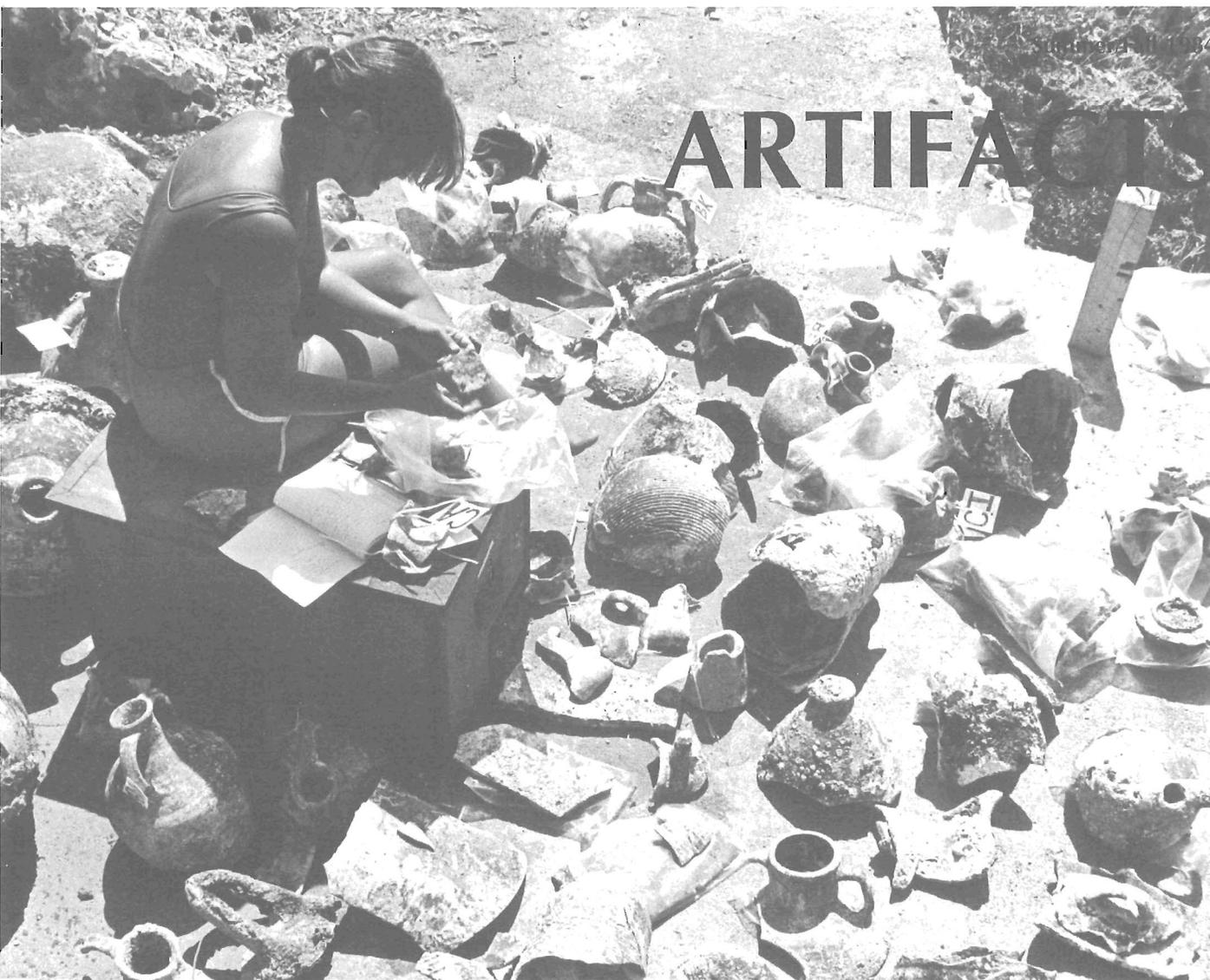


# INA NEWSLETTER

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(Photo by Don Frey)

Their appellations vary—from “material culture” and “finds” to “relics” and “goodies”—depending on whose hands they are in. For some people, they are symbols of history and keys to the past. For others, they are an investment. For others still, they are trophies from a good dive or souvenirs of a great vacation.

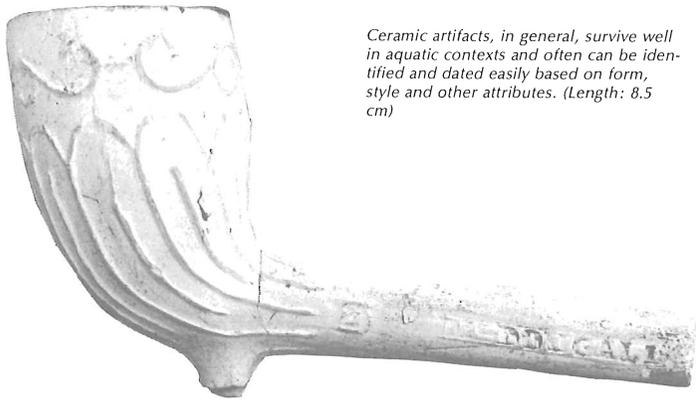
These precious items that everyone who dives doesn't mind finding; these finely crafted cultural remnants plucked or dug or wrenched from the seabed; these gnarly, stinky hunks that don't look like they belong out of water—these are artifacts, and they are one of nautical archaeology's greatest mixed blessings.

Artifacts may be defined as objects manufactured or modified for human use. As such, they come in all shapes, sizes, ages, material constitutions, and represent an array of technologies. Before they were abandoned, they may have had functional, sociological or ideological roles to play in the

lifeways of a bygone population. It is the interest of archaeologists to reconstruct those past lifeways, in part by reconstructing the forms, functions and roles of artifacts found on historic and prehistoric sites.

As any nautical archaeologist will tell you, this task may present problems not encountered by scholars of terrestrial sites. For while an aquatic context actually may promote preservation of materials that could not survive on land, the condition of these items when retrieved from their wet environments usually necessitates considerable care and treatment to restore them to a former likeness.

We have included in this issue of the *Newsletter* several essays about various aspects of artifacts. Nowhere near a complete discussion of the archaeologist-artifact relationship, the following survey instead strives to share some general thoughts and some examples from INA associates about their projects.



