VOL 10 NO 2
INA NEWSLETTER

Summer 1983

THE THIRD EXPEDITION TO CAYO NUEVO

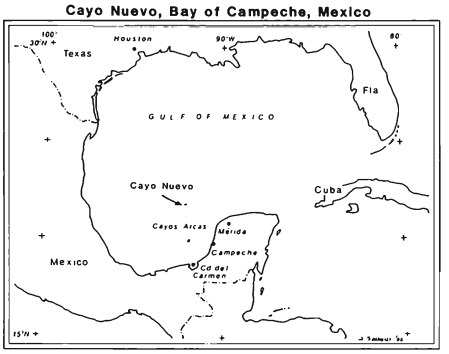


Figure 1. *Illustration: Joe Simmons*

In 1979 while diving 160 kilometers offshore at Cayo Nuevo, on the Campeche Bank of Mexico (see Fig. 1), V. Farley Sonnier, an attorney from Lafayette, Louisiana, and fellow divers located what they believed to be the remains of an old Spanish ship: three cannons and an anchor (see INA Newsletter 7/1). One of the guns was a unique 12-sided bronze piece bearing an escutcheon and the date 15?2 (third digit illegible). Appreciating the potential historical value of such a find, Sonnier contacted INA, which put him in contact with the Instituto Nacional de Antropología e Historia (INAH) in Mexico City.

As a direct result of Sonnier's reporting of the site to INAH, an expedition was launched to recover at least the bronze cannon and survey the reef to obtain evidence on whether the cannons and anchor were part of a wreck or the result of a jettisoning action to lighten a ship in distress. Two expeditions to the reef were required before the bronze cannon, one of the iron cannons, and the anchor could be recovered. Although scattered ballast stones and iron fittings in the vicinity gave a good indication of an actual shipwreck on the reef, bad weather and heavily concreted material prevented either of these earlier expeditions from conducting a thorough survey. The most important question remained unanswered: if a ship had indeed wrecked on Cayo Nuevo, where was the ballast pile with associated remains?

The decision was made to undertake a third expedition to Cayo Nuevo in order to carry out a detailed survey. As on preceding trips, Pilar Luna, head of INAH's Departamento de Arqueología Subacuática, directed the project and INA again supplied equipment and personnel. The two of us, accompanied by INA Adjunct Professor Gordon Watts, participated on behalf of INA. The Institute also sent Watts' magnetometer (a device which detects concentrations of ferrous metals—most often simply called a "mag") and INA's underwater metal detector. These two instruments and Gordon's expertise in interpreting their signals would be vital if we were to locate and delineate the wreck which had eluded the first two teams. Through INAH Pilar made arrangements for all other equipment, supplies, and personnel including two archaeologists, three volunteers, and one consultant—the late Jesús Bracamontes.

We rendezvoused in Ciudad del Carmen, Mexico's base for her offshore drilling industry in the Bay of Campeche, on November 8, 1981. After a three-day bad weather delay, we set out for the site on the Mexican navy vessel *Dragaminas 19.*

The ship arrived at Cayo Arcas, a reef midway between Ciudad del Carmen and Cayo Nuevo, the morning of November 12. The captain decided to delay at Cayo Arcas for about 12 hours in order to arrive at Cayo Nuevo during daylight. While waiting we ran a test survey of one of the cays to determine if our instruments were functioning properly. We soon located a number of magnetometer "hits" which investigation showed to be modern wreckage. The next morning, November 13, we arrived at Cayo Nuevo with a group of spotted dolphins riding our bow wave, an omen of good luck.

As soon as the ship's boat and a 15-man navy Zodiac were put over the side, we proceeded to locate and briefly examine the site from which the iron and bronze cannons and the iron anchor had been

