Evidence of Early, Widespread Cacao Usage
New Clues About the H.L. Hunley
Forty-Thousand-Year-Old Chinese Individual Related to Modern Native Americans

COVER: Underwater archaeologist Charlie Beeker holds several solid silver platters from the Nuestra Sedonia Begoña, an 18th-century Spanish ship that sank off the coast of the Dominican Republic. The platters, which weigh about 35 pounds, are sealed together by concretion.

CREDIT: Courtney Michalk/Indiana University
The Caballo Blanco site could become a living museum in the sea. It features these two Columbus-era anchors and a breech block from about A.D. 1500. The shipwreck has not been found, so it may have survived running into the Caballo Blanco reef. These items were apparently thrown overboard in an attempt to lighten the ship.
To thwart treasure hunters, Charlie Beeker and other archaeologists are turning historic shipwreck sites into underwater museums that preserve the vessel and attract tourists.

When Charlie Beeker began diving in 1965, historic shipwrecks were considered little more than repositories of artifacts that were there for the taking. By 1974, when he took a diving instructor course in Key Largo, Florida, most of the wrecks in the Florida Keys had been damaged by divers. Anchors and cannons served as landscape ornaments in front of restaurants and hotels along U.S. Highway One, the road running through the Keys, according to Beeker.

Then this seemingly hopeless situation began to change. The Abandoned Shipwreck Act was passed in 1988. As a result, ownership and management of historic shipwrecks were clarified on federal, state, and tribal submerged lands. In 2000, a national system of Marine Protected Areas was established. These acts brought about major changes in the perception and preservation of shipwrecks, which were elevated from mere plunder to historical treasures.

Consequently, some of the treasure hunters that worked the Keys moved south to Caribbean countries like the Dominican Republic, where the pickings can be as easy as they once were in Florida and other U.S. coastal areas. For example, in the Dominican Republic, treasure hunters can, with impunity, plunder wrecks under existing salvage laws so long as the government gets half the take.

So Beeker, who subsequently founded Indiana University’s (IU) Office of Underwater Science, is also working in the Dominican Republic, intent on thwarting the treasure hunters. “I tell my students we’re in the Dominican Republic because we need to be there,” said Beeker, who directed an IU underwater field school last December off the small beach of La Caleta. The beach is part of a national park near Santo Domingo, the capital of the Dominican Republic.

Beeker is trying to wean the Dominican Republic government from treasure hunting revenue. He has worked in the country for roughly 20 years and this was his fourth visit to La Caleta, where, according to historical accounts, the Spanish frigate **Nuestra Sedentà Begoñà** wrecked a short distance from the beach in 1725. While doing a magnetometer survey in March of 2010, he and his crew identified an anomaly that matches the size and location of the ship, and they’ve also found a cannon and numerous other artifacts that appear to be related to it. Consequently, though they’ve not actually sighted the vessel, Beeker believes they have found the *Begoñà*, but he added that further investigations are necessary to prove it.
The Morales site is a living museum in the sea featuring cannon and shipwreck artifacts near a coral reef. Divers, like the one seen here, can view historical items in situ.

The Nuestra Sedonia Begoña was a Spanish ship owned by the governor of the Canary Islands, a Spanish archipelago located off the coast of northwest Africa. It was en route from Venezuela to Puerto Rico when it encountered a violent storm. The captain diverted the ship to Santo Domingo, where he chose to wreck the sinking vessel a short distance from the beach so that he and his passengers could make their way to the shore.

The Begoña was carrying contraband coins and other treasure. John Foster, an IU archaeologist who codirected the field school, surmised the governor was trying to avoid paying taxes on this cargo to the Spanish Crown. "What we're doing here is looking at the issue of contraband on an 18th-century merchant ship," Foster said, adding that there's not much information in the literature about this topic.