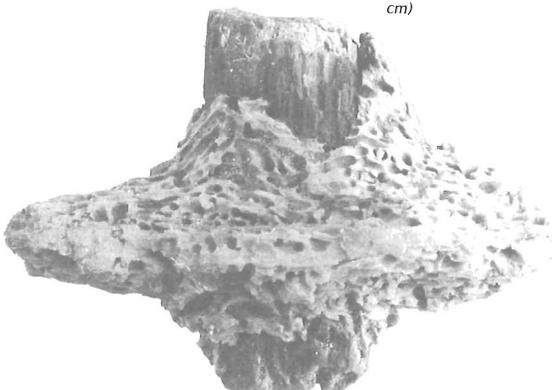
*Ceramic artifacts, in general, survive well in aquatic contexts and often can be identified and dated easily based on form, style and other attributes. (Length: 8.5 cm)*



*The survivability of glass artifacts is variable depending on site conditions. Objects covered quickly by seabed sediments may endure intact for centuries; however, once retrieved from water, they must be treated promptly to prevent the glass from drying and flaking. (Height: 20 cm)*



*A bone-handled knife exhibits two types of artifact response to marine exposure. Metal objects, except gold, acquire a calcareous coating which may or may not inhibit deterioration of the object within. Bone, ivory and similar organic products can survive well, and, in fact, excavated animal bones often yield clues to shipboard diet. (Length: 16.5 cm)*



*Wood degrades quickly in the sea unless it is covered by sediments or surviving ship's cargo. Nonetheless, fragments such as this treenail can provide valuable evidence. (Width: 5 cm)*

It is not uncommon to think of artifacts in terms of tangible dimensions: we could hold one; museums have them; they have monetary value; I could find one. These perceptions are not inaccurate, and in fact, in the study of most artifacts one works with organized classifications that are valuable precisely because they are identified, described and dated according to some obvious and manageable attributes.

But within the larger universe of artifacts, there also are the dimensions of time and space—the former stretching over millenia and the latter meaning spatial contexts and affiliations of which an object once was a part. Thus, while archaeologists may find endless joy in the study of some specific category of artifact from some certain period of the past, their curiosity is only fully sated when the cultural and temporal logic of their materials become equally well understood.

Such reconstructions rarely are easy; if you wonder why, consider the vast “material culture” that is at your own disposal right now within your community, or just your own household. What is the logic behind this “assemblage of artifacts,” and what are its functions? How does your assemblage differ from your neighbor’s, or from that of a friend who lives elsewhere in the country? Consider as well your own casual or conscientious treatment of the possessions you own and discard—and which may survive you by hundreds or thousands of years. Do you have a trunk of heirlooms you will pass to your grandchildren? Are you a builder, tinkerer, artist or artisan who has fabricated or modified some object? Have you ever moved somewhere and simply left the “junk” behind? What becomes of your trash?

Such questions are posed retrospectively by terrestrial archaeologists interested in cultural and physical evolution and by nautical archaeologists interested in maritime evolution. It is the study of artifacts—as large as ships’ hulls and as seemingly inconsequential as an individual glass shard among one million—that allows us to suggest how a person or population before us might have answered.

If we have a selection of artifact sets from a single site, we gain a fuller knowledge of the interaction of technology, environment and cultural mind-set in one place at one time. If we compare our sets with those from contemporaneous sites elsewhere, the distribution—the range in space—of the product, or the concept, or the usage can be measured. If we have a chronological series of sets, we can observe how an object changed through time—how it was modified, adorned, replaced or revitalized. An archaeologist’s ability to examine artifacts in the dimensions of time and space depend, in part, on the availability of comparative collections with which to observe the contrasts. Ultimately, his or her special set of objects will form a similar collection.

It is no wonder, then, that archaeologists strive to recover as much as they can, in the best possible condition, with clear-cut recording, when they excavate an archaeological site. In addition to artifacts, they collect “ecofacts”—natural items associated with a site, such as pollen, indigenous foliage, the rocks that form ballast; they seek these as eagerly and purposefully as any other material remain since the more data assembled, the more explanation that can be proposed. Through the evolution and experiences of the discipline, and the increased use of technology, the modern archaeologist’s techniques for the handling of artifacts have become honed and mandated. Between the site and the display case, the steps include careful retrieval, precise recording, faithful description, preservative treatment, intensive study, published commentary, and, finally, presentation to the public trust. What cannot be given this treatment, an archaeologist will tell you, should not be taken from its context.

# If Only They Could Speak

*The confident statements which archaeologists make about the meaning of an artifact to its ancient maker or user are based on various scholarly evidence. But can such reconstructions really recapture the full impact of an object as it travelled from hand-to-hand through time? The following story, composed by several INA associates, suggests that there may be meanings we can never really know.*

The soot-smearred smith laid down his hammer to examine his handiwork. Fondling the device, its iron stained by his own sweat, he felt the satisfaction of creation. It would bring a good price.

The bosun hefted the object and checked the play of its four moving parts—two ankle loops, a connecting bolt and the wedge-shaped key—as he bargained with the smith. Finally, he nodded with grim satisfaction. After all, a ship could not sail without leg irons.

The crewmen on the loading dock could not help but to notice the irons and chains laid out prominently on a bale of trade goods. The message was clear: on this voyage, the captain would brook no mischief.

The mate stood before the captain to receive his sentence: for assaulting an officer, forty lashes and confinement in irons. His recovery was slowed by lingering malnutrition and exhaustion. The irons around his ankles forced him to hobble and crawl to carry out his lowly duties. Damn these irons and the devil who made them!

His misery turned to abject fear as the storm descended and the little caravel shuddered in the fatal embrace of the reef. Despite the mate's pleas, the commotion on the slanted decks permitted no time to free the fettered sailor; and a man in irons cannot swim well.

The dredge bites deeply into the sand. At first the archaeologist does not recognize the shape, it is so grotesquely encrusted. Quickly, he removes the overburden of 500 years, his heart quickening with the excitement of discovery. Could this be the missing piece, the object which will identify the site? He examines it more carefully: it is a pair of "bilboes," or leg irons. Suppressing the desire to chip away the imprisoning crust of

marine growth, to see in real life the shape familiar to him only in pictures, he instead tags it, records its position within the site, and sets it in a lifting basket bound for the surface.

The director pauses to gaze into the vat. It contains hundreds of heavily concreted artifacts from one of the oldest shipwrecks discovered in the Americas. The sight is both thrilling and depressing. Ahead are thousands of hours of cleaning, documentation and conservation. The magnitude of the task is staggering. He reaches into the vat and picks up a familiar shape: the bilboes. He smiles, feeling the strange attachment a discoverer feels for that which he discovered.

The volunteer slowly fills out the Artifact Record Form No. 855—"bilboes." She adjusts her goggles and applies the tip of the pneumatic chisel to the object. Her heart sinks as the chisel breaks through the encrustation and enters a cavity filled with mushy, black corroded iron. She wishes she had been given another object. This one is going to look awful, and people will say she did a poor job cleaning it.

The artist regards the crumbling shape in the basin before him. "Poor preservation, original surface largely missing," he notes on the artifact form, and begins to draw.

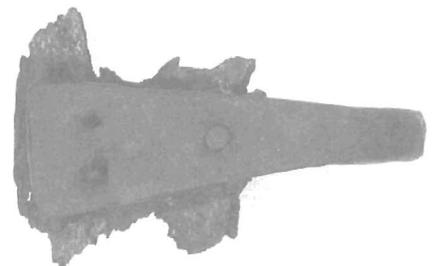
To draw is to see. To see is to understand.

