



Summer/Fall 1982

INA FIELD SEASON—1982



Surveying in Turkey, analyzing in the Turks and Caicos, excavating in Jamaica.

In this issue we provide INA members with an overview of the work carried out by the Institute on various sites and projects in 1982. Many of these activities (notably the Council of Europe Field School and the Molasses Reef Excavation) will be the subject of major articles in forthcoming issues.

YASSI ADA/BODRUM

In Turkey, INA remained active on a number of fronts in 1982. In July it co-hosted with the Bodrum Museum of

Underwater Archaeology a two-week summer school initiated by the Council of Europe's leading nautical archaeologists. Bodrum was chosen because of the Museum's unique displays, including the remains of Bronze Age shipwrecks excavated at Cape Gelidonya and Sheytan Deresi, seventh- and fourth-century A.D. Byzantine wrecks at Yassi Ada, and the eleventh-century "Glass Wreck" at Serce Liman. The museum further provided the setting in which participants observed techniques used by INA staff in the con-

tinuing conservation of wooden hull, glass cargo, and iron implements from the Glass Wreck.

Bodrum also was chosen for the summer school because INA's excavation of a 16th-century wreck at Yassi Ada is less than two hours distant by car and boat, and the excavation gave participants the opportunity to dive on the site and exchange ideas with INA and Bodrum Museum staffs. Attending were representatives of France, England, Italy, Spain, Tunisia, Poland, Turkey, Belgium, Holland,

Switzerland, and the United States.

The excavation at Yassi Ada was begun in 1967. Then during George Bass' excavation of a fourth-century wreck for the University of Pennsylvania Museum, the hull of a more recent ship was found, completely invisible under the sand, extending over part of the older wreck. At that time Yuksel Egdemir and Marie Ryan uncovered and mapped part of the hull, and discovered a silver coin dated to 1566-1589, during the reign of Philip II of Spain, along with various iron objects and a number of glazed bowls whose identity still escapes us. INA returned to Yassi Ada in 1982 to complete the excavation of this wreck, as well as to make a last search for artifacts on the fourth-century wreck, whose excavation was postponed for military reasons at the outbreak of the Cyprus War in 1974.

The 16th-century wreck, between 130 and 140 feet deep, was covered with two-meter square metal grids to aid in mapping. Engineer Don Rosencrantz, a veteran of many past Yassi Ada campaigns, returned to help devise a more efficient stereophotographic mapping system, and his methods were used by Texas A&M graduate students Cemal Pulak and Jay Rosloff, Askin Canbazoglu of the Bodrum Museum, and Turkish archaeologist Feyyaz Subay to make the most accurate map we have yet produced on the seabed. The ship remains a puzzle, for very few artifacts and virtually no ballast were found in



Photo by Don Frey

Council of Europe field school participants joined regular INA crew members in excavating the Ottoman wreck at Yassi Ada.

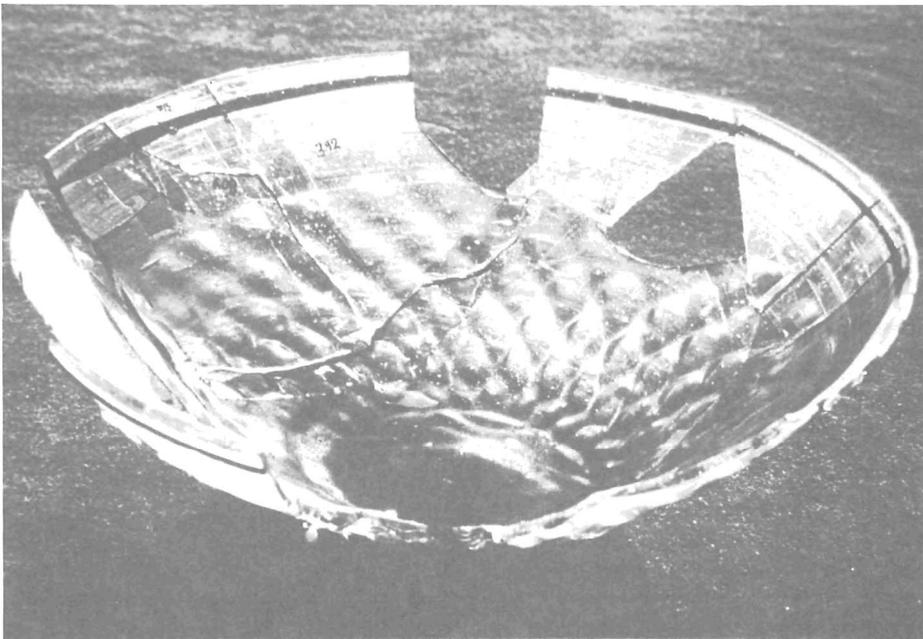
the well-preserved hull remains, although more glazed bowls, a cooking pot, a water jar, and still unidentified iron concretions were discovered.