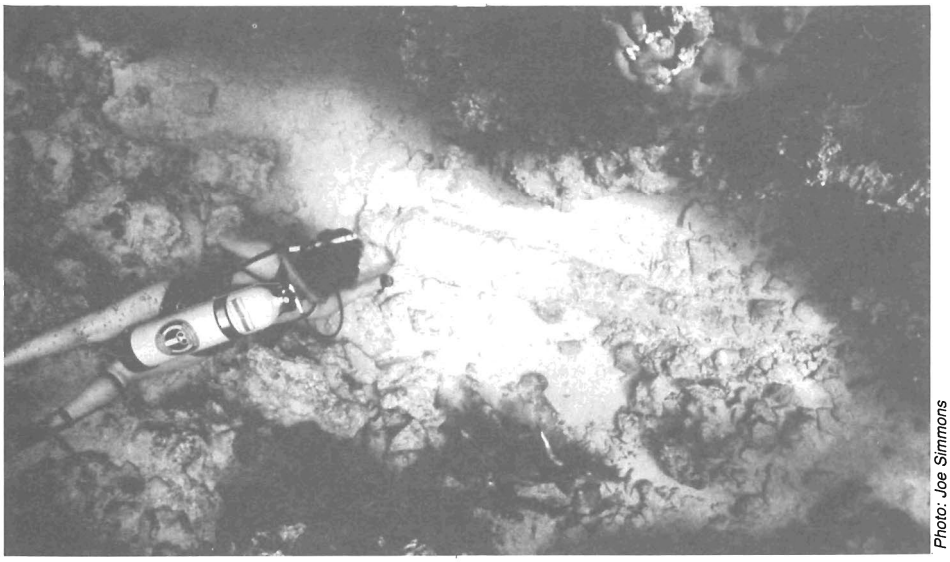


Photo: Joe Simmons

A coral encrusted cannon lies in a sand pocket between coral heads at Cayo Nuevo.

removed during the earlier expeditions. Only one remaining iron cannon and one anchor were visible, but we found a few scraps of lead sheathing in a sand filled gulley slightly to the east of the original position of the bronze cannon. Since magnetometer work is more effectively done in calm seas, we decided to leave further diving aside for the moment and immediately take advantage of the prevailing calm conditions to carry out our mag survey.

The ship's launch towed the magnetometer sensor over the reef, and almost immediately a large cluster of anomalies measuring 100 meters by 50 meters was found and buoyed approximately 400 meters northeast of the bronze cannon site. Divers following in the Zodiac were sent to investigate. Visual inspection revealed a large area of scattered ballast and no fewer than 26 cannons of at least two different classes. Two large admiralty anchors measuring almost 6 meters from crown to head of shank were located: one sitting on top of the ballast scatter, blanketed with fire coral, the other almost totally embedded in the ballast. In addition several pintle and/or gudgeon straps (rudder hardware) were found. For reference purposes we designated the former site of the bronze cannon CN1 (Cayo Nuevo 1) and named this new area CN2 (see Fig. 2).

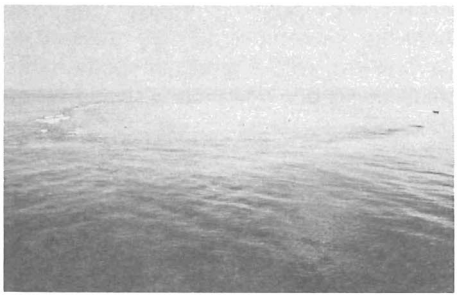


Photo: Denise Lakey

Only a low line of breakers reveals the presence of Cayo Nuevo 100 miles offshore in the Gulf of Mexico.

Another cluster of anomalies was located south of CN2 and east of CN1. However, divers located only one anchor partially buried in a sand channel—not enough to have caused the large magnetometer reading associated with it. Closer investigation with the metal detector established a number of targets, but the thick covering of fire and elkhorn coral made it impossible to determine what was causing the detector to register. We labeled this partially buried anchor and its surrounding mysterious anomalies CN3. Scattered on the bottom between CN2 and CN3 lay more cannons not clearly associated with either site.

Because of initial weather delays, we had only six and one-half days to work at Cayo Nuevo. The main goal remained to determine if CN1 was indeed a shipwreck rather than a jettisoning site. After conferring with the group, Pilar decided to conduct a thorough metal detector survey and test excavations at CN1, to map the major features of all three sites, and to remove concretions from the trunnions of selected cannons in hopes of finding diagnostic markings. To best accomplish these objectives, we divided into two teams.

