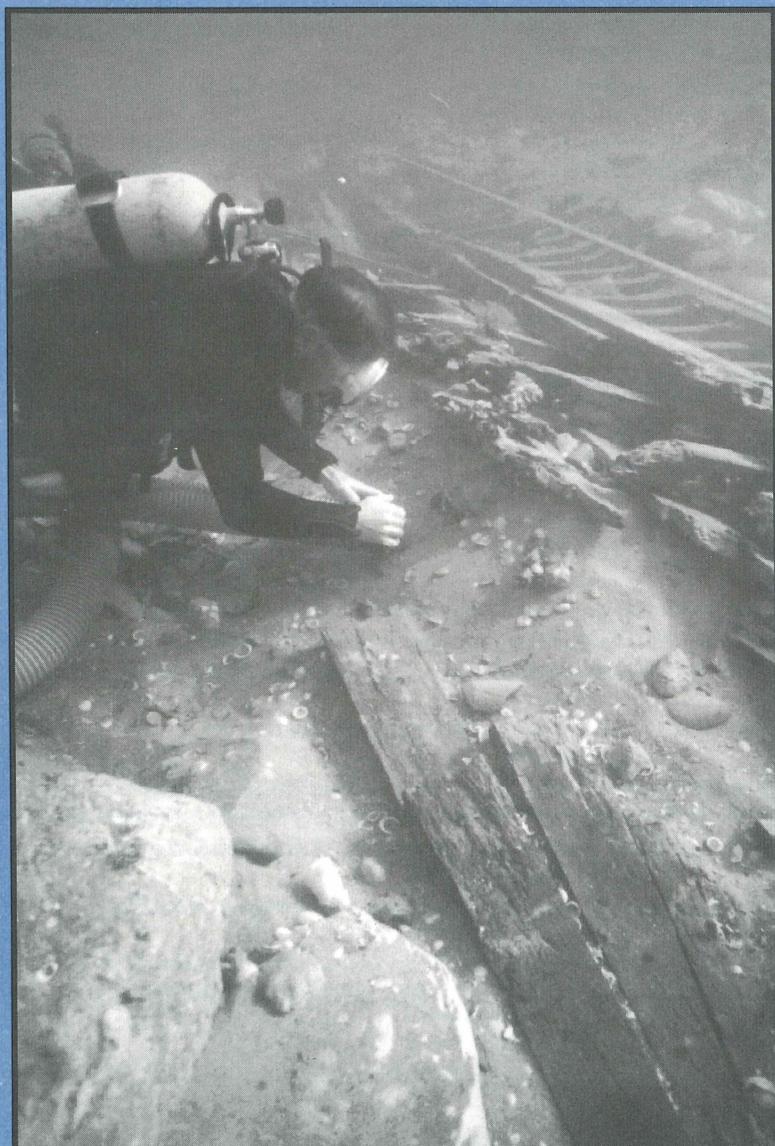


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On the cover: A Tale of Two Shipwrecks. During the 1996 campaign, members of the INA/CMS Joint Expedition to Tantura Lagoon studied the early ninth-century CE (Arabic period) *Tantura B* shipwreck, and then were surprised to discover that it was lying on top of an early third-century CE (Roman period) shipwreck. Photo: S. Wachsmann.

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The Institute of Nautical Archaeology is a non-profit scientific and educational organization, 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.

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Editor: Christine A. Powell

The *Tantura B* Shipwreck: The 1996 INA/CMS Joint Expedition to Tantura Lagoon

by Shelley Wachsmann, Yaakov Kahanov, and Jerome Hall



God has the purest judgment.

Kufic (ancient Arabic) inscription on a wooden roundel found on the early ninth-century CE Tantura B Shipwreck

Tantura Lagoon is one of the few natural harbors along Israel's long and straight Mediterranean coast (see *INA Quarterly* 22.2, 3 [figs. 1–2]). The cove has served as a port facility for Tel Dor, one of the largest ancient mounds in Israel, as well as for Dor's immediate environs, for at least 4,000 years. Due to the lagoon's geographic configuration, ships that wrecked here tend to be buried and preserved under a thick anaerobic blanket of sand. These considerations, both of antiquity and geography, make the cove an exceptional laboratory for the study of historically and archaeologically significant shipwrecks.

Throughout its long history, Tantura Lagoon served as a gateway between the cosmopolitan Mediterranean Sea and the hinterland. Artifacts recovered from Tantura Lagoon include materials dating to periods for which we know virtually nothing about the ships in use. If these remains are wash-off from shipwrecks still buried under the cove's shifting sands, which seems likely, then they suggest an archaeological treasure trove. As the area adjacent to the lagoon has been inhabited for four millennia, there are few Mediterranean ports that hold the remains of such a historical expanse.

Tantura Lagoon is now being coaxed into revealing some of her nautical treasures. Since 1994, INA has joined forces with Haifa University's Recanati Center for Maritime Studies (CMS) to carry out joint research under the directorship of INA's Shelley Wachsmann (fig. 1).

In 1995, the team completed in situ recording of the *Tantura A* Shipwreck, which was discovered the previous

year (fig. 2: A). The preserved portion examined constitutes about twenty-five percent of the bottom of a small local coaster, dating to the Late Byzantine period (mid-fifth to mid-sixth centuries CE) that originally was probably about twelve meters long. The team also confirmed that this hull had been constructed without the aid of unpegged mortise-and-tenon joinery that had, until this discovery, been considered standard for that time-period. This makes *Tantura A* the oldest recorded hull in Mediterranean waters to have been built with the innovative methods that were to evolve more fully and become standardized during medieval times.

Also during the course of the 1995 season, the team carried out a hydraulic probe survey in the immediate area surrounding *Tantura A*, during which remains of four additional shipwrecks were discovered (see *INA Quarterly* 24.1: 3-8).

A third season of exploration at Tantura Lagoon took place from late October through early December 1996. Expedition members logged 1,054 diver-hours during 344 recorded field-related tasks. The expedition focused primarily on the well-preserved section of an early ninth-century shipwreck in Trench VIII—now termed the *Tantura B* Shipwreck (fig. 3-4). Timbers derived from two other hulls were also recorded in this trench. The Trench VIII hull remains were mapped against stainless steel baselines, as well as by means of direct measurements (fig. 5-6). Additionally, a black and white photographic record was made of all timbers.

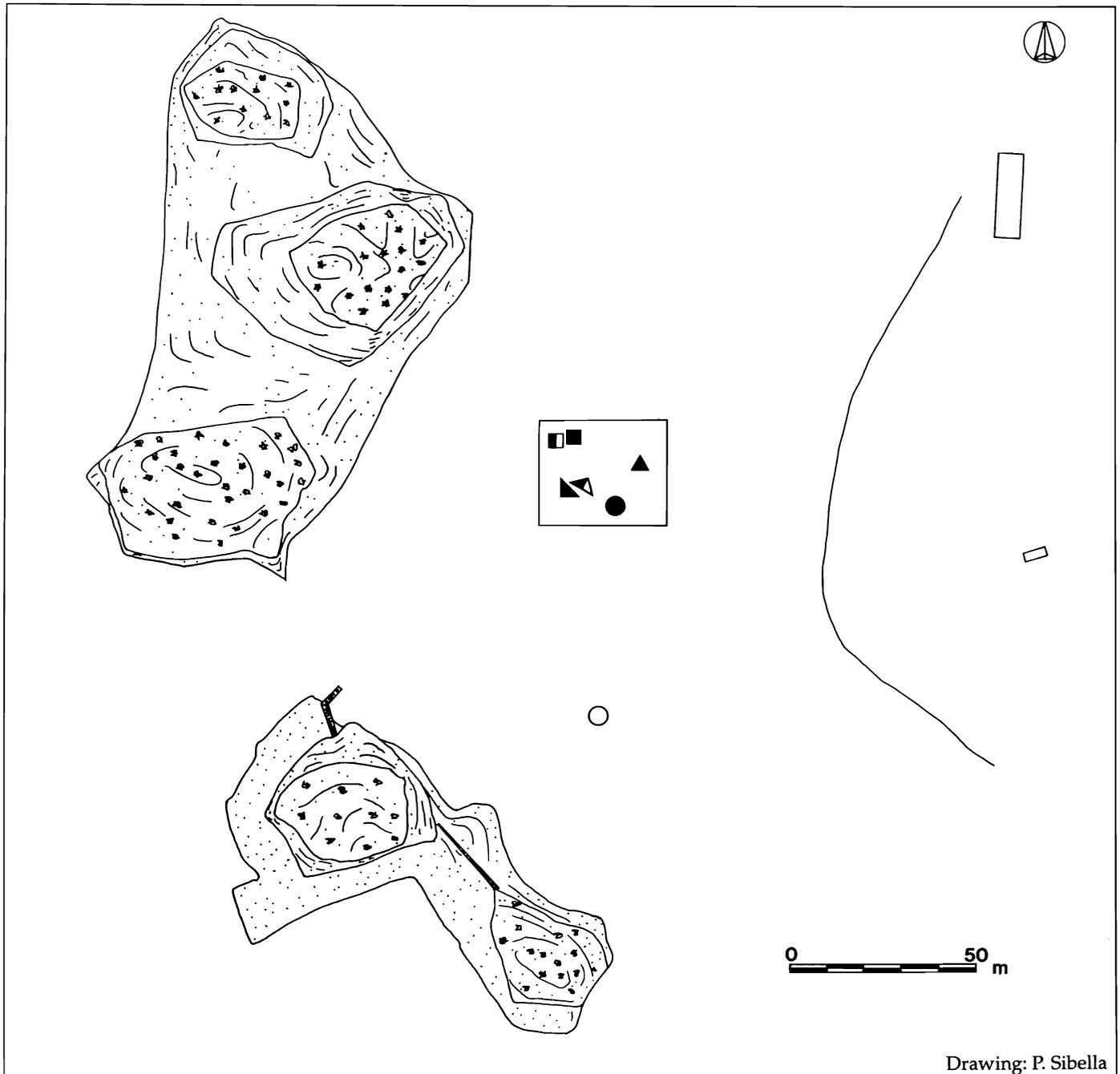


Fig 1. Map of the southern portion of Tantara Lagoon showing the locations of shipwrecks and collections of timbers discovered and examined during the 1994-1996 seasons of exploration.

The *Tantara B* hull was particularly chosen for detailed study as it is remarkable in dating to a century from which there are no other documented Mediterranean shipwrecks (fig. 7). Subsequently, the in situ study of the hull has revealed it to be of a previously unrecorded Mediterranean hull shape. Y. Kahanov and J. Hall were responsible for recording and studying the hull. Noted Hull Reconstructor J.R. Steffy visited the expedition and advised on matters of hull construction.

The uniform continuity of the hull breadth tentatively suggests a long and narrow vessel. This combination of angles, breadths, and lack of longitudinal strengthening has not been recorded previously on any medieval Mediterranean shipwreck.

The *Tantara B* hull is oriented along a southeast by northwest bearing (fig. 2: B). This appears to be a relatively small section of the vessel. Steffy believes that it may include somewhat less than twenty-five percent of the hull's bottom.

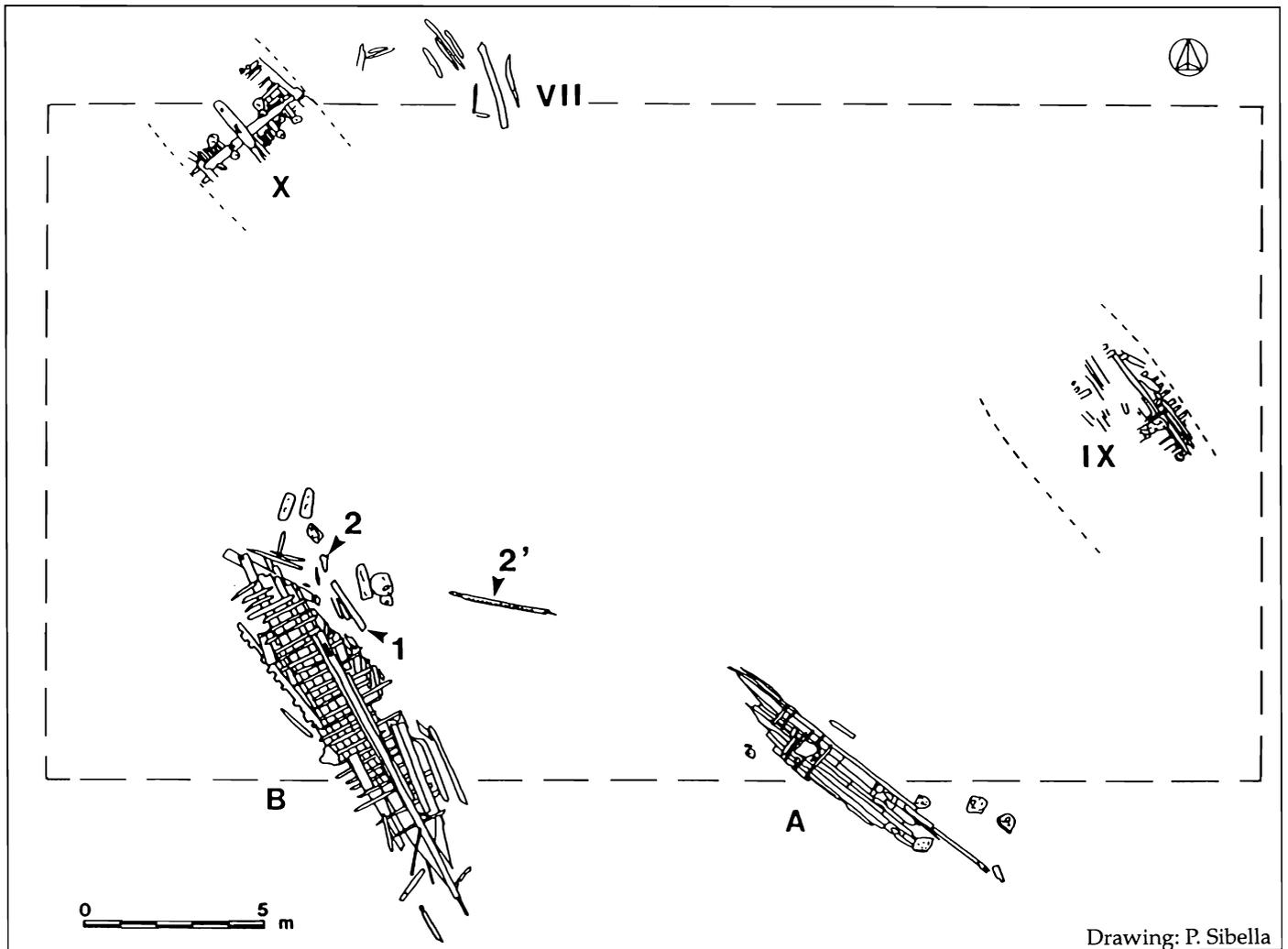


Fig. 2. A parking-lot for shipwrecks... Plan of the shipwrecks found in Tantara Lagoon during the 1994-1996 seasons of exploration. We have recorded remains of seven (!) different shipwrecks in an extremely small area. As a reference point, the superimposed rectangle represents the size of a single regulation-size basketball court (28.65 by 15.24 meters). Interestingly, all the coherent hulls that we have uncovered to date at Tantara are aligned roughly in a northwest-to-southeast direction. This is probably the result of the eastern part of each ship being buffeted by the powerful north-to-south current that runs in the lagoon during storms.

