archaeology in Bodrum, Turkey, will open in July of this year. INA staff members and volunteers have been working since 1984 to prepare the reconstructed 11th-century A.D. Glass Wreck for exhibition in the newly built hall.

Although the ship is the focal point of the exhibit, displays of glass and other objects from the wreck will highlight the story of its final voyage. Visitors will be able to visualize the ship as she once was with the help of models and a full-scale replica of her midsection.

Only one other ancient ship recovered by underwater excavation is on display in the Mediterranean; it may be seen in Kyrenia's Crusader Castle. INA excavations at Kyrenia, Cyprus, resulted in the reconstruction and display of the ship in 1974.

Faculty and Staff News

J. Richard Steffy. On January 21, Mr. Steffy was one of five speakers at the Denver Museum of Natural History for the opening of *Cities of the Sea Symposium*, the traveling exhibit on Ceaserea Harbor.

News & Notes

Archaeological Research Proposals

The Center for Field Research is accepting archaeological research proposals for review. Approved proposals are funded by EARTHWATCH, a private not-for-profit research and educational organization. All funds are derived from the contributions of participating volunteers selected from EARTHWATCH membership. All research proposals must therefore include a significant role for volunteer fieldworkers.

Preliminary proposals may be made by telephone or by a detailed two-page letter sketching the scholarly background of the research, the goals of the proposed

project, the need for volunteer fieldworkers, and an estimated budget. Upon favorable review, full proposals, to be submitted not later than one year prior to the projected start of fieldwork, will be invited. All full proposals are subject to independent peer review.

The Center will consider proposals for prehistoric, historic, and underwater archaeology anywhere in the world and especially encourages proposals for research in the following regions: North America, Mesoamerica and the Central American Intermediate Area, Scandinav-

ia, Central and South Asia, the Pacific Rim, and Sub-Saharan Africa.

Inquiries and applications may be directed to:

James A. Chiarelli
Program Officer for Archaeology
The Center for Field Research
680 Mt. Auburn St.
P.O. Box 403C
Watertown, MA 02272
(617) 926-8200 (617)926-8532 (FAX)

Center for Maritime Archaeology

The University of Maryland Baltimore County is seeking two senior maritime archaeologists/anthropologists to work with a group of faculty and the Maryland Historical Trust to develop a Center for Maritime Archaeology.

One of the appointees will be responsible for development of graduate programs in marine archaeology and the other will oversee direction and development of field research. Both appointments should be archaeologists who hold doctorates and have substantial experience in maritime recovery as well as proven track records as administrators.

The successful applicants will be appointed initially as research professors in one of the departments to be represented in the Center (e.g., anthropology, ancient studies, history, chemistry, etc.).

Letters of application, together with a curriculum vita and three named referees should be sent to: Derek G. Gill, Ph.D., Room 1005 Administration Building, UMBC, 5401 Wilkens Avenue, Baltimore, MD 21228. UMBC is an affirmative action employer and minorities, women and disabled persons are encouraged to apply.

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