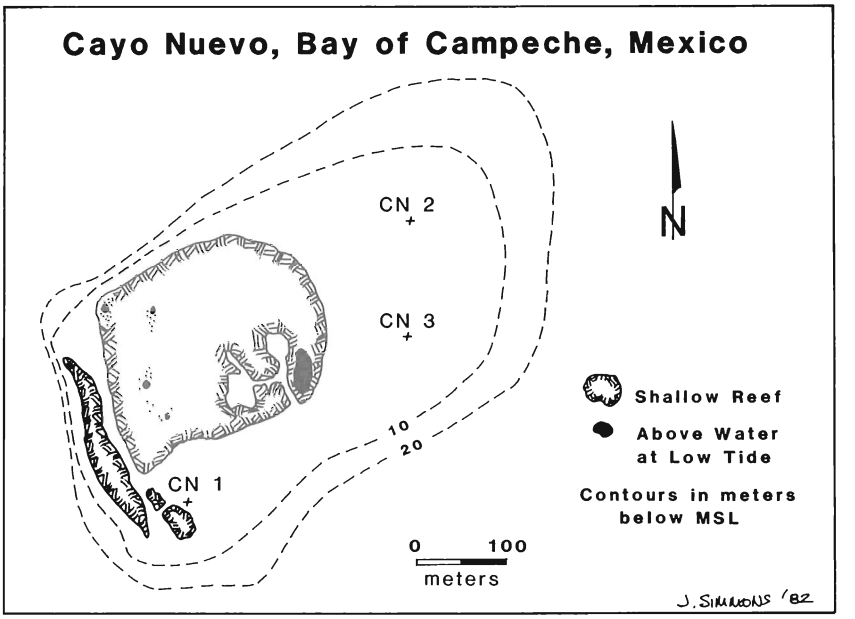


Figure 2.

Illustration: Joe Simmons

At CN1 one team walked the magnetometer around the site, but apparently there is so much iron in the eastern sand channel that the mag could not provide any reliable readings. Subsequent examinations of the area with the underwater metal detector revealed a number of targets both in the sand channel and further up the base of the reef.

Using a two-inch airlift, a pneumatic chisel, and ordinary hammers and chisels, the team at CN1 began the test excavations at the base of the isolated reef formation where the bronze cannon had been found. There we discovered brass clothing pins, some with droplets of mercury adhering. Numerous ballast stones and more lead sheathing were also found, along with a small piece of worked ivory, the top portion of a brass candlestick, fragments of coarse red earthenware, and nearby, a small fragment of poorly preserved wood. Two more iron cannons similar to the two already found were uncovered further east and north in the sand channel. However, the smaller artifacts were by far the most exciting finds. They indicate that the ship which carried the bronze cannon did indeed come to her final rest at Cayo Nuevo.

While the team at CN1 was engaged in excavation, the team at CN2 tied lines between cannons and anchors and pintle/gudgeon straps, enclosing the scattered ballast pile. We mapped the area using the simple and effective method of measuring the distance of each line and the angles formed. The cannons between CN2 and CN3 and the anchor at CN3 were plotted using the same technique.

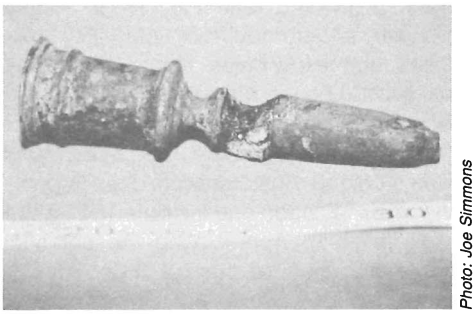


Photo: Joe Simmons

Portion of a brass candlestick found at CN1.

With the presence of so many cannons, the two large admiralty anchors, the pintle/gudgeon straps, and the large area of scattered ballast, CN2 unquestionably is the site of a major shipwreck. We were much less sure about CN3 with its one anchor and the four widely dispersed cannons between it and CN2. In an effort to learn more, we chipped the encrustation from the ends of the trunnions of a few representative cannons from CN2 and from one of the scattered cannons. The trunnion markings indicated the guns were cast by Carron Company, Scotland, in 1774 and 1775. The similarity of markings on all the guns sampled suggests that the scattered guns are probably from the wreck at CN2.

Continued on page 4.