For a detailed description of the ship's construction, see the sidebar on page 13.

The vessel's keel and keelson are insufficient longitudinal stiffening for such a vessel. Unfortunately, evidence for any upper longitudinal strengthening timbers is lacking, leaving the question of how such a long hull was strengthened unresolved.

The unusual association of angles, breadths, and lack of longitudinal strengthening on the *Tantara B* hull is unlike those of any other known Mediterranean medieval vessel recorded to date (Figs. 4, 8). This has led J.R. (Dick) Steffy to propose that this arrangement may be indicative of medieval galley (oared ship) construction, which (till now?) has been missing in the archaeological record.

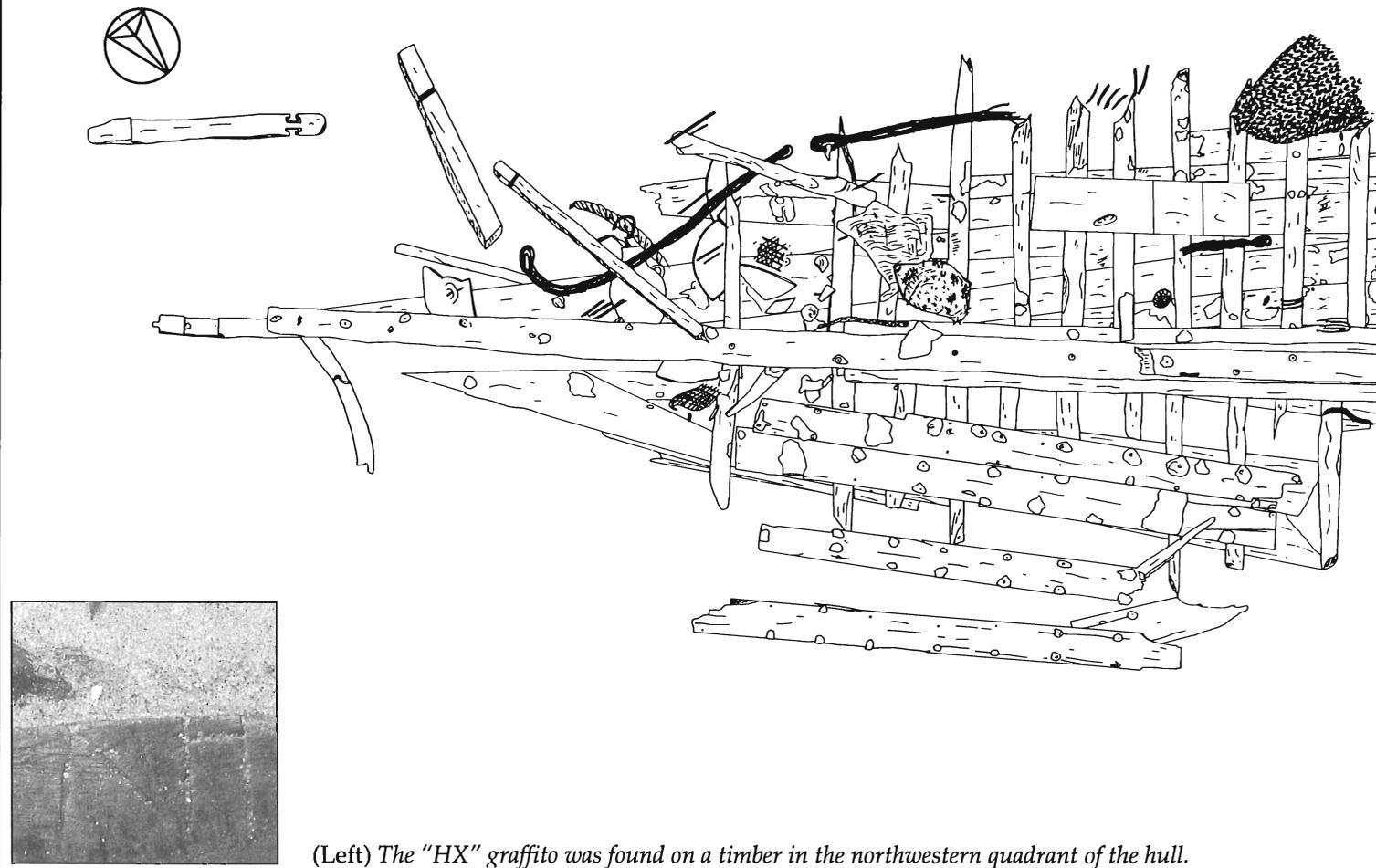
Although no cargo was found in the hull, numerous artifacts were recovered that will teach us much about the ship and crew. Of particular interest is an exceptional-

ly large Abbasid-period oil lamp. This was associated with five bivalve shells, which were stacked neatly inside each other (fig. 9). Part of a sixth, broken, shell was found nearby. The function for which these items were being carried is, for the present, unclear, although similar bivalve shells were found on the early seventh-century CE Yassiada Shipwreck where they were interpreted as spoons. A second, smaller yet contemporaneous, lamp was found just beyond the hull's northwest quadrant.

Rope of various sizes—from string to massive hawsers—was found lying throughout the hull. Ongoing study of his cordage will contribute to our understanding of the vessel's rigging. Also of interest are four wooden toggles, two of which were found with rope still adhering to them (fig. 10).

Three wooden roundels of uncertain purpose, were found (fig. 11: A-C), one bearing a carved inscription (fig.

Fig. 3 (main). Trench VIII site plan. The *Tantura B* Shipwreck, with part of an enormous Roman shipwreck beneath it.



(Left) The "HX" graffito was found on a timber in the northwestern quadrant of the hull.

11: C). H. Khalilieh (CMS) identified the script as Kufic—an early Arabic script—and has translated it as, "God has the purest judgment." A similar artifact was found on the seventh-century CE Yassiada shipwreck (our thanks to Professor F. van Doorninck for bringing this parallel to our attention).

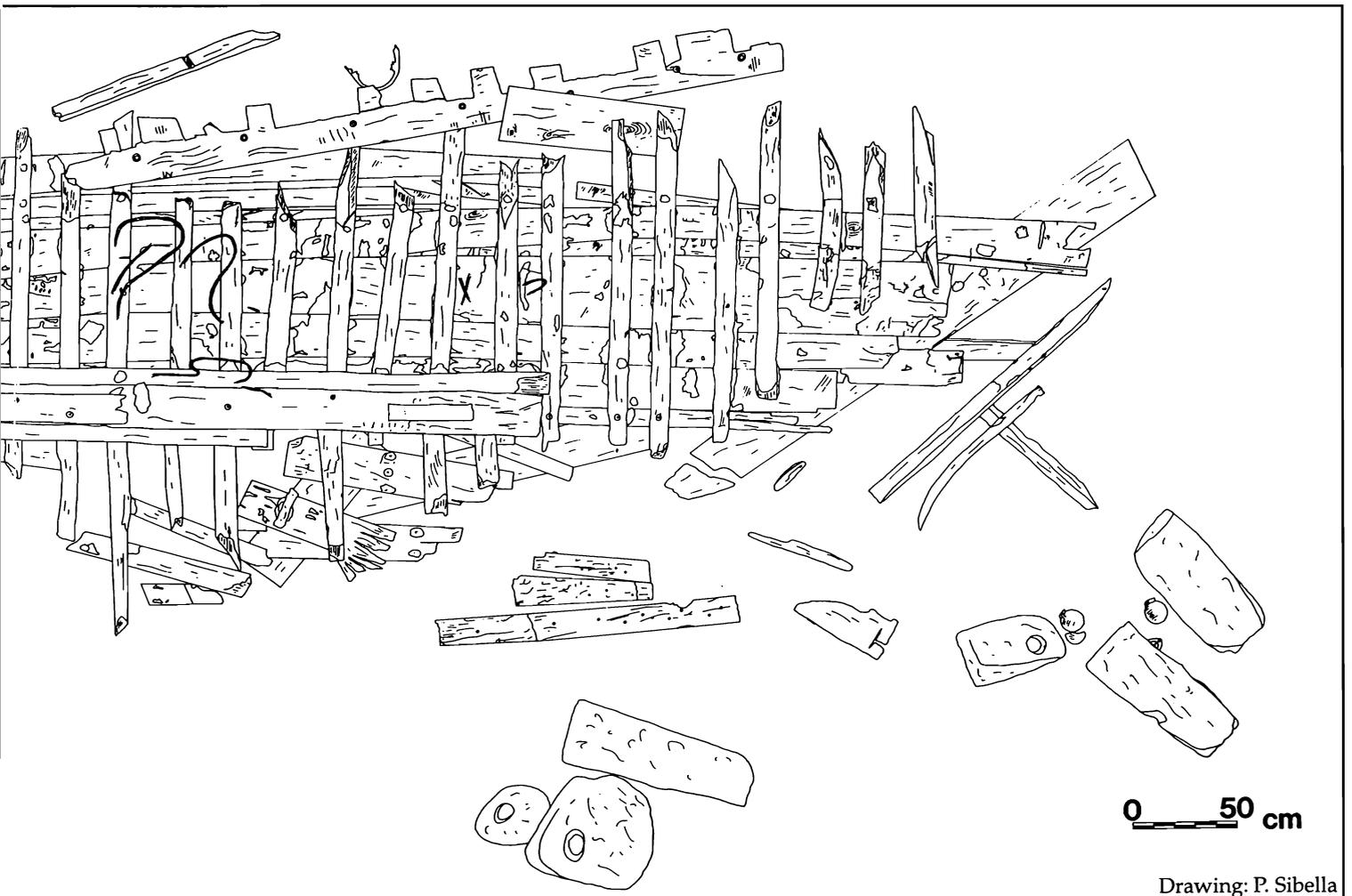
Several spoon-like wooden items have holes pierced through their spatulate extremities (fig. 12). Also worthy of note are a bone or ivory inlay, a wooden decorative piece, and a gourd, which still bears a deep orange color, pierced in two locations along its rim (fig. 11: D, 13-14). It is not clear at present if fish weights found in Trench VIII are associated with the *Tantura B* vessel. Numerous small ballast stones were found lying on the hull. These are currently under study by Y. Mart (CMS). Four stone anchors, of indeterminate date, were also found in Trench VIII (fig. 15).

Stratigraphy—the subsequent layering of archaeological artifacts—is rare in nautical archaeology. In *Tantura Lagoon*, however, we repeatedly find stratified artifacts. Undoubtedly, the most remarkable occurrence of this phenomenon was our discovery in 1996 that the *Tantura B* hull had come to rest upon another ancient hull!

In 1995, we had noted a single plank with mortise-and-tenon joints lying on top of a layer of Roman-period ceramics. During the 1996 season we discovered that *Tantura B* had come to rest directly on top of a Late Roman period shipwreck (Cover; figs. 2: 1; 3 [lower right]). This latter hull appears to be a relatively small fragment of an enormous ship. The 11-cm-thick hull planking is the most robust planking noted for a Roman-period vessel to date.

The ship had on board a ceramic cargo, primarily of globular vessels, which were new when the ship sank. A ceramic oil lamp also belonging to this cargo, and discussed in the following article by P. Sibella, bears an Early-Christian anagram, the "tau-rho" symbol. A chain and hook, perhaps part of a steelyard, was also found nearby (fig. 16). Near these two hulls we found several disarticulated timbers—a keel with mortise-and-tenon joints, two frames, as well as the plank noted in the 1995 survey. These belong to a third (!) smaller hull (fig. 2: 2-2'), perhaps the Roman-period ship's boat (fig. 17; cf. Acts 27: 30-32).





Drawing: P. Sibella

Due to the abundance of hulls in Trench VIII, the 1996 expedition's hydraulic probe survey was somewhat curtailed. Nevertheless, the survey revealed three additional concentrations of timbers beneath the sand, in addition to the Trench VIII timbers, discussed above. One, in Trench X, was part of a large early-medieval hull (fig. 2: X). Two other anomalies were mapped, but were not examined.

We have now recorded the remains of seven (!) different vessels in an area about the size of a regulation basketball court, confirming the impression that the cove is, quite literally, a graveyard of shipwrecks and one well worth further investigation (Figs. 1-2).

A section opened across the Trench X hull (fig. 18) revealed a massive rectangular mast step. This was positioned over a pair of centerline "stringers," which were half-logs cut lengthwise down the center, each with one flat and one rounded side. These were placed flat-side up. A layer of rushes or reeds had been placed parallel to the keel, over the frames, probably as dunnage to protect the ship's cargo. Pottery found on the hull suggests a date from the eighth-tenth centuries CE.

Samples of timbers from the Trench VIII and X shipwrecks were submitted to E. Werker (Department of Botany, Hebrew University, Jerusalem) for identification. The keel of the *Tantura B* shipwreck and a longitudinal strengthening member placed over the keelson scarf were made of oak (*Quercus*). Her keelson, as well as a plank, were identified as Pine (*Pinus*). Aleppo pine (*Pinus halapensis*) was used for the stringers on either side of the keelson, a frame, a garboard, crenulate ceiling planking overlying the hull in the northwest quadrant, and a ceiling (?) plank overlying planking in the southwest quadrant. A small log of Tabor oak (*Quercus ithaburensis*) lay in the northwest quadrant of *Tantura B*, while another stick, still with its bark intact, was of Common oak (*Quercus calliprinos*).

A sample from one of the planks of the large Roman-period shipwreck found underneath *Tantura B* is identified as Cypress (*Cupressus*). A tenon used in the Roman pegged mortise-and-tenon joinery was identified as of Common oak and a peg as oak.