Using the X-ray, he is able to discern the original thickness of the now-eroded ankle loops. The connecting bolt is still in good condition, revealing a head at one end and a slot like the eye of a needle at the other. Some of the original surface is preserved in small patches, enough to tell the irons had been carefully crafted. Strange that a smith would put such care into such a utilitarian object. But it is the end of the connecting bolt that attracts his attention: a peened-over iron wedge still remains jammed through the eye, locking the ankle loops onto the bolt. Why would the irons have been locked, unless . . . With horror, the artist realizes the significance of his discovery.

The director reviews Artifact Record Form No. 855, to which the artist's drawings have been attached. There is a comment in the margin, penned by the artist, to the effect that a pair of ankles may have been locked in the irons when they came to rest on the bottom. Well, perhaps that is worth mentioning in a footnote in the final report, but one should not jump to conclusions. After all, it is only a mute artifact.



**When the gnarly concretion** (above) was retrieved from the 16th-century Ottoman shipwreck at Yassi Ada, Turkey, Project Director Cemal Pulak wasn't sure what it was. After studying the encrusted artifact for several days, Pulak realized it was a "gudgeon"—a fitting that helps to hold a ship's rudder to the sternpost. By conventional construction, the vessel should have had several identical gudgeons; however, only two were found, and the second one, unlike its cleaned counterpart (below), has a noticeable and unique curvature. From this and related evidence, Pulak has been able to determine the shape of the stern of the wreck, the design of which not only was a surprise but which also explains the least well-preserved portion of the shipwreck. (Bottom) Pulak cleans the gudgeon with a pneumatic chisel. (Photos by Cemal Pulak)



# Why Artifacts Survive

*The state in which shipwrecks and artifacts are found depends on a number of factors. Their condition at sinking, the nature of their demise, and the speed of their burial influence survivability even before time and tide go to work. The age of the site may be incidental, but the composition of the interring environment is not. Describing a particularly hospitable environment he investigated, INA Research Associate Roger C. Smith compares the conditions which favor artifact preservation with those which do not.*

The water was unusually murky and warm, and unlike the clear emerald tones at other locations we had searched, its yellow-green color suggested stagnant, organic constituents. Far from crashing reefs and flowing channels, we found the tranquil spot we were seeking behind a small mangrove islet in the shallow recesses of an enclosed bay. A reconnaissance dive confirmed our expectations: nestled on the seabed's cushion of fine silt were scores of glass, ceramic, wooden, metal and other organic artifacts.

Labelled the "Careening Place" on many old charts of the Cayman Islands, the site portended a unique set of materials among the others we had found during our island-wide inventory of submerged cultural resources for the government. The historical designation of this site of maritime activity was intriguing, but we also appreciated its position on maps, in a remote corner of Grand Cayman's great North Sound. As we ultimately discovered, the same natural factors— isolation, tranquility and soft sediments—that led generations of mariners to haul over their ships at this one location for cleaning and repair also had ensured an undisturbed stratigraphic deposit of well-preserved artifacts. Concealed by dark, stagnant water and decay-

ing organic mud, safe from storms and civilization, the Careening Place was a virtual storehouse of centuries of lost and discarded nautical and cultural implements.

Artifacts are not often interred under such favorable conditions, and the sea destroys more man-made materials than it preserves. Although most unlucky vessels came to grief on shallow rocks or shoals, many sank at anchor or foundered in deep water; still others came ashore in storms or were intentionally beached. The preservation of ships and their artifactual contents may differ drastically in each situation.

Shipwreck components deposited on a reef likely will have been dispersed and scoured by the repeated ocean surge. We find that the sea tends to sort materials by shape, size and weight, washing some shoreward into protective waters and retaining others in crevices and sand pockets in or around the rocks. The energetic and oxygenated reef zone easily erodes organic objects and confers a calcareous, cement-like coating to other materials, especially items made of iron. However, once encrusted by coral and sand, wrecksite components remain relatively stable despite the growth of other flora and fauna upon them. Both manual and pneumatic tools are required to pry articles free of the carbonate crust, and the work can be tedious to prevent both natural and cultural damage.

Wrecksites in deeper waters more readily retain their integrity, tending to settle and collapse slowly into the seabed. While similar chemical and physical changes may affect the components, they do so less abruptly in the calmer conditions. If the bottom is composed of soft sand or mud, portions of the hull and its contents may sink into the sediments, becoming protected from further deterioration. Artifacts from such sites may



*Before-and-after states of preservation are exemplified by two large iron fasteners—one as it was recovered from the seabed, and the other after having undergone artifact conservation. (Photo by KC Smith)*

be remarkably well preserved; they also may retain the approximate positions they occupied when the vessel was under sail, which is invaluable in the reconstruction of shipboard assemblages and their relative functions.

Ships that came ashore in sandy or muddy tidal areas often were buried and preserved quickly; however, subsequent coastal activity may have scattered the materials in a lateral pattern shoreward or seaward with the movements of the surf zone. Depending on their specific gravity and shape, artifacts tend to be sorted vertically: flat potsherds, coins and light-weight items remain near the top of the strata, while ballast stones and cannon balls sink into the sand. Intense climatic events such as hurricanes also are notorious for redistributing artifacts, even heavy ordnance.

Some artifacts are more responsive to preservation under water than others. Corrosion rates differ among metals, iron suffering the most and gold the least. Chemical changes cause chlorides from seawater to permeate most submerged objects such as glass and glazed ceramics. Water temperature and salinity also affect the degree of preservation, as does the length of exposure of materials before they are buried. Wood and other organic elements understandably stand the best chance of survival if covered quickly by sediments. In tropical waters, the shipworm (*Teredo navalis*) devours exposed wood, but once deprived of oxygen it ceases its destruction.

*Continued on Page 5*



*A forest of soft corals sprouts on the upper arm and shank of an anchor; the other arm is held fast by crusty marine cementum. Ocean ecology eventually absorbs nearly all maritime materials transplanted from the sea surface to the seabed, although some environments are more hospitable and protective than others. (Photo by KC Smith)*

# Artifact Analysis

The study and analysis of artifacts involves more than merely identifying the objects. Being able to say, "This is a sherd of Chinese celadon," or "This is a wooden pulley sheave" does not answer the more fundamental questions that challenge an archaeologist every time he or she holds some object from a site: Why is this item a part of this assemblage? What function did it perform? How was it made? Is its construction a standard of its time?

To answer such questions takes, at the least, curiosity, time and patience; it also may require study of the structural components of an object, analysis of its fabric, construction of a replica, comparison with other known examples, and examination of documents and art works for comparisons. To varying degrees, this process is repeated with every unique artifact recovered from a site, for, ultimately, the archaeologist seeks to answer the most fundamental question of all: What can I know about the person or people who made and used this artifact?

The following article by Dr. Fred van Doorninck reveals the extent of information about function and fabrication technology that can be gleaned from the intensive study of one artifact set.