PEOPLE AND PROJECTS

An historic event! The first-ever direct communication between INA's Mediterranean research vessel *Virazon* and the United States! On June 26, 1983, George Bass, in College Station, received a radiotelephone call from the bridge of the *Virazon* anchored over the 16th-century wreck excavation at Yassi Ada, Turkey. In a conversation with Robin Piercy, Tufan Turanli, Murat Tilev, and Cemal Pulak, George was able to discuss progress on the excavation and the continuing work on the Glass Wreck material at Bodrum Castle. He reported the connection to be excellent. Perhaps the next call will come directly from the excavation "telephone booth" located 140 feet deep on the seabed at Yassi Ada . . . . . Also from Turkey, Don Frey tells us the Yassi Ada excavation is on schedule and will continue until around the last week in July. The survey work is tentatively set to start August 15th and continue for six to eight weeks . . . . . Don left Turkey briefly to attend the July meeting of the INA Board of Directors in Jamaica. Following the INA board business sessions, Directors and guests had the opportunity to visit the INA sites at St. Ann's Bay and Port Royal. More on this first Caribbean board meeting, in our next issue . . . . . Meanwhile, the search for Columbus's Caravels at St. Ann's Bay resumed in early July under the direction of John Gifford and Roger Smith. Lisa Shuey, KC Smith, Allyn Taylor, and Karen Taylor are back at work on the site this year, to be joined in August by the peripatetic INA Adjunct Professor, Gordon Watts . . . . . The 1983 INA/Texas A&M Port Royal field school, directed by Don Hamilton, has been operating since the end of May. Project assistant Peggy Leshikar and sixteen students from various U.S. and Canadian universities once again are busy excavating the submerged remains of this seventeenth-century "wickedest city in the world" . . . . . Unusually calm conditions on the Jamaican Pedro Bank in mid-May provided Steve Hoyt, Jim Parrent, and the INA/Jamaican Government team with an excellent opportunity to continue their shipwreck survey off the south coast of the island, clarifying earlier findings, and further documenting this vast reef area . . . . . In the Turks and Caicos Islands, the Molasses Reef excavation is nearing completion. After many weeks in the field, including work at Highborn Cay in the Bahamas and La Isabela in the Dominican Republic, Don Keith and the INA crew are expected to finish work on Molasses Reef and return to College Station sometime around mid-July. INA Director Summer Gerard's research vessel *Morning Watch* again has served most capably as the support vessel for this Caribbean work. The INA crew participating in the various phases of the work included Dennis Denton, Jim Duff, Bruce Thompson, Paul White, Jody Simmons, and Roger Smith, all Texas A&M graduate students, and Jack Hunter from California . . . . . Another A&M Nautical Archaeology graduate student, Carol Olsen, has just joined the Nautical department as the senior member of the support staff . . . . . George Bass presented INA's current research to the national Marine Board when it met at Texas A&M University in June. He was especially pleased to see again Bill Searle, one of INA's founding directors, who had recommended George as the after-dinner speaker.

PROFILE

Photo: KC Smith

Janet Urbina

During the last two years, through the often hectic comings and goings of people, projects, and problems at INA headquarters in College Station, Janet Urbina has provided a special kind of energy to Institute affairs. Her "support" role could hardly be considered secondary. As Administrative Assistant to the Institute President and Executive Director, aide to individual Project Directors, and contact point for board members, businesses, and INA friends, Janet's responsibilities range from bookkeeping to bartering, from correspondence to crisis management.

Her administrative efficiency is based not only on previous experience, but also on an equally important factor: her own love of archaeology and of the sea.

"I have always had an intrinsic fascination for ships, for the sea, and for archaeology, but I hadn't meshed the three in my mind until I saw a film about the Institute's projects.

"Shortly thereafter, circumstances led me to Texas A&M, and while looking for a position, I was delighted to discover that INA had an opening. This has been, and remains a most insightful learning experience about a field I now find to be inspiring."

Seeking to fulfill her interests in a more direct way, Janet plans to begin taking courses this fall in the University's Department of Anthropology. Although recently she has learned to SCUBA dive, her intended direction is not necessarily toward nautical studies; she is equally interested in Egyptology and would like to know more about other disciplines before focusing on a specific field.

A native of the San Francisco Bay area, Janet studied at the University of California at Berkeley and at California State University at Hayward, from which she earned a baccalaureate degree with a major in foreign languages. Fluent in Spanish and French, she was hired after graduation to teach at a private high school in the Bay area, and ultimately was asked to head the school's foreign languages department. She held these positions for seven years before coming to Texas A&M in 1981, after an intervening one-year stay in Michigan.