In the Trench X shipwreck, the mast step, a stringer, a plank, as well as a transverse ceiling plank, were all made



Fig. 4 (above left). *The Tantara B Shipwreck.*

Fig. 5 (above right). *Silt billows as Stephen Breitstein sinks a pipe into the seabed of Tantara Lagoon in preparation for laying a stainless-steel baseline over the centerline of the Tantara B Shipwreck.*

Fig. 6 (below left). *Isabel Rivera and Jerome Hall take direct measurements of the Tantara B keelson.*

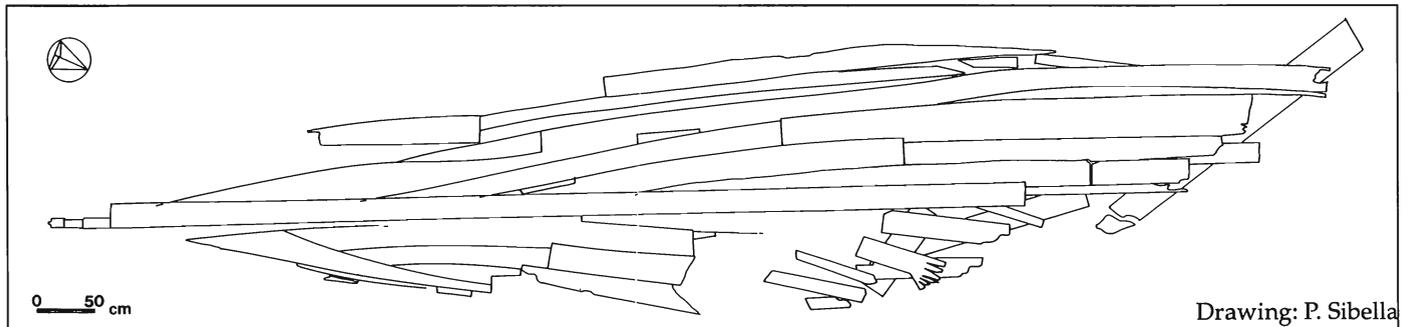
Photos: S. Wachsmann



Fig. 7 (left). Team member Michael Halpern glides over planking in the northeastern quadrant of the Tantara B Shipwreck at the outset of the 1996 season.

Fig. 8 (below). Planking plan of the Tantara B Shipwreck.

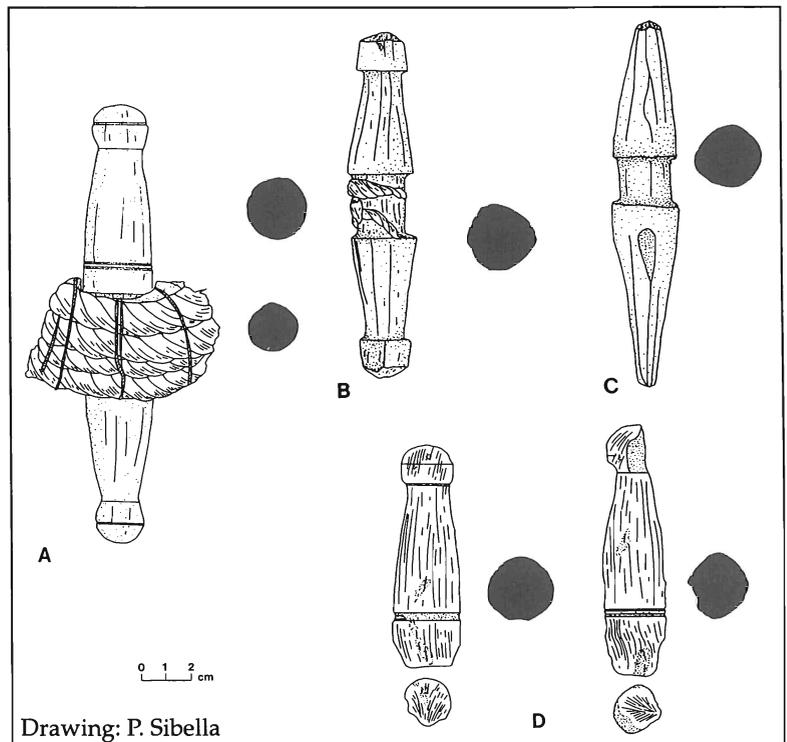
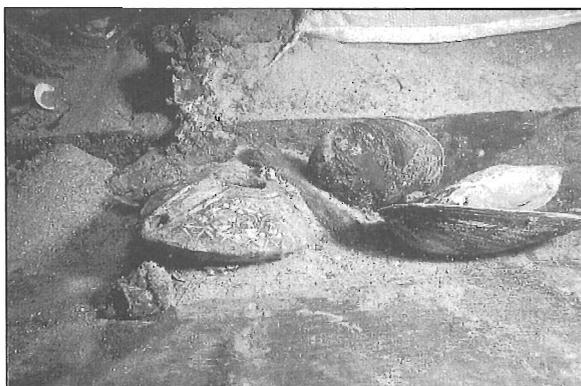
Photos: S. Wachsmann



Drawing: P. Sibella

Fig. 9 (below). A large Abbasid-period lamp was found with a group of bivalve shells, tucked next to the keel of Tantara B. The lamp had been in use, as evidenced by soot adhering to its mouth.

Fig. 10 (right). Four toggles were uncovered on the Tantara B Shipwreck. Two had been turned on a lathe (A-B), while two others were hand-whittled (C-D). One of the toggles (A) was found still wrapped in a multi-coiled rope, while another was found with remains of a thin rope still wrapped around it.



Drawing: P. Sibella

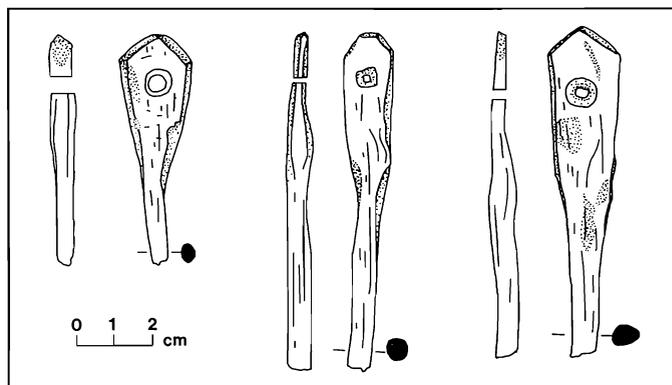
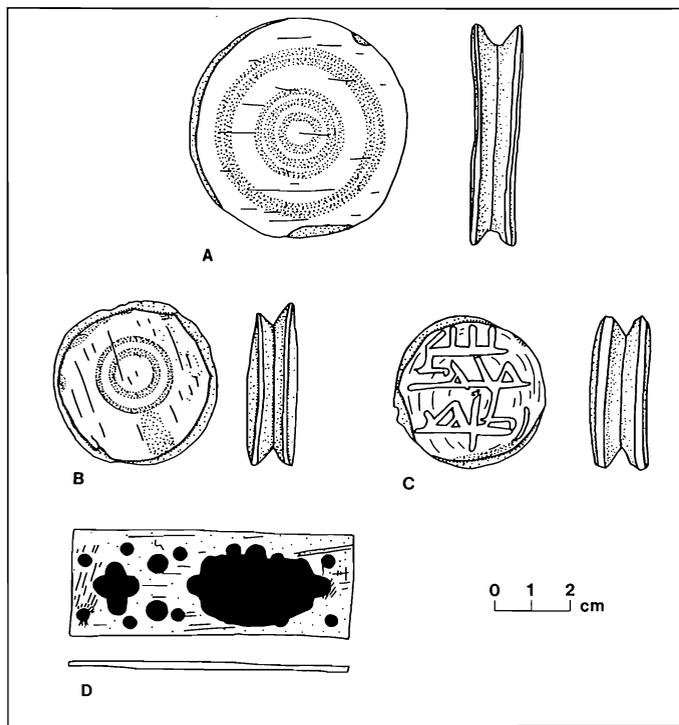


Fig. 11 (above left). Wooden roundels (A-C) and an ivory or bone inlay (D). Roundel C bears an Arabic inscription, written in Kufic script, "God has the purest judgment," which is particularly evocative, considering that it was found on a shipwreck.

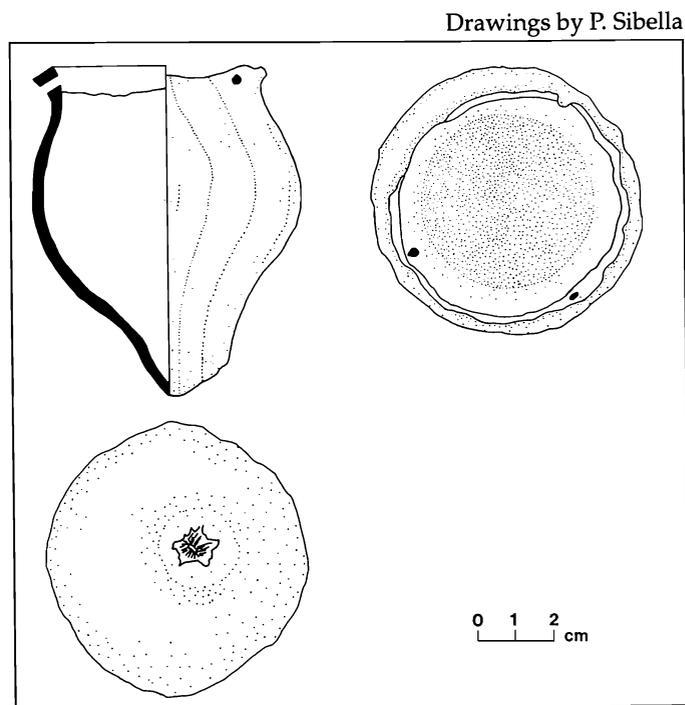
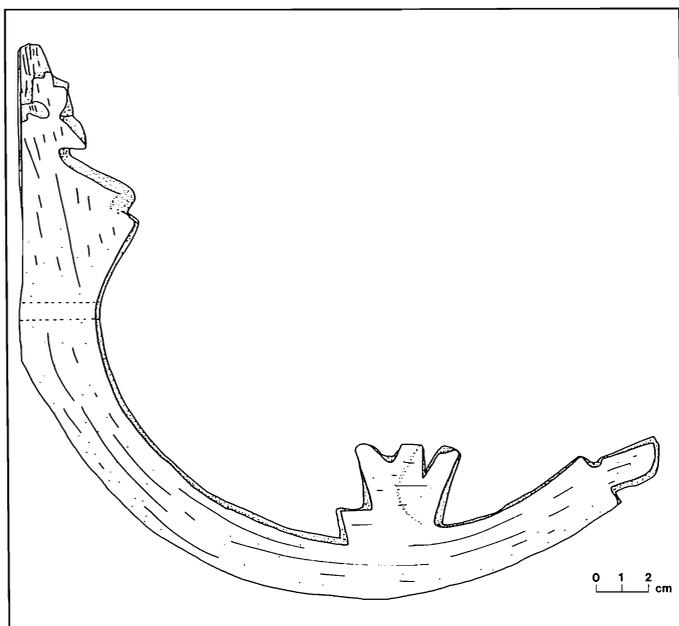
Fig. 12 (above right). Spatulate wooden objects found in the southwestern area of Tantara B.

of Aleppo pine, while one of the vessel's frames was made of Tamarisk (*Tamarix*).

A radiocarbon sample was collected during the 1995 field season and was studied by Y. Carmi and D. Segal for the Weizmann Institute of Science's Department of Environmental Sciences and Energy Research, and the Israel Antiquities Authority. This yielded a date of 680–850 CE. Samples from three of *Tantara B*'s widest planks were submitted for dendrochronological dating to P.I.

Fig. 13 (below left). Wooden decorative ornament found on Tantara B.

Fig. 14 (below right). The gourd found on Tantara B.



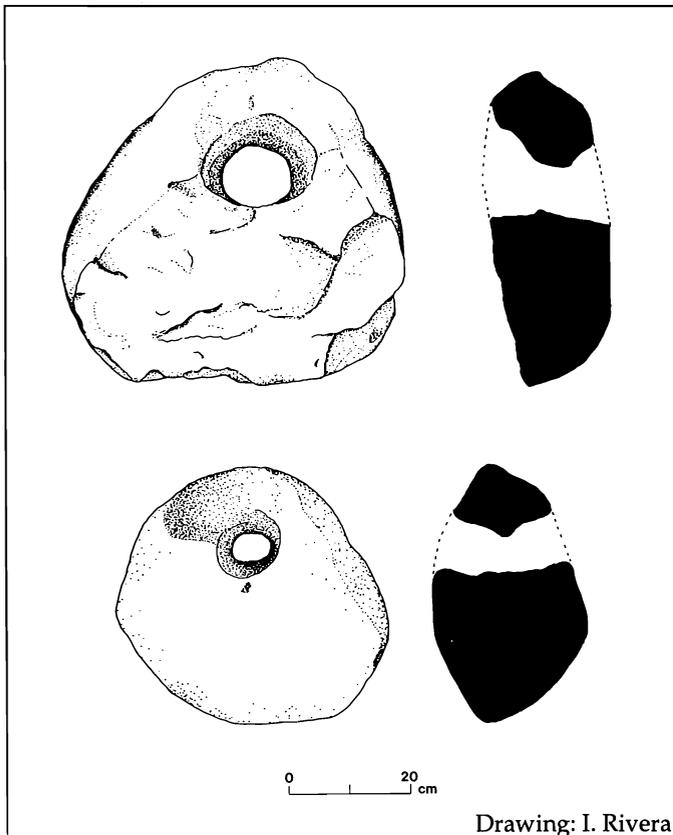


Fig. 15. Two of the stone anchors from Trench VIII. Anchor A weighs 49 kilograms; anchor B weighs 58 kilograms.

Kuniholm of Cornell University's Malcolm and Carolyn Wiener Laboratory for Aegean and Near Eastern Dendrochronology.

The three planks were cut from a single tree and form a 138-year-long sequence. Kuniholm notes that the only chronology available at present for the period to which the *Tantura B* shipwreck is assigned—based on the radiocarbon dating and the ceramic evidence (800–850 CE)—is the Aegean Oak Master Chronology.

There are two possibly significant “fits.” One is if the *Tantura B* graph is placed so that it ends at 801 CE, the other is 829 CE. Kuniholm notes that the timber cannot date to both dates, and may not date from either of them. There are two problems in evaluating these materials. The first is that we are comparing oak and pine. The second is that the oak derives from Zadar on the Dalmatian coast, Hagia Sophia in Constantinople and Kütahya in northwestern Turkey. Although the ship sank in Tantara Lagoon, some 1800 kilometers southeast of Zadar, at this time we cannot determine where she was built, nor from where her timbers were derived.

Much can be learned about the Tantara shipwrecks, their cargoes and crews, as well as shipboard

diet and hygiene (or lack thereof) onboard ship through paleoethnobotanical analyses. This project is one of the first Mediterranean shipwreck sites in which pollen remains are being systematically studied.

Organic remains of the *Tantura A* hull will be studied as part of S. Butler's MA thesis at Texas A&M University's (TAMU) Nautical Archaeology Program; he is also studying the Trench VIII Roman-period materials. Paleoethnobotanical materials from the *Tantura B* hull will form the framework for L.D. Gorham's Ph.D. dissertation at TAMU's Department of Anthropology.

Paleoethnobotanical samples were collected from the *Tantura B* shipwreck during the 1996 season, including organic sediments from the hull's interior; basketry/woven fibrous material; caulking; rope and the contents from all closed ceramic vessels. Roman-period materials collected included pitch or conifer resin adhering to timbers (perhaps remnants of timber treatment), anatomical plant remains, as well as the contents from all intact fine-ware containers.