## Environments

*Continued From Page 4*

Artifact preservation is increasingly dependent on site accessibility to divers. Unconscious or intentional underwater beachcombing has caused the deterioration of countless submarine sites. Not only do artifacts become souvenirs that eventually self-destruct without proper treatment, but also wrecksites that are partially excavated by casual looting suffer irreversible exposure to the elements.

But despite the fickle nature of environments which preserve or consume materials, some incredible artifact finds have been made on shipwreck sites. Insects, pollen, food remains, containers of indigo and cochineal, articles of clothing, basketry, vials of pharmaceuticals, liquid mercury, unusual ordnance, paper, and paper-thin glass and ceramics all have been retrieved in amazing condition from some of the most improbable contexts.



Fred and B. J. van Doorninck apply final cosmetic touches to an epoxy cast of one of the anchors recovered from the 11th-century shipwreck at Serçe Liman. Eight such replicas now are on display in the Bodrum Museum in Turkey. (Photo by Don Frey)

## The Glass Wreck Anchors

Iron anchors, usually present on shipwrecks of medieval or later date, can tell us a great deal about contemporaneous anchor usage and iron-making technology and even something about the ships and men that used them. It is regrettable, therefore, that they are rarely given the attention they deserve by shipwreck archaeologists. A notable exception has been our own study of the eight iron anchors found on the 11th-century Glass Wreck at Serçe Liman, a study that has received substantial support through several grants from the National Endowment for the Humanities.

Although unoxidized portions of only three of the anchors remained, faithful replicas of all eight anchors have been made by cleaning out the concretion shells that had formed around the anchors as they oxidized, filling them with epoxy and then removing the concretion. A study of thin layers of iron-oxide scale adhering to the surfaces of the replicas and of the unoxidized anchor remnants has already yielded considerable information concerning the anchors' fabrication and subsequent history of use and maintenance.

Each of the anchors had been made out of about 15 pieces of iron, forge-welded together. At least two of the anchors had been stamped by their makers. One of the stamps takes the form of a flower; the other is a cartouche containing an inscription in Arabic letters. One wonders whether such stamps served merely to identify the fabricator or had some legal function as well.

The anchors were barely adequate in dimensions and weight for the ship that carried them, their weights ranging from only some 50 to 60 kg. Fabrication was the primary factor involved, for even a mod-

est increase in the anchors' cross-sectional dimensions would have necessitated substantial increases in hearth structure, charcoal consumption, and forging skill, were defective welds to be avoided.

Since the anchors were so light and fragile, the ship had carried four bower anchors ready for use (one probably had been cast just prior to the ship's sinking) and at least five spares stacked on deck. Some of the anchors were relatively new. Others had seen considerable use. One of these had had a broken fluke replaced; a poorly preserved stamp marked the repair. Three others had had their shanks broken and repaired. In two cases, the two parts of the original anchor were rejoined, but in the third case, parts of two different anchors were joined, thereby producing an anchor with a disproportionately long shank. Apparently, it was frequently, if not always, possible to retrieve both parts of an anchor when its shank broke. This suggests that it was normal practice to use both a main cable tied to the anchor ring and a buoy rope tied to the anchor crown.

The prudent captain had used some of his oldest anchors at the beginning of the voyage. By the time the ship had reached Serçe Liman, one or both of the flukes on five of his anchors had broken. Three of them, no longer reliable, had become spares, and their broken flukes had been carefully filed down in order to remove dangerous edges and to prevent further damage. It is little wonder that medieval Mediterranean ships had to carry so many anchors—11 on the 7th-century Byzantine ship at Yassi Ada and as many as 28 on the largest ships of the 13th century.

Carvings have even helped to date archaeological finds. The Oseberg vessel in Norway, for example, was dated to c. 800 based on the bow carving style, but artifacts within that burial boat were closer to 850 A.D. The boat decoration, therefore, indicated that the vessel was not new at the time of the burial.

Written accounts about shipcarvings contribute to our understanding of seafarers' attitudes about luck. Thus, the sailer-author Alan Villiers described being aloft once in a terrible storm: he and another sailor were trying to take in sail, when suddenly the clouds broke and he could see another ship sailing in the distance. Later he wrote of that experience, saying, "She ran with a delicate grace, as if the beautiful woman at her bow—her magnificent figurehead—were picking a way for her, avoiding the worst of the seas."

But in the journal kept by crewmember H. H. Neligan, aboard the 1869, Boston-built merchant ship *Great Admiral*, it is told that when the ship left port, a few of the crew would remove the portrait figurehead of Admiral Farragut from the bow and stow it in a special locker below deck. This seems more a case of the ship protecting the figurehead.

There have even been figureheads that were considered bad luck. A rather poorly done portrait of a shipbuilder's five-year-old daughter was placed on the schooner *Irma Bentley*, which was built in Canada in 1908. Soon the vessel had new owners, who found themselves in a violent storm. They decided their bad luck was due to the female on board, the figurehead, so they sawed it off and pitched it into the ocean. Either the figure floated to shore or someone else scooped it up at sea because by the 1950's—forty years after she was abandoned at sea—the lady found her way to a display in The Mariners' Museum, Newport News, Va., known only as "Unidentified Figurehead." Her identity did not remain a mystery: one day a woman visiting the museum proclaimed, "That isn't unidentified; that's my little sister!" In time, Irma Bentley, a woman then in her 50's, was reunited with the wooden portrait of herself as a five-year-old child.

Having worked with the figurehead collections in some of our nation's major maritime museums, I remember one carving that is of particular interest to me in this election year. The figure, seemingly a portrait of a woman in her 50's, had long been labelled "Unidentified." As I looked through museum records, however, I saw that she had originally come to the museum with the name "Belva Lockwood." Since no vessel of that name could be located, it had been assumed that the name was incorrect, hence, her label. In time, however, I learned that there indeed had been a distinctive 19th-century woman named Belva Lockwood, and she closely resembled the figure I was studying. Belva Lockwood was the first woman ever nominated for President of the United States, by the Equal Rights Party in 1884. It may well be that the vessel she decorated had, instead, a political name, such as *Equal Rights*, one which does appear in the 19th-century *Lloyd's Register of Shipping*.

The ways in which ship figures reflect society are manifold. As one focuses on the stories that are accessible to us from recent history, they also begin to open up new avenues of interpretation for ancient ship decoration. It appears that ornamentation of boats throughout history has been a significant cultural reflection, from the earliest extant bow decoration, that on the Cheops vessel of c. 2,600 B.C., to those infrequent ones still found on wood or fiberglass hulls in modern marinas. All over the world, decorations have meant something in terms of social, political, economic, and certainly artistic ideas. Ship decoration is a unique and fascinating way for us to better understand humanity, and nautical archaeologists surely welcome any evidence of decoration on vessels that they find.

The identity of a carving of Belva Lockwood, the first woman nominated for President of the United States, was determined through research by Carol Olsen. The figurehead is displayed at the Mystic Seaport Museum in Connecticut. (Photo by Carol Olsen)



## The Decorative Artifact

To be of interest to a nautical archaeologist, an artifact does not necessarily have to have come from under the sea, to have had a purely functional basis, or even to have been eons old when brought to light. The fascinating research by INA Executive Administrator Carol Olsen, described in the following article, reveals exactly this point and also suggests the extent to which art history plays a role in the study of the history of seafaring.

