

THE INA QUARTERLY



Summer 2002

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The Institute of Nautical Archaeology is a non-profit scientific and educational organization, founded by George F. Bass, Michael Katzev, and Jack Kelly and incorporated in 1972. Since 1976, INA has been affiliated with Texas A&M University, where INA faculty teach in the Nautical Archaeology Program of the Department of Anthropology. The opinions expressed in *Quarterly* articles are those of the authors, and do not necessarily reflect the views of the Institute.

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On the cover: *Carolyn*, with the Minister of Culture, visited the eleventh-century CE Millstone Wreck. Photo: Tufan Turanlı

Editor: Christine A. Powell

Log of the Submersible Survey 2001

George F. Bass

INA has conducted probably the most successful survey for ancient shipwrecks ever undertaken in the Mediterranean. Between September 29 and November 1, 2001, using the two-person submersible *Carolyn*, the team located fourteen wrecks and ten additional possible wrecks. The submarine also allowed the survey to return to twelve sites found during earlier reconnoiters and record them thoroughly with video and Global Positioning System (GPS). In all, then, we recorded for posterity twenty-six ancient shipwrecks dating from the sixth, fifth, and fourth centuries BCE, the Hellenistic Period, the first century BCE, and later Roman and Byzantine times.

Living aboard INA's twenty-meter *Virazon*, and carrying *Carolyn* on the fourteen-meter catamaran *Millawanda*, we began the survey not far from Tektaş Burnu. Hüseyin Aldemir accompanied us on his fishing boat *Kasırga*, which ran daily errands. Once we had developed a routine, we found a wreck almost every other day. The following are excerpts from my daily log. To protect the wrecks located during surveys, we never publish their exact locations, so I have not given the GPS coordinates we have for each wreck, nor do I give the actual names of bays and capes.

29 September 2001

Today was THE DAY! I dived with Feyyaz Subay. We started at 9:50 A.M. and followed the north shore of [a bay south of Tektaş Burnu] at thirty-seven to forty meters. There was nothing living inside the bay: no fish, no Poseidonia, nothing, not even many shells. Then, as we approached the mouth of the bay, we began to see life, and fishermen's lines, and then many, many, many anchors. According to Feyyaz, who wrote his B.A. thesis at Konya University on anchors in Turkish museums, these were mostly Ottoman (they looked like huge grapnels). We saw

various sherds of amphoras, but at 11:15 came upon half a dozen of the same type lying on the sand about thirty-seven meters deep. Feyyaz and I let out some whoops over the intercom to the surface, and called on the backup divers, Mutlu Gunay and Charles Cousin, to come down and do a little hand-fanning. We watched as Charles immediately uncovered an amphora, and then, joined by Mutlu, they uncovered another lying right next to it, and then one deeper down. Feyyaz thought we had a wreck when we spotted the amphoras lying on the seabed, but now we knew

Below. The INA submersible *Carolyn* heads to sea aboard the catamaran *Millawanda*.

Right. Hand-fanning by archaeologists uncovered a few diagnostic vessels that dated the Pabuç Burnu shipwreck.

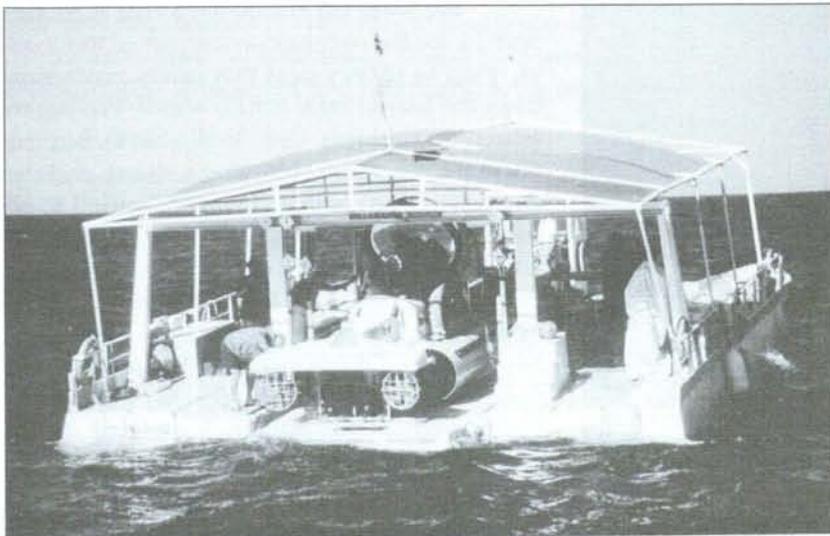


Photo: G. F. Bass

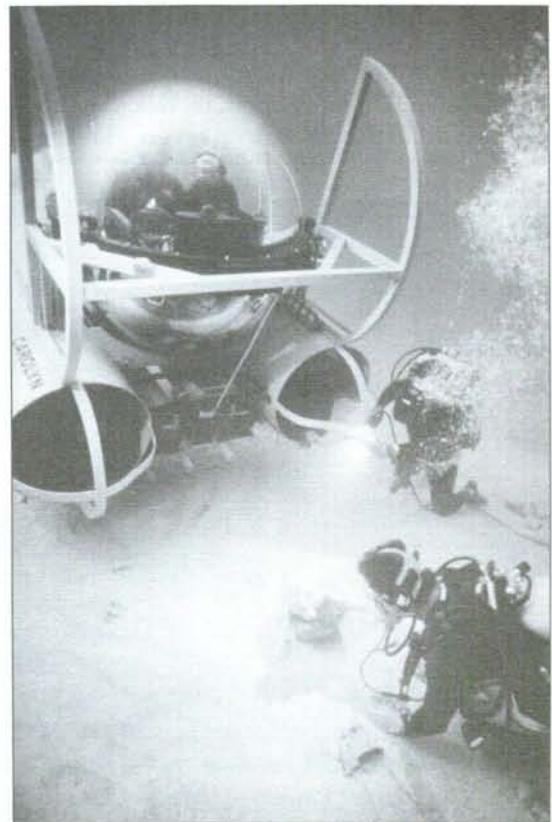


Photo: D. A. Frey

for certain that this was a real wreck, perhaps worthy of excavation. We don't know the date yet, but suspect it is Byzantine. We saw classical and later Rhodian amphoras, and many, many more anchors as we continued out of the bay and turned the corner toward [the north]. After two hours and forty-five minutes we surfaced and joined *Virazon* for lunch (too much: mushroom soup followed by pizza and salad and rice with tuna, capped by delicious pears and grapes). We then decided that we had to head back [north], to be in better communications with Ayhan Sicimoğlu about the pending visit of the Minister of Culture tomorrow.

30 September 2001

I was in communication with Ayhan in Alaçatı during the morning. When we heard that he was leaving with Minister of Culture İstemihan Talay—and a group of about forty, including probably two dozen journalists—we sailed back to [the cape] and waited for them to arrive on *Aurora* (belonging to Sedat Akdemir, a member of the Turkish Institute of Nautical Archaeology—TINA). We greeted the Minister and his wife, Nihal, as well as Sedat, Ayhan, TINA's Oğuz Aydemir, and various members of the press. I said a few words in Turkish to the press, followed by the minister, who was a very good sport. He got in the sub with Murat and, smiling broadly and wearing an INA cap, went down. On the seabed, he talked to his wife above, to the delight of the press from seven television channels and



Photo: T. Turanlı

İstemihan Talay, Turkey's Minister of Culture, inaugurates INA's 2001 survey with a dive to five ancient wrecks.

seven newspapers. Murat took him first to the fourth-century BCE wreck, and then moved to the sixth-century CE Church Wreck. There, Don Frey (to take video), Tufan Turanlı (to take stills), and Yasar Yıldız (our representative of the Ministry of Culture) dived with scuba from *Millawanda* to join them. They moved on to the eleventh-century CE Millstone Wreck (cover), the Byzantine Wreck, and the first century CE Roman Column Wreck. At a press conference after lunch, the minister spoke at length, saying quite a bit about underwater archaeology, saying nice things about INA, TINA, and me. Then it was over, and we shook hands and said our goodbyes.

2 October 2001

We were up at 6:00 for a 7:00 A.M. departure for the only bay on the part of the coast we plan to survey next that offers protection from the feared *lodos* (south wind). We began searching the steep cliffs to the north, but the northern *poiraz* was blowing so hard, and the waves were so choppy, that we decided to go back toward the [bay south of Tektaş Burnu] and continue searching in calmer waters. Feyyaz and I dived in *Carolyn*. Within half an hour, at 11:30 A.M., thirty-seven meters deep, Feyyaz said: "What is this? What is this?" He had spotted several concretions of eleventh-century Byzantine iron anchors lying partly on a large millstone, with a few amphoras lying around. We shouted with joy, for in just two survey dives we had found two wrecks! We called Don and Mutlu down, and while

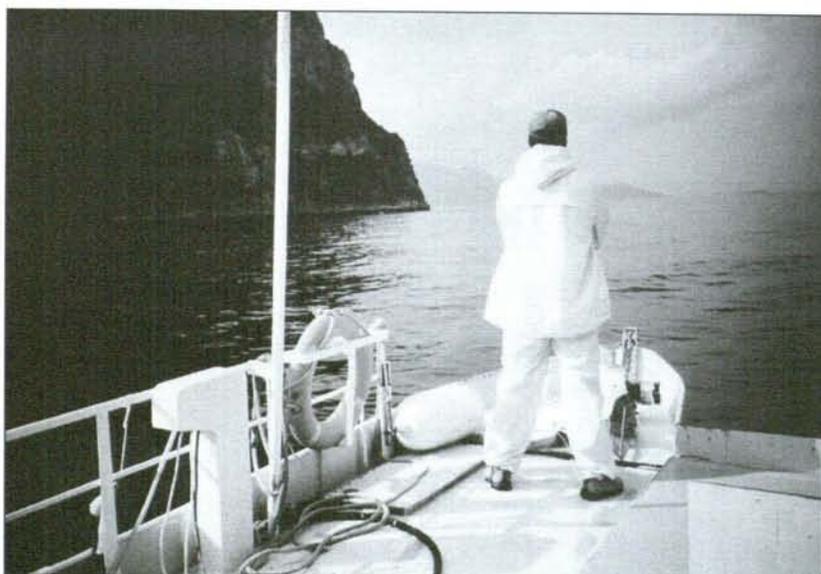


Photo: G. F. Bass

Tufan Turanlı follows the route of Carolyn by watching a small buoy the submersible tows.



Photo: G. F. Bass

Above. Carolyn prepares to deploy from Millawanda during the 2001 submersible survey.

Right. The submersible and archaeologists can work together to better effect than either could have accomplished alone. Here, Mutlu Gunay holds up for inspection one of the few visible amphoras on the Pabuç Burnu wreck.

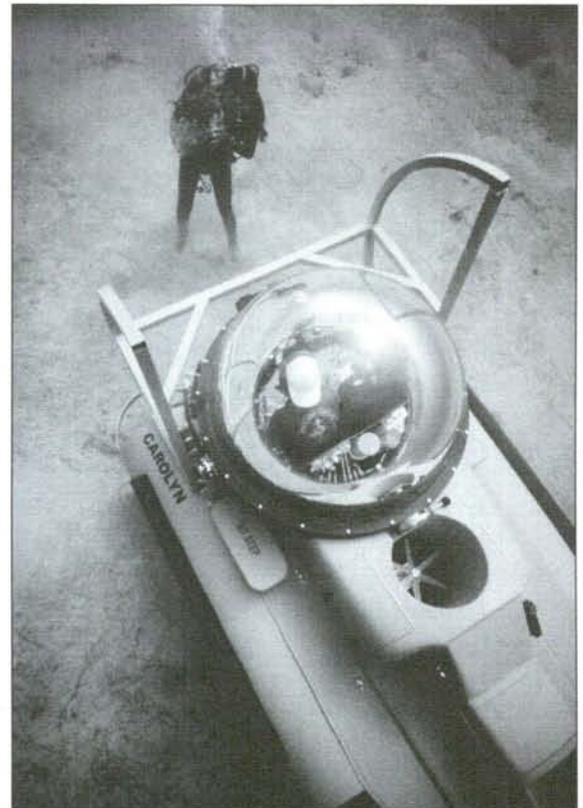


Photo: D. A. Frey

Mutlu swept sand and counted amphoras, of two types, Don took video coverage. One of the amphoras that Mutlu brought over to *Carolyn* for Feyyaz and me to inspect was exactly like those on the Serçe Limanı Glass Wreck. As on that wreck, the anchors on this newly found wreck rest on millstones. Mutlu raised one of the smaller amphoras. Moving on, we saw that the wreck is probably quite large, for similar amphoras were scattered over some distance. We continued the survey and probably found another wreck; there was an iron anchor (concretion) with sherds of several seventh-century (?) Byzantine amphoras around it. Mutlu, now back on *Millawanda*, took a GPS reading. *Carolyn* surfaced after about two hours and forty minutes...

4 October 2001

Murat and I dived in *Carolyn* right outside the north side of the entrance to [a bay farther south], trying to continue the survey exactly where we left off yesterday. Directly below us, at about fifty-two meters, we spotted immediately a small pile of pottery on a large broken terracotta vessel in which an octopus had made a home, piling lots of rocks outside: a pitcher, two conical amphoras much like those from the first wreck we found (and probably ridged horizontally). We moved a few meters away and saw the top of what looked like a large krater [punchbowl-like vessel in which the ancient Greeks mixed wine and water] with several handles, and then moved on and saw the top of an amphora. I

called Don and Mutlu down. They dug out the amphora, which was spherical, like seventh-century Byzantine amphoras, but it did not seem to be combed. I was puzzled. Then they moved to the krater, and found another like it, which, although broken, Mutlu was able to hold up so that it appeared intact in the sub and in Don's video. We had found another wreck. After a quick lunch on board *Millawanda*, Don and Murat started on the opposite, south side of [the bay] to see a Roman wreck that Murat, Tufan, and Yasar had all dived on in the past. It is now largely looted except for some sherds.

6 October 2001

[While Feyyaz and I were diving, Askin Cambazoglu called by cell phone to say that one of his assistants, Selim Dincer, had found a classical Greek shipwreck at Orak Adasi, not far from Bodrum.] Askin was an archaeologist with the Bodrum Museum who used to work with Don on surveys, but for many years has run a number of diving businesses in and around Bodrum.