All samples will be processed and analyzed for fossil pollen content. Samples will also be examined for macrobotanical remains, such as seeds and identifiable plant parts. Samples of sediment and the clay strata found beneath the sand in Tantara Lagoon will be analyzed for pollen as a baseline comparison for shipwreck material. These data will provide the basis for an excellent comparative study.



Most of the ship remains we have uncovered show evidence of traumatic ends. Their keels are snapped or twisted apart. The hulls have been ripped asunder. What is believed to be part of the *Tantura A* hull was found over 60 meters away from the main portion.

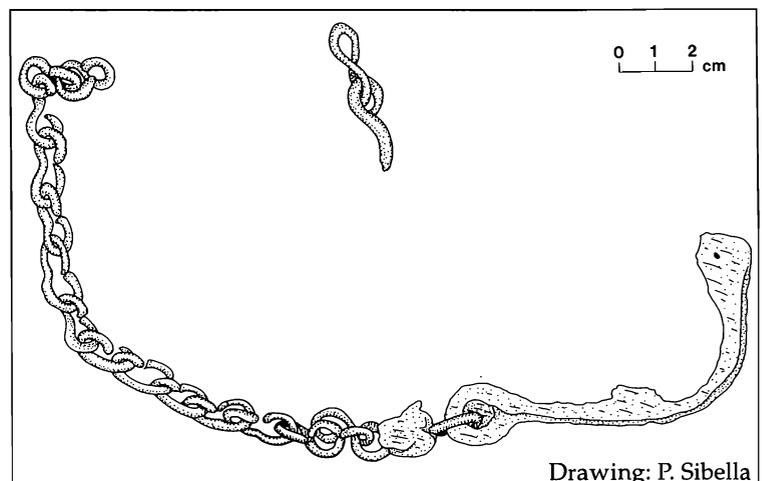
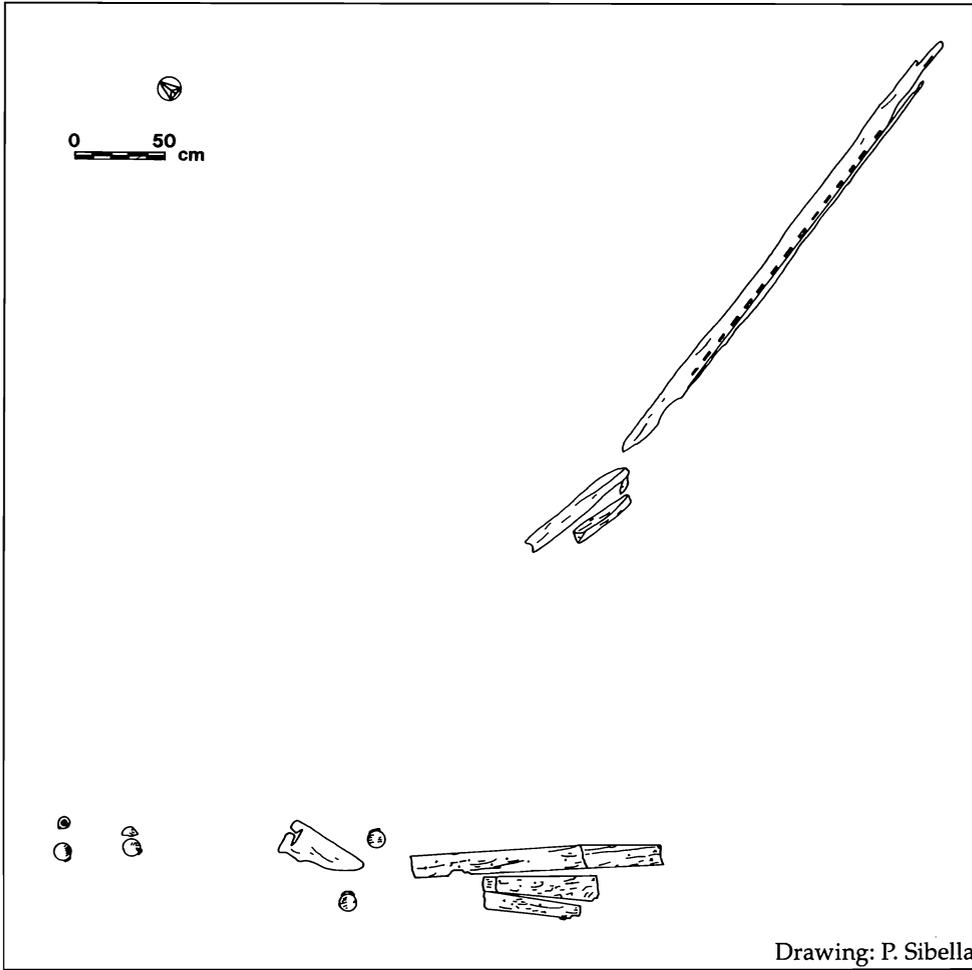


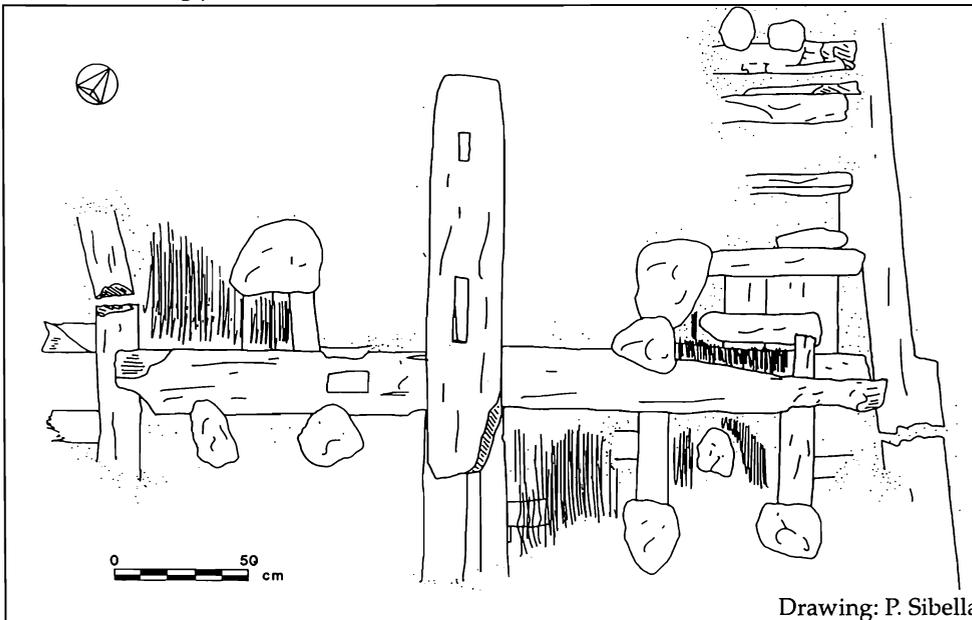
Fig. 16. Metal chain and hook from Trench VIII.



Drawing: P. Sibella

Fig. 17. Plan of Roman-period hull remains and pottery in Trench VIII.

Fig. 18. Section across the Trench X shipwreck. Note the large mast step, which rests on a transverse ceiling plank.



Drawing: P. Sibella

Why did so many ships, over such an extended period of time, come to grief here? Why do these hulls show dramatic evidence of being ripped apart by immense forces? This phenomenon seems particularly enigmatic as the wrecks are located inside a quiet cove that is well protected by a necklace of islands. Furthermore, the wrecks are aligned northwest-southeast, making a composite plan look reminiscent of a parking lot for shipwrecks (fig. 2).

The only scenario that adequately explains the present evidence is that these vessels all sank under similar sets of circumstances. The ships were probably forced against a lee shore during storms. Caught in a storm, a sailing vessel or a galley had little choice but to run before the wind. A lee coast, however, meant that there was nowhere to run but straight on to the shore.

Perhaps the crews were trying to enter the safety of the lagoon by making a run between two of its sheltering islands (fig. 19). Raised up by the waves and smashed against the rocks hidden between these islands, the ships broke their backs as they were battered over the rocks and into the cove by the waves. This process is vividly described by St. Paul in relating his shipwreck off Malta (Acts 27).

Once flushed into the cove, large sections of the vessels were quickly buried, and subsequently protected, by a deep layer of sand, which entombed the hulls and their contents in an anaerobic embrace (fig. 20). The ships' "parallel parking" is probably due to the east end of each ship being pushed by the powerful north-to-south current that runs in the lagoon during storms. ⚡

Technical Information on *Tantura B*

The rockered keel, preserved for 9.8 meters, contains two horizontal hook-scarfs. One, 30 cm long, is the southeastern preserved end of the keel. A second hook-scarf, constructed in the opposite direction, is located 8.06 meters from it. A step, 4.5 centimeters deep, is 1.33 meters from the southeastern end of the keel. The only rabbet for the garboards is located at the post edge, close to the southeastern scarf. No evidence for a false keel was found.

The ship's main surviving longitudinal strengthening element is a massive rockered keelson with a preserved length of 7.84 meters. The sided (horizontal) dimension of the keelson decreases from 20.2 to 12.2 centimeters, and the molded (vertical) dimension tapers from 18.0 at the northern end to 15.7 centimeters at the southern end. The keelson's underside is notched with recesses for the frames' upper surfaces. There are two main types of notches: one for a floor timber, the other, twice the size of the previous type, to receive pairs of half frames. Nail impressions are visible on the upper surface of the keelson at all floor stations, but are not found above half-frame stations. The surviving keelson is made of two timbers connected with a horizontal, 40.0 centimeter-long, hook-scarf that is fastened with at least four nails. The southernmost end of the scarf was placed directly over Frame Station (FS) 18. The scarf begins 5.09 meters from the southeastern terminus of the keelson. A 1.76 meter long timber is nailed in five locations directly over the keelson scarf. It apparently served to secure the scarf.

The shipwrights placed longitudinal timbers on either side of the keelson. These stringers, although fastened by means of only a few nails to the keelson and the frames, may have added to the hull's longitudinal strengthening, and perhaps supported the keelson scarf and mast step. Furthermore, they may have supplied a surface on which the inboard edges of transverse ceiling planking could rest. The mast step heel, cut directly into the keelson, is located between 7.05 and 7.46 meters from the southern end of the keelson.

The framing pattern was of alternating floors and overlapping half frames. Timber survived in thirty framing locations and there is evidence for nine additional stations. On average, frames are 9 centimeters sided and 9.4 centimeters molded, with an average distance of 26 centimeters between frame centers. Frames were sawed and worked flat along their surfaces to form a rectangular cross-section. They were chamfered on their upper surfaces. Some frames, and particularly those on the western side of the keel, are preserved to the turn of the bilge. There are two limber holes in each frame. The best preserved floor, FS 21, is 2.48 meters long and extends 1.43 meters on the western side of the hull. The shape of the frames indicate a relatively flat-bottomed hull.

Seven planks are preserved on the west side of the hull, while remnants of six strakes are preserved on the east side (fig. 8). With but one exception—Strake Six—all the planks appear to have been made of Aleppo pine (*pinus halepensis*). Planks vary considerably in width, from 4 to 36 centimeters; their thickness varies from 2.5 to 3.4 centimeters. Dependent on plank width, from one to three iron nails were driven to attach the planks to the frames. Planks are butt-joined. Some of these joints are "L-shaped," some contain short diagonals, while others are straight. Drop strakes and stealers were also used. On the west side of the keel two repair planks were identified. The sixth strake seems to be made of oak; it is thought to be a bilge keel or a bilge wale. This strake is considerably thicker (up to 10.2 centimeters) narrower than the other planking and relatively narrow.

There is widespread evidence for the use of caulking between the planks. In several cases, where planks were perhaps cut too short, spaces of up to 1.0 by 7.0 centimeters were filled by caulking material.

A single crenulate timber lay over the hull in the northwestern quadrant of the hull. The outboard edges of the tongues were cut at an angle, suggesting they were tangential to the inner surfaces of the hull planking as it turned upwards. The notches were cut to take the extremities of the frames at the turn of the bilge. This timber bore the only graffito found on the entire hull—"HX" when viewed from the keel-line (fig. 3, insert).

Three loose rectangular boards, tentatively identified as removable transverse ceiling planking, were found distributed around the site. At least one of these has two parallel lines incised into it. These fit perfectly when placed transversely between frame stations, with sufficient space for the next adjoining plank to rest atop the frame. If these timbers represent ceiling planking, they likely rested on the keelson stringers and extended out to just before the turn of the surviving bilge. This compares with the transverse ceiling planking on the Serçe Limanı Shipwreck. Two small nail holes on half frames in the southwestern quadrant of the hull, spaced about equidistant between the keelson and the turn of the bilge, suggest the existence of an additional stringer there that could have supported such transverse ceiling planking.

The butt-joints of planking beneath frame stations indicate that *Tantura B* is a "skeleton-based" hull. The hull was relatively flat; its maximum beam is believed to have been about five meters, perhaps slightly less. Dependent on whether this vessel was a one or a two-masted lateener, the hull could have attained a minimum length of 19 meters, or a maximum one of nearly 30 meters.

Acknowledgments. The 1996 season of exploration was made possible by generous support from the National Geographic Society, the L.J. Skaggs and Mary C. Skaggs Foundation, and by the support of the following individuals: Robert and Hallie Anderson, Ned and Raynette Boshelle, Theodore and Francis Halpern, Harry and Joan Kahn, II, Rubin and Norma Kershaw, and John and Ellie Stern.

Senior expedition staff came primarily from INA and CMS faculty and staff, as well as independent professionals: Shelley Wachsmann (Project Director and Principal Investigator; Still Photography); Jerome Hall (Assistant Director); J. Richard Steffy (Advisor on Hull Reconstruction); Stephen Breitstein (Director of Operations); Yaakov Kahonov (Hull Reconstructor); Patricia Sibella (Ceramacist and Artist); Michael Halpern (Diving Coordinator); Andrew Lacovara (Hydraulic Probe Coordinator); Chris Brandon (Artist); Joshua Copel (Excavation Doctor); Rami Israelov (Technician).

Additionally, students from Texas A&M University, the University of Haifa, and the University of Puerto Rico, as well as from local high schools, participated in the excavation. The 1996 team included members from Canada, France, Germany, Israel, and the United States, making it a truly international educational experience. Some graduate students were assigned significant responsibilities within the excavation's framework. Participant included the following persons: Joe Breman; Steven Butler (Dive Master, Accountant, Darkroom Technician, Paleoethnobotany and Video Photography); Lee Dillon Gorham (Paleoethnobotany); Hadas Mor; Jennifer Pinion (Dive Log/Recorder); Ofer Raz; Isabel Rivera (Assistant Hull Recorder/Illustrator); Shai Shalev; Anna Sey; Claude Tibi (Studio Photography); and Yishai Wachsmann.