Decoration, as much as powerful guns or well-built ships, has been a means of expressing the strength and grandeur of nations. As Jean Baptiste Colbert, minister to Louis XIV, once commented, "Nothing can be more impressive, nor serve more to exalt the majesty of the King, than that his ships should be more magnificently ornamented than any others at sea." He spoke, of course, in the 17th century, which was the heyday of ship decoration.

It was a time when nations employed some of their best artists for marine sculpture, a situation which actually caused problems at times: artists were concerned with heavily festooning vessels with baroque figures, and at least one ship captain is said to have simply sawn carvings from his ship once he was at sea, to improve the handling qualities of the vessel. Perhaps nautical archaeologists will one day find such isolated examples of figures under water.

Meanwhile, archaeologists indeed have happened upon ships which are decorated. Most celebrated is the 1628 Swedish warship *Vasa*; other carvings from the 17th century include the handsome figures from INA's excavation of the *San Antonio de Tanna* in Mombasa, Kenya. The recent discovery of the *Hamilton* and the *Scourge*, which sank in 1813 in Lake Ontario, also revealed well-preserved figureheads; part of their value will be the explicit information they can provide about the fastening techniques used for 19th-century figureheads.

Among many differences, one point that clearly distinguishes scholars of nautical archaeology from collectors of nautical artifacts concerns the final disposition and ownership of the artifacts themselves. In the following article, Research Associate Roger C. Smith describes the role INA has played in supporting the scholarly view in the issue: that artifacts should be the property of populations, and not individuals.

Looting of underwater sites in the Mediterranean and Caribbean Seas began long before archaeologists recognized the academic value of sunken ships and their cargos. With the advent of the aqualung, sites in relatively shallow water increasingly became targets for souvenir hunters. Encrusted amphoras began to turn up along the shores of the Old World, and rusting cannons and anchors began to dot the coastlines of the New.

Authorities in many countries have been slow to counteract the piecemeal pilfering of their heritage, but increased traffic in wet-site antiquities has prompted several nations to enact laws that restrict underwater exploration of their coastlines. For the most part, however, legal enforcement is difficult, and many countries are only just becoming aware of the need to protect submerged sites threatened with destruction.

Indeed, the growth of underwater archaeology as a discipline has been largely in response to illegal salvage of artifacts from shipwreck sites in many parts of the world. From its inception, INA has taken a leading role in assisting foreign countries to counteract the effects of plundering and looting of submarine antiquities. Aside from its educational and research mission, and the academic training of students in archaeological pursuits, Institute representatives repeatedly have been summoned abroad to help government officials mitigate this problem.

An early example of these efforts came when INA Adjunct Professors David Owen and Cynthia Eiseman were asked by the superintendent of antiquities in Calabria, Italy, to investigate a 5th-century B.C. Greek shipwreck which had been plundered heavily. Laden with bronze statuary, lead ingots, and amphoras containing wine, the Porticello Wreck (AINA Newsletter, Vol. 2, No. 1) sank in the Straits of Messina, between Italy and Sicily, when Greece was at her cultural apex. Despite damaged and missing cargo, excavation of the scraps which looters left behind produced a significant contribution to our knowledge of trade, art and technology in the 5th century B.C.

## Archaeology And Looted Sites

Similarly, the surfacing of glazed black Campanian pottery and Greco-Italian amphoras on the antiquities market prompted a cooperative investigation by INA at the behest of the superintendent of antiquities of Eastern Sicily. The plundered pottery had come from a 3rd-century shipwreck in the Aeolian Islands off Sicily; however, the site was under some 60 meters of water, beyond safe scuba diving limits (Vol. 3, No. 4). With the assistance of Sub Sea Oil Services, a commercial saturation diving firm, a team of INA personnel investigated the remains of the *Secca de Capistello Wreck* (Vol. 4, No. 3), using a submarine and submersible chamber while directing the recovery of artifacts by divers breathing mixed gas. Aside from the amazing variety of fine ceramic wares and amphoras recovered from the site, recordings of the ship's hull demonstrated the wealth of knowledge that would have been lost had the project not been done.

When rare 14th-century Chinese celadon pottery appeared among antique dealers in South Korea, a naval squadron was sent to protect the site from which it had come—a shipwreck in the Yellow Sea. For assistance in exploring the lucrative wrecksite, cultural officials contacted INA. Research Associate Donald H. Keith was sent to Korea with support from the National Geographic Society to help Korean divers survey and record the site (INA Newsletter, Vol. 6, No. 3), which is one of the most significant yet found in the Orient.

When the government of the tiny Cayman Islands was approached by treasure hunters who wanted exclusive salvage rights to its shipwrecks, officials turned to INA for advice (Vol. 6, No. 3). Research Associate Roger C. Smith organized a team that spent two seasons locating and recording underwater sites around the

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## The Need For Conservation

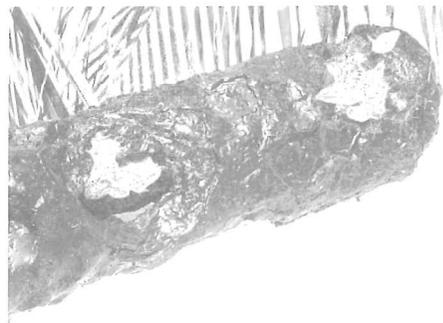
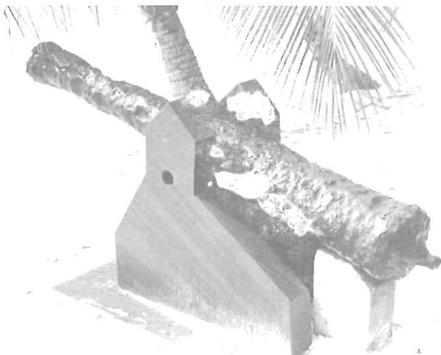
*Having discussed conservation in nautical archaeology in a previous Newsletter issue (Vol. 6, No. 1), we include here a summary rather than essay in our discussion of artifacts.*

Virtually every artifact recovered from the sea, and many items from non-saline environments, must receive preservative treatment if they are to recover or to retain any resemblance of their original form and appearance. If allowed merely to dry, most artifacts suffer a variety of destructive or fatal consequences. Wood and bone crack, shrink or warp; glass and metals slough outer layers toward nothingness; ceramics respond similarly, the paste turning to dust and the glaze flaking

off; and other organic items simply disintegrate. About the only materials that are impervious are gold and most stone.

The conservation of nautical artifacts from wet sites is time consuming, expensive and labor intensive; some items take years to treat, and others require treatment with complex technology. However, a complete and proper process of conservation is as much a part of artifact recovery as the object's excavation itself.

It is through conservation—which includes both restoration and recording—that artifacts from nautical archaeological sites gain purpose as objects of history and beauty, and items of study and reflection.