9 October 2001

Don came with Askin to the Institute at noon so Askin could tell me more about the wreck. He agreed to take us to the site that afternoon and told us that the wreck did not actually lie at Orak Adasi, but not far away at Pabuç Burnu. We left Bodrum around 4:00, so although the trip to

the site took only about forty-five minutes by *Virazon* (we did not take *Millawanda* and *Carolyn*), Don, Mutlu, Yasar, and Askin did not enter the water until well after 5:00. Still, Don got some good videos. He is unsure if the wreck is coherent and the videos did not clarify this. There are simply a fair number of amphoras lying scattered around, some half buried, but others lying cleanly on seabed.

10 October 2001

Went back to the wreck found by Askin's assistant last week. Don and Mutlu dug, as I watched from *Carolyn* with Murat at the controls, without finding anything under the sand. However, they raised an intact amphora, which Don photographed so we could send a digital image to Mark Lawall, the amphora expert at the University of Manitoba who dated the Tektas Burnu amphoras. It got extremely muddy, but Tufan and Yasar had better luck, which we could not see from inside the sub, by finding intact amphoras under the surface of the seabed. By early afternoon the wind and waves were so high we had to abandon the site and return to Bodrum. [I went by way of] the Sea Garden Hotel not far away, where Askin has a diving center and school. The rooms and conference room are quite nice; it is a five-star hotel. Then we went to the Iber Hotel, which is much nearer the site (and only a twenty to twenty-five minute drive back to Bodrum). It is only four-star, but is [more] convenient. By evening, Don had sent color photos of the amphora to Mark Lawall, who immediately answered:



Photo: G. F. Bass

The only amphora raised from the site at Pabuç Burnu provided the best date for the wreck.



Photo: G. F. Bass

Millawanda sets out for another day of surveying.

"From: Mark Lawall

To: Donald Frey; George Bass

Sent: Wednesday, October 10, 2001 6:33 P.M.

Subject: Re: amphora photos

Thanks a billion, those images are perfect—I'll send more substantive comments later today or tomorrow, but it looks very much like a late sixth or very early fifth-century [BCE] jar from the region of Samos, Ephesos, Miletos. Very exciting, thanks again, Mark"

11 October 2001

Up at 4:30 A.M. in order to sail to the Knidian Peninsula in the calm of the morning. There were gale warnings, so I wanted to get *Millawanda* across before any large swells started...I dived at 1:18, with Feyyaz at the controls. Within half an hour, we saw Byzantine amphoras and fifteen minutes later we found a Roman wreck about thirty-seven meters deep...

The submersible is surely the best thing that ever came along for finding ancient wrecks—so much better than the ROVs that so many experts tried to talk us into. There is more than finding wrecks during these deep cruises. Schools of barracudas appear and disappear, a swimming octopus (the first I had ever seen) and another, much larger, lurking in its hole; a couple of rays doing their underwater ballet—a married couple?—not far beneath us; two immense moray eels poke their heads out to see us pass over and then withdraw into their dark caves; and a small, lonely tuna (did he get lost



Photo: G. F. Bass

The acrylic sphere that forms the submersible's crew cabin provides an unparalleled view of the surrounding world.

Carolyn hovers above the amphora pile marking an undersea archaeological site.

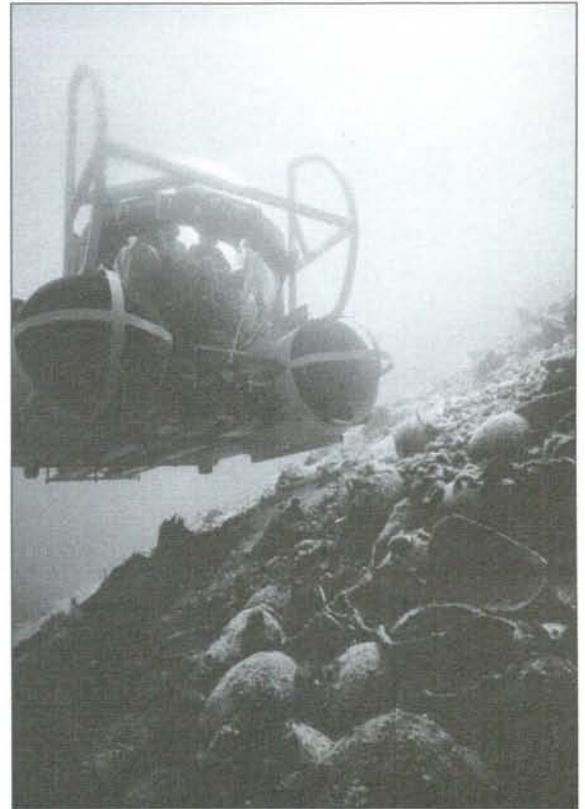


Photo: D. A. Frey

from his mommy?). Some ignore us, but groupers must think we are a yellow monster predator, for they dart quickly under rocks at our passing. Below us cliffs drop down to deserts, rare cowrie shells sparkle here and there, and boulders and mesas spring up and then fade into the distance. It is magical.

[My son] Alan sent me a message addressed to "Wrecks Rex," which is pretty cute.

12 October 2001

Feyyaz and I found a scattered wreck about thirty-seven meters deep bearing Knidian amphoras, on rock, not worth a dive, [but] I videotaped it. It's interesting how little we talk in the sub. For example, during quite a long period:

Feyyaz: "Did you eat your apple?"

George: "What apple?"

Feyyaz: "I brought out an apple for everybody today."

George: "I didn't know."

Long silence.

George: "I forgot to eat my orange. I brought it from my refrigerator so it wouldn't rot. It's on my bunk."

No response from Feyyaz.

Another long silence.

13 October 2001

Feyyaz and Mutlu circumnavigated Mersincik Adasi and discovered a very modern boat, with engine still in place.

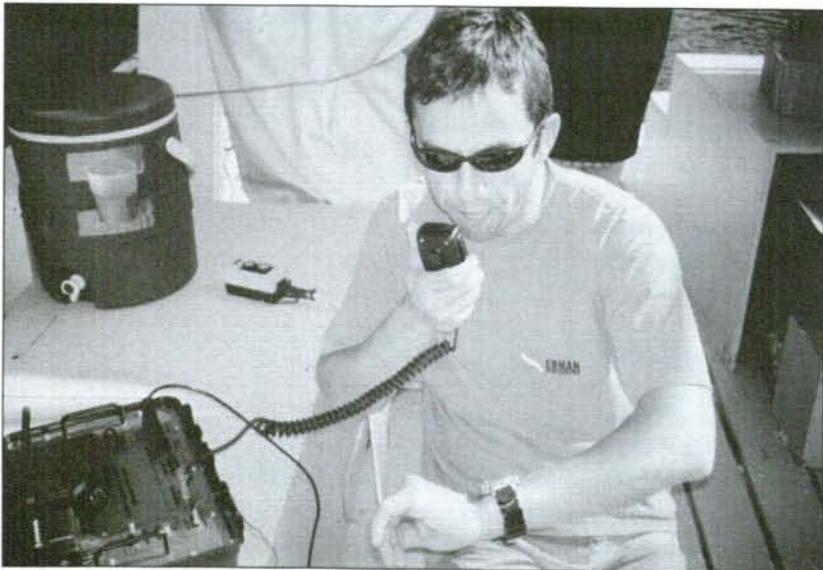
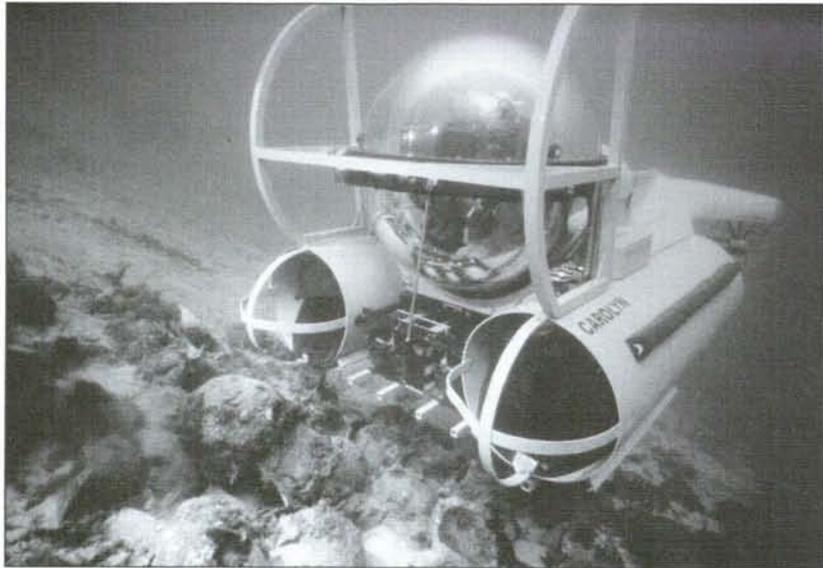
15 October 2001

It blew all night, a north wind (*poyraz*), so there are white caps and the weather turned cooler. We saw how wrecks happen. [An elderly couple] sailed out of the harbor but did not notice a line trailing from their stern that quickly became wrapped around their propeller. At the harbor mouth they had no power and were being banged helplessly against the end of the rocky breakwater of huge boulders. Someone on *Virazon* spotted the danger and Yasar and Hüseyin quickly went to the rescue in our dinghy with its outboard and towed them back to the quay. Yasar snorkeled down and cleared their prop, and off they went again, and out of the harbor we saw them hoist their sail. I do hope they do not have any further trouble.

19 October 2001

As Murat summed it up after we returned to Knidos and *Virazon* at dusk: "It was a perfect day, George Bey."

[In the morning Feyyaz and I dived on and recorded with video three wrecks known from earlier INA surveys. These include a sixth-century CE amphora carrier that had sailed from the Holy Land, a fourth-century BCE



cargo of kraters, with tiles, presumably from its galley's roof, and a cargo of amphoras Cemel Pulak had earlier dated to the fifth century BCE].

The next dive, with Feyyaz and Yasar, continued the search from where Feyyaz and I had surfaced yesterday. Don had called down to say that a sponge diver, years before, had told him that very deep, probably fifty-five meters, there was a wreck on the other side of a spine running out from the point. Feyyaz and Yasar found an underwater spine and followed it out so far into the bay that I told them to surface so we could take them across the bay on *Millawanda*. At that moment, Yasar called up to say that they had found the wreck: two anchor stocks and some intact amphoras at fifty-five meters—at least three hundred meters from shore! The chance of our finding this so easily with divers was very, very small. I told Tufan and Selim Dincer, now diving with us, to suit up to dive on the wreck, which Yasar thinks is third century BCE, to do a little hand fanning, but then thought: "Today has gone so well, why risk anything by sending divers that deep, especially since Selim has had little time to really acclimatize." Murat, at the wheel of *Millawanda*, agreed with me. So I called *Carolyn* up and we ate lunch as we headed back up [the coast].

[On] a second, afternoon dive, I went down with Murat in *Carolyn*...to see if we could examine a fifth-century BCE wreck [that Don had found more than fifteen years earlier]. Yasar called down soon to say that our buoy showed we were probably only fifty meters or so away. Don described the huge boulder right below the rock-sand interface that marked the spot (I had actually seen a photograph of the rock in his wreck report of that year). Unfortunately, there were a lot of huge boulders at the interface, but this one did stand

Top. One of the many amphora piles marking a shipwreck explored during the 2001 INA submersible survey. Photo: D. A. Frey.

Center. The surfacing Carolyn was always greeted by helpful hands and smiling faces. Photo: G. F. Bass.

Bottom. Communications officer Mutlu Gunay remained in constant contact with the crew below. Photo: G. F. Bass

out when we came on it and saw some broken amphora sherds around it. When four divers [Don, Mutlu, Feyyaz, and Yasar] descended, Mutlu uncovered what seemed like an intact amphora, but it proved to be only a partial. Then, in a few minutes, Mutlu called me over the intercom to say that Feyyaz had found something. We followed the four divers to a spot just above the boulder, not even thirty meters deep, and saw them digging furiously in the sand! Mutlu said they had an amphora and a cooking pot. The cloud of silt stirred up made it impossible to see what they had. Then, in triumph, Feyyaz lifted from the deep hole something, which he cradled in his arms, and brought to the sub. "My God! Oh my God! I don't believe this! I don't believe this!" was all I could say, overcome by emotion, as he held to *Carolyn's* sphere a perfectly preserved red-figure krater! (It turned out later that Yasar was digging out a new type of amphora when Feyyaz came to help him and spotted the rim of the krater.)

The surface was a different story. By now, the waves had grown into large whitecaps. The divers were unable to decompress on oxygen below *Millawanda*, because the catamaran could not stay in position without running its motors, risking cutting off the oxygen hoses with the propellers. I wanted to stay down so that the divers could be lifted safely from the water on

Millawanda's ramp, but I must not have made this clear to Murat, for we were soon on the surface in quite high seas. I wanted to stay there while the divers completed their air decompression on nearby rocks. Murat felt that we were far too close to the rocky shore, with the wind driving us against it, to remain where we were, and insisted that we be lifted on *Millawanda*. When we got close, we were really endangered at one point when the sharp metal stern of one of the catamaran's pontoons came sloshing down only inches away from our acrylic sphere. Tufan and Selim pushed us away with their feet and Tufan raced forward to the controls to move *Millawanda* forward. I then sug-

gested that Murat drive us on the surface to shelter not far away, where we would wait for the divers to be taken first onto *Millawanda*. This we did, and soon we learned that all four divers were safely on the catamaran. When it approached *Carolyn*, I radioed my question: what did they all think of the find? Those who had not dived had not yet seen it, for it was in a plastic basket on *Kasirga*! They felt it was safer handing it up to Hüseyin on *Kasirga* than trying to swim onto the ramp.

So, in the slight shelter we had, *Carolyn* was lifted onto *Millawanda*, and then Hüseyin brought *Kasirga* alongside and handed over the treasure. Some of the black glaze was missing, but we could make out a woman holding a staff, with a meander border at the bottom. We did not inspect the krater long, however, for it would have dried quickly

in the wind. We put it in a plastic container to keep it wet and headed back to [the bay where we had left *Virazon*] in what by now were really big waves. These crashed over the bows of *Millawanda's* pontoons, sending sheets of water over her deck. Supper was a joyful occasion... Before and after supper we all crowded into the day cabin to watch the videos of the day on a TV monitor. I had been up since 2:30 A.M., so I turned off my bunk light at 10:30.



Photo: G. F. Bass

INA's twenty meter research vessel *Virazon* provided living quarters and support for the 2001 Turkish survey.

