

# DIVERS TRY TO SAVE TREASURES OF CADIZ

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OVER the centuries ships of every description sailed into the Spanish harbor of Cadiz, on the Atlantic west of Gibraltar. Phoenicians came from the Levant long ago, and then there were Greeks and Romans, Vikings and Venetians. In the Age of Discovery, this was the bustling home port for the Spanish caravels that found new worlds and the galleons that brought back the new-found riches.

Not all the ships that arrived at Cadiz ever sailed out again. Many foundered on shoals or, for other reasons, were abandoned and sunk. Some were victims of marauding fleets. Several thousand ships went to the bottom in the Bay of Cadiz, settling into muddy graves, and the mud has preserved these shipwrecks as an important archeological treasure. But little has been done to recover any of these shipwrecks, and archeologists are growing increasingly concerned that this invaluable underwater archive will soon be destroyed by dredging and landfill operations associated with the expansion of the modern port of Cadiz.

Archeologists are applying pressure on the Government of Spain to set aside at least part of the harbor as a historical preserve and to grant permission for a systematic survey of the shipwrecks and the recovery of those deemed most revealing of shipbuilding technology through the ages.

At the annual meeting of the Society of Historical Archeology in Boston last week, the Advisory Council of Underwater Archeology adopted a resolution calling the preserved shipwrecks at Cadiz "important to the cultural heritage not only of Spain but also to the cultural heritage of the whole world." The resolution, which is to be presented to King Juan Carlos, noted that the preservation of almost complete hulls of ships "from every historic period" makes the site "virtually unique in the world."

J. Barto Arnold 3d, chairman of the council, which is a group of leaders in nautical archeology, said that political and jurisdictional conflicts between Spain's Federal Government and the provincial government of Andalucia had so far frustrated efforts to protect and study the shipwrecks. "They don't seem to realize the problem and opportunity they have," said Mr. Arnold, a marine archeologist with the Texas Antiquities Committee in Austin.

Recent archeological finds suggest that the port of Cadiz was being used at least as far back as 2000 B.C. Documents in the archives at Seville and Cadiz contain reports of more than 2,500 old shipwrecks. In the 16th century alone, when trade with the Americas brought new prominence to Cadiz, more than 600 ships are known to have sunk in the area.

Nature as much as history accounts for the rare treasure at Cadiz. Most shipwrecks of historical interest elsewhere came to rest on sandy or rocky bottoms, where the timbers of the hull and masts rotted to nothingness. Divers find the metal fittings, anchors and cannon and also the ceramic, glass and metal cargoes. Seldom do they recover remains of the wooden hulls that could give archeologists insights into shipbuilding techniques through time.

## **Vital Mud Coating**

At Cadiz, however, the ships usually sank into mud and were quickly covered over with anaerobic sediments. The mud coating, that is, sealed off the ship from oxygen. Without oxygen, there were no worms and microorganisms to consume the timbers.

According to Robert F. Marx, an independent nautical archeologist, recent dredging has uncovered parts of the hull of a Roman ship and some timbers from a 17th-century ship that "looked like they were cut yesterday."

Mr. Marx, who lives in Satellite Beach, Fla., is a diver who specializes in ancient shipwrecks. He has been seeking permission to explore Cadiz harbor and was a prime mover behind the council's resolution.

One modest effort is under way to search the Cadiz waters for remains of Spanish caravels, the three-masted ships that Columbus and other explorers sailed to the New World. These were the first sailing vessels to cross the oceans regularly and return with the news of their discoveries.

As important as caravels were in the course of history, Roger C. Smith, a nautical archeologist at Texas A&M University, said, "We know more about Greek and Roman ships than these 15th- and 16th-century Spanish and Portuguese ships of discovery."

None of the caravels used by Columbus and his contemporaries has ever been recovered. Descriptions and replicas are based on written documents and drawings, which, archeologists complain, are short on detail of their structure and construction.

Under an arrangement with Spanish archeologists, Denise Lakey and her husband, Joseph Simmons, both archeologists at Texas A&M, have combed archives for accounts of where caravels may have sunk in the Bay of Cadiz. Soon they expect to try to locate promising shipwrecks, using magnetometers to pick up traces of cannon, anchors and other metal remains.

## **Time Is Running Out**

Other archeologists would like to see a more comprehensive program undertaken to investigate the Cadiz shipwrecks - before it is too late.

Mr. Marx, for example, has raised money and organized a company that is prepared to locate and recover shipwrecks representative of seafaring capabilities as far back as 3,000 to 4,000 years. He emphasized that the company, Phoenician Explorations Limited, was not a treasure-seeking enterprise but the creation of 40 wealthy people, mostly Canadians, "who are very interested in history and underwater archeology."

Although he said his "main objective is to save what is left of Cadiz before it is destroyed," Mr. Marx conceded that his particular "dream" is to find a Phoenician merchant ship in such a state of preservation that he would be able to build an authentic replica and sail it across the Atlantic. In 1962, he sailed a likeness of Columbus's Nina from Spain to America.

From his research, Mr. Marx said, he concluded that Phoenicians were probably sailing into Cadiz as early as 1000 B.C. and may have even crossed the Atlantic from there in antiquity. In a survey of the

coast between Algeciras and Huelva, Mr. Marx said he had located the wrecks of at least four old Phoenician ships.

Many Phoenician shipwrecks have been found off the coasts of Lebanon and Israel, but in all cases only the cargoes of the ships remained. The sea floor there was rocky and sandy - not anaerobic mud. Maritime historians thus have little knowledge of how these far-ranging ships were constructed and rigged.

According to Mr. Marx, his planned operation has obtained the cooperation of officials at the Archeological Museum of Cadiz and would use Spanish divers and workers. Among the consultants to the project are Harold Edgerton of the Massachusetts Institute of Technology, an inventor of underwater cameras who has had experience on numerous diving expeditions; Lionel Casson of New York University, an authority on ancient seafaring and ship construction, and Elisha Linder of the University of Haifa, Israel, who is a pioneer in nautical archeology.

"It is now estimated that 50 percent of the areas containing old shipwrecks in the Cadiz area have been obliterated by the dredges," Mr. Marx said. "At the rate that Cadiz is growing as one of Europe's most important seaports, it is only a matter of a few decades before all of the remaining untouched portions of Cadiz Bay will also be dredged and the rest of the shipwreck sites destroyed forever."