During her early college years, Janet spent considerable time traveling, including an extended visit to Spain. At one point, in what must be considered a first indication of her ability to budget with extreme precision (an invaluable asset in her INA position), after a full two years abroad, Janet arrived on the doorstep of her home in California with exactly 71 cents left in her pocket!

Despite her decided professional and academic bents, Janet perceives her primary role as that of a mother, which as a single parent raising three pre-teenage children, is a loving handful. Besides the gamut of Girl Scouts, soccer matches, and swimming lessons which the youngsters enjoy and involve her in, Janet still finds time for her own preferred relaxations, many of which involve sports and physical activities. One of her current interests is weight-lifting—perhaps related to the ongoing rigors of keeping INA Project Directors on budget.

Continued from page 2.

After our survey of the reef at Cayo Nuevo, we were able to draw some reasonably firm conclusions. CN1 clearly is the site of a shipwreck, the remains of the ship being largely buried in the sand channel running along the east side of the reef. This conclusion is based on the discovery of at least five cannons, a wrought-iron anchor, ballast stones, and lead sheathing, combined with the smaller finds.

CN2 also is the site of a shipwreck. Initially we believed this was probably an English warship because all of the cannons checked for markings were found to be from the Carron foundry in Scotland. However, research has now shown that in the year 1773, the Board of Ordnance of the British navy terminated all purchases of guns from the Carron Company, ordered all Carron pieces off of navy vessels, and did not resume buying from Carron until after the development of the "carronade" in late 1778. This information casts some doubt on whether the wreck is British, although it does not eliminate the possibility. Regardless of its nationality, to judge from the number of guns visible and the size of the pintle/gudgeon straps, the ship was at least the size of a sixth-rater. The dates on the trunnions and the presence of lead instead of copper sheathing date the wreck at CN2 probably between 1775 and 1800.

CN3 remains a question mark. Only one anchor, apparently early Spanish, was found, but the magnetometer and the metal detector both indicate that more metal is present in the area. It is possible that the material at this site is associated with the wreck at CN1. Further investigation will be necessary to clarify the status of the CN3 site.

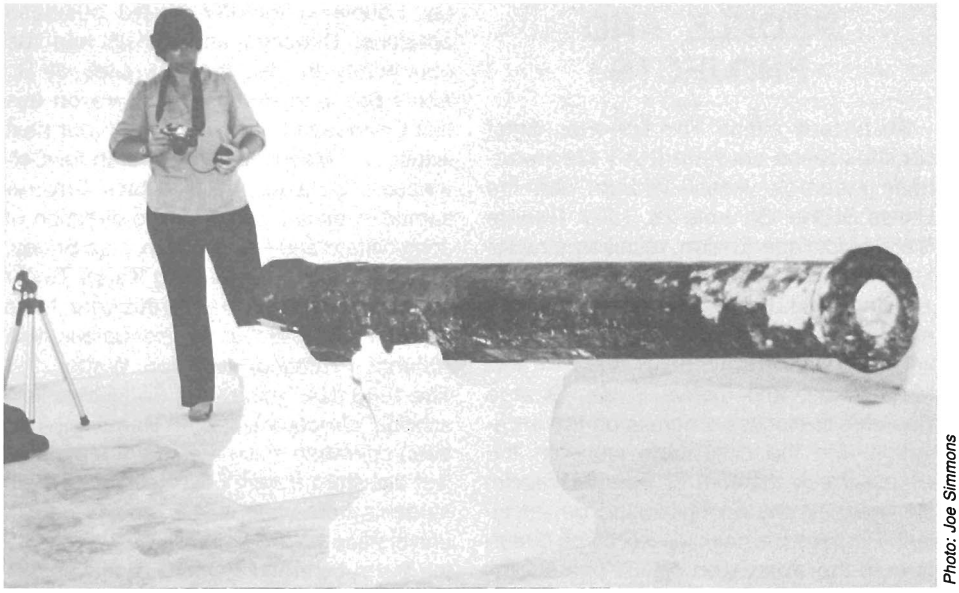


Photo: Joe Simmons

Pilar Luna prepares to photograph the bronze cannon from CN1 on preliminary display in the Campeche museum.