4 November 2001

Today was probably the last day of the survey. When

I woke up at 3:00 A.M., the wind was howling. When Feyyaz called around 8:00 A.M., he said the weather was too bad to sail. It was starting to sprinkle when I drove with Claude to the marina to get my things from *Virazon*. I learned that Feyyaz and Mutlu, at least, had gone to Murat's house to wake him up at 2:00 A.M., and then they re-anchored *Millawanda* more securely.

We have applied for permission from the Turkish Ministry of Culture to begin excavation of the Pabuç Burnu wreck in 2002. A wreck of the sixth century BCE has never been excavated in the eastern Mediterranean. ✍

A Red Figure Bell Krater from Turkish Waters

Deborah N. Carlson

Archaeologists exploring the site of Arslan Burnu during the 2001 INA shipwreck survey retrieved a red figure bell krater from the seabed (figs. 1 and 2, also see p. 9). Red figure vases have been excavated from terrestrial sites in such large quantities that individual vessels can often be dated, and in some cases attributed to specific painters, on the basis of particular stylistic details. For this reason, the red figure bell krater from Arslan Burnu is a diagnostic artifact of particular importance.

Red figure was a style of vase painting popular in ancient Greece from the late sixth until the late fourth centuries BCE. Artists used a thick black paint (actually a slip) for the background of a vase, leaving the figures reserved in the reddish-orange color of the fabric. The fabric took its unique color from the iron-rich clays of the Athenian countryside. This deep orange clay became the hallmark of Attic red figure pottery, which was deemed so desirable that other cities imitated it by applying an orange wash to their own locally-produced pottery.

The Greeks used kraters to mix water and wine—the ancient version of a punch bowl. The bell krater was one of several different krater styles, named for its curving bowl, which resembles an inverted bell. The earliest bell kraters, which appear in the Greek world around 500 BCE, feature a full, rounded bowl and lug handles. The shape evolved gradually but steadily towards a more elongated, more curvilinear form. Bell kraters of the fourth century are characterized by a flaring rim, sharply curved handles, and a slender bowl that tapers considerably toward the foot. The rather rounded, heavy bowl and thick rim of the Arslan Burnu krater suggest a date in the first half of the fifth century.

Bell kraters of all periods were usually finished with a simple disc foot, but the Arslan Burnu krater features a molded foot that may have been borrowed from the contemporary water jar, or *hydria*. This decorative molded base is a rare attribute of bell kraters, seen in at least seven other vessels. Most of these kraters have been dated between 460 and 430 BCE and all but one have lug handles.

The painted decoration of the Arslan Burnu krater shows a man and woman facing one another and apparently engaged in conversation. The man, at left, holds in his right hand a staff that is a marker of his citizen status. The woman holds out her right hand in a gesture of welcome or empathy. The figures are framed by a bordered key ground line below and a tongue pattern molding above. The reverse is too damaged for definitive identification, but the subject appears to be a man on the left, pursuing a woman who turns toward the right in an effort to flee. Red figure vases were occasionally decorated with an event from Greek mythology or epic on one side and a scene from everyday life on the other. It is likely, therefore, that the damaged side of the Arslan Burnu krater showed a scene from Greek mythology, such as the rape of a famous female.

Detailed photographs of the conversation scene show how centuries of exposure in a marine environment have uniformly eroded the surface of the vessel. Those areas once coated with thick black paint, whether applied liberally to the background or more carefully to highlight details of dress and expression, were better protected. These are preserved at a slightly higher level than those surfaces left unpainted. This vestigial painted decoration, though often difficult to see, provides important clues about the krater's date. One of



Fig. 1. The [obverse] conversation scene of the Arslan Burnu krater.



Fig. 2. The [reverse] pursuit (?) scene of the Arslan Burnu krater.



the most diagnostic tools for the study of vase painting is the treatment of eyes. Beginning about 470 BCE, vase painters render the eye in a naturalistic profile, as shown on the Arslan Burnu krater. The figures are large and set against a clean black background; their drapery falls in neat, clean, folds with none of the fussy patterning that is typical of the Late Classical style. For these reasons, I am inclined to assign a date of around 460 or 450. Having arrived at that date, I was pleased to subsequently learn from Don Frey that a survey of this site by INA archaeologists in 1981 yielded a Chian amphora of the bulbous-necked type, which is generally dated to approximately the mid fifth century BCE. ✎

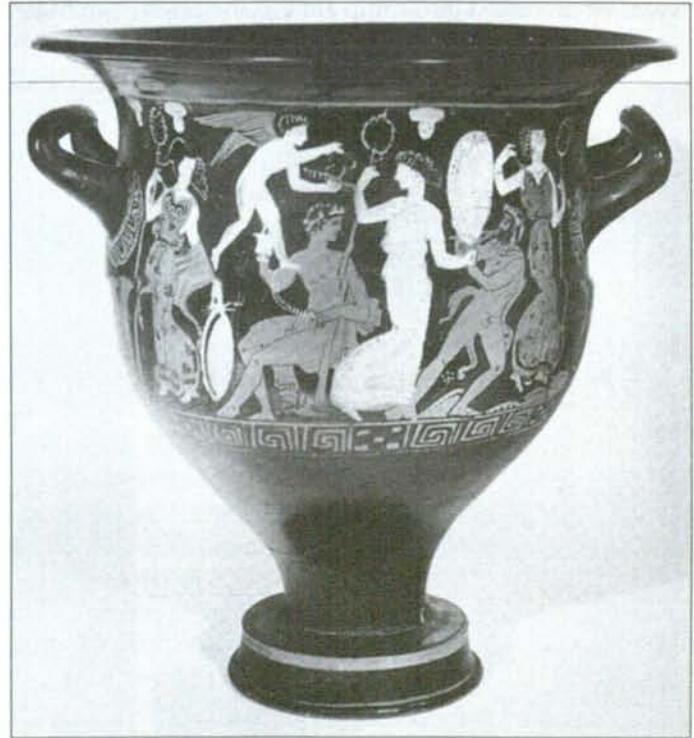
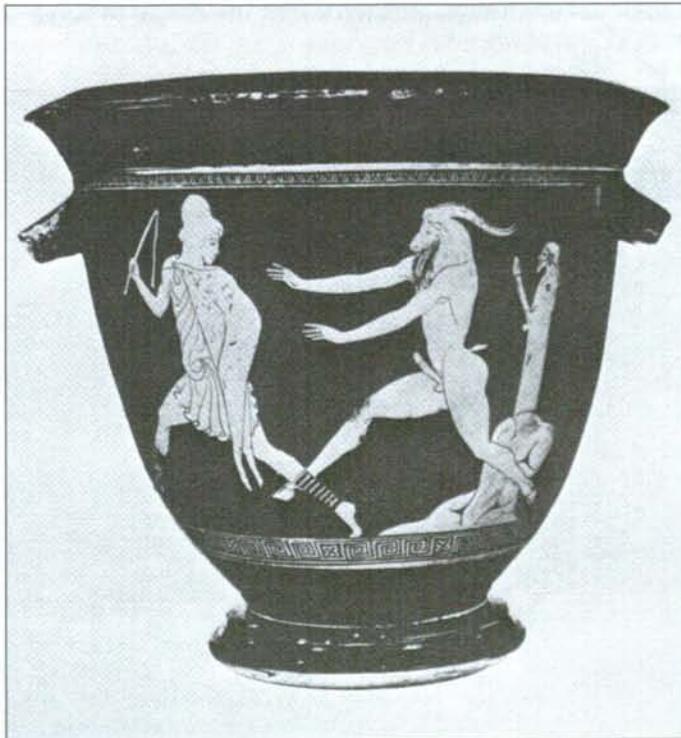
Photos: D. A. Frey

Fig. 3 (above, left). Close-up of the male from the conversation scene.

Fig. 4 (above, right). Close-up of the female from the conversation scene.

Fig. 5 (below, left). A bell krater by the Pan Painter, ca. 470-460 BCE. Note the molded foot and lug handles. From J. Boardman, *Athenian Red Figure Vases: The Archaic Period* (Thames and Hudson 1975), fig. 335.1.

Fig. 6. (below, right) A fourth-century BCE bell krater by the Black-Thyrsus Painter. From J. Boardman, *Athenian Red Figure Vases: The Classical Period* (Thames and Hudson 1989), fig. 344.



Acknowledgments: I would like to thank George Bass for sharing this exciting find, and John Boardman, John Oakley, and Thomas Mannack of the Beazley Archives for sharing their thoughts, observations, and expertise. This brief study would not have been possible without the very fine artifact photographs taken by Don Frey.

The 2001 Excavation Season at Tektaş Burnu, Turkey

Deborah N. Carlson, Assistant Director

When we departed Tektaş Burnu in September 2000, on the heels of a very successful excavation season, many unknowns lay ahead of us: would the Turkish winter devastate our camp as it had in 1999, what items lay yet to be discovered on the seabed, and how long would it take us to finish the excavation? Of all the scenarios that we envisioned, none of us imagined returning for a season at Tektaş Burnu without team member Erkut Arçak, who passed away just before the season began. Yet we did return, in June, 2001, a team of fifteen students and INA staff, though the summer certainly wasn't as colorful without Erkut.

We were pleased to see that virtually all of the camp structures built in previous years had survived the winter exceptionally well, so that we needed only to construct a dive platform and conservation area for processing artifacts. These were built quickly, but the dive area was not long-lived, for on June 19, the waves began to grow as a *lodos* (south wind) approached. The *lodos* worsened and the next day enormous swells completely dismantled our newly-built structure (fig. 1). In three short days, a small group of team members, under the superb guidance of engineer Robin Piercy, rebuilt the demolished dive platform. On June 23, we greeted the arrival of the rest of our team, who cruised into camp aboard the catamaran *Milla-*

wanda, bringing with them our generators, compressors, and recompression chamber.

Our goal for the 2001 season was to finish the excavation of three grid squares at the center of the wreck and completely remove the dense sand at the wreck's periphery, where whole artifacts had been found in previous seasons (fig. 2). We had high hopes of finding coins and other small artifacts nestled within the remains of the ship's hull. Almost immediately after we started diving on June 25, team member Mark Polzer recovered an oil lamp from R5, at the upper part of the wreck. However, further downslope in R9, which had produced Greek pottery and perfume flasks in 1999 and 2000, Ken Trethewey and Annette Schreur reached bedrock after a week of excavation. In the coming weeks, as airlifting continued around the wreck, excavators found bedrock in areas where we had hoped to find hull remains. Two more oil lamps surfaced in the loose sand north of the wreck. One of these was raised on July 8, during an official visit by İstemihan Talay, the Turkish Minister of Culture (fig. 3), the Director and Deputy Director of Antiquities, and ten members of the Turkish Institute of Nautical Archaeology (TINA). Minister Talay, the first Cultural Minister to ever visit an INA excavation, spoke very enthusiastically about his desire to forge a



Photo: R.C.M. Piercy

Fig. 1. The dive platform under heavy seas.



Fig. 2. Computer generated site plan. Courtesy of National Geographic Magazine.



Photo: D. Carlson



Photo: D. Frey

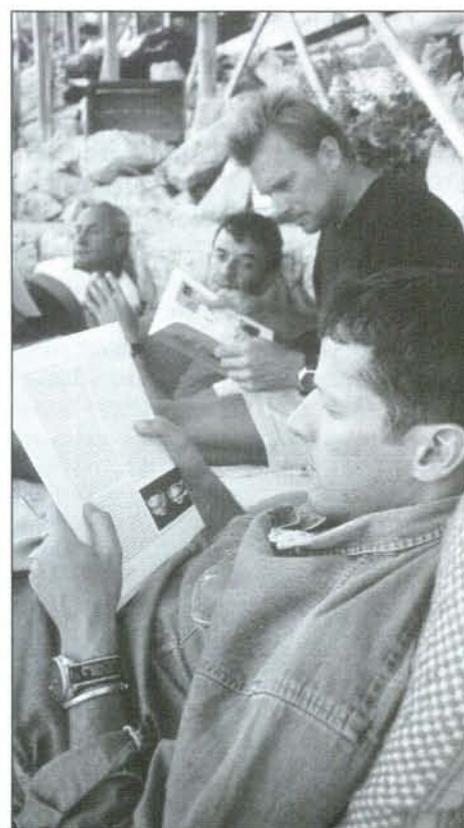


Photo: D. Carlson

Fig. 3 (left). Minister Talay inspecting an oil lamp from the wreck.

Fig. 4 (center). The four anchor stock cores found at fifty-four meters.

Fig. 5 (right). Team members in camp reading last year's INA Quarterly report.

partnership with the Institute in an effort to protect Turkey's underwater archaeological resources.

By mid-July, it had become apparent to us that the only area of the wreck still requiring careful and methodical excavation was grid square Q7, where Kris Trego and Sheila Matthews discovered that a handful of artifacts had been partially concealed by an overhanging rock. These included a broken *kantharos* (two-handled drinking cup), nails, wood fragments and a table amphora. Beneath the artifacts in Q7, and in adjacent portions of R7 and R8, we excavated a thin but discrete layer of fish bones, which may be the remains of whole fish stowed on board.

Near the end of July, as divers reached bedrock in almost every section of the site, Murat Tilev located a cluster of three amphoras almost ten meters away. These jars, which were later mapped and raised, appear to have rolled away from the wreck and become lodged in the crevice in which they were found.

As the season drew to an inevitable close, we asked Tufan Turanlı to swim over the site with a metal detector. In fifty-four meters of water, at the base of the shelf on which the wreck sits, Tufan's detector emitted a very strong

signal. We began digging immediately and, under a meter of sand, we found four lead anchor stock cores identical to the four found on the wreck in 2000 (fig. 4). The location of the lead cores suggest that the anchor was cast out in an initial attempt to keep the ship off of the rocky coast, but the effort failed. This anchor may, however, have held long enough to allow the crew to gather their possessions and abandon ship.

We dived for the last time at Tektaş Burnu on August 7, bringing the 2001 season to a close in exactly six weeks. With few exceptions, all of the artifacts raised in 2001 represent types known from previous seasons. We were extremely disappointed not to have found hull remains anywhere on the Tektaş Burnu wrecksite; what we found instead was a stratum of densely-packed clam shells, in all the areas where we expected to find wood. It seems likely that when the largest intact portion of the hull sank it did not come to rest on the seabed but became sandwiched between large rocks which kept it exposed until it was devoured by marine life.