During 1982, the conservation and analysis of material from the eleventh-century Serce Liman wreck (see INA Newsletter 5/2) continued. Cemal Pulak has been supervising the mending of the glass from the wreck assisted by Jane Pannell, a volunteer from the British Museum.

Joseph and Melanie Schwarzer made casts of dozens of iron weapons including javelins, spears and swords, using the natural molds formed by the original seabed concretions around the weapons. All of the conserved artifacts are being drawn by Netia Piercy and Sema Pulak while Robin Piercy continues treatment of the wooden hull fragments from the wreck.

A high point of the summer was an INA Board Meeting attended by George Bass, Claude Duthuit, Sumner Gerard, Nixon Griffis, Jack Kelley, David Langworthy,

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Glass bowl restored from pieces found scattered on the Glass Wreck.

Photo by Don Frey

GEORGE BASS RESIGNS AS INA PRESIDENT

In the spring of 1972, Dr. George F. Bass founded the Institute of Nautical Archaeology. He spent the next ten years working continuously on his own major INA sites and publications, supervising all other Institute field work, managing the business affairs of the INA offices in the U.S. and Turkey, and raising the funds each year to keep the Institute alive and working. In August of 1982, Bass resigned as president of INA.

In a lengthy interview in our next issue, Bass discusses his reasons for stepping aside from some of his administrative responsibilities, his new role with INA, and reflects on the past, present and future of the Institute.

INA'S NEW PRESIDENT

When I first met Don Frey in 1972 during an underwater survey of Gythion, Seaport of Sparta, neither of us could have guessed that ten years later we would be up to our ears in the affairs of a then yet-to-be-invented Institute of Nautical Archaeology. Unlike the rest of us novice expeditioners, he arrived at the site with only a small valise which, like Aladdin's lamp, magically provided everything he required. It produced a truly prodigious number of color slides depicting other projects he had been on, including two sponsored by the University of Pennsylvania Museum and directed by the legendary Dr. George Bass. He had a Ph.D. in physics, having done pioneering work in laser development in the early 1960s. I gathered he divided his time between the prestigious Research for Archaeology at Oxford and the obscure (to me) Roberts College (now Bogazici University) in Istanbul.

I couldn't figure him out. With equal authority he could explain how a magnetometer works or deliver a tarot card reading. He was conversant in so many languages I wondered how he managed to keep them all straight. When the survey was over he said, "You should meet George Bass. I'm sure you'd hit it off —

you both have such charming southern draws."

I got my chance three years later when Don arranged for me to come to Bodrum to train eight Turkish university students how to dive in preparation for the Sheytan Deresi shipwreck excavation. I was pleasantly surprised by how enthusiastic and hard working the students were. I should have known they were hand-picked by Don. I met someone else he had hand-picked: his lovely wife Sanna Biehl. Sanna had come to Bodrum to participate in the Danish excavations of the Mausoleum at Halicarnasus, but she met Don and remained in Bodrum long after her colleagues had returned to Denmark.