In addition to our survey of the reef, we had a second, equally important goal—to thoroughly record, through photographs and measurements, the bronze cannon, the cast-iron cannon, and the wrought-iron anchor recovered from CN1 in the spring of 1980. Since their recovery, the artifacts have been undergoing conservation in Campeche and Mérida. Drawings and photographs had been made of some of the objects in various stages of their conservation treatments, but detailed examination of the pieces was needed. Pilar Luna and the two of us from INA/Texas A&M set off across the Yucatan Peninsula to carry out this documentation, first to Campeche and then to Mérida.

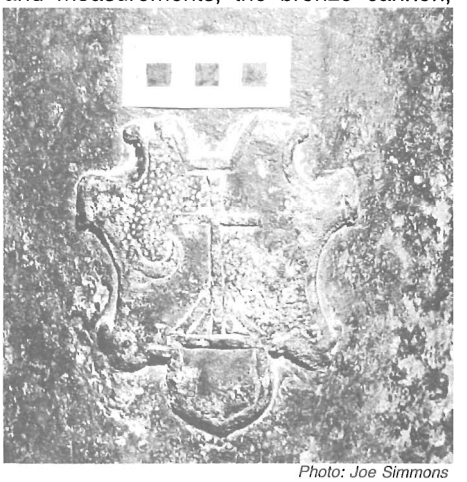


Photo: Joe Simmons

Close-up view of the escutcheon on the bronze cannon.

In Campeche we spent an entire afternoon taking photographs and detailed measurements of the bronze cannon, located in the Museo de Armas y Marinerías. Although it may not be the most helpful in determining the date and origin of the wreck, the bronze cannon is the most striking object recovered from CN1. Exact classification of old guns is

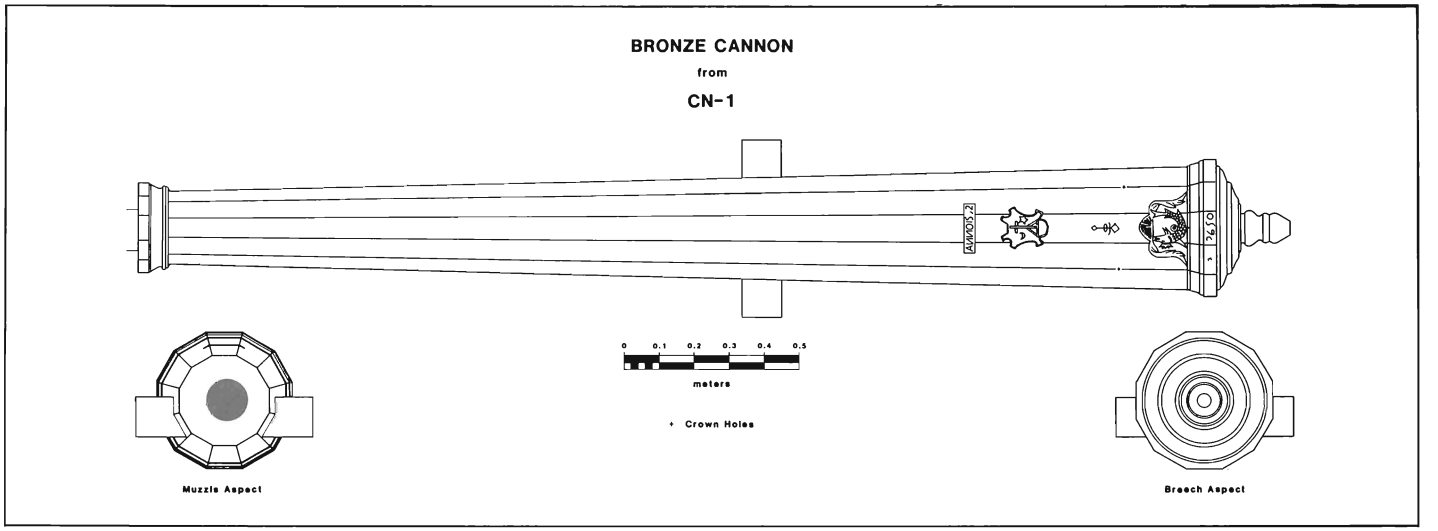


Illustration: Joe Simmons

Figure 3.