The evidence suggests the wreck is about 600 feet off shore in shallow water. The field school divers are excavating an area roughly 200 feet from the shore, where, during previous field schools, they've recovered many of the artifacts. Some of the items are "precious artifacts," Beeker said, such as a crushed gold cup, 85 pounds of silver dinnerware, and Spanish coins. They've also found the bottom of a wood treasure chest. Eventually the divers will work their way to the Begoña's presumed location.

Beeker is a big man with a no-nonsense demeanor. As he barked out orders, his crew snapped into action. He spent a considerable amount of time, movie-director-like, observing the divers from the comfort of a wood and rattan rocking chair with "Charlie" painted on the back. Though they were submerged in shallow water, he identified the divers' locations by the bubbles they produced on the surface and, knowing the underwater site as he does, their locations told him if they were following his directions.

After giving them instructions on shore, Beeker dispatched small teams of divers armed with proton magnetometers, which detect anomalies in the earth's magnetic field, metal detectors, and a dredge into the water. When the divers get an indication of a metal object buried beneath the sea floor, the dredge is used to remove the sand by suction and reveal the object. The dredge, which operates like a powerful vacuum hose, "wants to dig a hole to China," Foster observed.

Though underwater archaeology employs the same principles and methods as its terrestrial brethren, it is in some ways fundamentally different and vastly more complicated. Take basic communication, for example. When submerged, divers can't speak to each other; so gesturing serves as their lingua franca; that, or writing on a waterproof slate.

Beeker has addressed this problem by outfitting his divers with full facemask communication systems that cover the eyes, nose, and mouth so they can speak. However, to speak underwater is one thing, to be heard, quite another. To achieve the latter, words are transmitted through a
microphone in the facemask and then converted into sonar, a signal that is easily transmitted underwater. The signal is then reconverted by a transducer into words when received by another diver or crewmembers on shore.

Depending on the depth they’re working at, the divers can only stay down for certain lengths of time or they risk decompression sickness, known as the bends, due to the absorption of nitrogen in their body tissue. Therefore they wear wrist watch-like computers that monitor vital information such as their time in the water, the depth throughout the dive, and nitrogen absorption. The devices also indicate when they need to surface. “Every five seconds it will take a reading and log it,” said Jessica Keller, a master’s student at IU.

While terrestrial sites are carefully mapped, there’s less emphasis on mapping submerged sites, according to Keller, because the topography can change from one day to the next due to the current or severe weather. “This is a dynamic environment,” she said. Hurricane Sandy passed by in late October, rearranging the location of the cannon, among other things. “The hurricane moved a 2,000-pound object,” said Keller.

The artifacts recovered from the sea, even those that are well preserved, require timely conservation. These items are extremely fragile because of being saturated with salt, which has to be removed. Depending on what the artifacts are made of, other conservation measures also have to be taken soon. Failing that, metal artifacts will quickly corrode when exposed to air, and organic materials such as wood, leather, and textiles can degrade within hours.

During the field school the researchers recovered a bronze short sword hilt, a Spanish coin, silver or pewter dinnerware, and pottery sherds made by the Taino, the pre-Columbian inhabitants of the region. They also found a large concretion weighing roughly 50 pounds that includes a cup or chalice, pottery sherds, and what could be a large bead. (Concretions form when sand grains, coral, shell particles, and marine plants build up on submerged objects, frequently encasing them.) Other concretions appear to contain cannon balls, deck nails, and a rigging hook.

Unfortunately, the researchers aren’t the only ones making discoveries. The divers shared the cove with residents who swim and fish there. A fisherman in a small boat, known as a yoilo, nearly struck one of the divers as he rowed to shore. Come the weekend “there will be 150 kids” here, Becker said, and they constitute another breed of treasure hunters who threaten the artifacts. Several armed guards, courtesy of the country’s Ministry of the Environment, patrol the park. Nonetheless, according to Becker, “the locals have scoured this beach and they’ve found all kinds of coins.”

To eradicate treasure hunting, Becker has struck a different deal with the Dominican Republic’s government. “We’re the only ones who have come to the country and said, ‘We don’t want a 50-50 split. It all belongs to the government,’” he said.