In the intervening decade it has been my good fortune to work with Don in the field on underwater projects at Sheytan Deresi and Serce Liman in Turkey, Lipari in Italy, and Pedro Banks off the coast of Jamaica. During this time Don has proven himself to be a true "man for all seasons", serving INA in the capacities of ambassador to foreign governments, photographer and darkroom wizard, project director, electronics technician, writer, lecturer, expediter, troubleshooter and limerick-composer. More importantly, he must be given credit for finding multi-talented, serious students

to continue and expand the Institute's work in Turkey. It was Don who first introduced to the Institute, Tufan Turanli, now INA's Turkish representative and captain of the *Virazon*; Cemal Pulak, now a student of nautical archaeology at Texas A&M and co-director of the sixteenth century Ottoman shipwreck excavation at Yassi Ada; and Feyyaz Subay, one of the discoverers of the Bronze Age shipwreck at Kash.



Don Frey with George Bass on board the Virazon.

Now Don, Sanna and their two daughters Maja and Kristen have moved from their chosen home in Bodrum to College Station, Texas, where Don has taken over as President of INA. It is good to have them with us here at the nerve center of the Institute, although the transition from sleepy coastal village to American university town is, no doubt, something of a culture shock.

Donald H. Keith

PROFILE



Marion Miner Cook

Marion Cook's active and energetic support of the Institute of Nautical Archaeology continues that of her late husband, John Brown Cook, one of INA's founding members.

In 1953, Mr. and Mrs. Cook created the Cook Foundation primarily to provide health and educational aid to the children of the employees of electric companies which Mr. Cook had chaired for many

years. Beginning in 1968, however, the Cooks developed an interest in nautical archaeology, and, after initially supporting the Kyrenia Ship project, their foundation broadened this support to include the newly formed Institute of Nautical Archaeology in 1973.

At the INA Board of Directors meeting a few weeks ago, Mrs. Cook was asked if she would assume the duties of vice-chairman of the Board. With characteristic willingness to help INA, she accepted. It was not as if Mrs. Cook did not already have her hands full. Her interests and activities range from the arts to education to the social sciences. She is a trustee of the Claremont McKenna College in California, a governor of the John Brown Cook Association for Freedom at the Claremont Colleges, a director of the California State University Foundation and a member of the Diademes of the Child Care League, Inc. In addition, Mrs. Cook is a Founding Member of the Music Center and Museum of Art in Los Angeles and has provided endowment for construction of the LaBrea Story Theatre in the George C. Page Museum complex in Los Angeles. Earlier this year Mrs. Cook was awarded the Robert

Fletcher Award "in recognition of her significant impact on the direction and established objectives" of the Thayer School of Engineering, Dartmouth College.

Mrs. Cook also has a special interest in the acquisition and restoration of theatre pipe organs. In 1980, she contributed a large Wurlitzer to the Founders Church of Religious Science in Los Angeles. At the present time, another Wurlitzer is being restored for presentation to Colorado State University in Fort Collins, Colorado.

Those close to Mrs. Cook describe her as energetic, enthusiastic, a positive-thinker, an outstanding organizer and someone who is simply "always on the go." Obviously, she is all of these and more.

Mrs. Cook is a resident of Beverly Hills, California. Her son Gregory lives in Killingworth, Connecticut and her daughter Marcia, who has supported and participated in INA projects, in Houston, Texas. When she is not involved in asking tough questions at board meetings, Mrs. Cook likes traveling (a recent favorite was a hot-air balloon vacation in Europe) and trying to keep up with her five grandchildren.

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Ray Siegfried, and Garry Weber. Directors and their families toured the Bodrum Museum before enjoying a medieval, torch-lit banquet in the English Tower of the Crusader Castle which houses the museum. The next day they traveled to Yassi Ada where the actual meeting was held, and where Donald Frey was elected INA's new president (see page 3).

SHIPWRECK SURVEY

The discovery of a Bronze Age shipwreck by a team of divers from INA and the Bodrum Museum was the highlight of the 1982 shipwreck survey off the southwest coast of Turkey. From the shape of the 50 copper ingots and four jars visible on the wreck, it appears that the ship dates from about 1200 to 1300 B.C. The wreck lies in 150 feet of water near the town of Kash, about 40 miles west of Cape Gelidonya, site of an earlier excavation of a Bronze Age wreck.