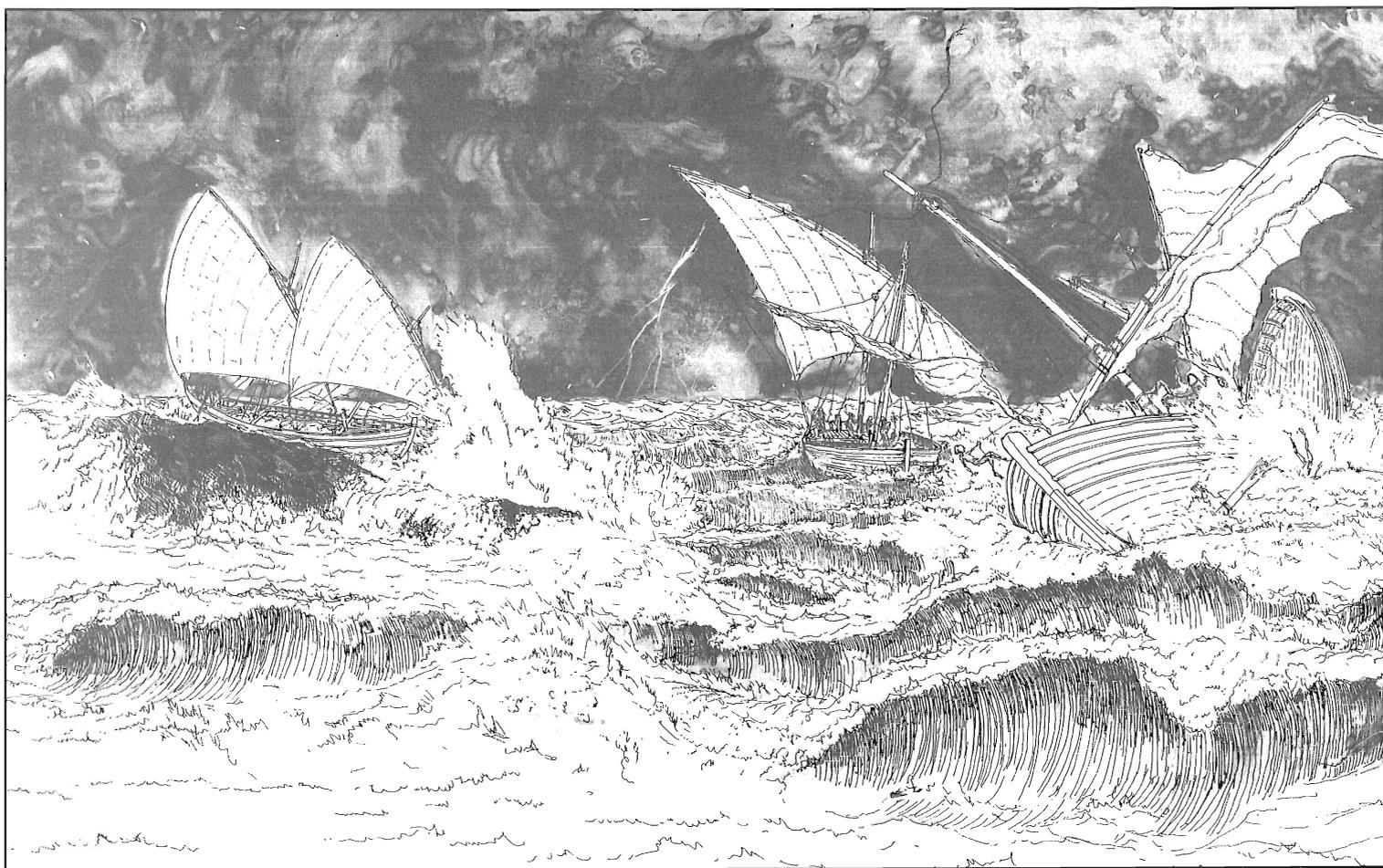
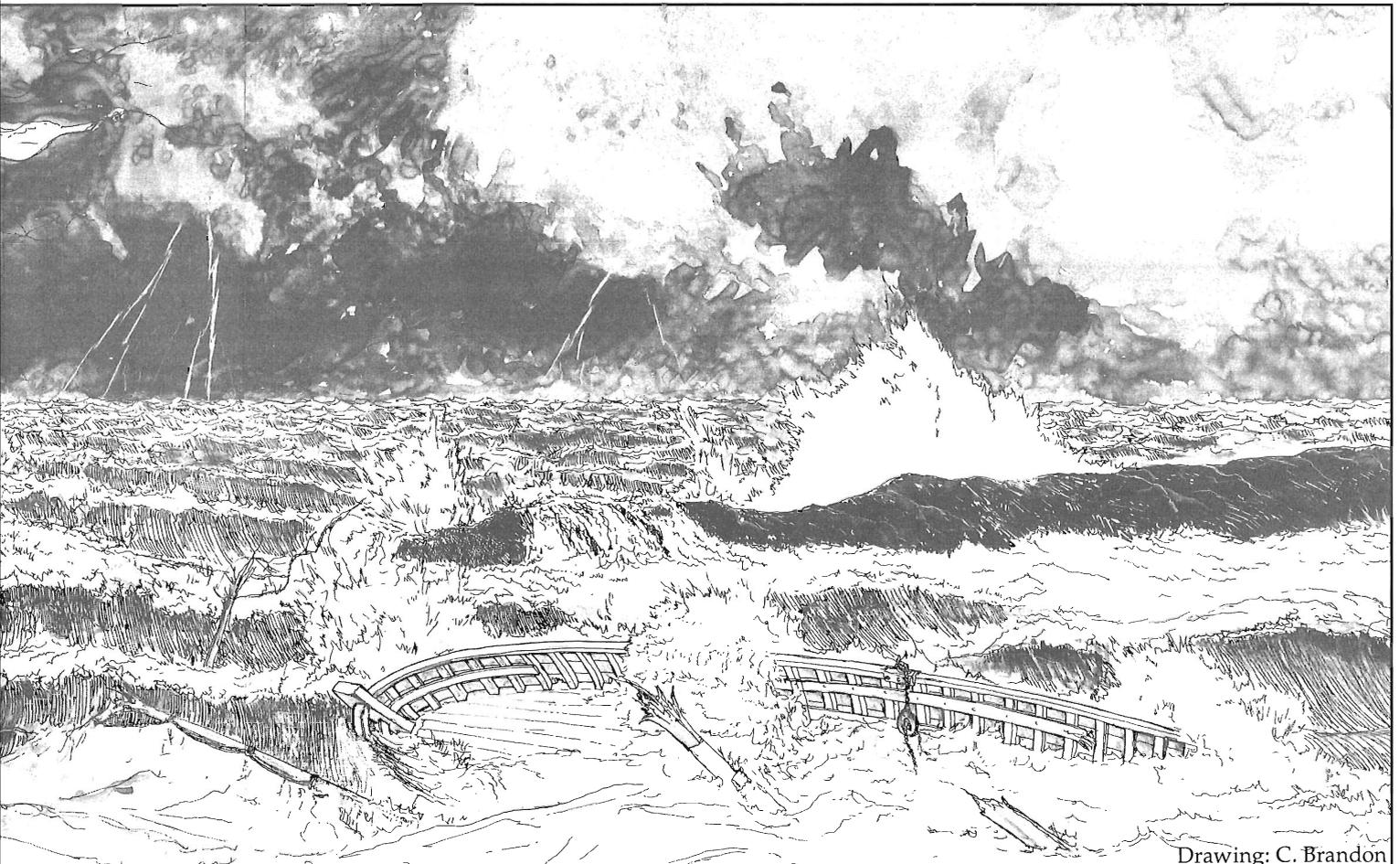


Fig. 19. The steps in the process of how ships may have wrecked in Tantara Lagoon are graphically illustrated in this artist's reconstruction. A ship runs before a storm (left). She is caught against a lee shore and makes a run between two islands (left center). The ship is lifted bodily by a wave and smashed against the rocks that protect the entrance to the cove. One can imagine the terrible sounds of

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Drawing: C. Brandon

groaning and crashing as the vessel's back is broken and she comes apart (right center). As the vessel breaks up and takes on water (at right), the waves push her into the sand bank just inland of the islands, where she is swiftly buried by the constantly migrating sands (note that the vessels represented in figure 19 are intentionally generic, and are not intended to represent any specific shipwreck).

Light from the Past: The 1996 Tantura Roman Lamp

by Patricia Sibella

"The spirit of a man is the lamp of the Lord"
—Proverbs 20: 27

Archaeologists shed light on the past by bringing long-hidden things out of darkness. Appropriately, one of the most interesting finds of the 1996 season at Tantura Lagoon is a lamp. This artifact brings light from the past on the movement of Christianity out of the shadows of persecution into the public arena of commerce. The oil lamp has a very long history in Israel, and its technical development parallels that of other pottery vessels. Potters made lamps by similar methods at the same workshops, using the same raw materials. The invention of the oil lamp changed history at least as much as the light bulb would several thousand years later. The various steps that led to the invention of the lamp are still unclear. No one knows who the inventors were, or when and where they lived. The lamp served for the illumination of both domestic and commercial establishments, in places of worship, and as tomb furniture.

The 1996 Tantura Lagoon excavation campaign found and examined a few complete and fragmentary oil lamps, ranging in date from the Roman to Islamic periods. One of these lamps, from the fourth century CE (fig. 1), deserves special attention. We found it in the north-eastern part of Trench VIII between two large ashlar blocks, near some wooden planks and a number of small cooking pots of contemporaneous date.

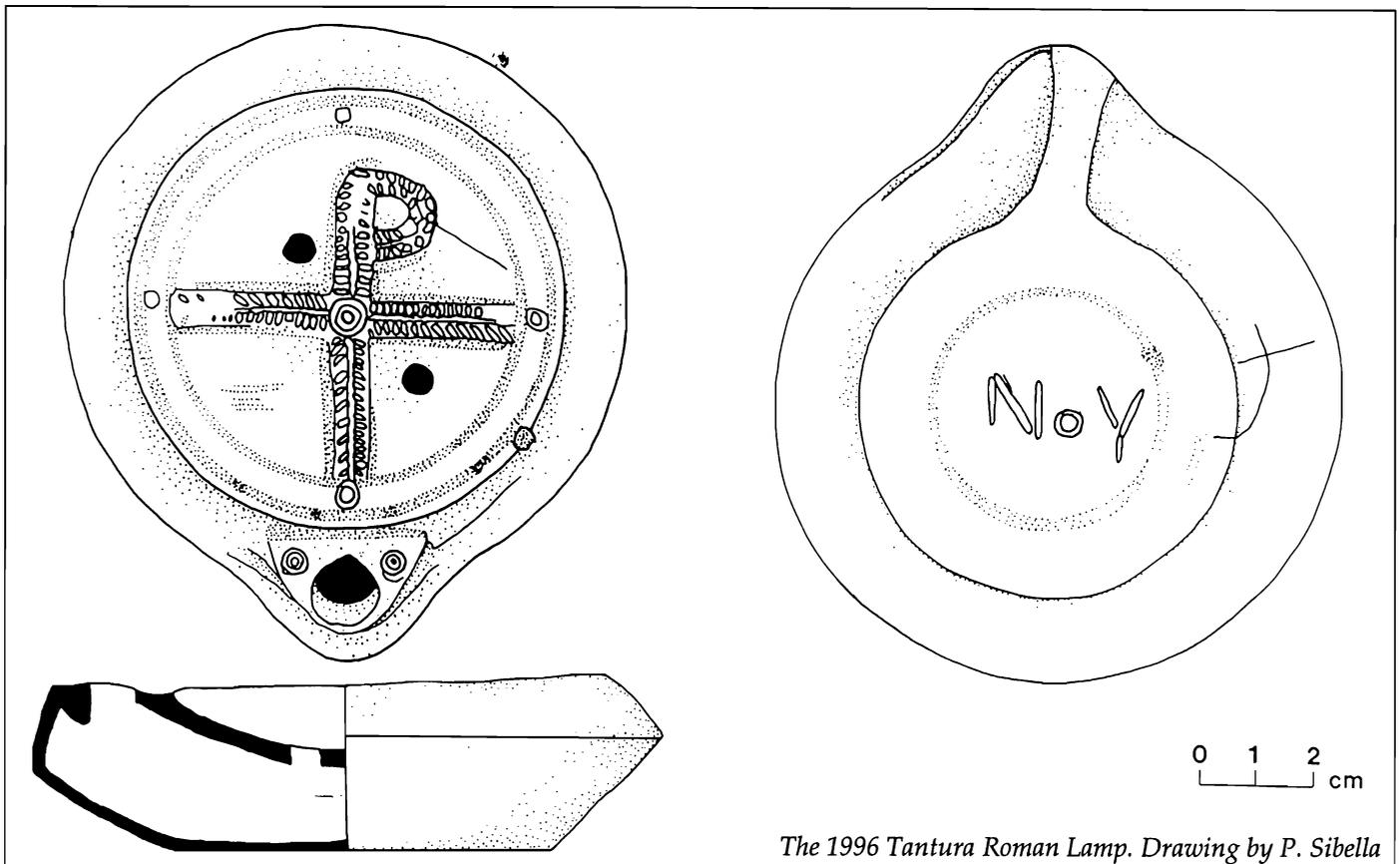
This complete Roman oil lamp (G-135/1996-.0265) falls in the Broneer Type XXV and Loeschke Type VIII. It has a maximum length of 11.1 cm, a maximum diameter of 9.9 cm, and a maximum height of 3.05 cm, with an average fabric thickness of 0.25 cm. The lamp presents a uniform molded shape with no handle, a round reservoir, and a small rounded nozzle termination. The sloping rim is rather large, plain, and slightly convex. At the very edge of a decorated sunken discus, there are four ring-and-dot patterns impressed between two concentric grooves of 0.2 cm in width. The central decoration consists of a cross-monogram in *ronde bosse* known as a "*Taw Rho*," with branches almost entirely ornamented with small incisions arranged in a chevron pattern. The extremity of one of the branches, opposite the nozzle, turns to the right to form a closed loop. Two small filling holes of 0.5 cm in diameter appear on either side of the discus decoration. One of these holes may have served as an air bubble vent. A linear groove followed by two impressed rings and dots placed on top of each other separates the projecting nozzle from the sloping rim. The potter formed the wick hole at a slightly oblique angle, probably with a wooden or metal rod.

Below the line of maximum diameter, the straight sides slant rather sharply to reach a flat base set off by two

concentric grooves, 0.25 cm in width. The base bears one slightly off-center impressed small circle flanked by the Greek letters *Nu* (N) and *Upsilon* (Y), possibly the abbreviated name of the potter who clearly incised this decoration before firing. A ridge links the base to the projecting nozzle, and two scratches are discernible along the sides. Although its prolonged stay in the water totally deteriorated the color as well as the consistency of its clay, the lamp's original color was probably buff with a red, black, or brown slip. We found no evidence of charring.