The ship that sank at Tektaş Burnu in the third quarter of the fifth century BCE was a modest—probably

local—merchant ship, not more than ten or twelve meters long. It plied the waters of the eastern Aegean, calling at various ports along the Ionian coast including the islands of Chios and Rhodes. Team member and Greek historian William Murray describes our ship as the ancient equivalent of a FedEx truck. The Tektaş Burnu ship appears to have had little in common with the enormous merchantman that came to grief near the Greek island of Alonnesos between 420 and 400 BCE. Partial excavation by the Greek Department of Maritime Antiquities in 1992 and 1993 indicates that the Alonnesos ship was carrying a cargo of Athenian black glaze pottery and more than four thousand amphoras from northern

Greece. A cargo of this size and nature fits precisely the picture painted by Greek historians, playwrights, and poets, who describe the dizzying array of both raw materials and luxury imports that were regularly off-loaded in massive quantities at the Athenian port of Piraeus. By contrast, pottery finds from Tektaş Burnu indicate that our more modest ship had frequented the Ionian coast of Asia Minor, calling at the islands of Chios, Rhodes, and Lesbos, but not at Athens. In this respect, the wreck promises to shed light on the existence of small-scale trade networks that were geographically independent of Athens, but not entirely free from the effects of Athenian economic policy. ❧



Photo: W. Murray

Fig. 6. The 2001 Tektaş Burnu excavation team.

Acknowledgments: The 2001 season at Tektaş Burnu was realized through the financial support of the Institute of Nautical Archaeology and the National Geographic Society. Our short summer season was highlighted by visits from INA Director Alex Nason and TINA members Jonathan, Erika, and Natalie Beard (with canine Carmen), and Emre Temelli. Evren Turkmenoğlu, a member of Nergis Günsenin's shipwreck excavation team at Çamaltı Burnu in the Sea of Marmara, worked with us for a short time, as did Mehmet Yıldız, and underwater archaeologist Ouafa Ben Slimane from Tunisia. Toward the end of the summer we received a visit from Ayhan and Ceren Yıldız, as well as conservators Beth Edelstein, Diane Fullick, Matthew Hayes, Caitlin O'Grady, and Luna Velazquez of the American excavation team at Sardis. While it would be easy to say that the level of efficiency and ability achieved in our third season at Tektaş Burnu falls under the rubric of "third time's a charm," I want in no way to diminish the outstanding dedication and professionalism of our 2001 team (figs. 5 and 6). Their resilient good humor and perseverance in the face of rough seas, fallen compressors, lost data, and dropped desserts was inspiring. It was nothing short of an honor for me to have been involved in this project and to have worked with such fine people.

Archaeological Survey of the Maltese Archipelago—2001

Ayşe Devrim Atauz

The three islands of the Maltese archipelago have been inhabited since the sixth millennium BCE, yet what stands out to the historian and archaeologist of today is the unusual incompleteness of the archaeological record (fig. 1). It is almost impossible to survey or excavate ancient sites, since they have been under constant occupation since before the beginning of history. Therefore, underwater archaeology is of crucial importance in Malta, not only because underwater material is often the only available archaeological evidence but because the archipelago received all its occupants and cultural influences by sea.

Summer 2001 was the third season of INA's systematic survey of the Maltese coastline in cooperation with the National Museum of Archaeology (*INA Quarterly* 27.1, 1–6; 28.1, 22–28). This was the most successful underwater archaeology season to date in Malta, due to the support of INA Director Gregory Cook. He made it possible for us to carry out the remotely operated vehicle (ROV) survey phase of the project. Special thanks are also due to Chairman Mark Bonello of the Malta Maritime Authority for his enthusiasm and interest in the project.

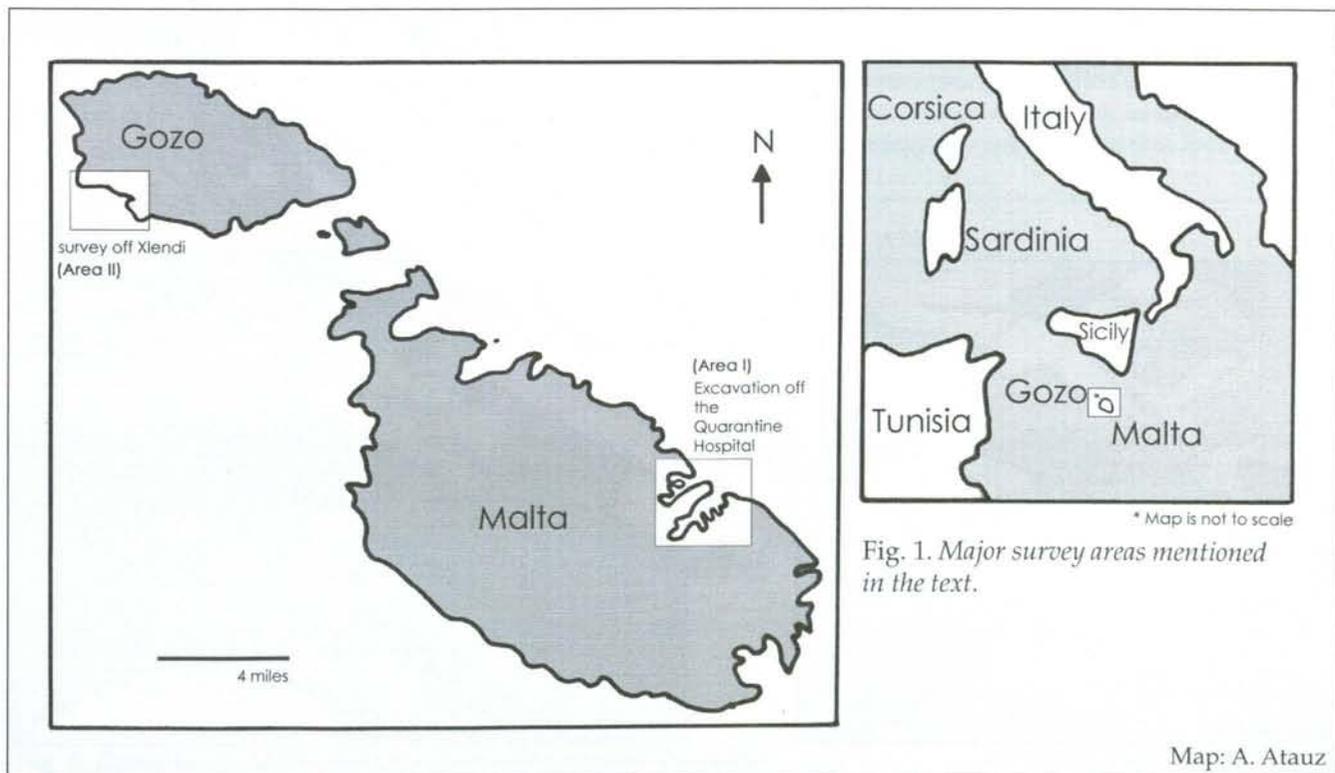
The project's objective is to locate underwater cultural remains such as shipwrecks, anchors, submerged settlements, aircraft wrecks, and harbor structures in Maltese territorial waters, to document the discovered sites, and

conduct excavations when warranted. Our ultimate goal is to help determine the role played by the Maltese islands throughout the history of Mediterranean seafaring. We hope to answer questions such as: where the main harbors and anchorages were located, what products were exchanged, and how major historical events in the Mediterranean affected long-distance trade. The results of our work so far mark rewarding progress towards preliminary answers to these questions.

The team pursued work in four major areas during 2001. On Malta, we surveyed two areas: (1) the area adjacent to the Quarantine Hospital in the Marsamxett Harbor and (2) the area near Zonkor Point where two swivel guns were previously reported to the National Museum. In addition, two areas on the neighboring island of Gozo were surveyed using various techniques. A diving team investigated the area near the watchtower at the entrance of the inlet of Mgarr ix-Xini. We used an ROV to survey both an area near Xlendi Bay and the area between Xatt l'Ahmar and Mgarr ix-Xini inlets.

Marsamxett Harbor near the Quarantine Hospital

The two large and well-protected harbors of Malta, Marsamxett and Grand Harbor, are located respectively to the north and south of Valletta, the national capital. Today, a small bridge connects Manoel Island in the middle



of Marsamxett Harbor to land (figs. 2 and 3). Conducting a survey around the island was important for at least four reasons. First, it is impossible to understand the maritime history of Malta without understanding land use around this second-most important harbor in the archipelago. Second, Manoel Island was the site of the Ottoman camp in 1565 during the Great Siege of Malta. It is possible that archaeological objects from this period are preserved in the harbor silt. Third, Marsamxett is mentioned in medieval texts from the times when the Catholic Church banned trade with the Islamic world. Christian and Muslim “pirates” exchanged their goods on Manoel Island, away from the prying eyes of the tax collectors at the medieval harbor of Birgu.

Finally, and perhaps the most important reason for our survey in Marsamxett, is that Manoel Island was the quarantine center of Europe for nearly two centuries. Quarantine control was institutionalized in Malta in the mid-seventeenth century, in order to protect the European

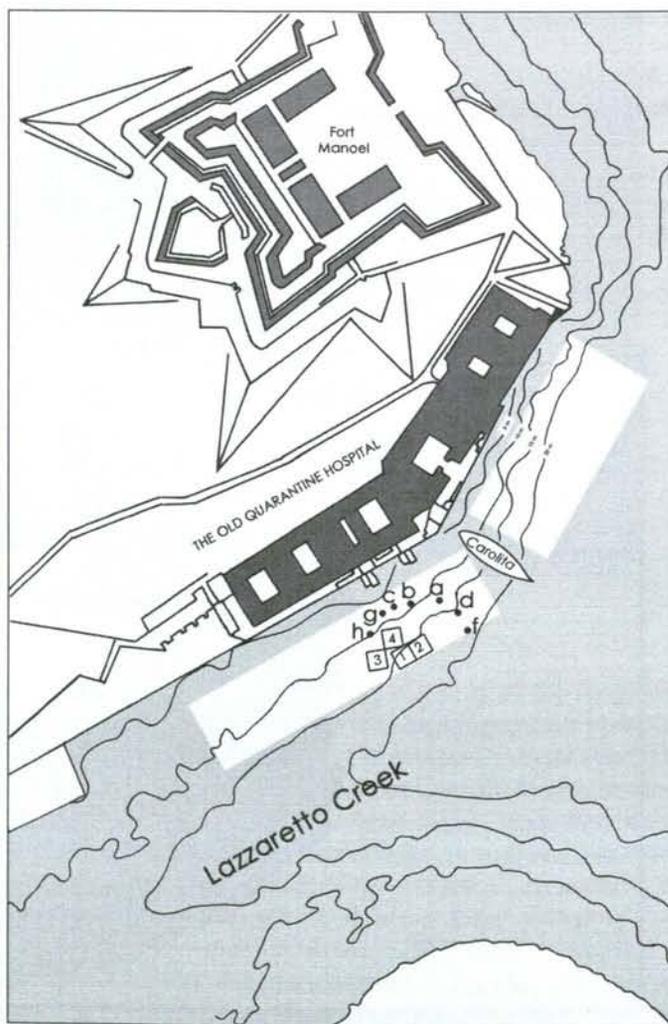
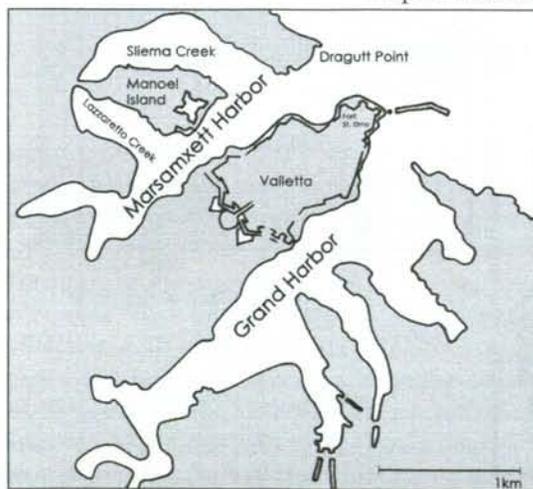
mainland from passengers and goods inbound from countries where plague was considered active. The disease was endemic in the lands under Ottoman rule, including Dalmatia, Greece, the Aegean islands, Asia Minor, Levant, Cyprus, Egypt, Tripoli, and the Maghreb. Occasional outbreaks occurred in the Western Mediterranean. Passengers and goods coming from all these lands had to be cleared by the quarantine authorities before being granted access to Malta and continental destinations.

The quarantine lasted forty days, during which the cargo was unloaded and fumigated within the isolation facility (*Lazzaretto*). The ship, crew, and passengers remained at anchor nearby for the full term of the quarantine period. Manoel Island was first used as a temporary *Lazzaretto* during the plague epidemic of 1593. The first building in the permanent *Lazzaretto* was built by Grand Master Lascaris of the Knights of Malta in 1643 and was enlarged in later periods. This structure still stands today; the INA team used it as a dive platform during the survey.

Fig. 2 (below). Marsamxett Harbor showing the location of Lazzaretto Creek, Manoel Island, and the Quarantine Hospital in relation to the Grand Harbor and Valletta.

Fig. 3 (right). Excavation area near the Quarantine Hospital showing the position of the Hospital Building, the Carolita shipwreck, and the excavation squares. The locations with a letter sign indicate the approximate location of the sand pockets excavated on the upper slope.

Maps: A. Atauz



Our investigations in the area began in April 2000, when a team from INA and the Malta Maritime Authority conducted an archaeological and geological hazard survey around Manoel Island using a high-resolution sub-bottom profiler. Divers inspected the identified targets, and recovered material dating from Roman times to the modern era. The abundance of artifacts near the Quarantine Hospital justified an extended survey in the summer of 2001 that involved a systematic collection of surface material and the excavation of a number of trenches.