Photo: Joe Simmons

Cast of markings on trunnion from a CN2 cannon. In reverse, the cast shows the name "CARRON" and the date "1775" below.

difficult because the standards of classification varied so greatly; however, the bronze cannon is probably a *media culebrina* or "demi culverine." It is duodecagonal and bears the date 15?2, possibly 1552. In addition it carries a number of intriguing markings: an unidentified escutcheon in bas relief composed of a cross, a crescent moon, and a five-pointed star or rowel; a crudely etched founder's mark; and a raised design of a winged seashell and crowned dolphin around the touch hole.

At Mérida we photographed and measured the iron cannon and anchor. The iron cannon bears the same crudely etched founder's mark as the bronze cannon but none of the other markings. Although it bears no date, its general proportions and the location of its astragals (raised bands) indicate it is probably a late sixteenth-century cast-iron cannon of English manufacture. The anchor has the typically slim shank of a Spanish anchor, and like the anchors recovered from the wrecks of the 1554 New Spain Fleet off Padre Island, Texas, its stock keys are parallel to the arms. Moreover, its overall length and width measurements are very similar to those of the Padre Island anchors.

Research on the markings of the bronze cannon is now underway. However, because reference materials for coats-of-arms are organized by family names rather than by elements of composition, finding a name to go with the escutcheon may take years. As well, should the coat-of-arms ever be identified, it may prove to have nothing to do with the ship itself since bronze guns were often in use for a hundred years or more. For this reason, the iron cannon becomes more important: as an example of an early cast-iron gun, it reflects a period of transition in gun founding technology and may offer a more accurate estimate of the date of the vessel from which it came.

While identification of the shipwreck at CN1 may never be more exact than assigning it a nationality and a date within a span of years, identifying the specific ship wrecked at CN2 should prove much easier. As a probable late eighteenth-century vessel, the ship dates to a period when size and construction were being strictly standardized and records were meticulously kept.

We would like to thank the hard-working, dedicated leader of underwater archaeology in Mexico, Pilar Luna, for providing us with the opportunity to work on these interesting sites. We thank Gordon Watts for taking time off from his duties at East Carolina University in mid-semester to join us with his equipment and invaluable expertise. Appreciation also goes to Santiago Analco, Rafael Alducín, Elva Escobar, and Enrique Hernández, who took time from their jobs and studies to help the project. Jesús Bracamontes was a constant inspiration and a well of knowledge for us all; his passing is sorely felt by his many friends and associates. Indispensible to the expedition was the aid given by Vicealmirante Armando Abaroa Schaufelberger of the Séptima Zona Naval in Ciudad del Carmen, Campeche, Mexico, for not only did he provide the ship and crew, but he also offered his limitless hospitality and personal involvement. Also, we would like to thank Capitán José Bautista and his crew of *Dragaminas 19* for their most valuable assistance. Equally important has been the advice and information on the bronze and the iron cannons from CN1 supplied by Col. J. F. Guilmartin, USAF. Of course, none of the Cayo Nuevo work or the knowledge we have gained would have been possible without the enlightened, responsible reporting of the site by Farley Sonnier and his associates—we are deeply grateful to them.

Denise Lakey

Joe Simmons

Photo: Joe Simmons

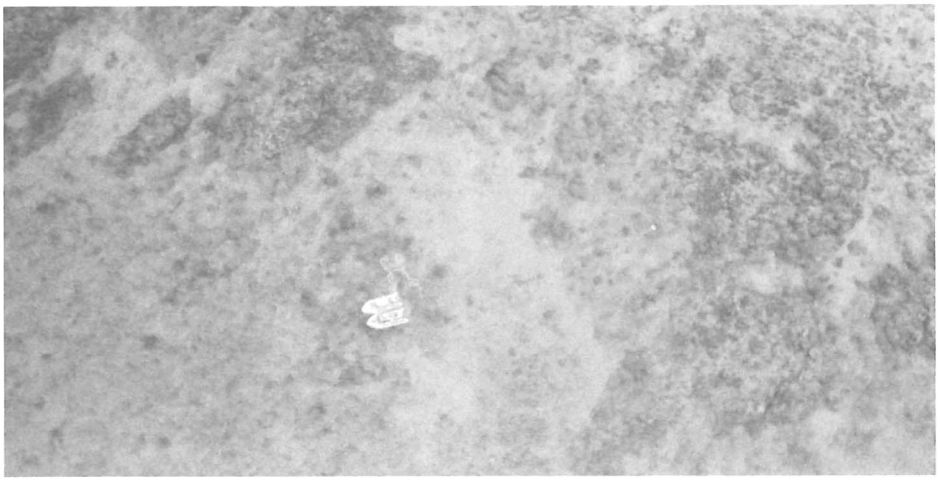
Mexican navy vessel Dragaminas 19, *support vessel for the third expedition to Cayo Nuevo.*