We recovered a very small fragment—only the very tip of one of the ornated branches of a cross-monogram symbol—of the discus of another similar example (96-.0268) to the southwest of this complete oil lamp, closer to the wooden planks. Unfortunately, the fragment did not survive its removal from the sea. These lamps belong to a type attested as early as the second half of the first century CE, and found in the predestruction levels at Jerusalem. The type continues well into the third–fourth centuries together with other provincial styles. Examples are preserved all around the eastern Mediterranean world, including Egypt, Israel, Lebanon, Syria, and Cyprus.

The particularity of our complete example clearly stands out not only in its fairly large dimensions, but also—and especially—in the choice of the decoration for its sunken discus. The symbol attested here is a form of cross-monogram known as the *Taw Rho*, as opposed to the *Chi Rho*. The latter, composed of the letters *Chi* (X) and *Rho* (P), is the more wide-spread Christ-monogram symbol, but is probably just a more elaborate variant of the *Taw Rho*. The *Taw* is the twenty-second, and last, letter of the Hebrew alphabet. It can very well mean "mark"—not only in a broad sense, but also in the specific sense of the cross mark, its alphabetic character in the Old Hebrew script. Writers used *Taw* as the abbreviated form of the name of God and of the Messiah. Scribes wrote *Taw* as a symmetrical cross mark (+) down at least to the eve of the New Testament period. In the further evolution of the alphabet the Semitic *Taw* became the *Tau* (T) of the Greek alphabet and the *T* of Latin. Greek scribes recognized *Chi* (X) as an equivalent of the *Taw* because in early Greek *Chi* was often written as an erect cross mark. The *Taw* itself was also written in the sideways position, so that it already resembled the later more usual form of the *Chi* and the Latin *X*. However, since the *Taw* was the last letter of the Hebrew alphabet, the last letter of the Greek alphabet—*Omega* (Ω)—was also considered its equivalent. *Rho* in the monogram corresponds to the second letter of the word for Christ, *XPICTOC*.



The 1996 Tantara Roman Lamp. Drawing by P. Sibella

People used the cross, possibly the oldest and most universal of all symbols, as an emblem well before the Christian era. The Old Testament and Jewish thought refer to the Anticipatory Cross, the Egyptian Cross, and the *Crux Commissa*—the true form of the cross upon which Moses lifted up the brazen serpent in the wilderness. Christians regard this as foreshadowing the lifting up of Jesus upon his cross. It is the sign made by the Israelites on their doorposts at the Exodus for protection, deliverance, and eschatological salvation. The Prophet Ezekiel in his vision beholds the Lord who commands “mark *Taw* upon the foreheads of the men” (Ezekiel 9:4). For the early Christian believers, it represented the promise of life with Christ here in the world and beyond the grave.

There is no reason to believe that the cross was first adopted as a Christian symbol during the reign of the Emperor Constantine. The events that led to the widespread and enthusiastic use of the symbol may be legendary. However, not until Christians were granted the privilege to publicly practice their religion under Constantine in 313 did the cross openly become the mark of the followers of Christian faith, the symbol of suffering and humiliation, and the emblem of salvation and redemption.

One may well ask about the motivations for placing a religious symbol on utilitarian objects. In our daily

lives today, we use a wealth of symbols, particularly in our worship, because symbols link human beliefs to the cosmos. In the search for integration, humanity had to create these markers to make sense of the journey that will carry us through life, from birth to death. Symbols express ideas and emotions, feelings and images; they address our basic needs and fears. The oil lamp, because of the light it sheds, is thus a natural symbol of wisdom and piety. Proverbs 20:20 compares the last breath of a man to the snuffing of a lamp.

Although there was large-scale exportation of lamps from certain centers at different times, the manufacture of these cheap, domestic objects normally satisfied a local market. Throughout the Mediterranean world, small workshops flourished, some for short periods, others for many years. These supplied their own communities and made use of clay found in the immediate neighborhood. It is difficult to determine how the Romans actually organized the export trade in lamps. The long life in the Levant of this type of lamp illustrates the commerce uniting the Roman Empire, and at the same time confirms the acceptance of Roman lamp fashions by wide segments of the population. Our complete Roman oil lamp, possibly of Egyptian or Syro-Palestinian origin, together with the fragment of another similar lamp and the series of cooking pots, were probably intended for this trade.

We only partly excavated the northeastern part of Trench VIII, where we found the Roman remains. The area concerned did not exceed 10 m square. Thus, it is difficult to determine the exact amount of cargo carried on board. However, among all the sherds found, we only counted two of these oil lamps, six other oil lamps of a different, but more common type, and about thirty to forty complete

or fragmentary vessels. All except the complete *Taw Rho* lamp may be locally-made products, manufactured during a transitional phase, at a time when Christianity was no more than a tolerated cult.

Acknowledgments. I wish to express my gratitude to Varda Sussman who “enlightened” me on these types of lamps. ☞

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Review

by Barto Arnold

Looking for Leads: Shipwrecks of the Past Revealed by Contemporary Documents and the Archaeological Record by Christian Ahlström
Helsinki: The Finnish Academy of Science and Letters, 1997. 238 pages, 16 tables, 57 figures, hardbound.

Dr. Ahlström’s book on post-medieval shipwrecks of the Baltic is a good one, and I am pleased to recommend it. This book concentrates on how the archaeological data and artifact analysis from shipwrecks combine with the documentary evidence from the archives to conclusively identify individual wreck sites with the name of a ship. The author effectively demonstrates his point. The first part of the book covers exhaustively the existing archives relating to the northern side of the Baltic Sea, specifically Finland, Sweden, and to some extent Denmark. The last part covers six specific shipwrecks: the flute *Anna Maria* of Stockholm (1701), the Swedish frigate *Birger Jarl* (1813), the galiot *Concordia* (1754), the Jussarö II wreck that is probably the Russian brig *Graf Nikita* (1785), the Boströ I wreck that is possibly the *Sankt Mikael* (1747), and the schooner *Fädernslandet* of Stockholm (1845).

Archaeologists and historians will find this book useful, as of course will anyone interested in shipwrecks of the Baltic Sea. The hulls in the area are often practically

intact since the brackish water precludes shipworm. Ahlström summarizes his efforts thus:

One of the goals of this study is to illustrate a general archaeological and mythological approach with examples from marine archaeology. The interplay of written and physical evidence has been previously applied in many areas of historical archaeology. However, the problem particular to the Baltic have not been discussed to any major degree in the literature on underwater archaeology (p. 208).

The avocational archaeologist, especially, can benefit from this work in that it shows the rigorous application of deductive reasoning and logic in “proving” the identity of wreck sites. So often the non-specialists will let the “could have been” creep into the chain of proof. Sometimes even the professionals fall into this trap. Dr. Ahlström’s book provides a suitable remedy. ☞

On the Shores of Scythia: The 1997 Crimean Coastal Survey

By Gregory Gidden, INA Research Associate, Taras Pevny, and Kristin Romey

The long history of nautical activity and the presence of so many different maritime cultures make the Black Sea an ideal location for underwater archaeological research. A considerable amount of archaeological investigation has been conducted along the southern coast of Ukraine, revealing intensive settlement dating back more than three millennia. The Black Sea has served as a conduit for trade and communication between Europe, Central Asia, and the Mediterranean for thousands of years. With its central location in the Black Sea, Crimea has frequently been the focus of maritime activity in this region (fig. 1).

In recent decades Ukrainian and Russian researchers have begun to take advantage of the potential for nautical archaeology in the Black Sea. Given the vast amount of work to be done and the limited resources available, they have barely scratched the surface of this highly promising region. Recent political developments have opened up this area to Western scholars in a way never before possible, and the opportunity for collaborative work between Ukrainian and American nautical archaeologists has never been better.

As the first American nautical archaeologists working in Ukraine, we were unsure of what to expect. Possibly one of the most serious misconceptions that we held before our arrival in Crimea concerned the climate of the peninsula that juts into the northern waters of the Black Sea. Our guidebooks extolled the rugged, harsh, and dry landscape of Crimea, and we had packed judicious amounts of sun-screen accordingly. The rain-and-hail-storm of July 13th that nearly washed away our camp was the first of a series of torrential downpours that we experienced nearly every other day for the rest of our six-week survey expedition in Crimea. We questioned the accuracy of our guidebooks, but the locals defended them.

"This is very unusual," they would repeatedly insist, "it never rains here."

There was one "guidebook", however, that we had failed to consult for our outfitting requirements: "...All the summer [in Crimea] there is rain unceasing; and when there are thunderstorms in other lands, here there are none, but in the summer there is great plenty of them..." The author? Herodotus, Book IV, 28.

Apart from reminding us to pack our rain gear, Herodotus and other ancient authors have much to tell archaeologists about the rich maritime history of Crimea and the great promise for underwater archaeology off its shores. It was the lure of this untapped potential that drew one of the authors, Gregory Gidden, to Ukraine on a brief research trip in the spring of 1996. There he met Sergei Zelenko, director of the Underwater Archaeology Research and Training Center (UARTC) at Kiev University. Mr. Zelenko and his team have been conducting underwater archaeological surveys in Crimea for more than a decade. At his invitation, the authors returned to Ukraine this past summer to participate in the first joint Ukrainian-American underwater archaeology survey.

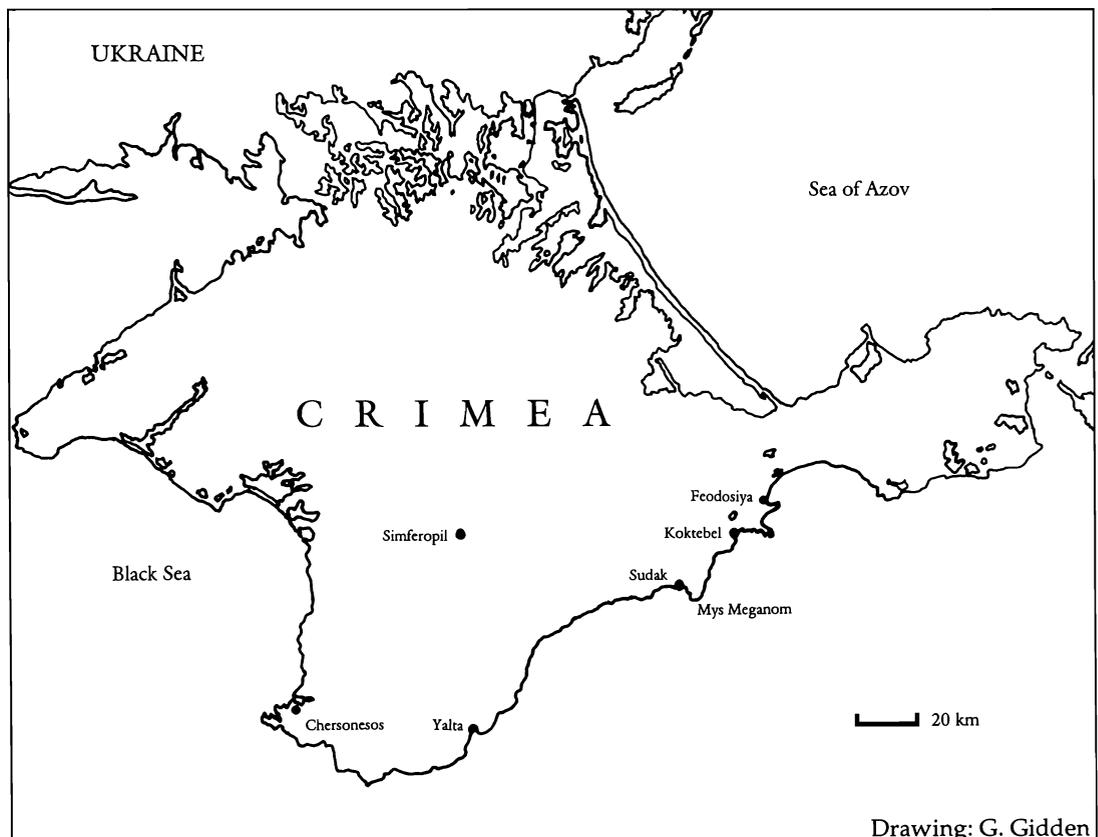


Fig. 1. Crimea and the locations discussed in the article.

Seafaring in the Northern Black Sea: A Historical Overview

The southern coast of the Crimean peninsula has been the focus of intense maritime activity for nearly three millennia. From the earliest historical references to Greek colonization of the Crimean coast in the 8th century BCE, Crimea has been home to people of numerous cultures: ancient Greeks, Scythians, Byzantines, Goths, Genoese, Turks, Russians, and Ukrainians, among others. The location of Crimea provided its masters with an excellent base from which to exploit the resources of the Black Sea and its hinterland as well as to defend access to these resources from outsiders. Due to the mountainous nature of the peninsula's interior, most of the occupation of Crimea was focused on the coast until recent times. This history provides an excellent potential for dramatic discoveries along the Crimean coast.

The Black Sea features prominently in the earliest histories and legends of the Mediterranean world. Ancient authors and storytellers set their tales of gods and heroes in the Black Sea—a region on the fringe of their known world. The perils and riches which these early stories attribute to the region reflect the mystique which surrounded the Black Sea in ancient times. The Greeks originally referred to the Black Sea as *Pontos Axeinos*—the Inhospitable Sea—for good reason. Large sections of the southern and Crimean coasts are mountainous and offer few protected anchorages. Violent storms and dangerous winds from both north and south made navigation treacherous for ancient mariners. Despite these hazards, however, the Mediterranean cultures were drawn to the Black Sea by its enormous economic potential. The story of Jason and the Golden Fleece, while fictional, illustrates the great value placed on the resources of the Black Sea by the ancient Greeks. The lure of mineral and agricultural wealth offset the dangers of sailing into these uncharted waters.

In order to better exploit the resources of the region, trade centers were established by several Greek cities along the shores of the Black Sea. Colonization generated a dramatic increase in maritime activity, both for trade and communication. Both the ancient Greeks and Romans relied heavily on grain, fish, salt, and other resources from the Black Sea hinterland to satisfy the needs of their large urban populations. In exchange, oil, wine, and finished products were imported for consumption by the colonists and native population.

The ancient pattern of colonization and trade in the Black Sea continued through the Byzantine period and into the Middle Ages. Many scholars have relegated the Black Sea to the periphery of the Byzantine world, but historical sources contradict this view. The economic importance of the Black Sea grew dramatically during the early medieval period as a result of the Arab conquest of the eastern Mediterranean in the seventh century. To avoid the hazards of piracy and war in the Mediterranean, the lucrative

trade between Europe and the Near East was redirected through the Black Sea and the land and riverine trade routes of eastern Europe. The enormous wealth generated by this commerce attracted the attention of newcomers to the Black Sea region—Scandinavian merchant-mercenaries.

The commercial interests of these merchant-mercenaries were integral in the early development of the Rus state. Byzantine, Rus, and Arabic sources document the extensive commercial and military activity of the Rus throughout the northern Black Sea region. Competition for access to the commercial wealth of the Black Sea quickly brought the Rus and Byzantines into conflict. Several seaborne attacks were launched by the Rus across the Black Sea against Constantinople. The essentially commercial nature of this rivalry is demonstrated by the trade treaties which concluded these conflicts regardless of the success or failure of the Rus attacks.