“Treasure hunting is allowed everywhere else, but not here,” or in the country’s other national parks, Foster said. “Treasure hunting is a losing proposition,” he continued, “because it involves digging up and taking everything away. It’s good at the time, but it’s unsustainable, and eventually it will be completely gone.” Becker hopes to hasten its demise by turning wrecks into underwater museums.

For years people who value shipwrecks for their historical importance have raised them with the intention of preserving and displaying them in museums. Turning that concept on its head, Becker and other preservationists have
concluded it's better to bring the museum to the shipwreck than the reverse.

The idea, though novel, is not new. According to Jim Delgado, the director of maritime heritage for the National Oceanic and Atmospheric Administration's National Marine Sanctuaries Program, it dates back to the 1970s. NOAA, along with other federal agencies such as the National Park Service, have embraced it. "We see the ocean and seas as a great museum," Delgado said, noting that NOAA has established 14 national marine sanctuaries that are "big museums in the sea with thousands of shipwrecks."

Beeker's personal experience with underwater museums goes back to 1989, when he played a key role in establishing the San Pedro Underwater Archaeological Preserve State Park in the Florida Keys. The preserve is named after the San Pedro, a Spanish galleon that sank in a hurricane in 1733. As a result of treasure hunting that began in the 1960s, nothing but a scattered pile of ballast stones remained on the surface of the site, so Beeker assisted the State of Florida Bureau of Archaeological Research by leading a team that reconstructed the wreck site.

The preserve, which is 18 feet underwater and can be seen by snorkelers as well as divers, features an information plaque, seven replica cannons, an anchor, and buoys for mooring boats. Beeker helped establish a number of other underwater preserves in Florida and California as well as three living museums in the sea, as they're called, in the Dominican Republic. Divers and snorkelers visiting these sites are admonished to "take only photos, leave only bubbles."

One of these museums contains the remains of the Cara Merchant, the ship that the infamous Captain Kidd commandeered and then abandoned in 1699 as he traveled to New York in hopes of acquiring himself of piracy charges. When Beeker identified the wreck as the Cara in 2008, the discovery received international press coverage and was the subject of a National Geographic Society documentary. He and Foster are working on several other wreck sites that they intend to convert into underwater museums. "They're doing a very good job for my country," said Francis Soto, the technical director of the Dominican Republic's Office of Underwater Patrimony in the Ministry of Culture.

A Colombian naval officer visited La Caleta to discuss the underwater museum concept with Beeker, who had earlier met with representatives of Haiti. "I've got a calculated plan," Beeker said, that being to establish museums in the sea throughout the Caribbean. Though it might seem curious that he's trying to gain a toehold in Colombia via a naval officer rather than, say, a cultural or environmental minister, Beeker has concluded who better than the navy to enforce underwater preservation laws.

His concept of preservation extends beyond the wreck...
itself to the ecosystem that has, over the years, sprung up on and around the vessel. "We're making an archaeological project an environmental project," said Becker. "We have a holistic view of the resource." At first some archaeologists, who intuitively understood the importance of preserving shipwrecks, were slow to grasp the point of preserving the associated ecosystems, according to Becker. But over the years they've become more agreeable to his approach.

"I think it's a wonderful project," David Conlin said of Becker and Foster's work in the Dominican Republic. Conlin, the chief of the National Park Service's Submerged Resources Center, noted that the museums of the sea provide a method for preserving the shipwrecks without burdening the Dominican Republic government with the huge expense of raising and conserving them on land, an option he compared to adopting a St. Bernard puppy: "It sounds like a good idea at first, but then it eats you out of house and home."

That said, he, like Delgado, allowed that there are circumstances in which raising a shipwreck is preferable to leaving it in situ. The historical significance of some vessels is so great that they merit the effort and expense of being raised for study. In other cases a shipwreck needs to be raised because it's degrading. "We found that with the Monitor," Delgado said, referring to the USS Monitor, the famed ironclad battleship employed by the Union during the Civil War. The Monitor sank in 1862 off the coast of North Carolina, and, because the wreck was losing its integrity, parts of it were raised in the late 1990s and early 2000s.