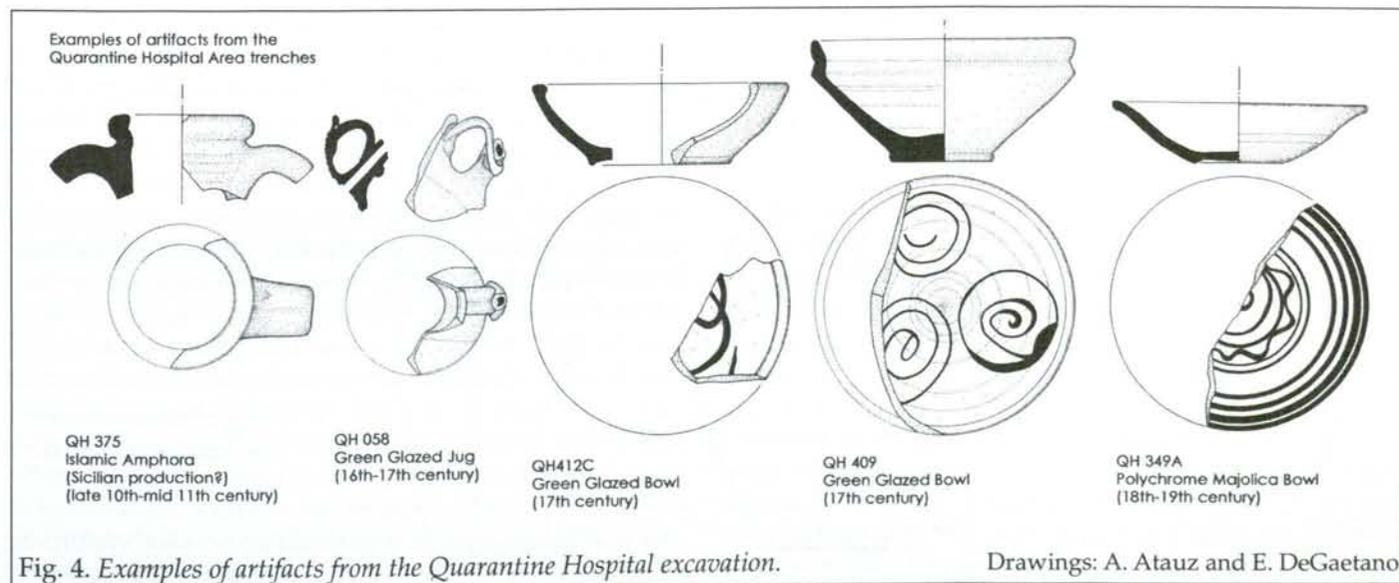
The underwater slope in front of the Hospital is littered with furniture discarded from the building, as well as large boulders that tumbled into the sea during bombing in the Second World War. In addition to beds and boulders, the site features *Carolita*, a modern iron-hulled wreck, which attracts fish and sport divers to the area. Visibility is never higher than three meters—provided that the bottom is not disturbed. *Carolita* looks almost haunted in the murky waters of the harbor. We conducted the diving survey near the Quarantine Hospital in two phases: a systematic surface collection of archaeological material and the excavation of test trenches in the most promising areas.

The team consisted of eight divers from INA, the National Museum of Archaeology, the University of Malta, and Bristol University. The work at the Quarantine Hospital site was made possible with the help of MIDI Inc.—special thanks to Benjamin Muscat and Alex Torpiano. I would also like to thank MedSurf for allowing access to the site on their restricted property and providing temporary storage for our equipment during the excavation. They also made it possible to survive this excavation by providing information about the boat traffic and ship movements in this part of the harbor. Christopher Faine and Christopher Longstaff were indispensable members of our diving team during the survey off the Quarantine

Hospital, thanks to the University of Bristol for making the funds available for their participation. Students Joanne Mallia and Elaine Azzopardi from the University of Malta also formed an invaluable part of the diving team. It was due to their hard work at the museum that we were able to finish the desalination and documentation of all the artifacts. Special thanks are due the University for making the funds available for their participation.

Initial dives focused on acclimating the team members to diving in zero visibility while collecting archaeologically diagnostic surface material. After each dive, a short meeting was held to familiarize the team members with the archaeological material recovered and hone their skills of discernment. The surface material was mostly white porcelain used by the British Navy in the nineteenth and twentieth centuries, broken artifacts dating to the sixteenth and seventeenth centuries, and a few Late Roman or Byzantine sherds.

Once the surface survey data were analyzed, several excavation areas were selected. Two-meter squares of PVC pipe were positioned and each diver was assigned one quarter of a square. The collection of material began with photography and sketching. A water dredge was set up to remove the silt and improve visibility. Divers were responsible for labeling and on-site logging of the artifacts from their sections. In addition to the squares, a number of up-slope sand pockets were excavated. These formed natural traps for material and had better stratification of preserved artifacts. Once the loose silt was removed, we immediately reached the grayish and more compact level that contained earlier artifacts, especially in the sand pockets. However, a layer below the gray silt preserved the traces of poseidonia grass roots. This grows only on a sandy bottom, and dates approximately to the seventeenth century. Archaeological material from this layer yielded more



consistent dates. The location of the squares and the excavated sand pockets were measured and positioned on a large-scale map with actual coordinates.

Ceramics from the excavation were cleaned, desalinated, reconstructed, photographed, and drawn once the excavation was over (fig. 4). We entered all 434 logged artifacts into a database that allowed comparison of the archaeological material in terms of their number, date, and origin. Although ceramic studies are still being carried out, preliminary observations indicate that eleventh- to twelfth-century Islamic ceramics (possibly of North African origin) outnumber the seventeenth- to early nineteenth-century polychrome majolica sherds of the Knights' period, when the Quarantine Hospital was in full service. This underlines the extensive use of the harbor during medieval times. We expect that a thorough analysis of the pottery will empha-

size the maritime trade contacts of Malta in the medieval period.

Survey off Xlendi

The second phase of the survey included the inspection of an area of seafloor near the entrance to Xlendi Bay in Gozo. The initial survey relied on the scanning sonar that was part of the standard ROV equipment. ROV cameras immediately inspected anomalies detected by the sonar. The equipment and personnel were provided by the NTNU (Norwegian University of Science and Technology) and Sperre A.S. The work off Xlendi could have never been possible (or so much fun) without the cooperation of the Malta Maritime Authority. They provided the small, yet efficient survey vessel *Madonna ta Pinu* with her talented crew: Joseph Bianco, Godwin Borg, Charlie Scicluna,

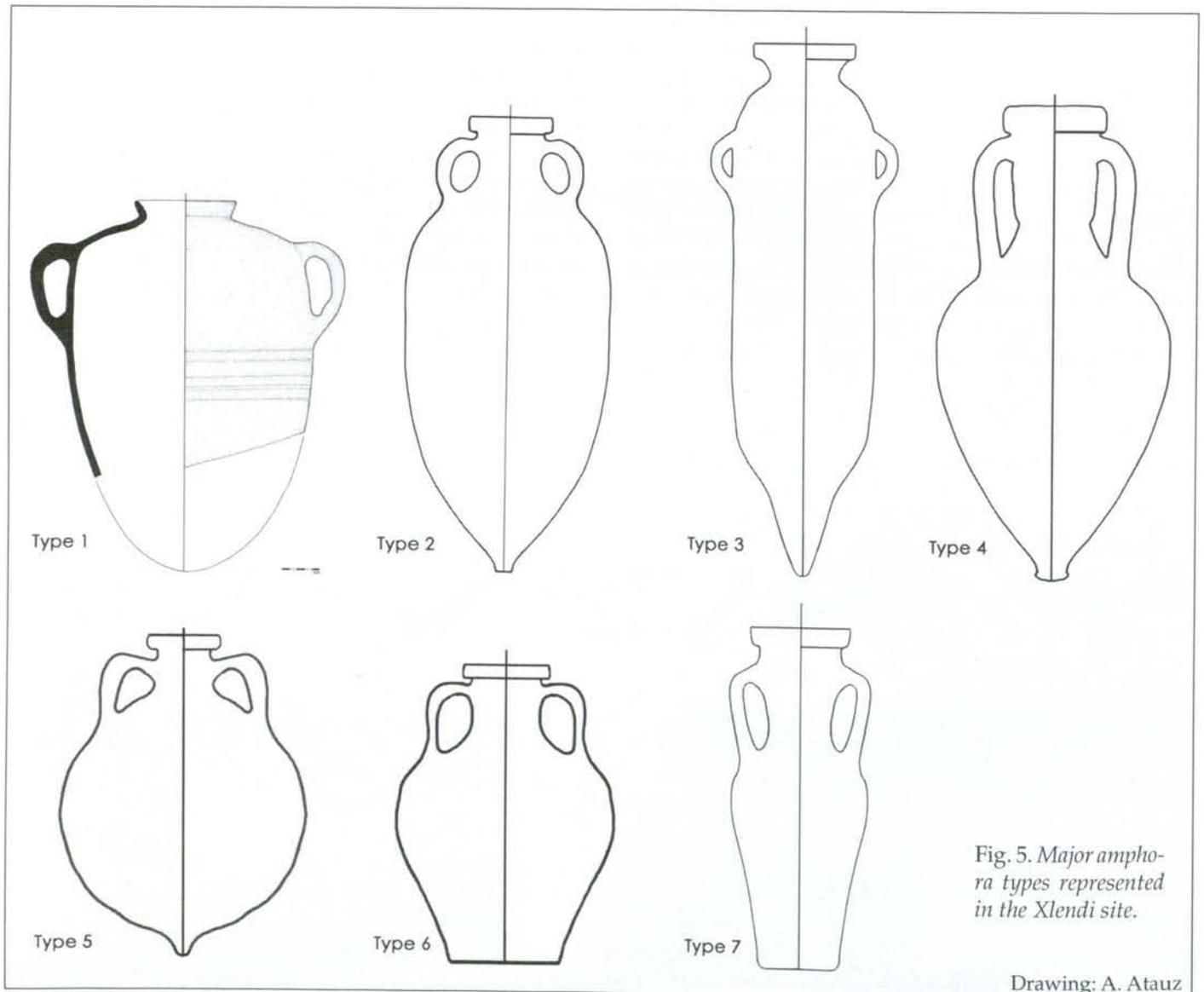


Fig. 5. Major amphora types represented in the Xlendi site.

Drawing: A. Atauz

Francis Mifsud, and Johan Camilleri. Fredrik Soreide (NTNU) and Thor Olav Sperre (Sperre A.S.) both sacrificed their vacations to make their ROV equipment available for our survey and work for the project. They promised wrecks and kept their promise.

The major find in 2001 was an amphora scatter off the entrance to Xlendi Bay. This includes thousands of amphoras, representing at least ten different types, spread over an area of about four hundred by one hundred meters on a flat, sandy bottom at a depth of 130 meters. The depth and nature of the location compel us to identify it as a shipwreck site. However, it is unclear whether it represents the remains of a single large vessel or is from multiple wrecks.

One of the major hurdles to be overcome is the difficulty in determining precise dates for the Xlendi amphoras. The equipment and time available in 2001 allowed for the retrieval of only one archaeological sample. This particular ovoid Punic amphora dates to the third century BCE, and is likely to be the product of a workshop in Western Sicily or the vicinity of Carthage. We selected it as a representative sample because the majority of the amphoras on the site are of this type. These containers are distributed widely in the Mediterranean, including sites from the Atlantic coast of Spain, the Balearic Islands, near Carthage, and Maltese Punic tombs. Another less common amphora type at the Xlendi site is a "Mañá C" (form 3) also dating to the same period as the first type (late third to early second century BCE). This Punic type was likely produced in Tripolitania or in Western Sicily. It is found in archaeological contexts in Spain, the Balearic Islands, Sardinia, Corsica, the southern coast of France, the Italian peninsula, and Tunisia. Another amphora type with numerous examples on the site is a Greco-Italic type (Type MGS II) likely to be a product of Sicily between the fifth and fourth centuries BCE.

Further study of the Xlendi Wreck site might change the chronology and dating of the site, as the other types we observed are even more problematic. The fact that we do not have hands-on access to the actual artifacts means that we must rely on the images captured by the ROV, creating difficulties in precise dating of the site. Amphora typologies and dating may drastically change depending on small details that are difficult to observe without the original artifact. However, it seems plausible that a number of types are more "recent" than the ones described above. Two of these might date to the first century CE. At least three other types seen in quantity on the site have no parallels in known typologies. They may be products of a local workshop yet to be discovered or prove identifiable when raised in future seasons. In either case, it is certain that it will be difficult to determine the nature of the site in its entirety before a detailed site map is produced and other archaeological samples are brought to the museum for

study and analysis. It is important to note that this site is the first underwater site of such an extent ever discovered in Malta. The importance of the study of the material lies in the insight it can provide into the history of the islands and the dynamics of trade in the central Mediterranean during the Punic Wars.

Areas of minor importance

The National Museum of Archaeology in Valletta suggested an extensive search in the area near Zonkor point in Malta. There were concerns about the future integrity of a site where a swivel-gun, possibly part of galley armament, was raised in 2000 and another one was stolen. The recovered weapon dated to the seventeenth century. We hoped to determine if the site represented a silted-over shipwreck that might contain other guns and artifacts. Unfortunately, we were not able to locate any metal objects during our search using a hand-held underwater metal detector.

Both a diving team and ROV surveyed an area near the inlet of Mgarr ix-Xini on Gozo, another of only three potential sheltered anchorages on the island. The diving survey was an attempt to relocate cannons that had been observed in the vicinity of a nearby watchtower (possibly having fallen into the sea from that location). Unfortunately, the guns are now either obscured by marine growth or stolen by looters. Mgarr ix-Xini has very similar characteristics to that of Xlendi on the same side of the island, so we expected a similar quantity of archaeological material. Our hypothesis was disproved by a complete absence of artifacts near the entrance to Mgarr ix-Xini. This confirms the greater importance of Xlendi. Sailing was difficult and risky around Gozo, where even the best natural shelter on the island is dangerous.

Future plans

Our work in the Quarantine Hospital area is scheduled to continue during the summer of 2002. The diving team will continue to excavate sections of this very promising area based on the finds and interpretations of the previous season. We also plan to carry out extended surface surveys in other harbors and anchorages around Malta to provide comparative material for the Quarantine Hospital finds.

However, the primary goal of the 2002 season is to completely document the wreck site off Xlendi. A multi-beam sonar will be used to determine the extent of the site and to map the adjacent seafloor. Acoustic images produced by the sonar will be geographically positioned and processed to create a three-dimensional rendering. A sub-bottom profiler will determine the extent and depth of the site below the seafloor. Simultaneously, the ROV will tape the video footage required to produce a detailed photo-mosaic that will be superimposed on the multi-beam map.

Once a detailed map of the site is available, we will be able to determine the concentration of contemporaneous amphora and ceramic types. This will aid in determining the nature of the site in general and the number and extent of the shipwrecks. After careful evaluation of the data, we plan to raise at least one representative example of each

amphora type for accurate dating and pottery analysis. INA and ProMare will be working together to develop and apply the equipment required for the project. The Xlendi site is the perfect proving ground for sub-sea mapping and excavation technologies, and will be a watershed for ongoing work in Malta and elsewhere.