Despite the collapse of the Rus state and the waning of Byzantium's influence in the Black Sea in the 13th century, the Black Sea remained a center of maritime trade. Italian merchants, primarily Genoese and Venetian traders, continued a lucrative trade in luxury goods from the Near East, as well as agricultural goods and slaves from the Eurasian steppe. The Italian trading centers in Crimea thrived on this trade and became quite prosperous. For example, contemporary sources claim that the Genoese colony at Kaffa (modern-day Fedosiya) became so prosperous through Black Sea trade that it rivaled Genoa itself in wealth.

Genoese merchants remained in Crimea until the last quarter of the 15th century, some 20 years after the fall of Constantinople. The departure of the last European merchants did not mean the end of seafaring in the Black Sea, however. Kaffa remained an important center for the slave trade during the Tatar and later Ottoman occupations of Crimea. Ukrainian Cossacks launched several seaborne attacks on Ottoman ports throughout the Black Sea during the late-16th and 17th centuries. Their disruption of Black Sea trade was a source of major concern for the Ottomans. While Greeks and other Europeans continued to live in Crimea throughout the period of Ottoman occupation, European traders no longer played an active role in Black Sea seafaring. The Black Sea became an "Ottoman lake" and knowledge of the region among Europeans began to fade.

This brief survey of the history of seafaring in the northern Black Sea illustrates the great potential for underwater archaeology in the region. Wind and current patterns, as well as a central geographic position, make Crimea an ideal location to search for shipwrecks. For almost 3000 years, ships of every design have sailed along the peninsula; many of these voyages ended disastrously in shipwreck. These ancient tragedies have left a remarkable, and largely untapped, archaeological resource.

The 1997 INA Crimean Survey

For seven weeks, from July 2nd to August 17th, 1997, the authors, in conjunction with Mr. Zelenko and divers from the UARCTC, conducted a survey of several sites on the southeastern coast of Crimea between Sudak and Fedosiya (fig. 2). The majority of the team's efforts were focused on the bay of Koktebel, formerly Planerskoye, a popular resort town 35 km from Fedosiya. Archaeological excavations earlier in this century confirmed the presence of Tepsen, a medieval trading center, on the hills above Koktebel. Mr. Zelenko's interest in Koktebel, however, stems from its possible identification with Amfineon (or Afineon), an ancient port mentioned by Arrian in his second-century CE *Periplus Ponti Euxini*. This port is particularly significant to the maritime history of southern Crimea. Arrian describes it as a Scytho-Taurian port located in the "no-man's-land" at the edge of the Greek Bosporan kingdom. The nomadic Scythians and native Taurii are not commonly believed to have played a major role in the maritime commerce of Crimea. Historians and archaeologists have primarily focused on the role of the Greek colonists in the maritime history of the region. The positive identification of this port would add a new and exciting chapter to the region's history. Using *stadia* measurements provided by Arrian in his periplus, Mr. Zelenko has focused on the large bay of Koktebel as the most promising site for the location of Amfineon.

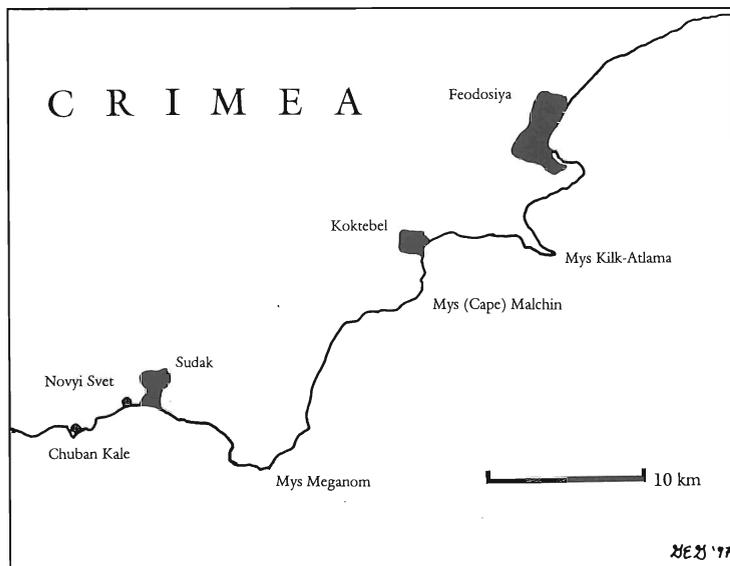
Aerial photographs confirm the existence of an artificial pier or breakwater in the bay directly off the shores of Koktebel. Unfortunately, much of this structure was de-

stroyed during dredging operations earlier in this century. The remains of the pier were thoroughly surveyed by the team, but no ancient material was recovered. Located in shallow water, easily accessible to local snorkelers and divers, it is not surprising that all archaeological material in this area had been removed as "souvenirs." Evidence of the local antiquities entrepreneurs was readily apparent in the open markets of Koktebel; partial amphoras, still wet and covered with marine growth, were regularly displayed for sale to the crowds of vacationers for an average price of 8 *grivni* (\$ 5).

Fortunately, Mr. Zelenko had secured permission to dive in the protected waters of the Kara-Dag nature preserve which incorporates all of the bay south of Koktebel proper, where we hoped the looting had been less thorough. Our work in the waters of the preserve was immediately productive. Within the first few days we located a large scatter of medieval amphoras and other ceramic vessels of various types from the eighth to tenth centuries (fig. 3). The nature of the scatter did not suggest the presence of a single coherent shipwreck but demonstrated a steady, long-term pattern of maritime trade in this area during the middle Byzantine period. The wealth of material in this area commanded our attention for the majority of the survey period. Each artifact, including fragments of pitchers, amphoras, and pithoi, was recorded and photographed and fabric samples were taken (fig. 4). The INA team members have used this information to assemble a catalog that will

Fig. 2 (below). Koktebel may be the ancient Amfineon.

Fig. 3 (right). Mr. Gidden (left) and Mr. Zelenko display two of their finds.



Drawing: G. Gidden

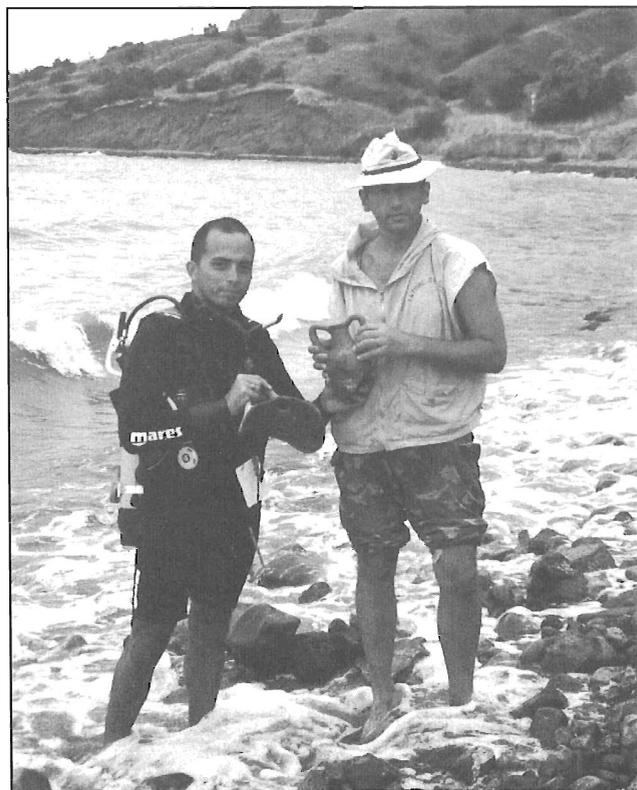


Photo: K. Romey

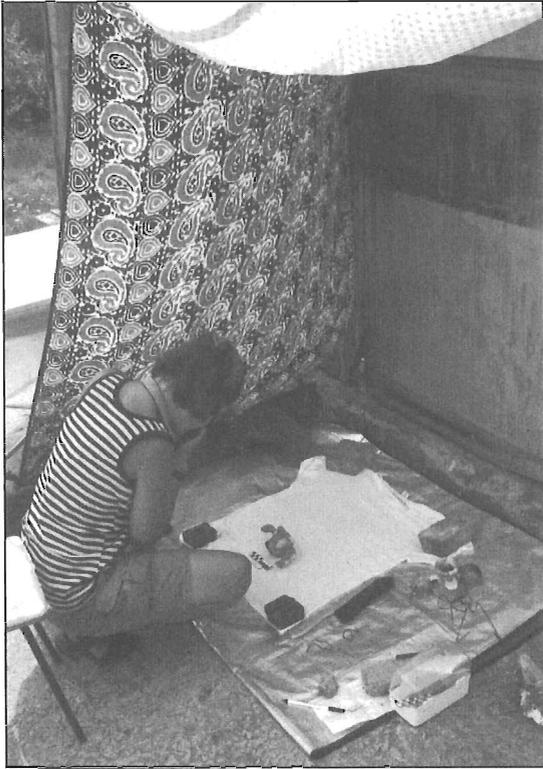


Photo: T. Pevny

Fig. 4 (above). Ms. Romey documenting the finds.

Fig. 5 (below). Spill of rejected pottery below a kiln at Chuban Kale.

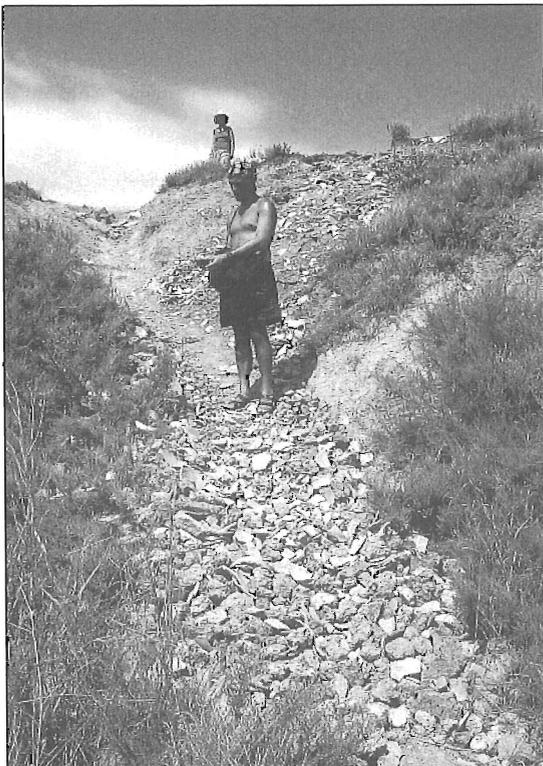


Photo: T. Pevny

be made available to students and archaeologists. We believe this catalog will prove a useful resource to those interested in medieval maritime trade and amphora production.

The significance of this material extends beyond the shores of the Black Sea. Our developing catalog of medieval ceramics from Crimea will provide valuable comparative material for archaeological research in regions as far away as southwestern Turkey. Preliminary research indicates that the cargo amphoras on the Byzantine shipwreck at Bozburun, currently being excavated by INA archaeologists, have their closest parallels in eastern Crimea (*Quarterly* 23.4). Numerous kiln sites dot the eastern Crimean coast. Through Mr. Zelenko's assistance, we were able to visit the medieval kiln site of Chuban Kale, a major ceramics production center from the eighth to tenth centuries (fig. 5). As with most of the medieval kiln sites in eastern Crimea, Chuban Kale has not been extensively researched. A wide variety of fabric samples from this site was collected for inclusion in the catalog. Over the next few seasons we intend to develop a comprehensive collection of fabric samples from all of the major kiln sites in eastern Crimea, providing the first such catalog of comparative material available to INA researchers.

Although not part of our original research plan, a brief investigation of the small bay of Novyi Svet was made on one of the last days of the survey. Novyi Svet, while best known as the Russian tsar's personal retreat in the late nineteenth century, served as a secondary port for Sudak, one of the largest Genoese trading centers in Crimea throughout the medieval period (Fig. 6). Led by a local archaeologist who had dived extensively in the bay, we examined a small area near the rocky western mouth of the bay. At a depth of approximately twelve meters we found a large scatter of broken pithoi and amphoras of twelfth or thirteenth-century manufacture. Unlike the remains found in Koktebel, the Novyi Svet material appears to belong to a shipwreck. Our guide indicated to us that coherent material was located below a deep layer of tumbled, broken sherds, rocks and sand. He showed us a sketch he had made of finds he had uncovered approximately one

Fig. 6. The Genoese fortress at Sudak.

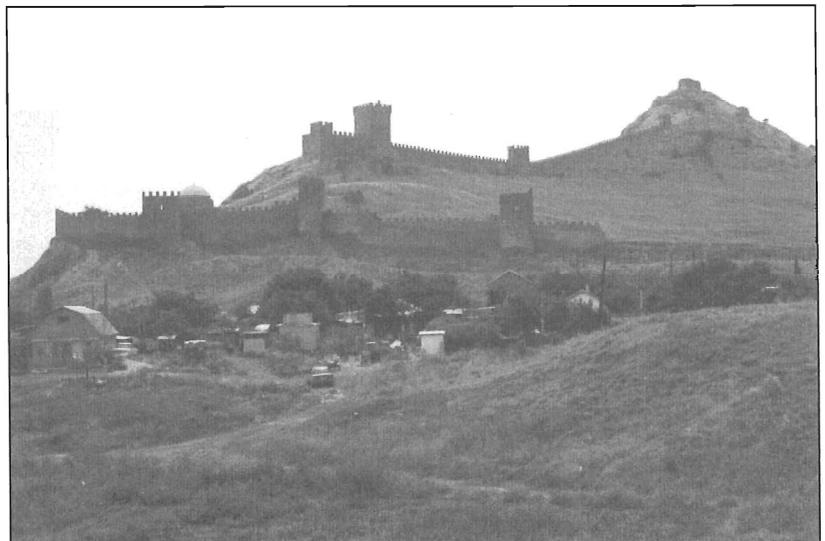


Photo: T. Pevny

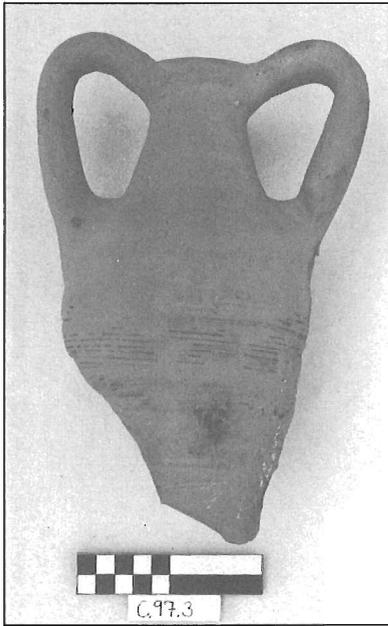


Photo: K. Romey

Fig. 7. Twelfth or thirteenth-century amphora from Novyi Svet.

meter below the present floor of the bay. This sketch appeared to show a group of large twelfth to thirteenth-century amphoras neatly stacked and aligned in their original, upright position. Stacked Byzantine glazed ware was separated from the amphoras by a layer of thin planking which was still preserved. Samples of material exposed by hand-fanning, including a partial amphora with an intact stopper, a broken pitcher with some of its original contents, and fragments of a glazed platter, were collected and have been added to the catalog (fig. 7).