THE MOLASSES REEF WRECK

In 1982, INA signed an agreement with the government of the Turks and Caicos Islands to excavate a 16th-century shipwreck located on Molasses Reef. Under the direction of Don Keith, two phases of the excavation were carried out in 1982 and the final phase has just been completed.

In this short pictorial essay we present a preliminary look at the work on this most important INA site—perhaps the oldest shipwreck ever excavated in the New World.

[All photographs by Dennis Denton, except as shown.]



Aerial view of the Molasses Reef site. The ballast pile from the wreck lies just off the stern of the two Zodiac boats. Wreck material is scattered over a large portion of the area shown.

A wide view of the central area of the site with team members working on various tasks. The sandbagged sections of hull remains can be seen directly below the Zodiacs and to the right center.

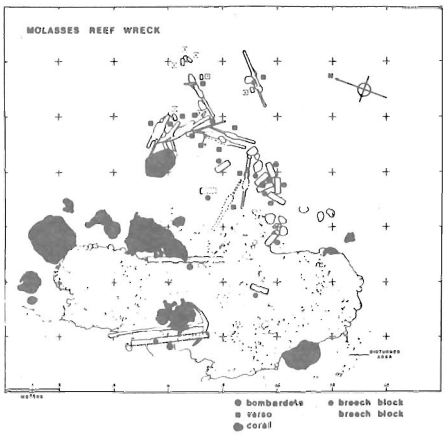


Illustration: Don Keith

A preliminary plan of the central section of the site showing the location of various pieces of ordnance (cannons, breech blocks) and other material scattered around the ballast pile.

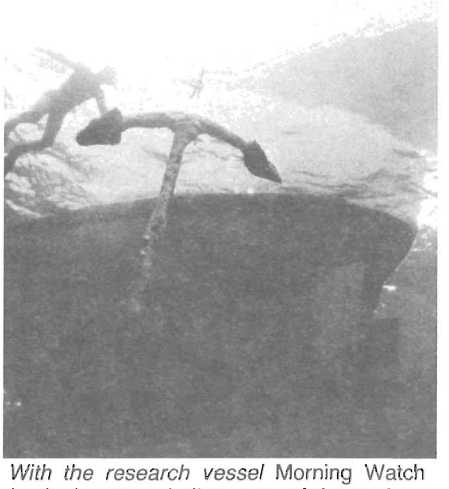
A team member carefully excavates the final few inches of overburden while the sand bags hold the very fragile hull remains in place.

Project Director Don Keith examines the fragmentary remains of the hull of what may be the oldest shipwreck ever excavated in the New World.

Don Keith and Dr. Richard Dodge of Nova University in Florida carry out preliminary study of a large coral head growing on top of the wreck ballast pile. Through the use of sclerochronology (counting annual growth rings to determine dates) they hope to develop information which will help determine the date of the sinking of the ship.

On board the excavation support vessel, two team members study an unusual and as-yet-unidentified artifact from the Molasses Reef Wreck.

The anchor is placed in a large "wet" holding facility at INA's Texas A&M University headquarters. By keeping the site material submerged in fresh water, it is kept stable until conservation begins.



With the research vessel Morning Watch *backed over a shallow area of the reef, an anchor excavated from the site is lifted on board.*

Photo: KC Smith

The Texas A&M facility which has been provided as a temporary location for the conservation and study of the Molasses Reef Wreck material. Ultimately, all site material will be returned to a maritime museum in the Turks and Caicos Islands.

The Institute of Nautical Archaeology is a nonprofit scientific organization whose purpose is to gather knowledge of man's past as left in the physical remains of his maritime activities and to disseminate this knowledge through scientific and popular publications, seminars, and lectures. The INA Newsletter is published periodically by INA and is distributed to its members and Supporting Institutions to inform them of INA's current activities. INA is an equal opportunity organization.

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