*Throughout the Western Hemisphere, it is not uncommon to find iron anchors and cannons in a condition such as the gun shown here; they literally are self-destructing. The salvor of this cannon tried to "conserve" it by soaking it in diesel fuel and painting it, but his efforts were for naught, as the photo of the gun barrel (right) illustrates. (Photos by KC Smith)*

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## Profile

# Dr. Donny Hamilton

Dr. Donny Hamilton entered archaeology as a soil-scratching, land-lubbing scientist preoccupied with the cave shelters of prehistoric hunting and gathering Indians of West Texas. In little more than a decade, he has migrated from the desert to the ocean, from caves to sunken cities, and from Indians to shipwrecks, to become a foremost expert on the conservation of artifacts from waterlogged archaeological—in particular, shipwreck—sites.

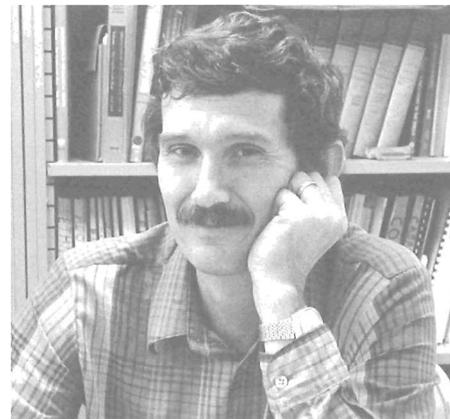
The bridge between land and sea was begun in 1971 when Hamilton, then writing a doctoral dissertation about a Caddoan Indian project, was hired to assist with the conservation of materials retrieved during Texas State excavations of the 1554 Plate Fleet off Padre Island. His succeeding seven-year association with the University of Texas Archaeological Research Laboratory, which he ultimately headed as the senior conservator, inspired not only a major change in his professional direction, but also a greatly recrafted dissertation. His final product, now in book form, is an essential handbook of techniques for the preservation of wet-site artifacts.

With the prospect of expanded teaching and research opportunities, Hamilton came to Texas A&M and INA in 1978. He

was hired by the University as an assistant professor of anthropology to instruct graduate-level courses in archaeology and conservation and to head the Conservation Research Laboratory—a training facility for students of nautical and terrestrial archaeology and a contracting lab that specializes in treatment of waterlogged materials. At the same time, he joined the staff of INA as an adjunct professor.

In this dual role, Hamilton now directs the Port Royal Project, an underwater archaeological field school in Jamaica, which, during four previous summer seasons, has exposed its multidisciplinary participants to all aspects of field work. Sponsored cooperatively by Texas A&M, INA and the Government of Jamaica, the project typically involves 16 to 18 students and 4 or 5 staff members during an 11-week excavation period at the sunken city. To provide training within the host nation, several Jamaican archaeology students also participate. During the past summer, Hamilton's team continued excavation of a six-room structure that may have sheltered a tavern, a butchery and a pipe shop when it sank in the earthquake of 1692.

Among his students and colleagues, Hamilton is considered to be affable,



(Photo by KC Smith)

preoccupied, and marginally eccentric—like all good professors of archaeology. He is a *bricoleur* of the first order and can figure out the construction, assemblage and repair of systems of all types, both practical and theoretical. He also has uncanny skill at acquiring equipment and supplies, and his own and many of INA's facilities and projects have been outfitted with materials that Hamilton has scrounged and salvaged from unusual sources.

Above all, Hamilton has the capability, through his honest earnestness and engaging West Texas accent, to inspire his students to care about the sites they are unearthing and the artifacts they are handling.

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## Looting

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islands, ultimately providing Caymanian authorities with an inventory of historical sites and recommendations for their disposition. In addition to locating some 70 sites (Vol. 8, No. 1), this first INA project in the Caribbean also turned up artifacts smuggled from shipwrecks in nearby Jamaica. These pilfered objects included silver bars taken from a Spanish vessel thought to be the treasure ship *Genovesa*, which wrecked in 1730 on the Pedro Bank, south of the island.

Again, INA responded to an official request, this time from the Jamaican government. Under the direction of Steven Hoyt, the plundered site was quickly located, as were three other Spanish galleon wrecksites. Test excavations produced several diagnostic artifacts, including silver coins and a gold ring (Vol. 8, No. 2). Evidence for the identification of the *Genovesa* was inconclusive, but

more importantly, Jamaican authorities now have an accurate idea of sites in their trust.

Perhaps the most tragic plundering of artifacts from a Caribbean shipwreck has turned into an archaeological bonus for INA. What may be the oldest wrecksite discovered in the Americas, a small mound of ballast stones, cannons and anchors in the Turks and Caicos Islands was repeatedly looted and even dynamited before the island government asked INA to provide proper archaeological treatment (Vol. 9, No. 2/3). The Molasses Reef Wreck excavation has become the most significant Caribbean wrecksite presently under excavation (Vol. 10, No. 2), promising a revolutionize our understanding of the Age of Exploration and Discovery.

Through its repeated involvement with shipwrecks throughout the world, INA has witnessed a growing awareness of the value of archaeology on the part of government authorities and the general public. An indication that our work is reaching those who previously might not have thought twice about removing ar-

tifacts as trophies from underwater sites came with a phone call from two amateur diving enthusiasts, Farley Sonnier and Ned Weeks of Louisiana. While diving on a remote reef in the Bay of Campeche, Mexico, they discovered evidence of a large 16th-century Spanish wreck that contained a massive decorated bronze cannon (Vol. 7, No. 1). Realizing the importance of their find, they decided the cannon and its associated materials belonged in a museum, rather than a private collection, and the men contacted INA. They were promptly directed to Mexico's director of underwater archaeology, Pilar Luna, who organized a joint expedition with INA and invited Sonnier and Weeks to participate. Three trips to the site since have been made (Vol. 10, No. 2), resulting in the recovery of cannons, anchors and other diagnostic materials, as well as the discovery of another wrecksite nearby. The original finders of the Cayo Nuevo Wreck have seen their wish come true: the bronze cannon, among the earliest found in the Americas, is now in the maritime museum at Campeche.

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# RESEARCH NEWS

## Simmons, Lakey In Spain For Bay Of Cadiz Survey

A team composed of INA personnel and underwater archaeologists from Spain's Ministry of Culture and the University of Zaragoza will conduct a cooperative survey of the shipwreck-rich Bay of Cadiz, located on the Spanish southwest coast, during the spring of 1985. The project is being sponsored by the US-Spanish Joint Committee for Cultural and Educational Cooperation.

Representing INA, Joe Simmons and Denise Lakey have been in Madrid since August, conducting archival research at the Museo Naval and the Biblioteca Nacional in preparation for the field operations. Their pre-survey study of original documents, published historical accounts, maps, and information about the bay's geological and archaeological histories also will be conducted at the Archivo General de Indias in Sevilla, the Archivo General de Simancas in Valladolid, and at smaller repositories in Cadiz and elsewhere.