Under the direction of Don Frey, and working from INA's research vessel *Virazon*, the survey team investigated a total of 19 locations reported by sponge divers between Bodrum and Marmaris. Ten shipwreck sites were discovered including a late Roman wreck lying in hull-preserving sand. This wreck, and the Bronze Age shipwreck, represent promising excavation sites for the future.

Earlier in the year, INA Research Associate Cemal Pulak left the Ottoman shipwreck excavation to assist the Bodrum Museum team investigating reports of a marble statue discovered by a fisherman off the southern coast of Turkey. The site was an exhausting 44-hour round-trip bus ride from Bodrum. Cemal made the trip twice before the statue was relocated but his efforts were rewarded when the larger-than-life statue turned out to be not marble but bronze, tentatively dated to the first or second century B.C.

KYRENIA

In the final months of 1982, work was started on a full-scale replica of the Kyrenia ship (see INA Newsletters 7/1 and 8/2). Michael Katzev, director of the Kyrenia project and INA ship reconstructor Dick Steffy will work closely with the Greek shipwright during all stages of the reconstruction. The replica will incorporate the two steering oars, square sail and complex rigging arrangement which Katzev and Steffy believe were used on the original vessel. After sailing trials are completed,



Don Frey (center) with members of the INA/Bodrum Museum survey team which found the Bronze Age shipwreck at Kash — (from bottom left) Askin Canbazoglu, Oguz Alpozen, Yashar Yildiz, and Feyyaz Subay.

the Kyrenia ship will retrace its final voyage through the eastern Aegean to Rhodes and Cyprus.

Work on the Kyrenia replica is being sponsored by a new Greek conservation group, the Hellenic Institute for Preservation of Nautical Tradition. The replica should be completed late in 1984.

PORTICELLO

In preparation for publication of the final report on the Porticello shipwreck, Cynthia Eiseman spent several weeks in Italy last



Photo by Don Frey

Restored amphora from the Porticello site.

spring working on material from the site. All the Porticello objects were reexamined for additional details, especially those revealed in the cleaning of the sculpture. During the early weeks of the work, Don Frey joined Cynthia to complete the pho-

tography of the objects. Later, using polystyrene beads, and applying methods developed by INA Adjunct Professor Carolyn Koehler and her colleagues, the capacities of the various amphoras were measured. The final days of the work were devoted to the study of comparative material in various museums and storerooms in Sicily.

MOMBASA

The 1982 study season of the 17th-century Portuguese wreck at Mombasa, Kenya, concentrated on the conservation, casting and recording of iron materials in addition to the rigging elements, wooden and ceramic artifacts recovered during earlier seasons.



Hamo Sassoon works on Mombasa wreck ceramics.

The single most important object was cast and revealed by Robin Piercy — a gudgeon without pintle. Wood still adheres to the inner connecting surface of the rudder element, and the gudgeon itself is remarkably complete. It is now on museum display with other wreck artifacts.

Allison Withey, Manuela Lloyd, Wazwa Mwadime, Hamo Sassoon, Allison Darroch and Bruce Thompson were some of those involved in the casting of over 500 iron artifacts which included cannonballs, bolts, chains, cleats, locks and chain pump parts.

Over 140 rope samples were measured, cleaned and photographed prior to their treatment in polyethylene glycol. Also recorded were samples of braided horsehair, palm matting and textiles. Elements of the rigging were recorded with the assistance of Morris Taffe, a retired representative of East Africa Kodak who gave many hours of his time to produce detailed artifact photography. Polyethylene glycol treatment of wooden artifacts continues according to plan, and electrolysis of some iron objects is being carried out.

A computer listing of all artifacts and reproduction of all dive records, conservation records and other information was completed during 1982. Conservation and analysis of the hull and artifacts will continue during 1983.

CARIBBEAN

In the past two years, INA has expanded the geographical range of its work to include several sites in the Caribbean. This year, survey and excavation work was carried out on three separate projects in Jamaica and on a site in the Turks and Caicos Islands.