Acknowledgements: The Malta Project is the product of several individuals' dedication and hard work. In addition to those named above, Brett Phaneuf helped me to design, carry out, and fund the project and supported me in every phase of my fieldwork. Timothy Gambin assisted with project logistics as well as being an invaluable member of both the diving and the ROV team.

Michael Spitteri and Edmond Cardona represented the National Museum of Archaeology during the survey. They were part of the diving team and were present during the ROV investigations. Curator Nathaniel Cutajar of the NMA provided pivotal support during the work, including practical matters such as providing us a place in the museum to work, and finding chairs, desks, and shelves to set up a laboratory. He also helped set up the scientific framework of the survey design and made a major contribution as the project's pottery specialist. Vanessa Ciantar and Elizabeth DeGaetano from the University of Malta made beautiful archaeological illustrations for the project and Gabrielle Fabri from Southampton University assisted us in conservation and analysis.

The project is indebted to Assistant Curators Rodriguez Espinoza (Maritime Museum), George Azzopardi (Gozo, Cittadella) and Mark Anthony Mifsud for their assistance, interest and help. I also would like to thank Joseph Muscat and John Wood for their assistance in providing information about the shipbuilding and maritime history of Malta. Finally, I must thank the Turkish Institute of Nautical Archaeology (TINA) for supporting my doctoral studies, and my parents and friends who came all the way to Malta to support my work and ensure my sanity. ☞



RPM Nautical Foundation: Thanks for Your Support!

William H. Charlton Jr.

I have long been an advocate of continuing education and training for all archaeological scuba divers. During my time as INA's Diving Safety Officer, many of our students (and even one professor, Dr. Fred Hocker) have received their Divemaster certifications. Additional training in diving, as in most other walks of life, simply makes one better prepared to do the job at hand. A better-trained diver is more confident, competent, and—ultimately—more productive. Recreational dive training assuredly does not address the needs of the professional working diver. Most aspects of work as an underwater archaeologist, biologist, oceanographer, or other scientist are incomparably different from standard recreational diving.

Some countries in Europe (France and Denmark, for example) require every candidate for work as an underwater scientist to be a trained and certified commercial diver. I was once turned down to work on a shipwreck excavation in Corsica because I did not hold commercial certification. The American Academy of Underwater Sciences (AAUS), the non-governmental organization that now sets the standards for scientific diving in the United States, has chosen a different approach. It has specific guidelines for scientific diver training. Most organizations that conduct scientific diving—universities, research institutes, marine laboratories, and the like—now require that all their divers complete a training course that meets AAUS standards and

qualify for the Scientific Diver certification. Many of these organizations conduct their own training courses.

Most *Quarterly* readers are aware that INA and the Nautical Archaeology Program (NAP) dive under the auspices of Texas A&M University, but many may not know that A&M has never had a formal scientific diving training program. INA's procedure has been to require divers to meet a very basic set of prerequisites before they go on a diving project, where they are taught the specific procedures required for that project. That these methods have worked for so many years, resulting in our great safety record, is a tribute to the dive leadership on each of our projects. These same informal training methods were common throughout the scientific diving community for many years, but scientific diving has changed drastically over the past few years, especially in the area of dive training. While our divers are working on projects under our own umbrella, we have no problem. We are not answerable to anyone but ourselves for our training methods or the conduct of our diving operations. However, many of the INA and NAP divers still carry only a basic Open Water Diver certification, with no way to verify further training if the need should arise.

There are several reasons why as many INA and NAP divers as possible should be certified by the AAUS. The first concern is reciprocity. I had quite a difficult time a few years ago getting three of our divers approved to dive on a Florida State University underwater archaeology project. They ended up having to take new physical exams and perform a series of training and checkout dives before they could go to work. In contrast, any diver holding an AAUS Scientific Diver card can go to almost any organization and start work immediately. Everyone understands the training levels without further inquiry. A second concern is the employability of NAP graduates. Many research organizations seeking both short-term and long-term diving employees now simply state "AAUS Scientific Diver certification required." Two different cultural resources management firms contacted me during this last summer looking for archaeological divers for short-term projects. Both required AAUS certification as a condition of employment. Finally, there is the issue of possible liability in the event of a diving accident. Certification would make verifying the training of the persons involved much easier.

Early in the spring semester of 2000, I learned that an AAUS-sanctioned scientific diving training course was available from Texas A&M University at Galveston, taught

by Dr. Tom Illiffe. The course consists of two parts, an academic program taught during the spring semester and a two-week diving trip to north Florida between the spring semester and first summer session (see *INA Quarterly* 27.4, 16–19). I arranged to accompany the group to Florida that year and was convinced of the overwhelming effectiveness of the course. Some students had better and more varied diving skills by the end of the trip than some INA and NAP divers have, even after working on a shipwreck excavation.

I was able to get five NAP graduate students into Dr. Illiffe's Spring 2001 diving course. I served as his instructor for the dive course in College Station, while he taught in Galveston. However, neither the students nor the Program could afford to send all of them to Florida to complete the course. The two who did finish, Sara Brigadier and Mark Feulner, could hardly have praised it more highly. Mark has gone on to complete his cave diver certification. He will assist me during the 2002 dive course, training to become a diving instructor.

I felt very strongly that this training would benefit every NAP student and INA diver, but few were able to afford it. There was no obvious solution to this problem until I heard a presentation by Dan Davis, a graduate of the Program who is now the Operations Chief of RPM Nautical Foundation in Key West, Florida. I knew of the organization because I had been involved in the acquisition of a nitrox and air fill station they received in the summer of 2001. Dan came to College Station to tell us about the foundation's desire to support nautical archaeology projects and research. When I mentioned our problem, Dan said that RPM Nautical might also be interested in supporting diver education, and that I should submit a proposal for funding to support the AAUS training.

My proposal was approved. We will get four more NAP graduate students, plus the three who were unable to finish last year, into the 2002 dive training course. I have been advised that if this year's training is a success, the support could continue into future years. This training will provide a better-trained cadre of divers for future INA and NAP projects, and aid our graduates in their future endeavors.

Many students will benefit from this training, so I would like to express my gratitude to Mr. George Robb and his RPM Nautical Foundation. As the title of this article says, "RPM Nautical Foundation—Thanks for Your Support!" ☞

The "Mica" Shipwreck Excavation: Deep-water Archaeology in the Gulf of Mexico

Brett Phaneuf

Accidental discoveries in archaeology can lead to significant consequences. In February 2001, an eight-inch gas pipeline placed on the seafloor at the Mica Prospect in the Gulf of Mexico passed directly through the midships section of a historic shipwreck. This was discovered in a post-installation survey of the pipeline conducted with a remotely operated vehicle (ROV). Upon discovery, the shipwreck was immediately reported to the Mineral Management Service (MMS), the agency with jurisdiction over submerged archaeological resources discovered in federal waters in the Gulf of Mexico. The shipwreck lies approximately eight hundred meters deep, sitting upright on its keel with the remaining portion of the hull clad in copper sheathing.

A preliminary study of the shipwreck was conducted by ROV and funded by Exxon-Mobil, Inc. This revealed that the hull of the ship was constructed of Eastern White Pine that grows only along the eastern seaboard of the United States north of Virginia. Based on the presence of copper sheathing (to protect the hull from wood-boring marine organisms) and the general morphology of the ship, it most likely dates between the years 1775 and 1830. Small coastal merchant vessels (approximately twenty-five meters in length) were ubiquitous in the Gulf of Mexico, the Caribbean, and throughout North American coastal

waters. Ships of this type were the lifeblood of commerce and industry in the burgeoning United States. Archaeologists believe that this small merchant ship, found on the main shipping route to and from New Orleans, was either heading to or departing from that port when it came to grief.

In order to specifically identify the shipwreck, two Texas A&M graduate students are reviewing customs records of ships entering and leaving New Orleans. They will enter all available data into a Geographic Information System (GIS) to be mated with other databases concerning historical accounts of shipwrecks in the Gulf of Mexico. Combined with data gathered during the excavation, this database will be a powerful tool for aiding MMS and A&M scholars to identify the ship, and for subsequent underwater archaeological research in the deep Gulf of Mexico.

Following the preliminary study, the MMS entered into a cooperative agreement with Texas A&M University. The Nautical Archaeology Program (NAP) in the Department of Anthropology and the Deep Tow Research Group (DTRG) in the Department of Oceanography were to design a program of archaeological and oceanographic study of the wreck-site and the surrounding area.

Scientists from the MMS and A&M consulted with pipeline engineers regarding moving the pipe off the site



Fig. 1. Image of the bow and stern of the shipwreck as it rests upright on its keel.

and determined that this would be detrimental to the shipwreck. Pipelines can be under tremendous tension, compression, or torsion and the archaeologists were concerned that if the pipeline were lifted it could "whip," destroying the important and well-preserved bow and stern sections of the shipwreck. Therefore, the archaeologists studying the site requested that the pipeline not be moved. However, little information was lost due to the placement of the line itself. The midships is usually the least structurally complex area of a vessel. The bow and stern sections provide considerably more information about the construction techniques used to build the ship, and generally preserve more detail from the actual construction process. Additionally, the center section of this wreck was already the least well preserved section of the site.

DTRG and NAP requested the use of the United States Navy *SSV Carolyn Chouest* and the nuclear research submarine *NR1* to conduct the study and to compile detailed sidescan sonar imagery and photo-mosaics of the site, to recover a limited number of diagnostic artifacts, and to determine the origin and precise age of the ship. The plan was for *NR1*, an ROV launched from the submarine, and a surface-launched ROV deployed from *Carolyn Chouest*, to be used. These were to compile detailed sonar and photo-mosaics of the site and collect detailed photographic documentation of all features of the shipwreck prior to excavation. Once data for a complete site map was collected, the team would proceed to gently remove sediment from within the shipwreck and recover artifacts located during the process. Simultaneously, the surface-launched ROV would excavate small test-pits around the periphery of the site and map the location of and collect artifacts. After this, additional sonar and photo-mosaics were to be compiled.

This was the first deep-sea excavation conducted by archaeologists in the United States and the impetus for developing a program at A&M focused on deep-sea archaeological research in the Gulf of Mexico. It was also the first collaborative venture between the Department of Oceanography and the NAP, which are now considering a joint advanced degree program in deep-sea archaeological research and exploration.

The INA ROV (*NR1/4*) was upgraded and installed on the submarine, and a larger ROV on loan from the Naval Oceanographic Office was loaded on *Carolyn Chouest*. The weather could not have been more perfect for our op-

erations. Within moments of arriving at our rendezvous point at sea, NAP student Toby Jones was transferred to *NR1* for three days of intensive investigation on the wreck site. Unfortunately, that was when our luck began to erode. As Toby worked to record and image the shipwreck below, the ROV aboard the *Carolyn Chouest* malfunctioned during preliminary diving operations and was lost. To make matters worse, the *NR1/4* also failed to function properly due to telemetry problems brought on by the incursion of seawater into the cable connecting it to the *NR1*.

We shifted our attention immediately to making the best possible use of *NR1*. For nearly six days Toby, Kevin Crisman of the NAP faculty, and MMS Archaeologist Rick Anuscewicz worked with the sub's crew. They imaged the wreck site with cameras and sonar, removed sediment from the site, and revealed well-preserved timbers and a plethora of artifacts. Finally, they removed the uppermost section of the sternpost. As *NR1* surfaced with this in its manipulator arm, a sudden drop in hydraulic pressure spelled the loss of the artifact, as it fell back to the seafloor through 815 meters of seawater.

Due to the string of bad luck, everyone experienced first hand the hardships of working on a deep archaeological site. That being said, the mission was successful as a model for collaborative research between the military, a federal agency, and an academic institution, something we intend to continue in the future. Data collected with *NR1* is also still being analyzed and will be presented in a follow-up article along with future research on the site to be conducted this fall with the help of industry partners in the Gulf of Mexico.

All artifacts recovered will be shipped to the Conservation Research Laboratory at Texas A&M where they will be studied, conserved, and prepared for public museum display. Depending on the type and number of artifacts recovered, conservation time is estimated to vary between six months and two years. After the conservation is complete, the MMS will designate a repository or museum to house and display the artifacts along with an interpretive display of the shipwreck material.

ExxonMobil, generously providing the lion's share of the needed capital, funded the season of research. Funds were also provided by Texas A&M and the SeaGrant College Program. ☞

The Cais do Sodré Ship

Paulo Rodrigues

A remarkable ship came to light during the 1995 construction of a subway station at Cais do Sodré Square in Lisbon, Portugal. Digging in a zone that was once a shoreline, the contractor found the remains of a wooden hull at a depth of five to six and a half meters. Although the walls of the subway hall had cut the stem and sternposts, the derelict was preserved to the turn of the bilge along twenty-four meters of flat keel (fig. 1). With the exception of part of a whipstaff, no loose artifacts were found in any of the layers above or below the ship remains (fig. 2). Two wood samples were taken for radiocarbon analysis and yielded dates around the end of the fifteenth century.

The contractor, *Metropolitano de Lisboa E.P.*, stopped work immediately and called for help from the *Instituto Português do Património Arquitectónico e Arqueológico (IPPAR)*, the institution that was charged with

the preservation of the Portuguese nautical cultural heritage at the time. The ship remains were carefully recorded in situ by a team of archaeologists under my direction, and dismantled for storage in a warehouse. The 1993–1995 treasure hunting legislation period in Portugal (*INA Quarterly* 25.4, 16–18) delayed study and conservation of the timbers.

Further work did not start until 2000, again under my direction but this time with the *Centro Nacional de Arqueologia Náutica e Subaquática (CNANS)*, created in 1997 within the *Instituto Português de Arqueologia (IPA)*, the Portuguese state agency for archaeology. A team from the *Institute of Nautical Archaeology (INA)* at *Texas A&M University* recorded the timbers during the summer of 2001. This work was the subject of my *Thèse de Doctorat* at the *Université de Sorbonne Paris 1* under the supervision of *Dr. Eric Rieth*.