Because of the bay's great size and long history of maritime activity, Simmons and Lakey are hoping with their archival investigations to refine the parameters of the field search to those areas of known or suspected shipwreck occurrence. The two also will assist Spanish archaeologists in conducting interviews with fishermen and members of the diving community around the bay to gather local information about recovered materials and sites.

With their findings as guides, in April 1985 the joint archaeological team will begin their marine survey of selected

portions of the 150-square-kilometer bay. They will be working from a research vessel provided by Spain's federal oceanographic agency and will employ a variety of electronic remote sensing means. While the specific survey strategy still is being formulated, Lakey believes the two-to-three month field operations will be divided into two parts: an initial period of locating sites and a latter period of reconnaissance from smaller vessels to identify the targets.

The Institute's participation in the archival and marine survey activities was proposed a year ago by Dr. Manuel Martin-Bueno, assistant director-general of archaeology and ethnography of the Ministry of Culture, and director of the Department of Archaeology at the University of Zaragoza. His planned program to investigate Spain's submerged cultural resources was of special interest to Simmons and Lakey, who are involved with INA's current research into ships of exploration and discovery. Both have worked on several of the 16th-century wrecks and harbor sites the Institute is investigating at Molasses Reef, St. Ann's Bay, Isabela, Highborn Cay, and various locations in Mexico.

Founded by Phoenician colonists around 1100 B.C., Cadiz is the oldest continually inhabited city in Europe. At the crossroads of the Atlantic and the Mediterranean, and at the gateway to North Africa, the bay offers some of the most well protected anchorages on Europe's west coast and has sheltered



*After departing from College Station last May, Joe Simmons and Denise Lakey worked for two months on INA projects in Turkey before travelling to Spain to begin background research for the joint INA-Spanish survey of the Bay of Cadiz. (Photo by KC Smith)*

continuous maritime traffic since the dawn of oceanic seafaring. For the first ten years after the discovery of the New World, Cadiz was the primary point of departure for transoceanic-bound vessels and remained an important port even after the center of discovery and trade was moved further up the Guadalquivir River to Sevilla.

That Cadiz has been a major port-of-call and last-stop for centuries is suggested by some of the Simmons-Lakey research to date. In one month of study at the Museo Naval, they documented 225 major wrecks known to have occurred in or around the bay, 130 of these from the 16th century alone.

During a brief return visit to Texas in early October, the two INA archaeologists lectured about their project at the Brazos Valley Museum in Bryan. At that time, Lakey commented on the significance of their archival and marine search.

"We are interested in the Bay of Cadiz for several reasons. While it is the resting place of some vessels that were bound for but which never made it to the New World, there are other shipwrecks there which we hope will answer questions we have not been able to solve yet through contemporaneous sites in the Caribbean.

"In any event, we feel certain the project will yield valuable data for archaeologists and researchers interested in all periods of maritime history."

## Olsen Oversees Institute Programs, Fund-Raising

While INA President Don Frey has been working in Turkey on the Bronze Age shipwreck at Kaş, many of the Institute's administrative functions have been assumed by Carol Olsen, a long-time INA associate. As executive administrator, Olsen not only has been overseeing ongoing activities, but also has been responsible for new fund-raising and public relations projects. In both latter regards, she has brought INA to public and media attention through a series of news leads, new programs, and creative campaigns.

Since assuming her position in May, Olsen has addressed groups throughout Texas about participation in the organization's excavations and activities. She also

has established a public lecture series through which other Institute representatives are available to lecture about their research to any interested groups. To actively engage public support, Olsen has established a successful volunteer program to assist in the conservation of artifacts recovered during the Molasses Reef Wreck project. It also was through her patient negotiations with Eastern Airlines that the donation of airfares this summer for participants of the Columbus Caravels Project in Jamaica was effected.

In addition to her Institute activities, Olsen lectures and consults widely on her area of expertise, ships' decorations. She may be contacted at INA headquarters in College Station at (409) 845-6696.



*A diver examines well-preserved materials from the Bronze Age shipwreck at Kaş, Turkey, which partially was excavated this summer by a joint INA-Turkish archaeological team. The extent of hull and artifactual remains which the site has manifested has prompted Dr. George F. Bass, project director, to call work on the 2,500- to 3,000-year-old site "the most exciting and important underwater excavation ever conducted in the Mediterranean." An account by Bass of the project and the remains will appear in an upcoming issue of the Newsletter. (Photo by Don Frey)*

## NA Students Present Fall Lecture Program

The Nautical Archaeology Student Lecture Series is conducting its fall season of weekly public lectures on maritime and archaeological topics presented by nautical archaeology students and faculty, INA personnel, and invited guests.

According to program coordinator Shirley Gotelipe, this semester's diverse presentations—with topics ranging from sea chanties to summer field season activities—have the collective purpose of sharing information about current research and interests. Representing a bi-annual activity that was begun in 1980, the series also provides experience, for the benefit of the students, in presenting and discussing one's work.

The lectures are held each Monday evening at 7 p.m. in room 311 of Bolton Hall on the Texas A&M University campus. A lecture has not been planned for Nov. 12, and the last presentation is scheduled for Dec. 3. The series is free, and the public is cordially invited. For further information or a list of programs, contact Gotelipe at 845-6398.

## Steffy Heads To Turkey To Direct Serçe Liman Vessel Reconstruction

After a summer of shuffling among four project sites across the Mediterranean, Dick Steffy has departed Texas again for a fall season of ship reconstruction at the Bodrum Museum in Turkey.

Through December, Steffy will guide preliminary steps in the reassembly of hull remains from the 11th-century Serçe Liman vessel, aided by a resident crew of INA staff members and several former students. Establishing the framework that will enable reconstruction to continue in his absence, these tasks are scheduled to include final reassembly of small wood fragments and the "cosmetizing" of all remaining members, initial construction of the support scaffolding from which the rebuilding will proceed, and the laying of the keel.

The INA ship reconstructor had hoped to begin the project in August when the three-year stabilization of wood recovered from the site was complete. However, preparation of the museum gallery in which the vessel will be reconstructed and displayed had not been finalized, and the commencement of the reconstruction was postponed.

In addition to Turkey, Steffy's summer archaeological studies also took him to Italy, Israel and Greece. At the first locale, he visited Herculaneum to check progress on the excavation of a small Roman boat that was covered and carbonized by the volcanic eruption of Mt. Vesuvius in A.D. 79. Steffy has been involved with the project for over a year, and his next steps—recording and drawing the hull remains—are awaiting excavation of the boat from its depositional site.

From Italy, Steffy travelled to Israel to complete the recording of the Athlit ram, a unique bronze bow fixture from a 4th-century B.C. warship of unknown origin. He has been working in consort with a team of scholars for several years on the project, and during an intensive two-week session in July, the group assembled final data and analyses in preparation of a major report. Refining his reconstruction and explanation of the vessel's bow structure, derived from scant but revealing wood that remained encased in the ram when it was found on the seabed in 1980, occupied much of Steffy's time during the interlude between travels.