PORT ROYAL

The second season of underwater excavations of the 17th-century levels of Port Royal, Jamaica, began in July of 1982. Under the direction of Dr. D. L. Hamilton, 16 graduate students participated in the six-week INA/Texas A&M field school excavating remains of a portion of the city which sank into the sea during the earthquake of 1692.

The focus of the excavation was the brick floor foundation discovered in the 1981 season. (See INA Newsletter 8/3). It soon became apparent that the floor foundation belonged to a large multi-roomed structure (designated "building one") situated between Lime Street and Fishers Row. The building contained six rooms with the three northern rooms being constructed first and possibly occupied for some time before the southern rooms were added. Only the two southernmost rooms (rooms three and four), over 1000 square feet, were excavated.

Artifactual preservation was excellent as all 1692 levels were sealed by a thick layer of coral and silt. *In situ* on the floor of room four were a bellarmine jug, two keys, pew



Don Hamilton and Jim Parrent use a syringe to extract liquid from a sealed bottle found at the Port Royal site.

ter tankards and a gun. A walled enclosure within room four contained sixty onion bottles; many were corked and contained liquid. Analyses are being conducted to determine the original contents. A crushed wooden table and stool were found under a fallen wall in the room.

Room three yielded a large number of butchered bones, a basket, assorted hand tools and several pieces of pewter, in particular a matched set of William and Mary spoons. All artifactual material recovered in 1982 is being conserved and analyzed

at the current headquarters for the project in the Old Naval Hospital building in Port Royal.

Work toward complete excavation of the remaining rooms of building one is a primary objective for 1983. As well, areas peripheral to the structure will be excavated in an effort to determine the presence of streets and street patterns adjacent to the building.

Although only a small portion of the city has been excavated, it is clear that the potential archeological importance of Port Royal is unparalleled by any other 17th-century British site.

ST. ANN'S BAY

The first season of a search for the last two ships commanded by Columbus began in May at St. Ann's Bay, Jamaica. During his final voyage to America, the Admiral was forced to beach his remaining two leaking caravels "a bow-shot from shore," and for twelve months, he and 116 men and boys were marooned in makeshift huts aboard the vessels until rescue came.

Historical documents and preliminary geological coring suggested a likely section of the bay's shoreline for the site of these wrecks. Under the direction of Roger C. Smith, research strategy and survey teams were organized, the latter consisting of Dr. John Gifford, Lisa Shuey, Richard Green, KC Smith, Allyn Taylor and Cathryn Wadley. Gordon Watts and Charles Mazel were invited to conduct



Roger Smith and Rick Green work inside a caisson at St. Ann's Bay.

Photo by KC Smith

magnetometry and sonar operations. Draftsmen Tyrone Lindsay and Fitzroy Taylor regularly came from Port Royal to assist the project. Dense undergrowth on the shore was cleared with local assistance and the survey commenced, using a magnetometer in gridded squares on the beach and from a boat in parallel runs offshore. Sub-bottom penetrating sonar concentrated on "seeing" through soft sediments on the bottom of the bay. Several interesting targets were revealed by careful remote sensing with both of these tools.

A combination of methods were employed to test each buried target: simple probing, manual coring, and excavation inside four foot diameter aluminum caissons. Some of the targets turned out to be natural features, others the remains of 18th century English plantation harbor activities. A small but well-preserved shipwreck, possibly colonial English, was discovered under five feet of mud in this manner. Test samples from the bay included organic materials such as seeds, wood, vegetation, leather and rope in a surprising state of preservation which promises a similar situation for the lost caravels.

Although no Spanish material has yet been identified, the more obvious targets have been discounted by process of elimination and the search area narrowed to two small areas, which will be examined during next summer's second season.

PEDRO BANK SURVEY

During the summer of 1982, the Pedro Bank Survey research team made two trips to the bank to further work begun in 1981. Both trips were made aboard Jamaica Defense Force Coast Guard (JDF) patrol boats. The team members included James Parrent and Steven Hoyt, project directors, Douglas Kesling, divemaster, Robert Adams, and Robyn Woodward. Lieutenant Ron DuQuesnay and Sub-lieutenant Guy Harvey made their considerable skills available while acting as the JDF Coast Guard representatives on the crew. Mr. Gordon Watts, from East Carolina State University, operated the electronic search equipment used during this summer's first trip to the bank.