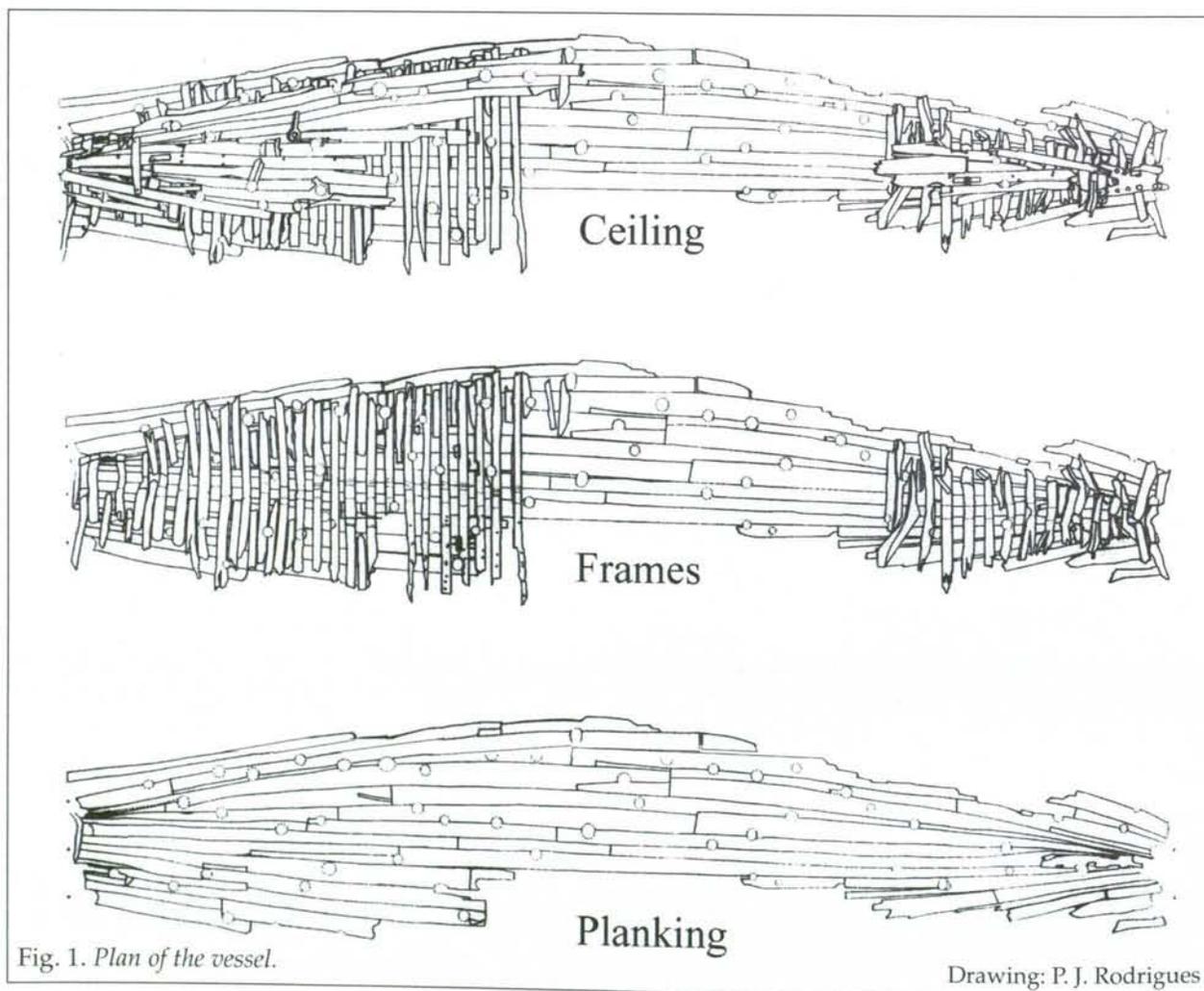


Fig. 1. *Plan of the vessel.*

Drawing: P. J. Rodrigues



Fig. 2 (left). The ship during excavation.

Fig. 3 (above). The remains of a whipstaff.

Photos: F. Alves, CNANS

The ship remains encompass a keel (in four parts), keelson, deadwood, frames, four stringers, one breast hook, one beam, one stanchion, planking and ceiling, as well as some smaller pieces. These timbers were cut from several different species of wood. The two fragments of the hawthorn (*Crataegus monogyna*) whipstaff found at the stern were perhaps the most important remains (fig. 3). The midship frames were presumably destroyed before the subway construction was stopped, so the master frame is missing. However, further study on the planking may reveal its position and number. In the Portuguese shipbuilding tradition, large ships could have three master frames.

All of the timbers were of oak (*Quercus faginea*) except the single breast hook section which was of oak (*Quercus robur*) while the ceiling between the stringers were of pine—one plank and one strake on the starboard (*Pinus pinaster*) and three planks and one strake on the port side (*Pinus*

sylvestris). The keelson consisted of three sections. A total of thirty-seven frames were present, fourteen forward, and twenty-three aft. Upper and lower stringers were both composed of three to four timbers. Extensive planking comprised of twenty planks (six strakes) to starboard and, twenty-two (eight strakes) to port while the bottom ceiling consisted of sixteen planks from eight strakes. Both the beam and stanchion consisted of a single fragment each.

It is too soon to make any definitive statements. However, the hull is very interesting from a number of aspects. First, its central frames are numbered with roman numerals, from one to eighteen, and the floors are attached to the futtocks with dovetail joints (figs. 4 and 5). Second, the frames abaft the presumed after tail frame (numbered XVIII) show a pronounced kink outwards, suggesting a very low transom (fig. 6). Third, the four keel sections are butt-joined, with no apparent fastenings (fig. 7).

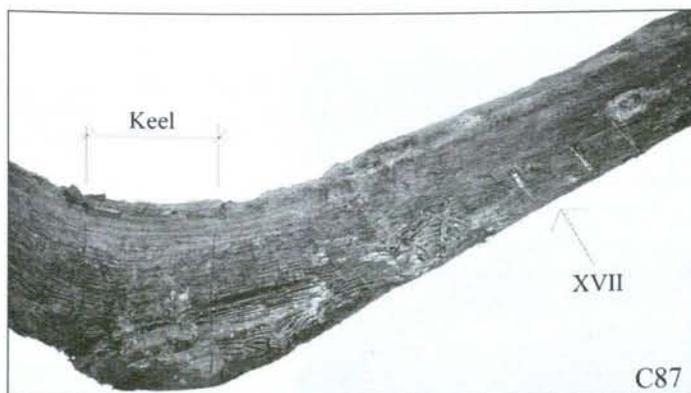


Fig. 4 (left). Construction marks on floor C87.

Fig. 5 (below). Dovetail joints.

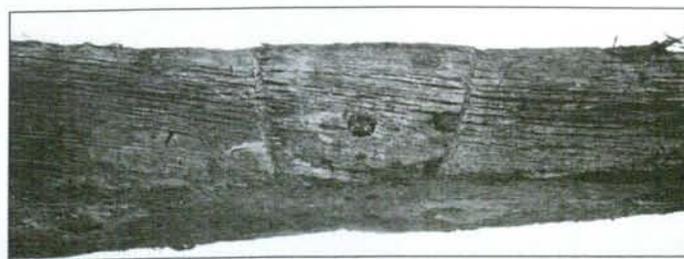


Photo: P. Goncalves, CNANS

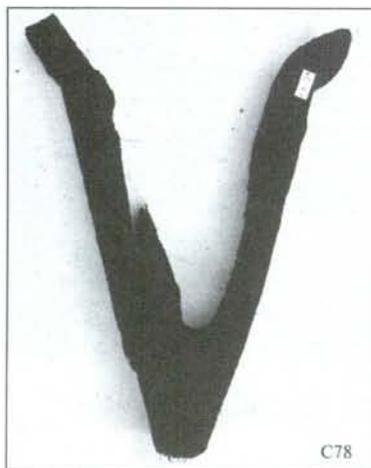


Photo: P. J. Rodrigues

Fig. 6. Floor number C78.



Fig. 7. Keel.

Drawing: P. J. Rodrigues

The first two characteristics mentioned above may be typical of the Portuguese shipbuilding tradition. They are mentioned in the sixteenth-century treatises by Fernando Oliveira (1580) and João Baptista Lavanha (c. 1610), and have been found in several Iberian wrecks, such as the Pepper Wreck (*INA Quarterly* 27.4, 3–9) or the Aveiro A wreck (*INA Quarterly* 25.4, 17). The third characteristic, however,

is only found in the Culip VI wreck and the 1696 *Traité de Construction de Galères*, a manuscript kindly shown to me by Dr. Rieth.

Work on the Cais do Sodré wreck will continue for at least two more years. I plan a 1:10 scale replica as a way to understand the conception and construction sequence of this vessel.

Acknowledgments: I wish to thank the administration of the Metropolitano de Lisboa, E.P. for supporting the excavation, dismantling, and preservation of the Cais do Sodré ship. IPA/CNANS and Dr. Francisco Alves supported the housing and study of the timbers, and Dr. Eric Rieth supported me with his always kind and enlightened help. INA and Dr. Kevin Crisman sponsored the dream team: Erika Laanela, Gustavo Garcia, Anthony Randolph, Eric Flynn, Carrie Sownden, and Katie Custer. Finally, I must thank Texas A&M University and my good friend Dr. Filipe Vieira de Castro for his help in the ongoing preparation of the final drawings. ♡

Suggested Readings

Rodrigues, Paulo

- 1995 Relatório Preliminar dos trabalhos de desobstrução e registo arqueográfico dos restos do navio encontrado no Cais do Sodré, nas obras do Metropolitano de Lisboa, Lisboa.

Rodrigues, Paulo, et al.

- 2001 "L'épave d'un navire de la deuxième moitié du XVème siècle/début du XVIème, trouvée au Cais do Sodré (Lisbonne). Note préliminaire." In Francisco Alves, ed. *Proceedings International Symposium on Archaeology of Medieval and Modern Ships of Iberian-Atlantic Tradition*, IPA, *Trabalhos de Arqueologia* n°18, 347–380.

A Recompression Chamber for INA-Egypt

William H. Charlton Jr.

INA has for several years recognized the need for a recompression chamber to support diving projects in Egypt, which are often carried out in very remote locations. INA-Egypt did not require a large, fixed-plant chamber for their operations, but one that could be used in a portable configuration, installed on a trailer, and towed to the different project locations.

Years before, Dr. William Fife—Texas A&M University's long-time Diving Health and Safety Officer (now retired)—gave INA an old skid-mounted double-lock recompression chamber, commonly called a "deck chamber." It had long ago been stripped of its piping, valves, and gauges. At the time, INA did not have a use for the equipment or a place to store it, so it remained beside Dr. Fife's former Hyperbaric Laboratory in the woods on the western edge of the campus. William H. Charlton, Jr., INA's Diving Safety Officer, had kept the deck chamber in the back of his mind since learning of its existence from Dr. Fife ten years ago. Charlton realized that the old equipment at the Hyperbaric Lab could fill the bill for INA-Egypt. However, the chamber would require much work... if it could be salvaged at all.

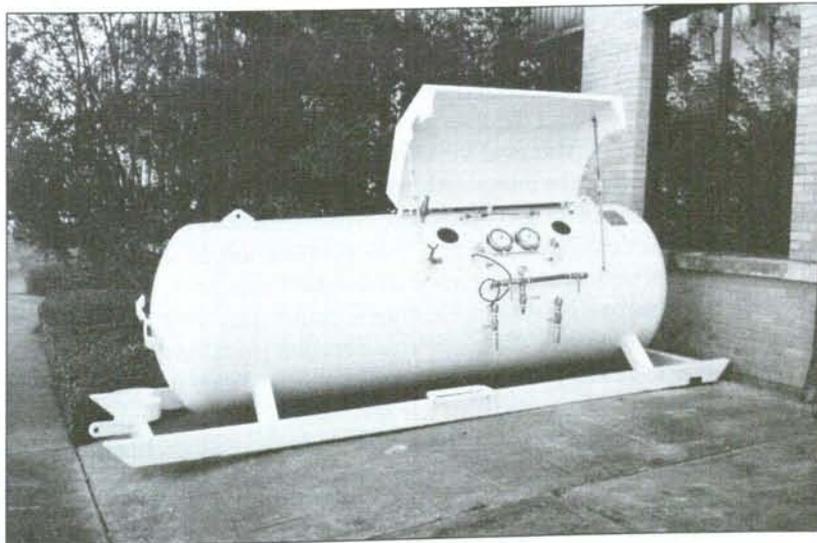
The first requirement, then, was to determine if the vessel could still be pressurized without blowing its seals, window ports, or the wide variety of connectors and adapters screwed into its outer skin. To discover this, Charlton enlisted the aid of Tom Sutton, Operations Chief of the Hermann Center for Hyperbaric Medicine in Houston, Texas, and dive doctor on several INA projects in Turkey. The two conducted a hydrostatic test on the chamber. This check, commonly called simply a "hydro," is conducted by filling the vessel with as much water as can be pumped into it, and then pressurizing it the rest of the way up to its working pressure with air. To their great surprise, it stood

the stress, so they knew INA had an intact, functioning pressure vessel.

The next step was to determine how to get the equipment back into operational condition. Initial conversations with some commercial companies that refurbish chambers as a routine business gave some discouraging news. This job could cost many tens of thousands of dollars. The thought of actually being able to use the equipment went on hold until the day Tom Sutton contacted Bill Charlton with the cryptic message, "Call John Wood."

Follow-on discussions resulted in a fantastic offer from Mr. Wood, owner of The Ocean Corporation, a small commercial diving training school located on the west side of Houston, Texas, only one hundred miles from INA's headquarters in College Station. John would volunteer to return our old chamber to operational condition, if INA would allow him to use the project to train a select group of commercial divers in the operation and maintenance of decompression and recompression chambers. With his substantial hands-on field experience with such equipment, as well as his many years of teaching these same subjects, John Wood is eminently qualified for this type of work. The only cost to INA was for the parts required for the job, which it found affordable.