A stop also was made at Piraeus, near Athens, where a full-scale replica of the 4th-century B.C. merchant vessel excavated at Kyrenia, Cyprus, is being constructed according to the techniques and procedures of the original shipwright. At

the time of Steffy's visit, several strakes of planking had been added to the keel.

Steffy is expected to return from Turkey in December and to resume his research and teaching schedule at Texas A&M during the winter semester.

## University Honors Bass With Guest Professorship

Dr. George F. Bass, archaeological director of INA and a Distinguished Professor of Anthropology at Texas A&M University, has departed College Station for Scotland for six weeks to accept the Geddes-Harrower Chair of Greek Art and Archaeology at the University of Aberdeen. In addition to teaching at Aberdeen, Bass also will present guest lectures at universities in Edinburgh, Glasgow, Fife, and elsewhere.

## Growth Plan Targets NA

The nautical archaeology specialization was identified in a draft report of Texas A&M's "Preliminary Long-Range Plan" released in the spring as one of twelve University programs of "international or national preeminence" targeted for priority funding in the future.

The planning document, which was circulated for comment among faculty and staff members, presents "a sketch of what the institution is expected to become by year 2000." Although not a description of how goals will be met, within its statements of purpose, role and scope are strong commitments to programs which have achieved excellence in academia and research.

The Department of Anthropology specialization was accompanied in the primary category by a staunch list of science programs and only two others in humanistic fields. An additional seventeen programs were mentioned in the document as being of "regional prominence" or "recognized excellence" and also meriting priority funding in the future.

## Annex Facilities Expand

The Texas A&M Research Annex facilities shared by INA and the nautical archaeology academic offices have been expanded by the acquisition of a structure adjacent to the present, four-building complex. The additional bungalow will be used for winter storage of project equipment and as a staging point for projects preparing for field work. The area thus liberated in INA's headquarters already is undergoing renovation into office and project administration facilities.



A partially cleaned piece of round shot from the Molasses Reef Wreck. (Photo by KC Smith)

## MRW Lab Improves Methods And Means

While INA field crews were working this summer on the coasts of Turkey and Jamaica, a small contingent of die-hards remained in College Station to continue progress in the cleaning, cataloging and conserving of the ten tons of artifacts excavated from the Molasses Reef Wreck (MRW) site in the Turks and Caicos Islands.

With the aim of accelerating the monumental preservation task, MRW Project Director Donald Keith, accompanied by Lab Manager Tom Oertling and INA Photographer Dennis Denton, visited the Florida State conservation laboratory for waterlogged materials—one of the best in the world—to confer with experts on modern procedures. Based on conversations and observations, several major architectural and technological changes have been instituted at the Texas lab, which Keith believes greatly will expedite the artifact treatment.

Not only were several methods adopted for the mass processing of materials, but electrolysis baths also were expanded and enlarged to accommodate the concurrent treatment of all large iron objects. In addition, arrangements were made with the Tallahassee group to have some of the smaller MRW iron artifacts conserved using the faster, more cost-effective hydrogen reduction technique. While more than half of the MRW artifacts still require treatment, most ceramic, glass and lead objects have been completed.

Before visiting Tallahassee Keith and Denton had been in the Turks and Caicos to survey West Caicos, a barren island near the wrecksite, for signs of a survivors' camp. They also stopped in Boca Raton, Florida, to obtain on loan several artifacts that were taken from the wreck in 1976 by the site's early salvagers.

## Crisman Excavates Sloop In Lake Champlain

Continuing his study of shipwrecks in Lake Champlain from the Revolutionary War and Federal periods, Kevin Crisman conducted an excavation this summer on the British sloop *Boscawen*, which sank near Fort Ticonderoga sometime after 1763. The project was co-directed with Arthur Cohen, who has been involved with most of Crisman's studies, and was sponsored by two private organizations, the Fort Ticonderoga Association and the Champlain Maritime Society.

Built in about three weeks during the fall of 1759, the vessel enjoyed an active career of two years, but was laid up for several more before it sank. Thus expecting at the onset of their work to find primarily hull remains and a few scattered artifacts, Crisman says his team instead encountered a wide array of well-preserved personal and maritime material in addition to the 70-foot-long structure.

Among the artifacts recovered were items of ship's rigging, including single-sheave blocks, parrel beads and rope; navigational equipment; personal effects such as shoes and a machete complete with well-preserved pine handle; and various remains of ordnance. The group also found evidence of the crew's diet in the form of hundreds of butternut shells, squash and other seeds, and deer, beef and pork bones.

Although only fifty percent of the hull was uncovered, Crisman believes about forty percent of the original structure remains, including interior features such as the orlop deck and mast step. Because much of the artifactual material was found underneath the ballast, Crisman suspects the ballast was added after the sloop had been stripped of guns and mast and laid up, thus likely dating the artifacts to the ship's active period.

## News From The Home Front . . .

INA Executive Secretary Janet Urbina became an INA crew member for a week in July when she visited the Institute's projects in Jamaica at St. Ann's Bay and Port Royal. Her purpose in participating in field, lab and diving operations was to gain experience in the realm of project activities she has known mostly through budgets, shipments, and frantic phone calls for assistance.

Before their departure in June for long-term participation in INA operations in Turkey, two nautical archaeology students completed their master's theses, for summer graduation from Texas A&M. They were Cheri Ward Haldane, whose thesis was entitled, "The Dashur Boats;" and Manuela Lloyd, whose thesis was entitled, "A Byzantine Shipwreck at Iskandil Burnu, Turkey: Preliminary Report."

Conversely, seven new students have begun to consummate academic curiosity and embellish previous field training by entering the nautical archaeology master's degree specialization this fall. Their addition brings to 51 the number of men and women enrolled in an active or all-but-thesis status.

Coming from as far away as South Africa, the new participants bring a range of individual interests, eccentric personalities, and levels of experience in shipwreck archaeology including, for several, participation in INA's Jamaica projects this summer.

The Institute welcomes their association with the discipline, their presence at the Annex, and wishes them the best of experiences.

Since spring, the nautical archaeology academic offices have been administered by Senior Secretary Beth Braznell, who is responsible for the innumerable matters related to the graduate specialization. If you would like to know about the Department of Anthropology's offering in this area, please contact Beth at (409) 845-6398.

My great thanks for their assistance to the contributors to this issue, and to *Newsletter* recipients for their patience in waiting to receive it. I currently am accepting articles and news notes for the winter edition, which will feature INA activities of the past season and those projected in the near future.

Research and news briefs may contain up to 200 words, and project reports up to 500 words; these are, however, suggested lengths. I welcome black-and-white photos or illustrations, and I appreciate double-space-typed text, although hand-scrawled messages on INA onionskin naturally will be accepted from the field. Please send information to the *Newsletter* at INA headquarters in College Station by November 20; please call if you have any questions: (409) 845-6694.

KC Smith, Editor



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