Some of the new areas surveyed in 1982 proved to be in very treacherous waters. Magnetometry was severely curtailed due to the heavy seas encountered on most of the reefs and shoals. Therefore, much of the survey was strictly visual, performed by snorklers towed behind inflatable boats and swimmers operating di-

rectly in the breaking surf. Using these techniques, one significant new site and several lesser sites were located. The major new site has a large ballast pile strewn with cannon, anchors, and shot. The available evidence seems to indicate a Spanish wreck, probably eighteenth-century. The other sites seem to be the badly scattered remains of much later sailing and steam vessels.

The survey team also visited the three major sites found during last year's survey, primarily to determine if any damage had been done over the past year. All three sites appeared to be undisturbed.

In addition to the Coast Guard vessels, the Jamaica Defense Force made one of its twin engine aircraft available for a photographic flyover of the bank. Aerial photographs were obtained of many of the reefs and shoals bypassed during last year's flight. These photos showed the true extent of reef formations which could not be properly determined from the surface of the sea or from marine charts. From these photos it appears that the overall area of the shoals and reefs to be surveyed is much larger than had been anticipated. Survey work on the Pedro Bank will continue in 1983.

In connection with the Pedro Bank Project, Denise Lakey, a Texas A&M graduate student spent three months in Spain conducting research at the Archivo General de Indias in Seville, the Archivo General de Simancas near Valladolid, and the Museo Naval in Madrid. In the course of her work,

extensive documentary material was located concerning the *Genovesa* and other Spanish wrecks in Jamaican waters. Work on all of the sites in Jamaica is sponsored jointly by INA and the government of Jamaica and co-ordinated by Jamaican government archaeologist Tony Aarons and Robyn Woodward of INA.

MEXICO

Throughout the winter of 1982, nautical archaeology graduate students Denise Lakey and Jody Simmons continued to work on the research, photodocumentation, site plans and final drawings of the material from the survey of Cayo Nuevo. Late in 1981, INA assisted Pilar Luna, Director of the Departamento de Arqueologia of the Instituto Nacional de Historia y Anthropologia, in a third survey of Cayo Nuevo, a small reef located in the Bay of Campeche, off the coast of Mexico (see INA Newsletter 7/1). Working from a Mexican Navy vessel, Lakey and Simmons, along with Gordon Watts of East Carolina University and a team of Mexican archaeologists, confirmed the location of two shipwreck sites on the reef. Based on the types of cannons found on the sites, one wreck has been identified as late 16th century, the other as late 18th century.

Following the survey work, a week was spent at the conservation facility in Merida recording the details of a bronze cannon, an iron cannon and an anchor recovered in 1980 from the 16th century site.



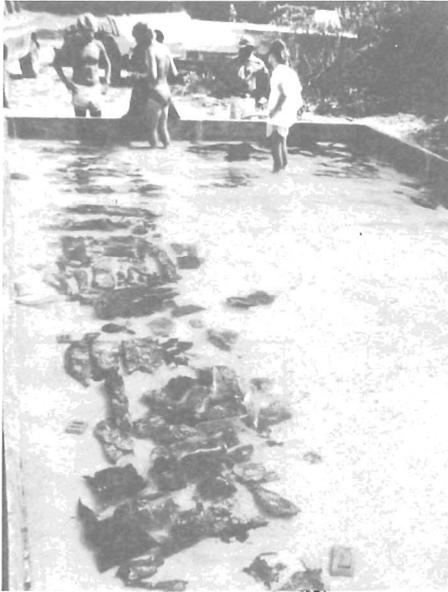
Sumner Gerard's Morning Watch used as support vessel on Molasses Reef and Pedro Bank projects.