While we were somewhat surprised to find such excellent organic preservation so close to the surface, this only confirmed what we had already learned. Conditions in the Black Sea offer the potential for excellent preservation. The sea bottom along the Crimean shore is primarily composed of silty clay deposits; organic preservation in this matrix is known to be exceptionally high. Excited by the potential for a well-preserved shipwreck, we are currently attempting to secure permission to return to this area for an extended period next summer to evaluate the site's potential for future excavation.

After one season in the field and a summer of experience we are confident and excited about the future of nautical archaeology in Crimea. In the coming seasons we hope to expand the scope of our work, investigating new areas of the coast and continuing to collect material on the maritime history of the region. In 1998, in addition to further investigation at Novyi Svet, we will return to Koktebel to investigate a possible ninth or tenth-century shipwreck on the northwestern side of the bay. We will also return to several possible shipwreck sites already investigated by UARTC to evaluate their potential as future full-scale excavations. We look forward to returning to Ukraine. It is an exciting time both for the country and for underwater archaeology in Crimea.

Acknowledgments. Numerous individuals contributed to the success of this project. The authors would like to thank Mr. Sergei Zelenko and the UARTC for the opportunity to work with them in Crimea. Mr. Toly Tcymbal, Dr. Sergei Kolyelnikov, Dr. L. Marchenko, and Ms. Diana Slobodian offered us generous support while in Ukraine. Our deepest thanks to the Pevnys for providing us with accommodations during our stay in Kiev. The encouragement and guidance of the faculty and staff of Texas A&M's Nautical Archaeology Program, especially Dr. George Bass, Dr. Fred van Doorninck, Dr. Fred Hocker, Dr. Donny Hamilton, and Mrs. Becky Holloway, are greatly appreciated. Thanks also to Mr. Wayne Cotter at Paradise Scuba in College Station and Mares for their support in outfitting the team. The Nautical Archaeology Program generously supported this project with travel funds for Mr. Gidden and Ms. Romey. Finally, Mr. Gidden would like to thank the MSC L.T. Jordan Institute for awarding him the research fellowship which launched this project. ☞

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Profile

Frances Rich

Noted sculptor Frances Rich, whose works grace museums, churches, universities, and parks in Canada, Sweden, France, Greece, and the United States, and include the Army/Navy Nurse in the National Cemetery at Arlington, has just made a gift to the Institute of Nautical Archaeology of a life-size bronze bust of INA founder George Bass. George met Frances Rich in 1991, on the first INA cruise down the Turkish coast. The rest of the story is in his own words:

“When the cruise ship stopped for us to have a swim,” George reports, “Frances was the only one to dive from the top deck. As she was already in her 80s, how could I not be impressed!

We all had so much fun together on that trip,”

Their ensuing friendship led Frances to offer to sculpt George’s bust, followed soon thereafter by her visiting College Station to measure and photograph his head. Luckily, her visit to College Station coincided with the INA/Texas A&M Nautical Archaeology Program dinner hosted annually at the home of Fran and Chip Vincent, then INA president, so she was able to meet most of the staff, students, and faculty. Later, during week-long sittings at Frances’s home in Payson, Arizona, George learned more about the sculptor “She’s so modest,” he says, “it took years of visits, often with Ann, to learn the details of her amazing life. Now that the bust is finished, we just go out there for fun. There’s a painting of her by the famous Mexican artist Diego Rivera, and in her studio there is a terra-cotta bust of Rivera that she did, so they were sitting for one another simultaneously! And there are busts of her good friend Katherine Hepburn, the soprano Lotte Lehmann, composer Virgil Thompson, and other greats.

“Along the way, leafing through scrapbooks in her library, or looking at photographs of friends ranging from Hepburn to film director John Ford, or simply browsing through biographies of other people, I learned so much about her. She was the daughter of well-known motion-picture actress Irene Rich, who co-starred with such actors as Will Rogers and Charlie Chaplin, and later had a highly successful radio program. I learned that after graduating from Smith College in 1931, Frances had been a Hollywood starlet and Broadway ingenue before studying art—first with Malvina Hoffman in Paris, and later under Carl Milles, Sweden’s most famous sculptor. When World War II came, she



Frances Rich sculpting a bust of the great soprano Lotte Lehmann in 1952. Photo courtesy of Santa Barbara News Press.

worked as a draftsman for Lockheed in California, and then was one of the first two or three women to join the WAVES, serving from 1942 to 1946, sometimes touring the U.S. as one of their spokespersons, Soon afterward, she headed public relations for Smith College, her alma mater. Since then she has devoted herself full-time to her sculpture.

"I asked her what one does with a bronze bust of oneself and she answered that you put it in a closet and after you die someone takes it out and does something with it!

"Instead of that, I told her that I thought the bust should eventually be placed in the Frances Rich Library building being constructed at our Bodrum complex to house the Dorothy and Homer Thompson library that we acquired through the generosity of the Friends of INA in Portland, Oregon. Frances plans to come over for a visit next year when it is finished. I hope she likes it!"

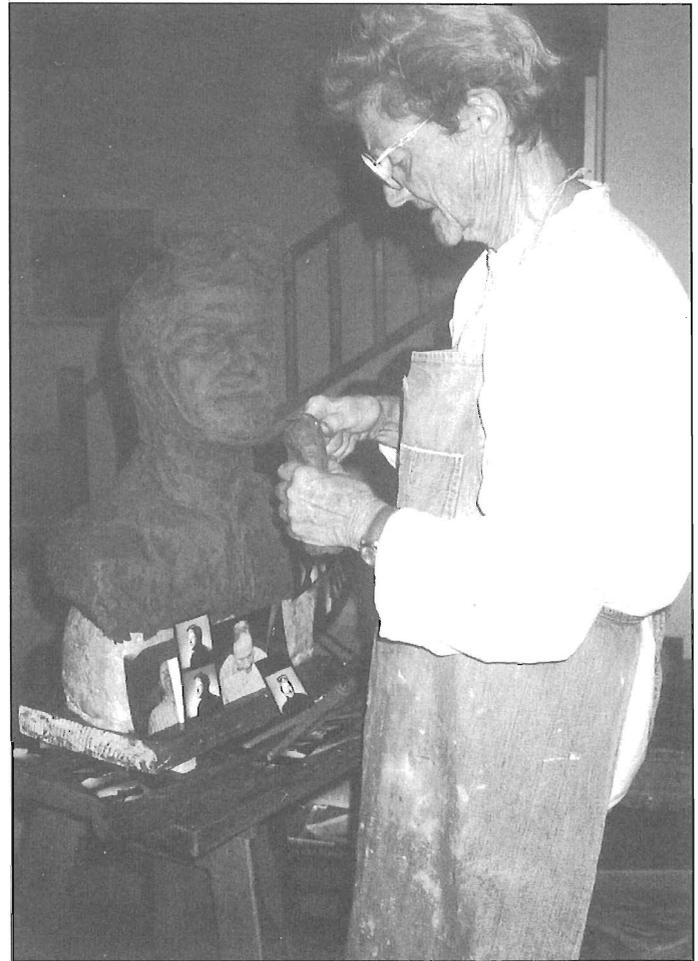


Photo: G. F. Bass

(Above). Frances Rich, in 1992, sculpting the bust of INA President George Bass.

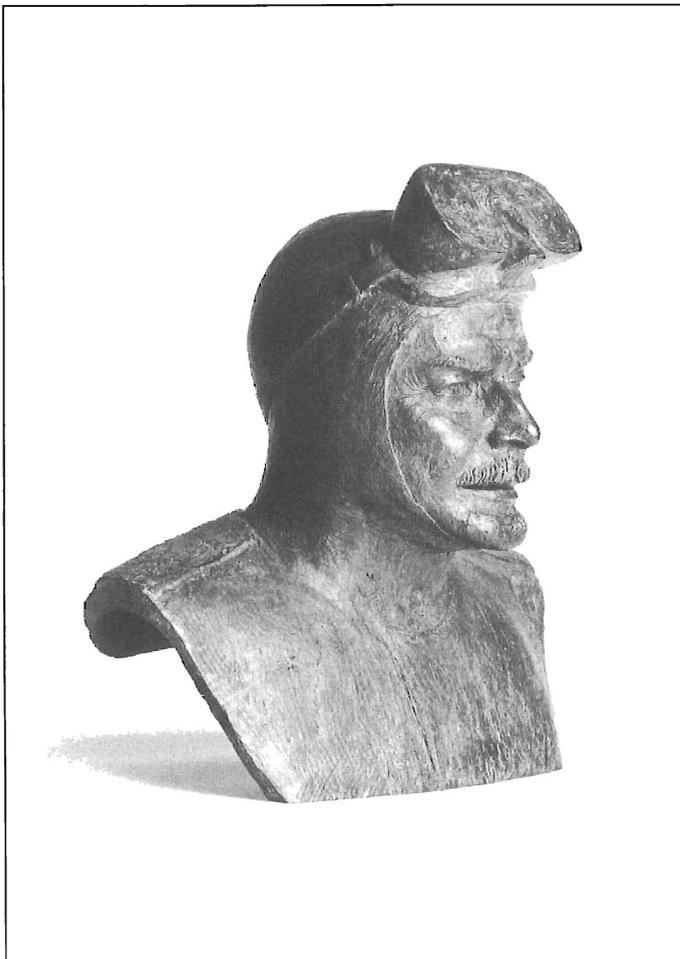


Photo: S. Wilson

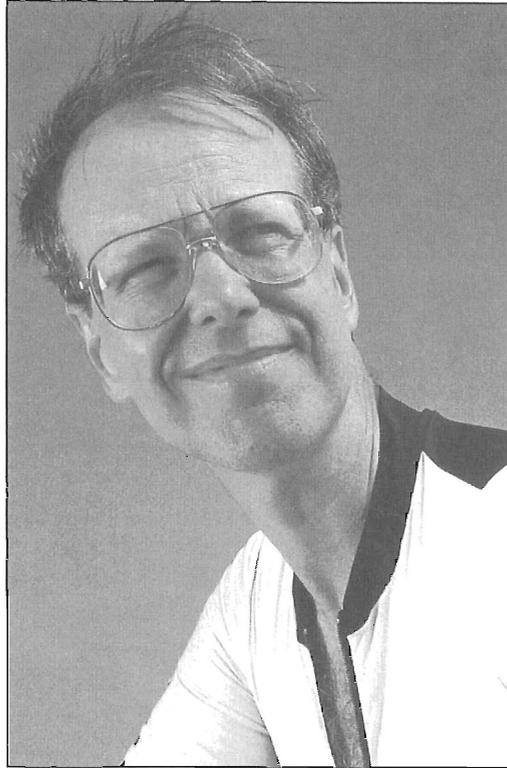
(Left). The bust, cast in bronze, in 1997.

Profile

J. Barto Arnold III

Readers of the *INA Quarterly* will be quite familiar with the name of Barto Arnold, who directed the recent discovery of La Salle's ship *La Belle* in Matagorda Bay. This has been widely regarded as one of the most significant archaeological projects in U.S. history. In October, 1997, Barto Arnold joined the underwater archaeologists of the Institute of Nautical Archaeology and the Nautical Archaeology Program at Texas A&M University to establish a shipwreck program in Texas and adjoining areas. As Director of Texas Operations for INA, Arnold will plan and direct pre-disturbance surveys of known shipwreck sites, surveys for wrecks yet to be located, and major wreck excavations.

A San Antonio native, J. Barto Arnold III received his undergraduate and postgraduate education at the University of Texas at Austin. From 1972 until 1997, he worked as a marine archaeologist for the Texas Antiquities Committee and Historical Commission. He has been extremely active in several professional societies, including terms as Secretary-Treasurer of the Society of Professional Archaeologists and as President of the Society for Historical Archaeology. Arnold has received wide recognition for his contributions to the passage of the Abandoned Shipwreck Act, which has helped protect irreplaceable cultural resources from unscrupulous treasure hunting. Before



the *La Belle* project, he was heavily involved in the study of *USS Monitor*. This experience qualifies him admirably for his new position.

The 2200+ shipwrecks in Texas are an excellent resource for the study of New World seafaring. Prospective projects include: the Indianola wharves area and the steamer *Portland*, the W.W. II wreck of *Oaxaca* off the Matagorda jetties in the Gulf of Mexico, a 1920 steam tug near the Aransas jetties, the lighthouses of Matagorda Bay, a ship graveyard near Palacios, Civil War wrecks near Galveston and Sabine Pass, a steamboat wreck near Brownsville in the Rio Grande, and others.

The new INA operations will enhance our understanding of the state's heritage embodied in historic shipwrecks for the general purposes of education and tourism. They will also provide opportuni-

ties for nautical archaeology students at A&M to gain practical, hands-on experience in areas relatively close to campus and on projects of relatively short duration to fit with their other studies. As a further plus, the Texas operations will allow the public to volunteer and participate in shipwreck studies in an appropriate setting. Increasing the visibility of nautical archaeology (and distinguishing it from treasure hunting) should help motivate the public support and funding that is essential to the discipline.✂

News & Notes

Recent A&M Graduates

The INA Quarterly would like to congratulate the following graduates from the Nautical Archaeology Program at Texas A&M University who recently received Master of Arts degrees: Elizabeth Robinson Baldwin, David James Stewart (Spring 1997); James Lowell Coggeshall, Gregory David Cook (Summer 1997); Anne Wood Lessmann (Winter 1997). In Spring 1997, John Raymond Bratten became a Doctor of Philosophy; his dissertation was entitled, "The Continental Gondola *Philadelphia*."

Shipwreck Weekend

On February 21, 1998, the Institute of Nautical Archaeology and Texas A&M University hosted a "Shipwreck Weekend," a session of public lectures. This included talks, video and slide shows, and discussions of shipwreck projects. Dr. George F. Bass presented "Excavating the Oldest Shipwrecks in the Mediterranean: The Bronze Age Wrecks of Cape Gelidonya and Uluburun, Turkey," Barto Arnold presented "Fleur-de-lis and Lone Star: La Salle's Shipwreck," and Dr. Cheryl Haldane Ward spoke on the INA-Egypt excavations at Sadana Island.

After the presentations, INA and Nautical Archaeology Program hosted a tour of their facilities in College Station. Participants were shown the extensive facilities, including the conservation teaching lab, the Old World Projects lab, the New World Project lab, and the Ship Reconstruction lab.

The extremely successful weekend was held to introduce interested parties to the facilities and attract potential students and volunteers for INA and the Program.✂

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