The refurbishment took a few months, as scheduled, and the chamber is now back at INA's facility in College Station. It has a shiny new coat of tough paint, as well as new high-pressure piping, valves, and gauges. The work also included installation of new overboard-dump masks for those portions of Decompression Illness treatments requiring administration of pure oxygen, as well as new inside and outside communication equipment. The last step in the project will be to ship the chamber to Egypt. ☺



Just Released

By Christine Powell

The Art and Archaeology of Venetian Ships and Boats
by Lillian Ray Martin

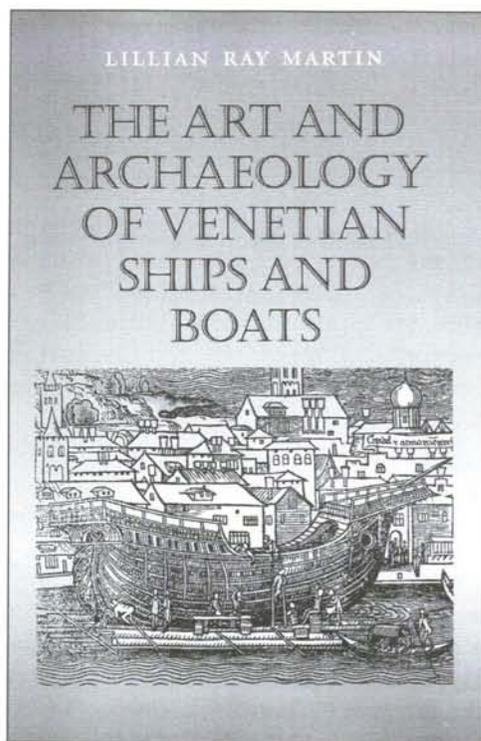
College Station: Texas A&M University Press, 2001
ISBN 1-58544-098-1, 236 pp, 104 b&w photos, 54 line drawings, 6 tables,
4 appendices, notes, bibliography, index. Cloth. Price: \$77.50

Medieval and Renaissance Venice was the queen of the seas—the dominant naval and merchant shipping power of Christendom. For much of the Middle Ages, the city-state enjoyed a virtual monopoly on trade between Europe and the Eastern Mediterranean. At its height in the thirteenth through fifteenth centuries, Venice controlled a maritime empire with influence reaching all the way from England to China, with actual colonies from the Adriatic to the Black Sea. However, we know relatively little about the ships that made this power possible. There are very few archaeological remains and there have been no prior adequate studies of the iconographic material. In the latest volume of the *Studies in Nautical Archaeology* series from Texas A&M Press (published in England by Chatham Publishing), Lillian Ray Martin goes a considerable distance toward plugging this gap in our knowledge.

The core of this book is a section of over a hundred pages providing a catalog of maritime images in the art of Venice and the neighboring cities before the High Renaissance. These come from church murals, drawings, paintings, woodcuts, engravings, book illustrations, and a range of other sources. An appendix provides a twelve-page list of museums, libraries, and church sites consulted. The extremely high-quality illustrations of the book reproduce these images. Some readers may regret the absence of color, but the monochrome prints on glossy paper may actually make the details of the ships easier to distinguish. Although this is not an exhaustive collection (many images are inaccessible or unpublishable for various reasons), it provides a representative sample of images from Venice, Aquileia, Belluno, Bologna, Bolzano, Padua, Ravenna, Rimini, Verona, and Vittorio Veneto. As background to the catalog, the author provides a brief overview of Venetian history and art between the fourth century and the fifteenth. This provides the relevant context in history, economics, and art history for interpreting the images. The introductory chapter is supplemented by a detailed chronology in another appendix.

Iconography is particularly important for this period because of the scarcity of material evidence. Mediterranean archaeology has found very few medieval shipwrecks of European origin. When *The Art and Archaeology of Venetian Ships and Boats* was written, archaeologists in the region around Venice had only excavated and studied three ships and five smaller boats from before the seventeenth century. The Contarina I merchant ship dates from the thirteenth century, while Contarina II is a sixteenth-century merchantman. These and the fifteenth-century galley from Lazise on Lake Garda do not provide adequate physical evidence for Venetian shipbuilding without the interpretive lens provided by contemporary art. As Lillian Ray Martin notes, "To develop the most accurate picture of medieval Venetian watercraft possible, evidence gleaned from textual sources, pictorial evidence, and nautical archaeology must be integrated, because each contributes different types of information."

She attempts this task in the second major section of her text, which describes the additional evidence for Venetian watercraft and combines it with the data from the cataloged images. The combination of sources allows her to reach conclusions about the variety of rigs and hull construction techniques that marked this prosperous maritime regime. A functional typology of Venetian ships and boats substantiates the author's claim that they had "diversity to meet every need." However, Martin acts as a guide, rather than as a dictator. The detailed information in *The Art and Archaeology of Venetian Ships and Boats* allows the reader to reach independent conclusions about the subject. Two additional appendices include representative ship and boat measurements from the textual and archaeological sources and a discussion of the anchor requirements in thirteenth-century maritime codes. Although recent archaeological discoveries in Italy may substantially supplement this information, the book will probably constitute the foundation of our knowledge about Venetian ships, boats, and shipbuilding for many years to come. ☞



Review

By Donny L. Hamilton

Spanish Colonial Gold Coins in the Florida Collection
Alan K. Craig

Florida Heritage Publication, University Press of Florida, 2000
ISBN: 0-8130-1802-1, 112 pages, 284 gold coin photos, map, 17 tables, appendixes, glossary, notes, bibliography, index, paperback

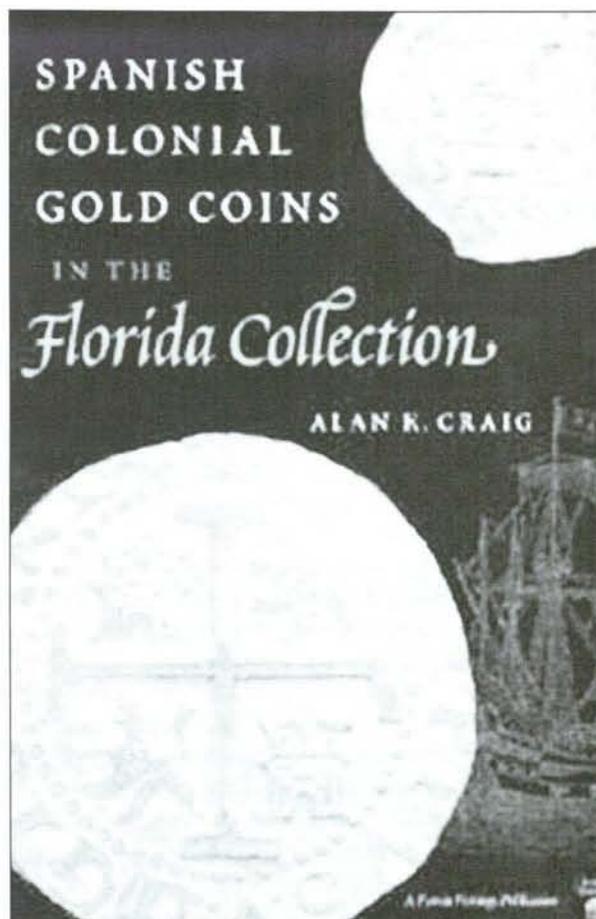
This volume describes the gold coins held by the Florida Bureau of Archaeological Research on behalf of the State of Florida. As such, the book's title explains the contents. The described coins represent the state's twenty-five percent share from various salvage operations, primarily from the 1715 and 1733 Spanish Fleets and the 1695 Jupiter Wreck.

After a short historical background, the cob coins of the Lima, Cuxco, Mexico, and Bogotá mints are described, followed by summary remarks on the coins produced by each mint. The descriptions of the different varieties of coins from the four mints and the die variations used to stamp the coins are thorough and well illustrated with black and white photographs, color photographs, and composite drawings. In short, the book does what it sets out to do—describe the Florida Collection. It is not, however, a definitive study of the gold cob coins minted in the Spanish colonies of the New World.

Interesting tidbits of historic data are incorporated into the text, but in many instances the absence of references prevents the interested reader from evaluating or pursuing the subject. An example is the reference to the privateer Henry Jennings, of Port Royal, Jamaica, attacking the Spanish salvage camp at the 1715 Fleet disaster, and making off with over one hundred thousand silver pieces of eight. Another example is the discussion of the ratio of one-, two-, four-, and eight-escudo coins in the collection. The author asserts that mint production records indicate that more eight-escudos were produced than four-escudos in all of the mints. Therefore, he feels that the nearly equal number of four- and eight-escudo Mexican coins in the Florida collection is skewed. He later states, "Perhaps Mexican coinage totals will eventually prove to be representative of what was being produced there during the first decade of the eighteenth century, but the currently available evidence suggest otherwise." No references are provided for evaluating these statements and no real discussion of why the totals represented in the Florida Collection can not be assumed to be representative, even when the nature by which the collection was acquired is taken into consideration. Many readers would be interested in knowing the basis for these statements.

The book, while successfully recording the Florida Collection, would benefit from a discussion of the relative value of escudos versus reals in the monetary system, everyday mint operations, taxation procedures, the production of coin dies in the Spanish colonies, and a thorough discussion of the significance of the legends and the meaning of the devices and symbols used in the crests at different time periods and at the different mints. This information is largely absent or lacking, but is precisely the kind of data that places the coins within their historic context and makes them culturally relevant. The glossary, while providing some useful information, could be much more extensive.

Interestingly, readers will be exposed to words such as "mulct," "tontine-like," and "exergue" which will send many to the dictionary. Some might suggest that more common words could have been used, but others will enjoy learning new vocabulary. The book, while easy to read, is not a substitute for a more definitive reference on cob coinage in the Spanish colonies for those seeking to identify a given coin. The primary value of the book is in making the gold cobs of the Florida Collection accessible to other researchers for purposes of comparative research. ❧



George Bass Honored with National Medal of Science

"The medals we present today are the highest honors—the highest honors—a President can bestow in the fields of science and technology. Today's honorees have earned this recognition with their tireless work." With these words, President of the United States George W. Bush awarded the National Medal of Science to Dr. George F. Bass, INA Co-Founder and President Emeritus, and fourteen other recipients at a White House ceremony on June 12, 2002.

Congress established the Medal in 1959 as a Presidential Award for individuals "deserving of special recognition by reason of their outstanding contributions to knowledge in the physical, biological, mathematical, or engineering sciences." In 1980, Congress expanded the mandate of the Medal to recognize the social and behavioral sciences. A distinguished committee of twelve scientists and engineers appointed by the President evaluates the nominees for the award.

The fifteen recipients of the 2001 President's Medal of Science included six biologists, three physical scientists, two chemists, two mathematicians, and an engineer. Dr. Bass was the sole recipient of the Medal this year in behavioral and social sciences. The presidential citation pointed out his accomplishments "for fathering underwater archaeology after publishing the first complete excavation findings of an ancient shipwreck." In honoring Dr. Bass, the nation also tacitly recognized the work and sacrifice of all those who have sustained the Institute of Nautical Archaeology since it was founded in 1972.

George Bass was proudly supported by Ann Bass and their sons Gordon and Alan, along with Alan's wife Lesa, who were all in the White House for the presentation. The National Science Foundation hosted a black-tie banquet in honor of the laureates the next evening. Dr. Bass notes, "We were joined at our table by INA Directors Bill Allen and Ray Bowen (of course Ray is also President of Texas A&M University), with Carol Allen and Sally Bowen, as well as INA Counsel James Goold with his wife Dabney." Of course, every INA member and supporter was there in spirit to pay tribute to his accomplishment.

As President Bush said, "It is an honor to be with so many incredibly bright and innovative people. I want to welcome the winners; I want to welcome your family members; I want to welcome your friends; and I want to welcome those of us who are just happy to be in your presence." That pretty well sums up the feelings of all who have worked with Dr. Bass over the years! The President concluded, "The world of our children will be shaped by the people we honor today. On behalf of all Americans, I want to thank you for your lifelong commitment to making our world a better place." ❧



FROM THE PRESIDENT



Change is inevitable if an organization is to survive, and it can be good, even if awkward at times. For the past few years, the Institute of Nautical Archaeology has been undergoing a series of important changes. In a significant administrative transition effective July 31, 2002, Dr. Jerome L. Hall has resigned as President to pursue an academic career at the University of San Diego, and I have succeeded him. I want to join everyone associated with INA in thanking Dr. Hall for the three years he guided us and wish him the best in his new venture.

For those of you who don't know me, here is a little background information: I am a native-born Texan (an important fact for those who can claim it). I was raised in Pecos, far from any seacoast. It is as mystifying to me as it might be to any of you as to how I happened to become interested in nautical archaeology. I received my Bachelor of Arts degree from Texas Tech University in anthropology and my doctorate from The University of Texas at Austin in 1975. My dissertation was written on the conservation of metal objects from underwater archaeological sites, which continues to be one of my main specialties.

In 1978, I joined the faculty of the Nautical Archaeology Program at Texas A&M University (TAMU) to become one of the first four faculty members. The others included Dr. George Bass, the founder of both INA and the Nautical Archaeology Program (NAP), Mr. J. Richard Steffy who provided us with shipbuilding expertise, and Dr. Frederick van Doorninck who provided expertise in classical archaeology. On arriving at TAMU, I established the conservation laboratory, which holds an international reputation and plays an important role both for the academic program of NAP and for INA. I also provided a New World perspective. For over a decade, we four provided the direction for NAP and to a large degree that for INA as well. I am the last of the original faculty; the others have retired from A&M. However, all three continue to be active in the affairs of INA—Bass as Founder and Steffy and van Doorninck as Directors.

After twenty-four years with TAMU and INA, I hold a number of administrative positions. In addition to serving as President of INA, I am Head of the Nautical Archaeology Program, Associate Head of the Anthropology Department (of which NAP is part), and Director of the Conservation Research Laboratory. So, I am familiar with most aspects of both INA and TAMU. Archaeologically speaking, I am best known for the ten years I spent excavating the seventeenth-century sunken city of Port Royal, Jamaica, and for my conservation work on both the 1554 Spanish Plate Fleet and the hull and contents of *La Belle*, which belonged to the famous French explorer La Salle. On occasion, I still do some prehistoric archaeology as well. I am currently working on the final publication of the Port Royal excavations and completing a book on conservation.

My full attention is and will be devoted to the affairs of INA. Soon there will be a new generation of nautical archaeologists trained in underwater archaeology, unlike the original faculty members, who were essentially self-taught. My mission in serving INA as its sixth President is to assist in this transition, embark on new avenues of research, establish a sound administrative structure, and put INA on a firm financial foundation.

New shipwrecks are being found and opportunities are opening up in the Mediterranean (in Turkey, Greece, Italy, Morocco, and Egypt); the Caribbean (in Cuba, Puerto Rico, and Mexico); South America; various parts of Asia; and the coasts, lakes, and waterways of North America. All of these—and more—are potential areas for INA projects. We intend to be a part of new shipwreck excavations in these areas as we strengthen our established bases and branch off in fresh directions. Along the way, we will expand the Board of Directors to support new research. With the cooperation of the INA Board of Directors and membership, Texas A&M University, and our research staff, we will continue to be the world leader in nautical archaeology. The future is ours... as long as we have the vision to pursue it.

Additional information about INA, NAP, the staff, the faculty, and the projects is on the Internet at: <http://ina.tamu.edu>. E-mail questions can be directed to ina@tamu.edu

Donny Hamilton

INSTITUTE OF NAUTICAL ARCHAEOLOGY



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