Photo by KC Smith

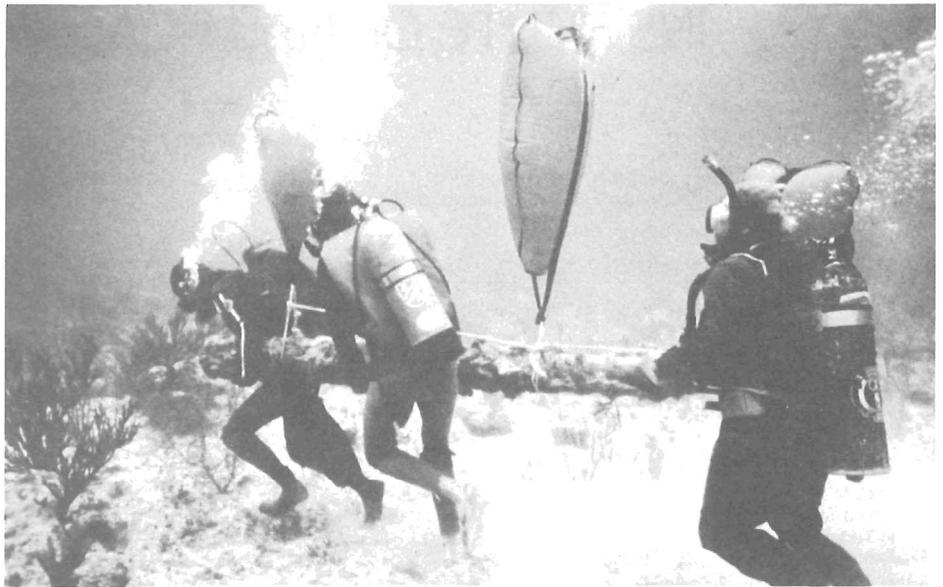
MOLASSES REEF

The first phase of one of the most controversial and well-publicized projects ever undertaken by the Institute began on April 4, 1982, with the arrival of Director Sumner Gerard's research vessel *Morning Watch* at Molasses Reef in the Turks and Caicos Islands. Called simply the "Molasses Reef Wreck" by the INA excavation team, the site has received attention in the international press as one of the oldest shipwrecks ever found in the New World.

Before beginning work at the site, INA Project Director Donald H. Keith signed an agreement with the government of the Turks and Caicos Islands — a British Crown Colony in the eastern Caribbean about eighty miles north of Hispaniola — to excavate the site, clean, analyze, and conserve the artifacts recovered, and identify the ship through intensive historical research. The government has permitted INA to remove the artifacts to a special



The fragmentary wood remains of the Molasses Reef wreck in a holding tank in the Turks and Caicos Islands.



Molasses Reef project team members "walk" a cannon to the lifting area.

conservation laboratory at Texas A&M University. Following cleaning, analysis and conservation, all artifacts from the site will be returned to the Islands for installation in the Turks and Caicos Museum of Maritime History.

Due to previous charter commitments, *Morning Watch* could not participate in the second phase of the excavation which was staged from a vessel belonging to Caribbean Historical Research, Ltd. This phase lasted ten weeks during which time the ballast pile was recorded and disassembled, exposing the remains of the ship's hull. Too fragile to be transported to Texas A&M, these wooden remains were taken to the nearby island of Pine Cay and stored in a specially-constructed basin generously provided by Bill and Ginny Cowles, proprietors of the Meridian Club.

During the two phases of field work at Molasses Reef the excavators were pleased to receive visits from INA Directors Don Geddes and Ray Siegfried, and *National Geographic Magazine* Senior

Editor Bill Graves.

Several nautical archaeology students who participated in the field work have accepted responsibility for certain types of analyses: Tom Oertling is interpreting the wooden hull remains; Steven James will study the ceramic sherds; Jim Duff devised a system for sampling the stones in the ballast pile in the hope of eventually being able to trace the ship's last voyage; Jody Simmons took the responsibility of looking after the approximately eight tons of artifacts which are presently in treatment in the conservation lab. The expedition photographer, Dennis Denton, is in the process of enlarging and hand-printing a series of color photographs which will be part of a special display to be exhibited at Texas A&M.

A return to the site is planned for 1983 at which time excavation will be completed and experiments in schlerochronology (dating the site by counting growth rings in coral heads growing on it) will be conducted.



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