There are also those situations in which "you can't count on people's good behavior to preserve the wreck," said Delgado. Though most visitors to underwater museums do behave, the National Park Service no longer allows diving at one of its sites, the HMS Fowey at Biscayne National Park in Florida, because of past looting.

But before beginning projects in other Caribbean nations, Becker still has plenty of unfinished business in the Dominican Republic. He and Foster plan to return there this summer to continue their search for one of Columbus' ships. In his second voyage to the New World, Columbus, intent on colonization, came with 17 ships, and he established La Isabela, the first European settlement in the New World, in 1494. At least six of those ships sank. "We found an anchor that may well be from one of Columbus' ships," said Foster. "People have been looking for a Columbus shipwreck for over 100 years. If we found one it would be quite an accomplishment."

They've also completed proton magnetometer and metal detecting surveys and found a number of anomalies, the locations of which match the places where, according to historical accounts, the ships sank. They've excavated four times at La Isabela, which is an unusually difficult site because the sea floor consists of a gelatinous mud that is very difficult for dredges to remove. (National Geographic also did a documentary on Becker's research on this project.) The surveys indicate the anomalies are about 12 feet under the seafloor and, because of the mud, they've only been able to penetrate to roughly half of that depth. But this summer they'll come armed with more powerful dredges that they hope will be equal to the challenge.

As for the Begoña site, once they definitely locate the shipwreck, Becker and Foster plan to make the site an underwater museum. The Dominican Republic, in Becker's estimation, could
As they enter the water, the divers encounter several local people swimming. Many of the artifacts recovered from the Begoña are very valuable, so the divers conceal them in waterproof containers when bringing them to shore. The divers take this precaution because some of the locals have taken Spanish coins from the site.

become a diving destination that rivals the Cayman Islands, and he's puzzled as to why it hasn't. He envisions motorboats moored nearby that could take groups of divers out to sea, some of whom would visit the Begoña, but the only boats at La Caleta are a handful of small, uncomfortable yolas, rowboats that can accommodate a couple of people.

There's a dive shop of sorts, but to Beeker it's a symbol of frustration. It was built with U.S. money with the idea of also serving as an interpretative center for the national park; but all the money's spent, the building lacks a roof, and its exterior walls are covered with several Taino-themed murals that portray some mythical scenes from the past. He dismissed them as "Taino on steroids."

Furthermore, the partial remains of several ancient Taino can be seen in the building's courtyard. "It's just pathetic," he said of the building and the exposed remains. "We've sent e-mails. We've talked. But the problem is nobody's really in charge. This government is not organized nor funded well enough to support their national park system."

Dealing with the country's political system can be challenging, in part because some of the government ministries he's involved with don't work together well. Beeker has managed to get the ministries of environment, culture, and tourism to join forces, which he counts as a major accomplishment.

"A lot of people don't want us to be successful," he said. The local fishermen, for example, complain that the underwater museums, which prohibit fishing, interfere with their livelihoods. And then there are the treasure hunters who must realize Beeker and his allies could put them out of business.

One of the treasure hunters tried to get a permit to excavate the Begoña, even though the site is considered to be part of a national park, but the government awarded the permit to Beeker. Things are different in the Dominican Republic than they were 20 years ago, Francis Soto said. The treasure hunters are only interested in gold and silver, but he and other officials are now more interested in protecting and promoting their country's maritime cultural heritage.

After a day's work at the Begoña site, the IU crew dined al fresco at a restaurant in Santo Domingo's Zona Colonial district. Beeker, sitting at the head of a long table, sipped a margarita, puffed on a Dominican Republic cigar (he thinks they're better than Cubans), and spoke of the difficulty and expense of excavating at La Isabela. Nonetheless, he's confident they will at some point find a Columbus' shipwreck, and that will result in another living museum in the sea.

Fighting the treasure hunters is a never-ending battle, but there are indications that, at least in this part of the world, the Charlie Beekers are winning.

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